Wholesale mobile voice call termination

Statement

Non Confidential version

✂ indicates passages that have been redacted

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Contents

Section 1

Executive summary

1.1 Wholesale mobile voice call termination (MCT) is the service necessary for a network operator to connect a caller with the intended recipient of a call on a different mobile network.

1.2 When fixed and mobile operators offer their customers the ability to call UK mobile numbers, they pay mobile communications providers a wholesale charge to complete those calls. The rates that operators pay are called MCT charges or more commonly 'mobile termination rates' (MTRs).

1.3 On 31 March 2011, the rules which currently apply to MCT, and which limit MTRs, will expire. We have conducted a market review to consider what rules, if any, should apply after that time.

1.4 This statement sets out the conclusions of this review, including our conclusions on market definition, the existence of significant market power (SMP), the detriments likely to arise from the exercise of that SMP and the remedies which should be imposed. In particular we set new rules which limit the MTRs of the four national mobile communication providers (MCPs), and limit all other designated MCPs to "fair and reasonable"
rates.
[1] In most cases, the outcome will be a single wholesale charge for MCPs on different networks, falling sharply each year.[2] This simpler regime will benefit consumers by promoting competition, and make it easier for operators to comply. The new rules will apply from 1 April 2011 and end on 31 March 2015.

1.5 In our first consultation (published on 20 May 2009), we sought views on different approaches to regulating MTRs, including potentially radical reforms such as removing all rules on call termination or requiring that MCT be priced at zero (termed 'bill and keep'). We set out six options, and asked for comments on these options, or any other option that stakeholders thought we ought to consider.

1.6 At the same time the European Commission (EC) issued a Recommendation that fixed and mobile termination rates be limited to the incremental costs of providing call termination to other communications providers (the 2009 EC Recommendation).

1.7 We received 30 responses to our May 2009 consultation, from a range of organisations and individuals. Most industry stakeholders, including all of the national MCPs, major MVNOs, BT and other fixed operators, agreed that regulation of MCT was still required and that some form of charge control was likely to be the most appropriate way to regulate charges over the next four years.

1.8 Although we had canvassed six options, in fact, almost all respondents supported one of only two choices for the period covered in this market review (that is, to 2015). The first, "LRIC+", involves setting charges using a similar method to that used in 2007 and previous charge controls (which includes a mark-up for joint and common

[1] The four national MCPs are H3G, Everything Everywhere, O2 and Vodafone.
[2] See section 6 for detail on the SMP conditions to be applied to different MCPs.

costs, such as the cost of the spectrum used by the network).[3] The second, "pure LRIC" involves setting charges using the method set out in the EC Recommendation.[4] Some respondents, including Vodafone, O2, T-Mobile and Orange supported LRIC+, mostly on the grounds that (in their submission) it allocates costs efficiently, allows full cost recovery and is a well understood and proven approach. Others, including BT and H3G, supported pure LRIC citing its role in providing more incentives for innovation and efficiency, and an overall gain in welfare. 'Terminate the Rate' (a group of operators and representative bodies, including BT and H3G, campaigning for lower rates) also preferred this approach.

1.9 In our second consultation (published on 1 April 2010) we explained why, having considered the options, and in light of the responses received we thought that capping MTRs, based on some measure of cost, would lead to better outcomes for consumers than alternative approaches. We proposed that we cap MTRs based on the incremental cost of terminating a call (i.e. pure LRIC) and set maximum charges reaching a level set to pure LRIC over four years.

1.10 This proposal was a change from previous MCT charge controls, under which MTRs have been set using LRIC+. The change in the way we assess cost makes a significant difference to the expected flows of funds between interconnecting providers: on the basis of charges set using pure LRIC, MTRs would, by 2015, be less than half of the charges calculated on a LRIC+ basis. We considered that adopting pure LRIC would be more likely to promote efficiency, sustainable competition and would confer the greatest possible benefit on consumers.

1.11 We received a significant amount of material in response to our April 2010 consultation. We received responses from the four national MCPs, as well as BT, COLT, Cable & Wireless, Asda, Tesco, Virgin Mobile and Lycamobile. We also received responses from 13 smaller CPs, seven trade and consumer groups, and from 'Terminate The Rate' (over 44,000 emails). We also received letters from 43 MPs, who have lodged an early day motion in support of Terminate The Rate's position.[5] We also received feedback from the European Commission.

1.12 As well as taking into account the submissions made in response to our consultation, we have obtained information and documents (using our statutory powers) from a wide range of affected fixed and mobile communications providers. We have carefully considered this material, which includes commercially confidential data concerning customer spending patterns and behaviour, and forward-looking business plans and information about network volumes and traffic from all four national MCPs.

[3] LRIC+ includes an allocation for the fixed and common costs so that the service in question – e.g. MCT – contributes to common cost recovery.

[4] Long-run incremental cost (LRIC) is a method of understanding the incremental cost to an operator for providing a service, compared with not providing that service. Pure LRIC is not exactly the same as marginal cost, but for regulatory price-setting purposes, pure LRIC is a better approximation of the economic concept of marginal cost. In network industries (such as telecoms) the marginal cost of a service may be very low or very high depending on whether usage is a long way from, or effectively at, installed capacity. This leads to very low (or zero) marginal cost most of the time, but with short increments over which marginal cost is very high. In regulatory practice, long-run incremental cost has therefore been applied as a proxy, avoiding the volatility implied in setting prices on the basis of marginal cost. Pure LRIC measures service specific fixed and variable costs that arise in the long-run from the increment of output in question (in this case, all terminated minutes provided to other CPs).

[5] Terminate the Rate campaign submitted that a pure LRIC approach to setting MTRs will deliver greater competition and benefits to consumers, but that this should be done over a shorter period than we have proposed.

1.13 In this statement, we set out our decision to adopt a charge control for the four national MCPs based on pure LRIC. In deciding to adopt pure LRIC, we have taken the approach we consider will best:

1.13.1 promote efficiency;

1.13.2 promote sustainable competition in the retail mobile market in the UK; and

1.13.3 confer the greatest possible benefits on end-users of public electronic communication services.

In doing so, we also consider whether this approach is objectively justifiable and proportionate.[6] Finally our decision to adopt pure LRIC is consistent with the 2009 EC Recommendation.

Conclusions

1.14 Our decision is set out in this statement (which comprises sections 1 to 10 of the main document and all of the material set out in the annexes). This statement constitutes our impact assessment. In this statement we:

1.14.1 Define a market for call termination on each of 32 'individual mobile networks'. Each market is identified for a relevant MCP as the provision of services to other communications providers for the termination of voice call to UK mobile numbers which that MCP has been allocated by Ofcom, in the area served by that MCP, and for which the MCP is able to set the MTR.

1.14.2 Designate each of those 32 MCPs as having significant market power (SMP) with respect to the termination of calls to that network (i.e. within their allocated number ranges).

1.14.3 Require all 32 MCPs to provide MCT on fair and reasonable terms, to publish their MTRs, and to give 28 days notice of changes to their MTRs.

1.14.4 Require the four national MCPs not to unduly discriminate in relation to the provision of MCT.

1.14.5 Limit MTRs for all four national MCPs so that the maximum permitted charge for MCT reaches pure LRIC by 1 April 2014. The MTR cap will be set on a four-year glide path and aims to limit disruptive price-setting flexibility ('flip-flopping') by setting a simple cap with a single maximum charge in each year after a two-month transition period. Other designated MCPs will be required to offer MCT at fair and reasonable charges.

1.14.6 This approach will lead to MTRs falling from around 4.18ppm in 2010/11 to 0.69ppm by 1 April 2014 (in 2008/9 prices). The major factors behind this decline are:

- expected falls in the cost of network equipment, as 3G technology becomes more established; and
- the removal, as a result of moving to pure LRIC, of the contribution by MCT charges to the joint and common costs of the network. (The

[6] Section 2 has more information on the regulatory regime and our general and specific duties.

equivalent calculation for LRIC+ would see a maximum average charge of 1.61ppm by 1 April 2014 in 2008/09 prices).

Table 1.1 - Proposed MTRs (pence per minute - 2008/09 prices)

	2010/11	20011/12	2012/13	20013/14	2014/15
Vodafone / O2 / Everything Everywhere[7]	4.180	2.664	1.698	1.083	0.690
H3G[8]	4.480	2.664	1.698	1.083	0.690
Other designated mobile communications providers	Set on the basis of being fair and reasonable				

[7] 2G/3G MCPs
[8] 3G-only MCP

Section 2

Introduction and context to this market review

Structure of the document

2.1 This statement, which constitutes our impact assessment, consists of sections 1 to 10 of the main document and all of the material set out in the annexes. The main document has three parts:

2.1.1 *Part 1 – Summary and overview*: section 1 and this section 2 together provide an executive summary and the commercial, regulatory and legal context to the regulation of mobile call termination (MCT).

2.1.2 *Part 2 - The relevant market and the case for intervention*: in sections 3, 4 and 5 we define the market(s) for wholesale MCT and determine whether any person in this market(s) has significant market power (SMP). We also consider the harm to consumers that arises in markets where competition does not work effectively (i.e. where one or more providers have SMP).

2.1.3 *Part 3 – Selecting and implementing a remedy*: in sections 6 to 10 we consider and determine the remedies we are imposing, given our finding on SMP. This includes setting out how we have calculated future MTRs using pure LRIC.

2.2 A series of annexes support the analysis in the main body of the document and are an integral part of our reasoning. The annexes are as follows:

2.2.1 Annex 1 is the notification we are issuing, setting various SMP conditions;

2.2.2 Annex 2 presents our glossary;

2.2.3 Annex 3 develops in detail the economic arguments (set out in section 8) supporting our choice to choose pure LRIC as the relevant cost standard for the charge control;

2.2.4 Annex 4 describes the detailed commercial data we have received from the stakeholders and that we use as an input into our economic analysis;

2.2.5 Annex 5 reviews the survey evidence we have received from some stakeholders in response to our April 2010 consultation;

2.2.6 Annex 6 to 10 discuss in detail our cost model and our response to the submissions we have received from stakeholders in response to our publication of the draft cost model in April 2010;

2.2.7 Annex 11 presents our Equality Impact Assessment; and

2.2.8 Annex 12 lists the main sources of evidence we have relied on in this Statement.

Commercial context

UK mobile sector overview

2.3 As discussed in our *Consumer Experience Report,*[9] take-up of mobile services continues to grow, and has now reached about 91% of the total population. The proportion of households with access to a mobile phone (94%) has already overtaken the proportion of households with a fixed line (84%). Since 2004 the growth in mobile voice has more than offset the decline in fixed voice volumes.[10]

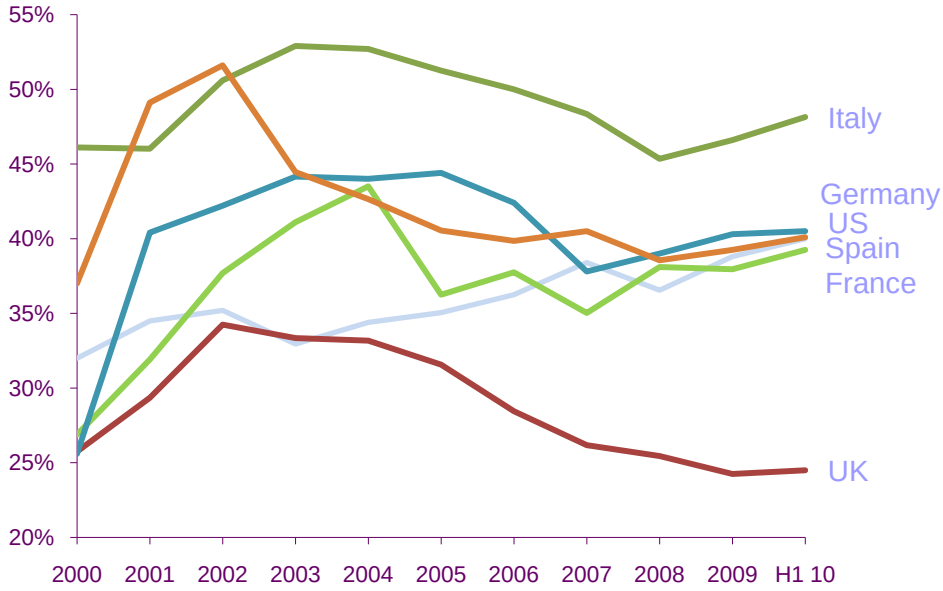
2.4 The cost of a basket of mobile voice and text services in 2009 was less than half than it would have been four years previously in 2005.[11] Since consumers have tended to increase their use as the real cost falls, this does not indicate a reduction in average consumer spending, but it does show increasing value for money over the period and indicates that consumer prices are falling.

2.5 Profitability since 2000 has been consistently lower in the UK than in Western Europe and the US. We do not observe super-normal profits being earned by any of the national mobile communications providers (MCP), which is consistent with the hypothesis that the retail market is competitive.

2.6 In Figure 2.1, we show the EBITDA (earnings before interest, depreciation and amortisation) margins for the top two MCPs in the UK, four other EU countries and the US. In the UK margins have ranged from 20% to 35%, whereas margins have ranged from 25% to 50% in the EU countries and the US.[12]

[9] http://stakeholders.ofcom.org.uk/binaries/research/consumer-experience/tce-10/consumer-esperience-10.pdf.
[10] See Figure 5.32 of the UK Communications Market Report 2010 at http://www.ofcom.org.uk/static/cmr-10/UKCM-5.32.html.
[11] We analyse the cost of a basket of telecoms services as a means of comparing costs over time. This analysis derives the 'real cost' to the consumer by calculating the average price per minute for access and calls (and price per text message for mobile) in a year, and then defining the basket as the average number of minutes (and messages) used in 2009. Costs are then adjusted for changes in the retail prices index (RPI) in order to provide a year-on-year comparison. This research is published annually in our *Communications Market* review (see Figure 5.73 of the UK Communications Market Report 2010 at http://www.ofcom.org.uk/static/cmr-10/UKCM-5.75.html).
[12] Note that EBITDA margins provide a high level view of profitability that is easily comparable between different operators in different countries. Because this measure of profitability is made before taking account of depreciation and amortisation, there is limited scope for different accounting policies relating to goodwill or licences to affect operating results. This is particularly important when comparing mobile operator profitability across countries, where different accounting treatments may prevail.

Figure 2.1: EBITDA margins - Top two mobile operators - US & Europe



Source: Published financial results

2.7 Prior to September 2009, there were five undertakings licensed to operate 2G or 3G mobile networks in variously allocated spectrum in the 900MHz (2G), 1800MHz (2G) and 2100MHz (3G) bands (H3G, Orange, O2, T-Mobile and Vodafone).

2.8 In September 2009 Deutsche Telekom and France Telecom announced their intention to merge their UK MCPs, T-Mobile UK and Orange UK. On 1 March 2010, the merging parties received regulatory approval from the European Commission for the proposed merger. This merger has now reduced the number of national MCPs in the UK from five to four.

Mobile call termination rates - introduction

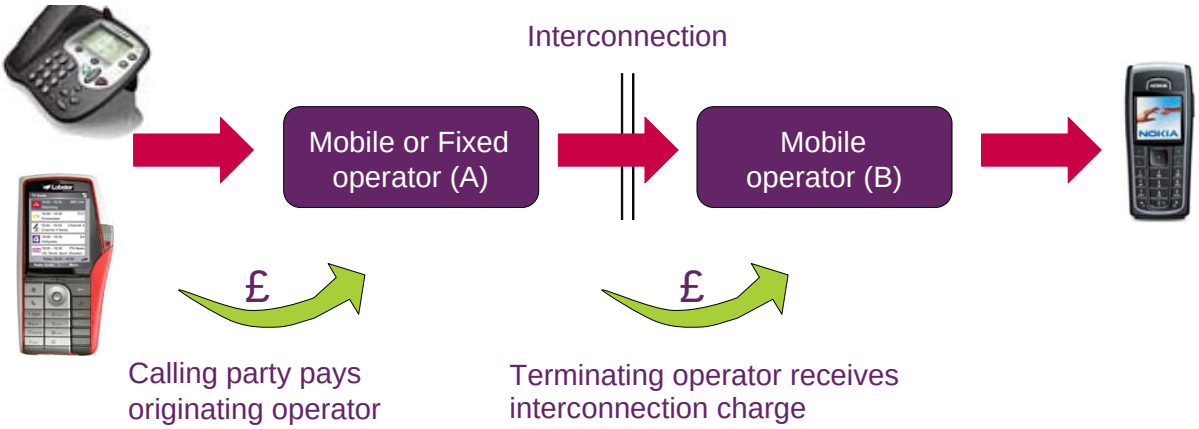
2.9 In order for customers of different networks to be able to call each other, telecommunications networks, including mobile networks, need to be connected to one another. One long-standing role of telecommunications regulators across the world has been to help ensure adequate interconnection of telecommunications networks. Without regulation, larger networks might seek to refuse interconnection to smaller networks, and thereby undermine competition – since smaller networks could not offer an attractive service to new customers. This reflects the feature of communications networks that the more people you can reach and be reached by on a network, the more valuable its service is likely to be to you.[13]

2.10 In practice, UK network operators conclude bilateral commercial interconnection agreements, setting out the terms and conditions on which they will interconnect – with Ofcom resolving disputes concerning those agreements if either party asks it to do so.

[13] A variety of information is available about interconnection in various markets (see, for example, the case studies set out at http://www.itu.int/osg/spu/ni/fmi/casestudies/).

2.11 One of the services that network operators offering voice services provide to each other is call termination – that is, the completion of a call from a customer of another network. MCT is the service provided by a mobile communications provider (MCP) necessary for an originating communications provider (OCP) to connect a caller with the intended mobile call recipient on that MCP's network. Under current interconnection practices, as shown in Figure 2.2, the OCP pays an amount (known as the mobile termination rate or MTR) to the MCP providing the service.[14]

Figure 2.2 - Mobile termination and calling party pay



2.12 When considering the competitive characteristics of call termination under this arrangement (sometimes termed a calling network provider pays (CNPP) system), most regulators across the world have concluded that each operator is able to set a charge for connecting calls to its own customers without any significant competitive constraint.[15] That is, in terms of the EC Framework, each operator has significant market power (SMP) with respect to call termination.

2.13 Given this, operators may have an incentive to set the charges as high as possible. This is broadly consistent with the observed behaviour of operators. Therefore, many regulators, including Ofcom, have regulated fixed and mobile termination rates, typically basing them on cost-related rates.

Previous market reviews

2.14 The previous regime for MCT regulation was set on 27 March 2007. In that decision (the 2007 MCT Statement) we found that all five then-operating national MCPs possessed SMP in relation to calls to their own customers, and we set a charge control capping MTRs for each operator at rates based on LRIC+.[16]

2.15 The charges reflected differences in the underlying costs for different mobile technologies using different spectrum bands. As a result, the same charge was set for the 2G/3G national MCPs, based on the costs of a hypothetical average efficient

[14] This charge is referred to as a *wholesale* charge because it is charged and paid between network operators, rather than by retail customers.
[15] Unless there is countervailing buyer power, i.e. when the purchaser is able to influence the price charged by the seller.
[16] See http://www.ofcom.org.uk/consult/condocs/mobile_call_term/statement/

operator, with a higher charge for H3G, recognising the higher costs it faced as a 3G-only entrant.[17]

2.16 In May 2007, BT and H3G appealed Ofcom's 2007 MCT Statement to the Competition Appeal Tribunal (CAT). H3G's appeal related to Ofcom's determination that H3G had SMP and the level of the charge control. BT's appeal related to the level of the charge control only. H3G's appeal was dismissed. However, BT's appeal was upheld.

2.17 On 2 April 2009, the CAT remitted the matter back to Ofcom with a direction to Ofcom to revise the charge control in accordance with revised MTRs as determined by the Competition Commission (CC).[18] The CC determined that MTRs should be reduced to the pence per minute charges in real 2006/07 prices (original charges set in the 2007 MCT Statement are shown in brackets) set out below in Table 2.3.

Table 2.3 – MTRs determined by Competition Commission

	2007/08	2008/09	2009/10	2010/11
Vodafone & O2	5.2 (5.5)	4.7 (5.4)	4.4 (5.2)	4.0 (5.1)
T-Mobile & Orange	5.7 (6.0)	5.0 (5.7)	4.5 (5.4)	4.0 (5.1)
H3G	8.9 (8.9)	6.8 (7.5)	5.5 (6.7)	4.3 (5.9)

2.18 Following the CAT's judgment, on 2 April 2009 Ofcom published revised SMP conditions, such revisions took effect from 3 April 2009.[19]

2.19 The CAT's final judgment was appealed by T-Mobile, Vodafone, Orange and O2 to the Court of Appeal, with the appellants arguing that the CAT did not have the power to direct Ofcom to reset the charges for years 2007/8 and 2008/9 (the period that had elapsed during the course of the appeals). On 20 April 2010, the Court of Appeal upheld the appeal.[20]

MTRs elsewhere in Europe

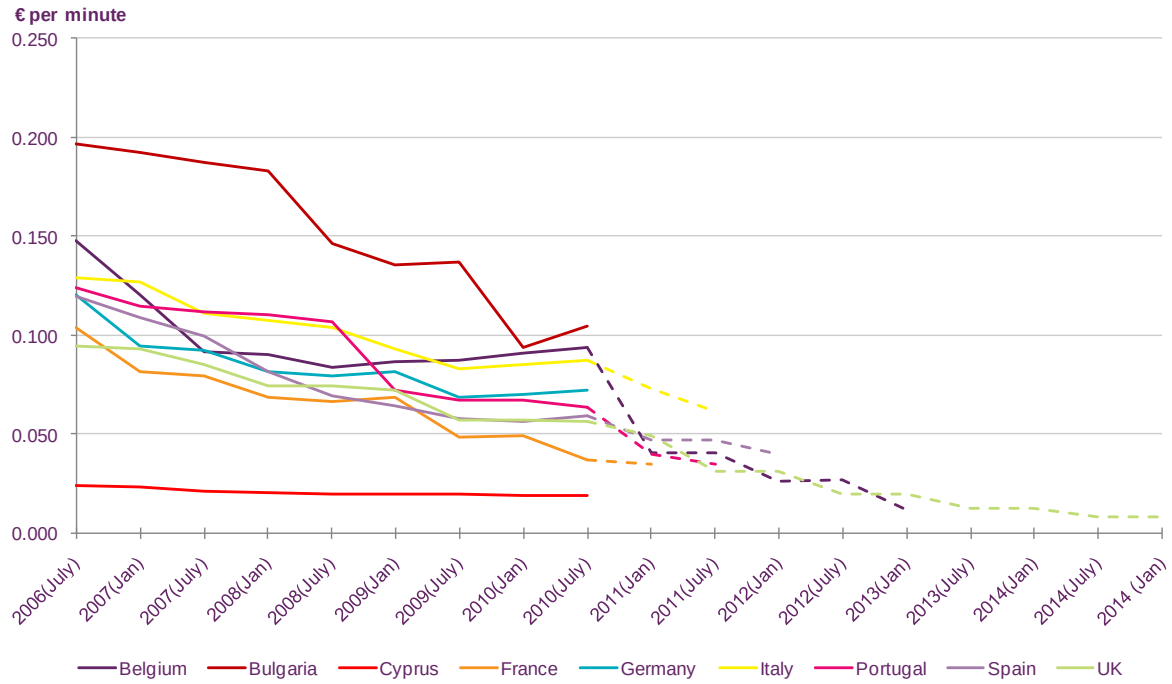
2.20 In May 2009 the EC published the 2009 EC Recommendation[21] in exercise of its harmonising powers under Article 19 of the Framework Directive,[22] and in light of the EC's consideration of a large number of market reviews by national regulatory authorities (NRAs). The 2009 EC Recommendation must be taken into account by all European NRAs. The EC recommends adopting pure LRIC, rather than LRIC+.

[17] Note however the consequences of the appeal by BT of these rates.
[18] Under section 193 of the Act, the CAT must refer to the CC for determination "price control matters" in any appeal. In deciding the appeal, the CAT must decide the price control matters in accordance with the CC's determination, unless the CAT decides that the CC's determination would fall to be set aside on the principles applying on an application for judicial review.
[19] See: http://www.ofcom.org.uk/consult/condocs/mobile_call_term/statement/CTMAmendment2009final.pdf for further detail.
[20] http://www.catribunal.org.uk/files/1083_1085_MCT_Court_Appeal_Order_20.04.10.pdf
[21] http://ec.europa.eu/information_society/policy/ecomm/doc/implementation_enforcement/article_7/recom_term_rates_en.pdf
[22] Directive 2002/21/EC.

2.21 The impact of such an approach would be to reduce MTRs currently in place across the EU, potentially by a significant amount.

2.22 European NRAs have been considering how to take account of the 2009 EC Recommendation in regulating MTRs. Currently, Belgium and the Netherlands are the only countries that have already proposed to set a charge control in accordance with the 2009 EC Recommendation, although a number of other NRAs have ongoing mobile termination market reviews and will propose new rates later this year.[23] Figure 2.3 summarises the historic MTRs and future MTRs in some other European member states. For comparison, the glide path to pure LRIC set out in this Statement is also shown.

Figure 2.3: Comparison of EU MTRs[24]



Preliminary consultation on future regulation

2.23 On 20 May 2009 we commenced this market review by publishing our preliminary consultation on wholesale mobile voice call termination (the May 2009 consultation).[25]

[23] Lithuania has proposed a charge control using pure LRIC, but using a longer glide path than in the EC recommendation. Portugal, in its most recent charge control, has stated that it will be moving to pure LRIC before 2013 (see www.anacom.pt/render.jsp?contentId=1005902).

[24] Historic MTRs are taken from the biannual ERG MTR survey (source: http://www.erg.eu.int/documents/docs/index_en.htm). Future MTRs (dotted lines) are estimates on the basis of other European operators published charge controls glide paths (Source: Belgium - www.bipt.be/en/383/ShowDoc/3222/Communications/Press_release___BIPT_proposes_to_lower_voice_call_.aspx France - www.wirelessfederation.com/news/13738-arcep-agrees-to-slash-mobile-termination-rates-france, Germany - www.interimreport.telekom.de/site0109/en/konzernlagebericht/gesamtwirtschaftliche-situation/index.php?page=11, Italy - www.telecomsitaly.com/2008/05/mobile-termination-rates-glide-path, Portugal - www.anacom.pt/render.jsp?contentId=1005902, Spain – www.ec.europa.eu/information_society/policy/ecomm/doc/implementation_enforcement/article_7/summary_decisions/es_2009_0937.pdf). All charges are shown in 2008/09 prices.

2.24 The focus of the May 2009 consultation was on whether to regulate prices and, if so, how. We did not, at that stage, consider what the regulated prices might be. The six options we considered were:

- *Deregulation* – removal of all termination regulation from mobile operators (or, perhaps, from all fixed and mobile operators).
- *Long-run incremental cost + (LRIC+)* – MTRs set broadly on the basis of the same cost standard that applies today.
- *Long-run marginal cost (pure LRIC)* - revised charge-setting method with no allowance for recovery of common costs, broadly the approach recommended by the EC.
- *Capacity-based charges (CBC)* – a different approach to setting the structure of MTRs, based on the capacity required for termination.
- *Mandated reciprocity* – set MTRs to match FTRs.
- *Mandated 'bill and keep' (B&K)* – MTRs effectively set at zero.

2.25 In the May 2009 consultation, we asked:

2.25.1 Should our approach to regulating MTRs change? For example, given the possible benefits, should we reduce termination rates as far and fast as we reasonably could, within the boundaries of sound economic policy, while recognising underlying cost differences? If our approach did change, what were the relevant factors for us to consider in deciding on the best future policy for regulating MCT?

2.25.2 Were there additional options (other than the six set out in that consultation) that we should consider? If so, what are they and what advantages/disadvantages did they offer?

2.25.3 Was there agreement with our preliminary views set out for each of the options? If not, what additional factors should we take into consideration, and why were they relevant to our analysis?

Stakeholder responses to the preliminary consultation

2.26 We received 30 responses to the May 2009 consultation, from a range of organisations and individuals. Most industry stakeholders, including all of the national MCPs, major MVNOs, BT and other fixed operators, agreed that regulation of MCT was still required and that some form of charge control was likely to be the most appropriate way to regulate charges over the next four years.

2.27 Most stakeholders agreed with our preliminary assessment of market definition and SMP. Some stakeholders (O2, T-Mobile and C&W) argued that market definition (and in particular our SMP finding and likely remedy) should apply to all providers of call termination (i.e. including all the new market entrants).

2.28 Almost all stakeholders supported the options of either LRIC+ or pure LRIC, in the short to medium term (although there was some interest in capacity-based charges

[25] http://www.ofcom.org.uk/consult/condocs/mobilecallterm/mobile_call_term.pdf

for the longer term – that is, after 2015). Vodafone, O2, T-Mobile, Orange, Tesco Mobile and Virgin Media supported LRIC+, mainly on the grounds that (in their submission) it allocates costs efficiently, allows full cost recovery and is a well understood and proven approach. BT and H3G (and to a lesser degree C&W) supported pure LRIC, citing its role in providing more incentives for innovation and efficiency, and an overall gain in welfare. 'Terminate the Rate' (a group of operators and representative bodies, including BT and H3G, campaigning for lower rates) also preferred this approach.

2.29 Those respondents who were in favour of LRIC+ argued that if we were to impose a charge control based on LRIC+, rather than pure LRIC, this would (in light of our previous position) be contrary to legal certainty and would not be compatible with our legal duties under the Common Regulatory Framework. Specifically, they argued that this was not required by our obligation to take account of the 2009 EC Recommendation. On the other hand, some respondents in favour of pure LRIC submitted that our obligation to take account of the 2009 EC Recommendation supported a decision to impose a charge control based on pure LRIC; one stakeholder in particular noted that there is "no compelling reason not to implement the EC Recommendation approach".[26]

The April 2010 consultation

2.30 Having considered the responses to our May 2009 consultation and having carried out further evidence gathering and analysis, on 1 April 2010 we published our second consultation (the April 2010 consultation).[27] In it, we proposed to regulate the termination charges of the four national MCPs using pure LRIC and to require certain other MCPs to provide call termination on fair and reasonable charges, which we expect to lead to symmetrical rates.

2.31 In summary, we proposed:

2.31.1 to define separate markets linked to termination of calls to UK mobile number ranges held by a given MCP (i.e. not only by reference to the large national MCPs, as in our 2007 market review);

2.31.2 to designate each MCP that has been allocated one or more of these UK number ranges as having SMP for calls to those numbers on its network – this would have resulted in around 50 MCPs being designated with SMP;

2.31.3 to apply a charge control on the four national MCPs which operate fully-deployed national mobile networks, with the same MTR being applied to all four operators from the first year of the charge control;

2.31.4 to require all of the other MCPs to provide call termination on 'fair and reasonable' charges - noting that we were minded to interpret 'fair and reasonable' charges as being the same as the regulated rate applied to the four national MCPs; and

2.31.5 to set the charge control using pure LRIC, with a glide path finishing in the final year.

[26] Pg 2; http://www.ofcom.org.uk/consult/condocs/mobilecallterm/responses/Telefonica_02_UK_Limited.pdf
[27] http://stakeholders.ofcom.org.uk/consultations/wmctr/

2.32 We expected that these proposals would see MTRs fall from around 4.3ppm in 2010/11 to 0.5ppm by 2015 (in 2008/9 prices). The decline would be driven by the way consumers are using mobiles (i.e. increasing data volumes), falling real input costs, increases in equipment capacity, and by the removal of a common cost contribution from MTRs.

Responses to the April 2010 consultation

2.33 We received responses from the four[28] national MCPs, BT, COLT, Cable & Wireless, Asda, Tesco, Virgin Mobile and Lycamobile. We also received responses from 13 smaller CPs, seven trade and consumer groups, and from 'Terminate The Rate' (over 44,000 emails). We also received letters from 43 MPs, who have lodged an early day motion in support of Terminate The Rate's position.[29]

2.34 These responses are discussed in detail in sections 3 to 10, Annex 3, Annex 5 and Annexes 6 to 10.

Further consultation on design of a proposed charge control

2.35 On 16 November 2010 we published a further consultation[30] on a change to our design of the charge control proposed to be imposed upon Everything Everywhere (previously T-Mobile and Orange), Vodafone, O2 and H3G in the April 2010 consultation (the November 2010 consultation).

2.36 That proposed change was in response to comments from stakeholders in their responses to the April 2010 consultation, and following further discussions with industry at a workshop to discuss our proposals, held on 12 October 2010.

2.37 Having taken account of all these comments, we proposed in our November 2010 consultation to set a charge control based on a maximum charge ceiling, rather than a target average charge.

2.38 We discuss the design of the charge control in section 10.

Further consultation on the relationship between mobile termination rates, market share and competition

2.39 On 29 November 2010 we published a further consultation[31] to assist our consideration of the competitive impacts of the proposals set out in the April 2010 consultation (the November 2010 competition consultation).

2.40 We discuss the relationship between mobile termination rates, market share and competition in detail in Section 8 and Annex 3.

[28] Orange and T-Mobile submitted a joint representation as "Everything Everywhere".
[29] Terminate the Rate campaign broadly support our proposals and are of the opinion that a pure LRIC approach to setting MTRs will deliver greater competition and benefits to consumers. However they believe this should be done in a tighter timeframe than we have proposed
[30] http://stakeholders.ofcom.org.uk/binaries/consultations/mtr/summary/mtr.pdf
[31] http://stakeholders.ofcom.org.uk/consultations/mct-large-small/

Draft guidance on dispute resolution

2.41 On 7 January 2011 we published draft guidance on how we might resolve disputes as to what is "fair and reasonable", in accordance with our proposed SMP condition to be imposed upon all MCPs requiring MTRs to be fair and reasonable.[32]

2.42 Any dispute will have to be considered on its specific facts. However, we consider it will be helpful to provide guidance for communications providers, both in relation to their negotiations with respect to MTRs and in the event of a need for dispute resolution, should those negotiations ultimately fail. Taking account of responses to that consultation, we expect to publish our final guidance shortly.

2.43 We discuss this further in Section 6.

Third-party research commissioned for this market review

2.44 We have commissioned evidence from a number of third parties in the course of this market review. This research has been published either with our May 2009 consultation or with our April 2010 consultation and the responses from stakeholders on this research have been discussed either in our April 2010 consultation or in this Statement. This includes:

2.44.1 CEG Report – Econometric study of "Wholesale Termination regime, Termination Charge Levels and Mobile Industry Performance" (Annex 7 to the May 2009 Consultation);

2.44.2 Analysys Mason Report – "Case studies of mobile termination regimes in Canada, Hong Kong, Singapore and the USA" (Annex 8.1 to the May 2009 Consultation);

2.44.3 Jigsaw Research – "Mobile Calling Patterns Research" (Annex 10.2 to the May 2009 Consultation);

2.44.4 The Brattle Group – "Estimate of Equity Beta for UK Mobile Owners", December 2009 (Annex to the April 2010 Consultation)

2.44.5 The Brattle Group - "Estimate of Equity Beta for UK Mobile Owners", November 2010 (Annex 13 to this Statement)

Information-gathering using statutory powers (section 135)

2.45 During this market review, we have issued a series of notices under section 135 of the Act requiring various MCPs to provide specified information as set out in the Notice. These information requests are listed below

i) Information request of 3 August 2009 to the four national MCPs, covering detailed information about call traffic flows, customer volumes and the charges being levied by the various parties to mobile call termination agreements.

ii) Information request of 5 November 2009 to the four national MCPs, covering detailed information about call traffic flows, customer volumes and the charges being levied by the various parties to mobile call termination agreements.

[32] http://stakeholders.ofcom.org.uk/consultations/mct-fair-reasonable/

iii) Information request of 30 July 2010 to the four national MCPs, covering detailed information about call traffic flows, customer volumes, network configuration and the charges being levied by the various parties to mobile call termination agreements.

iv) Information request of 8 August 2010 to the other provisionally designated MCPs, for the purpose of enabling Ofcom to identify markets and to carry out market analysis, including consideration of any remedies.

v) Information request of 17 September 2010 to the four national MCPs and four other MCPs, covering detailed information in order to assess the distributional impact of our proposals on consumers and data required to confirm the validity of the cost model outputs. We also sent supplementary questions to this request in October, November and December 2010.

2.46 A more detailed list of information requests issued and responses received is set out in full in Annex 12.

Legal context

Market review

2.47 Under a market review Ofcom identifies relevant markets appropriate to national circumstances, carries out analyses of these markets to determine whether they are effectively competitive and then decides on appropriate remedies (known as SMP obligations or conditions). We do this under the Common Regulatory Framework (CRF), as transposed by the Act.

Market definition

2.48 The Framework Directive requires that NRAs shall, taking the utmost account of the Recommendation on Relevant Product and Service Markets (2007 EC Recommendation)[33] and SMP Guidelines[34] published by the European Commission, define the relevant markets appropriate to national circumstances, in accordance with the principles of competition law.

2.49 The SMP Guidelines make clear that market definition requires an analysis of available evidence of past market behaviour and an overall understanding of the mechanics of a given sector. As market analyses have to be forward-looking, the Guidelines state that NRAs should determine whether the market is prospectively competitive, and thus whether any lack of effective competition is durable, by taking into account expected or foreseeable market developments over the course of a reasonable period. They clarify that NRAs enjoy discretionary powers that reflect the complexity of all the relevant factors that must be assessed (economic, factual and legal) when identifying the relevant market, and assessing whether an undertaking has SMP.

[33] Commission Recommendation of 17 December 2007 on relevant product and service markets within the electronic communications sector susceptible to *ex ante* regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services.
[34] Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services (2002/C 165/03).

Market analysis

2.50 In carrying out a market analysis under Article 16, the primary issue for Ofcom is to determine whether the market in question is effectively competitive. A market is not effectively competitive where there are one or more undertakings with significant market power (SMP) and competition law remedies are not sufficient to address the problem. The definition of SMP is equivalent to the concept of dominance as defined in competition law. This is provided for by Article 14 of the Framework Directive as implemented by section 78 of the Act.

2.51 As part of our overall forward-looking analysis, we will assess whether competition law by itself (without ex ante regulation) is sufficient to address the competition problems identified. Recital 27 of the Framework Directive provides that ex ante regulation should only be imposed where competition is not effective and where competition law remedies are not sufficient to address the problem.

2.52 In considering this matter, we bear in mind the specific characteristics of communications markets. Generally, the case for ex ante regulation in communications markets is based on the existence of market failures, which, by themselves or in combination, mean that competition might not be able to become established, if the regulator relied solely on its ex post competition law powers that are established for dealing with more conventional sectors of the economy. Therefore, it is appropriate for ex ante regulation to be used to address these market failures and any entry barriers that might otherwise prevent effective competition from becoming established.

Remedies

2.53 The Act (sections 45-50 and 87-92) sets out the regulatory obligations that Ofcom can impose if it finds that an undertaking has SMP. Sections 87 to 92 of the Act implement Articles 9 to 13 of the Access Directive and Article 17 of the Universal Service Directive. Article 16 of the Framework Directive prescribes what regulatory action Ofcom must take depending upon whether or not the market in question has been found effectively competitive. Where the market is found to be not effectively competitive, Ofcom must identify the undertakings with SMP on that market and then impose appropriate obligations.

2.54 The Access Directive specifies a number of SMP obligations, including transparency, non-discrimination, accounting separation, access to and use of specific network elements and facilities, price control and cost accounting. Under Article 8 of the Access Directive, when imposing a specific obligation, we must demonstrate that the obligation in question is based on the nature of the problem identified, proportionate and justified in the light of the policy objectives as set out in Article 8 of the Framework Directive. The objectives include the promotion of competition in the provision of electronic communications networks and services and associated facilities and the development of the internal market. They also include promoting the interests of citizens of the European Union and applying objective, transparent, non-discriminatory and proportionate regulatory principles.

2.55 In accordance with the Directives, section 47 of the Act requires that for each proposed SMP obligation we explain why it satisfies the test that the obligation is: (a) objectively justifiable in relation to the networks, services, facilities, apparatus or directories to which it relates; (b) not such as to discriminate unduly against particular persons or against a particular description of persons; (c) proportionate to what the

condition or modification is intended to achieve; and (d) in relation to what it is intended to achieve, transparent.

2.56 Section 88 of the Act (which implements Article 13 of the Access Directive) provides that an SMP condition setting a charge control can only be set where it appears to Ofcom that there is a relevant risk of adverse effects arising from price distortion, and that the setting of the condition is appropriate for the purposes of, promoting efficiency, promoting sustainable competition, and conferring the greatest possible benefits on the end-users of public electronic communications services.

2.57 Section 88(2) states that in setting an SMP condition Ofcom must take account of the extent of the investment in the matters to which the conditions relates of the of the person to whom it is to apply.

2.58 For the purposes of section 88, there is a relevant risk of adverse effects arising from price distortion if the dominant provider might fix and maintain prices at an excessively high level or impose a price squeeze, with adverse consequences for end-users.

Ofcom's general duties under the Act

2.59 Our principal duty set out in section 3 of the Act requires that in carrying out our functions we must further the interests of citizens in relation to communications matters and further the interests of consumers in relevant markets, where appropriate by promoting competition. In so doing, we are required to secure a number of specific objectives. We consider that the objective of securing the availability throughout the UK of a wide range of electronic communications services is particularly relevant to this review.

2.60 In performing our duties, we are also required to have regard to a range of other considerations, as appear to us to be relevant in the circumstances. In this context, we consider that a number of such considerations are relevant, namely the desirability of promoting competition in relevant markets; the desirability of encouraging investment and innovation in relevant markets; and the desirability of encouraging the availability and use of high speed data transfer services throughout the United Kingdom.

2.61 We have also had regard to the principles under which regulatory activities should be transparent, accountable, proportionate, consistent, and targeted only at cases in which action is needed, as well as the interest of consumers in respect of choice, price, quality of service and value for money.

2.62 Ofcom has, however, a wide measure of discretion in balancing its statutory duties and objectives. In so doing, we have taken account of all relevant considerations, including responses received during our consultation process, in reaching our conclusions.

2.63 Section 4 of the Act requires us to act in accordance with the six European Community requirements for regulation. In summary, these six requirements are:

1) to promote competition in the provision of electronic communications networks and services, associated facilities and the supply of directories;
2) to contribute to the development of the European internal market;
3) to promote the interests of all persons who are citizens of the European Union;

4) to take account of the desirability of Ofcom's carrying out its functions in a manner which, so far as practicable, does not favour one form of or means of providing electronic communications networks, services or associated facilities over another, i.e. to be technologically neutral;
5) to encourage, to such extent as Ofcom considers appropriate for certain prescribed purposes, the provision of network access and service interoperability, namely securing efficient and sustainable competition and the maximum benefit for customers of communications providers;
6) to encourage compliance with certain standards in order to facilitate service interoperability and secure freedom of choice for the customers of communications providers.

2.64 We consider that (1) to (5) of these requirements are of particular relevance to this market review and that no conflict arises in this regard with those specific objectives in section 3 that we consider are relevant.

The 2009 EC Recommendation

2.65 The EC has published its 2009 EC Recommendation. This recommends that Member States (MS) adopt a common approach when setting price controls. The approach recommended is different to that previously used in the UK.

2.66 The main difference from the current approach is that the Recommendation favours recovering elements of common costs not from wholesale termination but from the competitive retail side of the mobile market. This approach would have the effect of reducing the level of termination charge. The Recommendation also outlines the EC's view that all termination charges should be symmetrical.

2.67 Recommendations issued under Article 19(1) aim to achieve the harmonised application of the provisions of the CRF and the achievement of the objectives set out in Article 8 of the Framework Directive. Article 8 contains the communications policy and regulatory principles that underpin the legal framework. These include the promotion of competition, internal market objectives and the interests of citizens.

2.68 Article 19(1) requires that MS ensure that national regulatory authorities take the utmost account of such EC recommendations. If a national regulatory authority chooses not to follow a recommendation it must inform the EC, giving the reasons for its position.

2.69 Because it is based on Article 19(1), the Recommendation has an EU harmonising objective; this is a key aspect that Ofcom has taken into account. This objective is further evidenced by the wording of the Recommendation itself. The second recital to the Recommendation states:

> "Although some form of cost orientation is generally provided for in most Member States, a divergence between price control measures prevails across the Member States. In addition to a significant variety in the chosen costing tools, there are also different practices in implementing those tools. This widens the spread between wholesale termination rates applied across the European Union, which can only be partly explained by national specificities."

2.70 We consider that the Recommendation is relevant to this market review, and that, therefore, we must have regard to it in determining our proposals. Ofcom is obliged to take it into account:

2.70.1 Article 10 of the EU Treaty places an obligation on MS to facilitate the achievement of the Community's tasks. They must take appropriate measures to ensure fulfilment of the obligations arising out of the Treaty or resulting from actions taken by the institutions of the Community.

2.70.2 Article 8(3) of the Framework Directive obliges national regulatory authorities to contribute to the development of the internal market by, inter alia, cooperating with each other and with the EC.

2.70.3 Under Article 19(1) of the Framework Directive, national regulatory authorities must take utmost account of Recommendations made under that Article;

2.70.4 Further, section 79(2) of the Communications Act 2003 requires Ofcom to take due account of all applicable guidelines and recommendations which have been issued or made by the EC.

2.71 Further, we consider that when having regard to the Recommendation we must take account of both; the course of action which it recommends in relation to setting charge control and cost accounting obligations (the content of the Recommendation) and the harmonising objective or intent of the Recommendation.

Section 3

Market definition

Summary

3.1 This section sets out our conclusions about the markets defined in this review, which underpin our proposals for the regulation of wholesale mobile voice call termination (MCT).

3.2 In our April 2010 consultation,[35] we proposed 50 separate markets for wholesale MCT services, that is a separate and distinct economic market for all consumers of an individual MCP. We stated that each of these individual proposed markets comprised:

> "termination services that are provided by [named mobile communications provider] (MCP) to another communications provider, for the termination of voice calls to UK mobile numbers which that MCP has been allocated by Ofcom in the area served by that MCP and for which that MCP is able to set the termination rate."

3.3 Each individual proposed market therefore corresponded to termination services provided by one of 50 mobile communications providers (MCPs), which we listed in Annex 7 of our April 2010 consultation document.[36]

3.4 Since our consultation, we have received questions from the European Commission and provided a further explanation of how this market definition is consistent with market 7 ("*voice call termination on individual mobile networks*") of the European Commission's Recommendation on Relevant Product and Service Markets[37] (the "2007 EC Recommendation"). We include a summary of those further exchanges with the European Commission in this section. The responses received to our April 2010 consultation supported our analysis, in general terms. In light of those responses, we have decided to make no changes to the description of the relevant market proposed in our April 2010 consultation (set out at paragraph 3.2 above).

3.5 Since our April 2010 consultation, we have also gathered further evidence to clarify whether wholesale MCT services are in fact being provided in each of the 50 markets we proposed. As a result of consultation responses and this further evidence, we have now concluded that there are currently 32 relevant markets for wholesale MCT, each corresponding to termination services offered by an individual MCP to its consumers. These MCPs are listed in Table 3.3 below and also in Annex 1.

3.6 Four of these markets relate to the provision of MCT by the four national MCPs and the remaining 28 relate to MCPs with fewer subscribers and/or smaller coverage areas.

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[35] *Wholesale mobile voice call termination: Market Review*, Consultation, 1 April 2010, at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf .
[36] Paragraphs 3.4 and 3.5 and Annex 7, April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf.
[37] European Commission Recommendation on Relevant Product and Service Markets within the electronic communications sector susceptible to *ex ante* regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services, SEC(2007) 1483/2, 13/11/2007, at http://eur-lex.europa.eu/LexUriServ/site/en/oj/2007/l_344/l_34420071228en00650069.pdf.

3.7 As discussed in paragraph 3.147 to 3.148 we have not made any decision to define the remaining 18 markets proposed in our April 2010 consultation as we have concluded that the relevant MCP was not supplying wholesale MCT services, or no longer operated.

3.8 We begin this section with a summary of the legal framework for defining a market, our analytical approach to market definition and some particular characteristics of the market which are relevant to our review. We then consider, in turn, product market definition and geographic market definition. In discussing both the product and geographic scope of the market, we set out:

- a summary of the proposals in our April 2010 consultation;38
- a summary of responses to our proposals and our consideration of the points raised by stakeholders;
- any further analysis we have conducted and additional evidence we have gathered since our April 2010 consultation.

3.9 We conclude this section by setting out our decision to define 32 relevant markets for wholesale MCT.

The legal framework for market definition

3.10 In summary, the legal framework for our market definition is as follows:

- we must identify the markets which, in our opinion, are appropriate in the circumstances of the UK, in accordance with competition law principles;[39]
- in so doing, we must take due account of the 2007 EC Recommendation and the SMP Guidelines;[40]
- the 2007 EC Recommendation identifies those product and service markets in which *ex ante* regulation may be warranted, including wholesale "voice call termination on individual mobile networks";[41]
- we may define markets which differ from those defined in the 2007 EC Recommendation where this is justified by national circumstances, taking account of the three cumulative criteria referred to in the 2007 EC Recommendation (the "three criteria test") and where the European Commission does not raise any objections.[42]

[38] See section 3 and Annex 4 of the April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf
[39] Section 79(1) of the Act; Article 15(3) of the Framework Directive at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:108:0033:0050:EN:PDF
[40] Section 79(2) of the Act; Article 15(3) of the Framework Directive.
[41] Market 7, 2007 EC Recommendation at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:108:0033:0050:EN:PDF
[42] Article 15(3) Framework Directive; paragraph 2, 2007 EC Recommendation at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:108:0033:0050:EN:PDF

Our approach to market definition

3.11 In our April 2010 consultation, we described the method we employed to arrive at our proposed market definition.[43]

3.12 The 2007 EC Recommendation identifies the starting point for the overall assessment of wholesale markets to be the accurate identification of the relevant retail market for the period of the review. The retail market forms the starting point because it is central in determining the extent to which independent price setting behaviour in that market acts to constrain indirectly prices in the wholesale market.

3.13 The candidate retail market needs to reflect those product and geographic dimensions appropriate to the current and prospective operation of the market in the UK, independent of the infrastructure being used. It therefore needs to include a clear evaluation of the expected and foreseeable technological and economic developments that are likely to affect the operation of the market in the UK for the forthcoming four year period that ends in 2015. Once this retail market has been defined, the subsequent exercise to identify the relevant wholesale market (following the same form of analysis) is carried out.

3.14 Market definition, whether retail or wholesale, begins with the narrowest identifiable market, for a defined focal product (or product group) and area. This candidate market is then expanded from the narrowest point as appropriate given the competitive constraints on the provision of the relevant product or service.

Characteristics of the market

3.15 There are a number of characteristics of the market which we considered to be particularly relevant to our market definition, which we described in our April 2010 consultation.[44]

Providers and technologies

3.16 We described how the technological landscape had changed significantly since the time of our last market review in 2007. At that time, 2G and 3G circuit-switched technologies were the only technologies widely used to offer mobile voice call services. We noted the increasing use of IP termination as a means of delivering mobile services, together with the real prospect of future deployments using packet-switched technologies to offer mobile voice services. We reported that different firms were using different technologies to offer mobile voice services and that we saw, in addition to the more familiar national MCPs, a number of smaller participants offering competing MCT services capable of shaping the future service landscape. However, we considered that the use of a mobile number was common to all these forms of offering wholesale MCT.

3.17 We considered the prospective role played by these new market entrants and new technologies in conducting our analysis of demand and supply-side substitution. In so doing, we examined whether it is more appropriate to refer to the termination of calls

[43] Paragraphs A4.4 to A4.9 of Annex 4 to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf
[44] Paragraphs 3.32 to 3.34 and A4.10 to A4.28 of Annex 4 to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf and http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf

to a mobile number than termination on a particular type of access network in reaching a technologically neutral approach to market definition.

Importance of calling party pays arrangements

3.18 We described the 'calling party pays' (CPP) regime, which operates in the UK. Under this system, callers pay the entire cost of a retail call. This retail price structure is then reflected in the structure of wholesale charges, with the MTR paid to the MCP of the call recipient.[45]

3.19 As a result, the party placing a call does not 'choose' the terminating MCP from whom their own MCP must purchase call termination (except insofar as the calling party has elected to call a party on the terminating MCP's network). The terminating MCP can set the MTR knowing that no alternative supplier of call termination to the called party exists. Normally, the choice of calling the party will be made without considering which MCP will terminate the call – in other words, callers generally have little interest in, or even knowledge of, the identity of the MCP used by the person they wish to call subscribes to. [46]

3.20 We considered this regime to be relevant to our assessment of the extent to which consumers react to a change in the retail price of calls (see paragraphs 3.58 to 3.78 below).

Cluster markets

3.21 Another consideration in our April 2010 consultation was the presence or not of so-called 'cluster markets'.[47]

3.22 We noted that some stakeholders have argued that the different elements of such a retail package, even though not demand-side substitutes for each other, are still linked because they are supplied and consumed together as a 'bundle'.

3.23 However, as set out in paragraphs A4.20 to A4.22 in the April 2010 consultation, the evidence suggested to us that the MTR is not a major factor in consumers' decision to purchase a bundle. We therefore did not think it appropriate to regard MCT as part of a cluster market.

Two-sided markets

3.24 We also took account of the two-sided nature of the MCT market[48] in our analysis and analysed how this might influence the effectiveness of any possible intervention, for example through the 'waterbed effect'.[49]

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[45] There are certain exceptions to CPP at the retail level, such as freephone or special low cost call types, where part or all of the retail call cost is paid by the receiving party. Similarly, there are some call types which are subject to a different wholesale arrangement, with the call recipient's network paying some or all of the call cost.

[46] Paragraphs 3.32 to 3.34, April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf

[47] A 'cluster market' is a term used to describe markets where there are some 'transactional complementarities' in buying products together i.e. where retail consumers realise savings from buying a set of products as a package from one provider rather than buying them separately.

[48] A two-sided market is a market in which a firm acts as an intermediary to create an indirect relationship between two distinct customer groups. For example, newspapers can be seen as an intermediary between one market - the subscribers/readers interested in consuming the newspaper's

3.25 In the case of MCT, customers of a particular MCP either make calls or receive calls. Broadly speaking callers value mobile telephony more as the number of people able to receive their call grows; call recipients value the service more if there are more people able to call them. MCPs charge their subscribers a retail price for making a call, and earn revenue from their subscribers when they receive calls (albeit indirectly) by charging wholesale MTRs to other networks trying to connect a call to their number range.

3.26 In a two-sided market, it can be efficient to set prices in ways that mean the cost of provision is borne more heavily by one side than the other. In a two-sided market, the total volume of transactions depends on the price structure (the share of the total charge borne by each side) as well as the level of the combined price (the sum of the charge to each side).[50] As a result, the price to one side may not fully reflect the cost of providing the service to that side.[51]

3.27 However, this does not necessarily mean that the two sides should be considered to be in the same market i.e. that there should be a *single* market covering both call origination and call termination. The competitive conditions and constraints on the two sides of the market are different.[52] Competition in the market for call origination does not impose a competitive constraint on call termination. Although competition in the retail market may reduce or even eliminate excessive profits (through the waterbed effect), it does not remove the ability to set excessive prices for termination.

3.28 In some cases the efficient structure of prices in a two-sided market may involve some services being subsidised by setting the price of other services above cost. However, with no competitive constraints on MTRs, MCPs may have an incentive to set them above the competitive price level (for example, this happened when MTRs were not regulated). We therefore proposed that the two sides should be considered distinct, but interrelated, markets i.e. MCT should be viewed as a separate market, albeit with close links to other services.

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content – and the other – advertisers who consume the newspaper's available advertising space to reach the readers of the paper. Typically in a two-sided market there will be a greater value to a customer on one side of the market if the customer group on the other side of the market is larger (i.e. advertisers will place a larger value on advertising space if the newspaper has a wider readership).

[49] The waterbed effect is where a change in one set of prices leads to changes in prices in a different part of the market. For example, many of the respondents to our previous consultations have highlighted how a reduction in MTRs may induce operators to raise retail prices. There is a wide body of literature on the waterbed effect in relation to telecommunications, such as Schiff, A (2008) "The 'waterbed effect and price regulation", *Review of Network Economics*, Vol. 7, Issue 3, pp.392-414 and Genakos, C. and Valletti, T. *Testing the 'waterbed' effect in mobile telecommunications*, Journal of the European Economic Association (forthcoming), available at http://www.sel.cam.ac.uk/Genakos/Genakos%20Valletti-Testing%20Waterbed%20Effect.pdf

[50] Rochet, J-C and Tirole, J (2004), "Defining two-sided markets", mimeo, University of Toulouse, available at http://www.brousseau.info/semnum/pdf/2004-03-01_tirole.pdf

[51] A number of two-sided markets feature prices on one side of the market which do not cover costs or indeed, charge at all (e.g. free newspapers, where readers are not charged and costs are entirely recovered from advertisers).

[52] Whereas the call termination market is essentially characterised as a monopoly, we have found the mobile sector generally to be effectively competitive – see, for example, *Mobile Evolution: Ofcom's mobile sector assessment*, 17 December 2009, section 4, at http://stakeholders.ofcom.org.uk/binaries/consultations/msa/statement/MSA_statement.pdf.

Part 1: Product market definition

The role of market research

3.29 In our April 2010 consultation, we relied upon evidence already available to us (e.g. market research commissioned by us for other recent reviews and studies).[53] We considered this evidence to be sufficiently reliable and current to enable us to accurately determine the relevant market. In particular, the research we considered included the following:

- research commissioned by us for our May 2009 Consultation (the Jigsaw research);[54]
- research commissioned by us into transparency in telephone numbering (Futuresight Research);[55]
- our *UK Communications Market Report* 2008 (UKCMR 2008);[56] and
- our *UK Communications Market Report* 2009 (UKCMR 2009).[57]

Retail market definition – starting point

3.30 Having considered the characteristics of the market, we proceeded in our April 2010 consultation to consider the narrowest appropriate retail market definition and then progressively widened this as needed.[58]

3.31 The reference service that we are considering in this review is wholesale "voice call termination on individual mobile networks". MCT is the service necessary for a communications provider to connect a caller with the intended recipient of the call on a different network. If MCT were not available, an OCP could only terminate calls to customers on its own network. This service is referred to as wholesale because it is sold to and purchased by CPs, rather than retail customers.

3.32 There are a growing number of MCPs offering different services and using different technologies. For example, some offer voice services using internet telephony (such as VoIP) which can be used on mobile devices. Some MCPs can use both circuit-switched voice and internet telephony to provide mobile services, whether this is a circuit-switched mobile network (e.g. UMTS macro cells) or other wireless networks e.g. WiFi.

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[53] Paragraphs A4.45 and A4.46, Annex 4 to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf
[54] *Wholesale mobile voice call termination: Preliminary consultation on future regulation*, Consultation, 20 May 2009, Annex 10.1, *Comments on Market Research*, at http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/annexes/annex10_1.pdf, and Annex 10.2, *Mobile Calling Patterns Research, JN: 99703*, at http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/annexes/annex10_2.pdf
[55] Consumer Transparency in Telephone numbering, Research, February 2009 at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/transparency.pdf
[56] *The Communications Market Report,* 14 August 2008, at http://stakeholders.ofcom.org.uk/market-data-research/market-data/communications-market-reports/cmr08/
[57] *The Communications Market Report,* 6 August 2009, at http://stakeholders.ofcom.org.uk/market-data-research/market-data/communications-market-reports/cmr09/
[58] Paragraphs A4.29 to A4.40, Annex 4 to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf

3.33 As stated above, how we approach these developments in our market definition can best be addressed through focusing on the core features of MCT at the retail level – it is a voice service and it is mobile. At the retail level, callers value successful calls, not call attempts; put another way, it is the end-to-end call which is important rather than individual parts (such as termination). We noted in our April 2010 consultation that two questions were therefore central to defining the retail market: what is 'a voice call' and what is 'mobile'. The specific question of what is meant by the termination of a call is addressed in the subsequent definition of the wholesale market.

What is a 'voice call'?

3.34 We noted that voice calls have traditionally been delivered using circuit-switched technology, which requires network infrastructure designed to open and maintain a continuous connection between the caller and the recipient during the call. Given the growth of new methods of delivering a call, such as VoIP, which do not use a 2G/3G circuit-switched mobile network, we needed to determine whether different forms of delivering calls are considered to be sufficiently comparable by consumers as to form part of the same market.

3.35 The starting point for market definition is the narrowest possible market. As in previous reviews, we started with the retail service under examination – an end-to-end circuit-switched voice call to a mobile number. We then determined how far this should be widened. In accordance with the SMP Guidelines, such widening may be justified on the basis that either:

- voice services delivered using new technologies will impose a constraint on wholesale charges for circuit-switched MCT due to retail competition; or
- there are homogeneous competitive conditions and/or common pricing constraints in providing VoIP compared to voice over circuit-switched technology at the retail level.

What is 'mobile'?

3.36 Consumers value mobile services for allowing them to contact (and be contacted by) others while they are otherwise unavailable (for example, when they are away from their fixed line or PC), including while they are 'on the move'. For example, while DECT handsets can be used from any point in range of its base, mobile services allow consumers to use telecommunications services almost anywhere (although making allowances for poor reception in some areas). Consumers particularly value being able to use services seamlessly, e.g. being able to make a call without repeatedly having to redial.

3.37 The distinction between these and other services (such as fixed services) has been recognised in regulation through dedicating specific mobile number ranges to these services.[59] These numbers are allocated according to a specific service definition. The National Telephone Numbering Plan ('Numbering plan')[60] defines a mobile service as:

> "…*a service consisting in the conveyance of Signals, by means of an Electronic Communications Network, where every Signal that is*

[59] In the current Numbering plan these are numbers in the format 07xxx xxx xxx and beginning 071 to 075 and 077 to 079.
[60] Available at http://stakeholders.ofcom.org.uk/binaries/telecoms/numbering/numplan201210.pdf

conveyed thereby has been, or is to be, conveyed through the agency of Wireless Telegraphy to or from Apparatus designed or adapted to be capable of being used while in motion."

3.38 This definition suggested a starting point for our definition - a call terminated, or routed, to an end-user device which is capable of being used while in motion. We noted that this was not a perfect definition of the mobility valued by consumers. For example, the definition does not specify over what distance a handset has to be "capable of being used while in motion", while consumers place most value on mobile services when they can be used virtually anywhere. However, we considered that the definition of mobile used in the Numbering Plan is a sufficient proxy for the service valued by consumers to provide a starting point for our market definition.

3.39 We then considered how far this definition should be broadened to determine the appropriate scope of the relevant retail market.

Wholesale market definition - starting point

3.40 As set out above, our approach began with a narrow retail market definition of an end-to-end circuit-switched voice call to an individual mobile number. If we find that the retail definition should not be any wider, and we map this retail definition onto our wholesale definition, then this would imply that the narrowest possible wholesale market is circuit-switched voice call termination to a specific mobile number. However, the wholesale market definition process needs to consider a number of other dimensions both at the retail and wholesale level.

3.41 Regardless of how calls originate, they can be terminated in a number of ways. For example, a call can be connected using a 2G connection, a 3G connection (both of which are circuit-switched) or over IP. In addition, in the future we are likely to see the development of packet networks such as LTE, which may deliver all services, including VoIP.

3.42 Therefore, in our analysis at the wholesale level we considered whether our market definition needed to include different 'types' of MCT, based on either:

- the direct competitive constraint imposed by the substitutability of one type of wholesale MCT for another; or
- the existence of homogeneous competitive conditions and/or common pricing constraints in providing termination.

3.43 Central to the types of alternative MCT that we considered in our analysis (see paragraphs 3.87 to 3.94 below) is the need for interconnection between the OCP and the MCP which holds the mobile number. This interconnection can be managed through either a direct relationship between the OCP and the number range holder, or indirectly via a transit operator. We therefore focussed on the point of interconnection with the number range holder.[61]

Indirect competitive constraints

3.44 Other communications providers (OCPs) buy call termination in order to offer their customers the ability to make end-to-end calls (that is, MCT is an input to fixed and

[61] Paragraphs A4.41 to A4.44, Annex 4 to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf

mobile telephony). Therefore, the demand for wholesale MCT is ultimately derived from demand arising from consumers in retail markets. It is therefore possible that events or conditions in the retail market (e.g. consumers' switching behaviour) could affect the demand for MCT products upstream at the wholesale level.

3.45 Having identified the narrowest retail market, we then assessed whether it was appropriate to widen the retail market beyond this narrow product set. We then assessed whether the conditions in this retail market are such that other wholesale products or services (other than a narrowly defined MCT focal product based on circuit-switched technology) would impose indirect competitive constraints in the wholesale market. Such indirect constraints could arise due to either demand-side substitution or supply-side substitution in the retail market.

3.46 We conducted our analysis of retail markets assuming there are no upstream remedies that rely on a finding of SMP in the wholesale MCT market.[62]

Retail demand-side substitution

3.47 In considering the scope of the relevant retail market in our April 2010 consultation, we first examined retail demand-side substitution.[63]

3.48 If a particular MCP increases its MTRs above the competitive level and consumers react by reducing their demand for calls to that MCP (either by switching to an alternative, or just reducing or ceasing their demand for calls), this may render a SSNIP unprofitable (indicating that retail switching might constrain the ability to set MTRs).[64] It is not necessary for all consumers to reduce the number of voice calls for an increase in MTRs to be unprofitable – switching by a sufficiently large group of marginal consumers would be enough.

3.49 In our April 2010 consultation, we set out three factors which affect how far retail demand substitution would influence the profitability of an increase in wholesale MTRs by an MCP:

- how far a change in the MTR would affect the retail price faced by consumers;
- how far consumers would react to any change in retail prices such that the profit earned by the MCP was reduced; and
- the extent to which the MCP unilaterally increasing MTRs could hope to capture retail subscribers from its rivals.

3.50 We discussed the first two factors in detail and noted that, although the third factor is very important, it is more difficult to predict. We stated that, when we considered these three factors jointly it seemed highly unlikely that the indirect competitive constraints would be sufficiently strong. As such, based on the assessment of indirect constraints, the relevant market would remain narrow. We set out below a summary of how we assessed these factors in our April 2010 consultation.

[62] Paragraphs A4.47 to A4.49, Annex 4 to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf
[63] Paragraphs 3.30 to 3.43 and paragraphs A4.50 to A4.108, Annex 4 of our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf and http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf
[64] While the terminating MCP may lose revenue from consumers reducing their demand for calls, it would also avoid costs from supplying the MCT service. It is therefore the net effect on profitability which we consider.

Relationship between MTRs and retail prices

3.51 If a 5-10% increase in the MTR led to only a very small increase (or no change) in retail prices, then it may not affect calling behaviour materially. The effect of an increase in MTRs on retail prices depends on:

- the extent to which an OCP actually passes through the increase in MTR to the consumer in the form of an increase in retail prices for calls to mobiles – the extent of pass through is not clear cut; and

- the proportion of the retail price that is due to the MTR (for example, for any given level of pass-through, an increase in an MTR will have a much bigger impact on end prices if it makes up 80% of the retail price, than if it is only 20%).

Contribution of MTRs to retail call prices

3.52 We found that, for mobile-to-mobile (M2M) calls, MCP's pre-paid voice charges for off-net calls are 15-25p[65] per minute, which implies that MTRs are between 20-50% of the retail price.[66] We noted that this range was similar to an estimate by Enders, which found MTRs were roughly 50% of retail prices.[67]

3.53 We found fixed-to-mobile (F2M) calls harder to analyse, as there are few equivalents to pure pre-paid pricing, and the complexity of retail tariffs makes it difficult to assess the effect of MTRs on prices. We considered that bundling will also have an effect on the retail price of F2M calls, even though these have tended to be excluded from fixed bundles. This is because FCPs set rates for out-of-bundle calls to make their overall service offer as attractive to consumers as possible. Typically, price competition is more aggressive on some call types than others, and margins are higher for calls that are not included in the headline bundles (such as calls to mobiles).[68] Therefore the individual price of F2M calls may be more likely to respond to an increase (and less likely to respond to a decrease) in MTRs than retail prices and revenues overall, as FCPs seek to protect (or increase) the attractiveness of their focal product (the bundle). This means that the benefits to consumers arising from a fall in MTRs may flow in the form of reduced charges for other components of the bundle, other than F2M calls specifically. This is discussed in section 7 below.

Assessment of likely impact of a SSNIP

3.54 The critical issue for market definition is what effect a *small but significant* rise in MTRs will have on retail prices. In our April 2010 consultation, we considered the effect of a SSNIP in MTRs on retail prices assuming that MTRs make up 20%, 50% and 80% of retail prices. This was to capture the full range of possible effects of a SSNIP at the wholesale level feeding into retail tariffs.

[65] *Pure Pricing, UK Mobile Pricing fact book, Q4, 2009 and Pure Pricing Monthly Update, January 2010*

[66] By focusing on prepaid services we can more easily assess the price of individual call minutes as there are fewer bundling effects or fixed components to the charges, other than a minimum call charge, usually equal to one minute's charge.

[67] Enders Analysis, *UK mobile termination rates: down but not out*, 20 January 2009.

[68] Mobile operators adopt an analogous approach, although their bundles typically include calls to other providers' mobile number ranges. There is therefore a similar argument that M2M prices specifically may not change as a result of reductions in MTRs, as cost savings are used to reduce the price of a range of products.

Table 3.1: Possible effects of a SSNIP in MTRs on retail prices

% of retail price accounted for by MTRs	Effect on retail prices of 5-10% increase in MTRs
20	1 - 2%
50	2.5 - 5%
80	4 - 8%

Source: Ofcom calculation

3.55 We concluded that the upper end of the estimates for 50% and 80% would increase retail prices by 5 to 8% (which itself is sufficient to constitute a 'SSNIP') and so could cause consumers to reduce their use of calls to mobiles.[69] At the lower end, it would seem unlikely that consumers would be sensitive enough to retail prices to alter their behaviour due to a 1 - 2.5% change in prices for a particular call type.

3.56 We considered that this analysis did not rule out the possibility that firstly, increases in MTRs could be passed on to consumers in the form of increased retail charges; and secondly, that those retail charges could affect retail usage. We therefore tested the hypothesis that this effect is material against the available evidence on actual market behaviour. We took a conservative approach to ensure that we considered fully the possible relationship between wholesale input prices and retail prices. For the reasons noted above, we think that both of these points are contestable, as any increases in retail charges may not be specifically on calls to mobiles (limiting the price signal given to retail customers).

3.57 If retail charges increased significantly, this might encourage consumers to switch MCP rather than modify their calling behaviour. If a monopoly supplier of MCT, with a significant proportion of retail customers, raised MTRs above the competitive level to all competing MCPs, and this encouraged a significant proportion of consumers to change their MCP (which we do not expect would occur), we would in any event expect consumers to switch away from the competing MCPs, and that the MCP which raised its MTRs would capture a significant proportion of all the consumers who switched.

Consumers' reaction to changes in retail prices of calls to mobiles

3.58 We outlined the CPP regime at paragraphs 3.18 to 3.20 above, noting that call recipients do not pay a retail charge to receive a call and that a party placing a call generally has little interest in the identity of the terminating MCP. Despite this, a rise in MTRs may still theoretically trigger change in behaviour by callers or by call recipients. The question is whether there is a sufficiently strong reaction by those making or receiving calls as to act as a competitive constraint on the level of MTRs. More specifically, using the SSNIP test, we assessed in our April 2010 consultation whether a 5 – 10% increase in MTRs would be likely to trigger such a significant reduction in inbound calls as to make that price increase unprofitable. We considered the prospective reactions of those two parties in turn.

[69] This assumes that operators make no attempt to keep the prices of calls to mobiles down to remain attractive to customers - which would dampen the effect of changes in MTRs on retail prices.

Reaction by callers

3.59 In addition to MTRs affecting retail prices, we stated that three conditions must be satisfied for callers to react to an increase in the price of calls to mobiles:

- callers must be sufficiently aware that they are calling a mobile and that they are calling a specific MCP;
- callers must be sufficiently aware of the price of calling that particular MCP; and
- callers must be sensitive to changes in the prices of calling the MCP they want to reach i.e. an increase in the MTR above the competitive level must cause consumers to adapt their behaviour to find an alternative satisfactory way of contacting the person they want to call.

3.60 We considered each of these conditions in turn against the available evidence in the market.

- **Callers must be sufficiently aware that they are calling a mobile and which network they are calling.** We considered that awareness of the distinction between calls to mobiles and other call types seemed well-established (for example, the Jigsaw research shows that 87% of respondents knew when they were calling a mobile). However, only 24% suggested that they knew to which network this number is subscribed. Even for the numbers respondents called most often, less than half (45%) suggested that they knew which operators these numbers were associated with.
- **Callers must be aware of the price of calling that particular network.** The evidence suggested to us that consumers still have limited knowledge of the actual price of calling particular networks. Less than a third of subjects in the Jigsaw research (30%) had any idea of the price of calling other MCPs, and only 7% stated that they knew it exactly. The Futuresight research gave a more mixed picture on how informed consumers felt about the price of making calls. From this, 58% of respondents to the quantitative survey reported feeling well informed about call prices. However, this survey did not differentiate between different types of calls (for example between calls to fixed and mobile numbers, or on-net and off-net calls). The qualitative research undertaken for this study suggested that overall respondents felt uninformed and tended to rely on assumptions and rules of thumb to influence their behaviour.[70] Previous research suggests that consumers tend to overestimate the price of all types of phone calls.[71]
- **Callers must be sensitive to the price of calling the MCP they want to reach.** We found that there was limited data on how consumers react to changes in retail prices induced by changes in wholesale charges. Some research suggests that calling behaviour is fairly insensitive to the price of calls. The Futuresight research suggested that, when calling a mobile, only 18% of landline users and 12% of mobile users thought about the price of the call. However, where the price

[70] The Futuresight report speculates upon the reasons for the differing results from the qualitative and quantitative surveys on this question. It identifies a bias that may have been introduced by the ordering of the questions in the two surveys as a possible cause. Thus, in isolation it is unclear which result is more compelling. However, when considered alongside the Jigsaw research, the results may suggest that consumers are largely uncertain of the price of calling a particular network.
[71] See Numbering Review: Report of Market Research Findings; 23 February 2006 at http://stakeholders.ofcom.org.uk/consultations/numberingreview/research/.

of calls is significantly out of line with expectations, this may induce a response.[72] As part of the Futuresight research, consumers were asked about experiences of 'bill shock' and whether this had affected their subsequent behaviour. It was found that, for fixed and mobile contract users, higher than expected bills resulted in some action or change in behaviour by around 60% of consumers. Pre-pay users were less likely to respond, with about a third changing their behaviour as a result of unexpected extra charges. However, for a significant proportion of users (29% of fixed and contract mobile users and 26% of pre-pay mobile users), incurring higher than expected prices made no difference to their behaviour.

3.61 Although the Futuresight research provides some evidence on consumers' propensity to react where prices are different to those expected, we did not consider this evidence to be sufficient to be relied upon in the context of a SSNIP test, as it does not show how consumers might react to a 5-10% increase in prices at the wholesale level (assuming at least part of this is passed through to the retail level).[73]

3.62 Consumer behaviour will only change if there is a viable alternative. There are a number of services that could potentially be viewed by callers as being substitutes:

- mobile-to-fixed (M2F) as a substitute for off-net M2M calls;
- M2M as a substitute for F2M calls;
- on-net M2M as a substitute for off-net M2M calls;
- other non-voice based means of mobile communication (e.g. SMS);
- email, instant messaging (IM) and social networking sites (SNS);
- call-back arrangements; and
- VoIP.

3.63 In accordance with the SSNIP test framework, we considered each of these potential substitutes individually in our April 2010 consultation. A summary of our conclusions is set out at paragraphs 3.64 to 3.73 below.

M2F as a substitute for off-net M2M calls

3.64 We considered it unlikely that a call to a fixed line would represent a satisfactory substitute for a call to a mobile in a sufficient number of situations to impose an effective constraint on MTRs.

[72] This should not be viewed as equivalent to a SSNIP test, for the reasons set out in the following paragraph.

[73] In particular, the survey did not differentiate between reactions when the bill was only higher due to calling a mobile number. We were therefore unable to determine how sensitive consumers are to the price of calling a mobile specifically, rather than to the price of calls generally. The survey also did not identify how much 'higher' the bill had to be before the consumer noticed, nor what they had expected the bill to be. There may have been significant differences in what the respondents were reacting to, and the difference between the expected and actual bill may have been considerably more than 5-10%. Finally, expected prices may have been above the competitive level, and so a further increase may lead to a greater response. If we were to assess markets based on observed switching in this case, markets would be drawn too broadly. This is known as the 'cellophane fallacy'.

- A caller may react to a rise in the price of calling a mobile by seeking to call the desired party on their fixed line instead. We considered the option of using a fixed line to be a plausible strategy for a material proportion of callers, some of the time.[74]

- However, we noted the obvious differences between fixed and mobile services that mean that this option may be an insufficiently close alternative to constrain MCPs. In particular, contacting someone on a fixed line requires that the desired recipient is at a specific location, and calling someone on their mobile is more likely to enable immediate contact with the called party.

- We noted that this picture may change, if fixed communications providers (FCPs) and MCPs become increasingly similar in terms of functions, or even converge. Developments that reflect possible fixed/mobile convergence (FMC) include services designed to add mobility to fixed services, as well as mobile services being able to utilise, in part, fixed networks in some circumstances.[75] However, we considered FMC products to be still relatively underdeveloped and noted our view that they are unlikely to be taken up widely enough within the period covered by this review that they would materially impair a MCP's ability to raise MTRs.

M2M as a substitute for F2M calls

3.65 We considered it unlikely that a SSNIP in F2M call charges would prompt additional switching by consumers to M2M calls.

- A caller facing a high F2M charge may choose to place a call using their own mobile, rather than use their fixed line.[76] However, such substitution is only important in so far as it affects the profitability of a SSNIP for MTRs. The terminating MCP determines the MTR charged for a call both from a mobile and from a fixed line to its mobile number range, and so is able to effectively limit the impact such substitution has on its profits.

- The possible exception to this is M2M on-net calls[77], which tend to be cheaper than off-net mobile calls as the retail prices do not involve a payment to another

[74] A significant proportion of mobile users use their mobile services in their home (although, of course, the location of the mobile user being called is not likely to be known prior to the call being placed). In 2008, we found that seventy per cent of mobile users use their mobile to make calls in the home (see UKCMR 2008). Most UK households (80%) have both a fixed line and members who have mobile services, although 12% of households are mobile-only (see Table 22 in Annex 13 to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf).

[75] An example of the latter development is the femtocell. Femtocells are still an emerging technology, and there is considerable debate over how widespread rollout will be.

[76] According to research conducted for our Fixed Narrowband Retail Market review, 33% of respondents agreed with the statement '*I would drop my landline if mobile was cheaper'* applied to them (*Consumer Preferences in Narrowband Communications, Research Report*, Research Document, 19 March 2009, at http://stakeholders.ofcom.org.uk/binaries/consultations/retail_markets/annexes/consprefs.pdf). In addition, as part of the UKCMR 2008, respondents were asked, where they had used their mobile at home, why they had done so. The two most popular answers were '*to use up inclusive minutes*' (29%) and '*to take advantage of some calls which were cheaper to make from mobiles*' (28%) (see UKCMR 2008, Figure 5.3).

[77] "Off-net MCT" in this context refers to the provision of MCT by a MCP to other CPs, as distinct from self-supply of "on-net MCT" by a MCP to itself.

MCP for termination. However, these calls are obviously available only to callers who subscribe to the same MCP as the called party.

- Research suggested to us that substitution towards on-net M2M calls at the expense of F2M calls may be unlikely to constrain MTRs even for those callers who subscribe to the same MCP as the called party. In any event, callers cannot, generally, choose whether to make on-net or off-net calls when they wish to call a particular number.[78]

- The relevant test is whether a user would switch from fixed to on-net (or off-net) calls in response to a SSNIP to such an extent that the SSNIP became unprofitable. Given there is already a difference in price between the two types of call, it is likely that users who are aware of this difference and can make such a switch would probably already have done so, and a SSNIP would be unlikely to prompt additional switching (although it might quicken the decision of those already planning to switch).

On-net M2M as a substitute for off-net M2M calls

3.66 We did not consider that a SSNIP in wholesale MTRs would be likely to encourage a significant number of additional consumers to switch to on-net mobile-to-mobile calls, such that this price increase would prove to be unprofitable.

- MTRs for off-net calls could be constrained by substitution to on-net calls because, as set out above, such on-net calls do not involve a termination payment. This requires the calling party to subscribe to the same MCP as the call recipient. In order for this effect to be sufficiently widespread to constrain MTRs, it would also be necessary for either the caller or the call recipient to hold multiple subscriptions.

- As we set out in paragraph 3.60, consumer awareness of the network they are calling seems to be quite low, although for the most frequently called numbers it is closer to 50%. More importantly, research suggested to us that substitution of MCPs in order to originate/terminate calls may not be sufficiently widespread to effectively constrain the MTR charged for off-net calls.[79]

[78] The Fixed Narrowband Retail Market review found that the majority of consumers perceive *all* calls to be cheaper from a landline, with the exception of on-net calls. However, this relies on the caller using a mobile on the same network as the call recipient. The findings from the Jigsaw research suggest that awareness of which network a user is calling is reasonably low, although it is higher for numbers people call more frequently). In addition, as part of this research, respondents were asked "*why did you choose [name of current provider] as your mobile phone supplier*", and to list the order of importance when they gave more than one answer. The general cost overall was by far the most popular reason given (mentioned by 29% of respondents), followed by reliability of service, which was mentioned by about half as many respondents (15%). Only 5% of all mobile users and 9% of mobile only users identified the cost of calls to the same network as a major influence on their choice.

[79] According to the UKCMR 2008, only 11% of adult mobile users have more than one mobile phone or SIM card with different numbers (while it would have been preferable to review the evidence on the number of mobile users that have more than one mobile number, including VoIP identities, we consider that the evidence presented here provides an indication of the order of proportional magnitude). Of those who do, only 6% stated that the main reason for this was to take advantage of lower prices from different operators (see UKCMR 2008, Figures 5.62 and 5.65).

Short message service (SMS)

3.67 We considered that SMS may not represent a satisfactory substitute for a call to a mobile in a sufficient number of situations to impose an effective constraint on MTRs:[80]

- There are functional differences between the services that may limit how interchangeably voice and SMS can be used. For example, SMS messages are limited in length and so, relative to a voice call, may not be able to transfer all of the information a caller wishes to impart at one time in one message. In addition, SMS is sent on a 'store and forward' basis, so there can be a delay in the message being received. This makes a dialogue through repeated messages back and forth more problematic, particularly during peak network loading times. This is in contrast to a voice call, where the conversation happens in real time.

- The relationship between SMS and voice calls is complex and depends upon the need of the parties at a particular time. In some situations, SMS and voice calls may be substitutes,[81] whilst at other times SMS may be a complement to a voice call, enabling the call to be set up.[82] In some situations, there may be no relationship between SMS and voice calls, as the situation may require one form of communication rather than another.[83]

3.68 Even where SMS is a satisfactory substitute, voice and SMS termination to a given mobile number is provided by the same MCP. The conditions of the supply of SMS termination are very similar to the conditions of the supply of MCT, i.e. only the MCP which holds the number the originator wishes to contact can terminate the SMS, and only this MCP can set the charge for this service. Thus, we considered that this MCP is able set termination charges for SMS so as to limit the competitive pressure such substitution would place on its MTRs.

Email, instant messaging (IM) and social networking sites (SNSs)

3.69 We considered it unlikely that email, IM and SNSs would be close substitutes for a mobile voice call for the period covered by this review.

- Like SMS, email does not guarantee immediate contact, as the sender must wait until the recipient is online and checks their email account unless they have a mobile device enabled to receive emails. We considered this to still be a significant constraint, despite the continued increase in the means of accessing the Internet (or at least accessing emails) and the amount of time that people spend online.

- IM can provide more immediate contact and can be used more easily for establishing and maintaining a dialogue between two parties than email, but only if the desired party is signed into their account.

[80] Grzybowski, L. and Pereira, P. (2008) 'The Complementarity between calls and messages in mobile telephony', *Information Economics and Policy*, Volume 20, Part 3, pp. 279-287 found that voice calls and SMS are compliments.
[81] For example where the caller only wishes to provide a small amount of information which does not necessarily require any input or response from the recipient (e.g. "I will be an hour late").
[82] For example, the originating party may send a text message to confirm the recipient is available for a call at a subsequent time e.g. "Call you at 6 o'clock".
[83] For example, where longer, more in-depth, and/or immediate response(s) are required, a voice call may be preferred, whereas SMS may be more suitable when the originating party wants to leave a message without interrupting the recipient (e.g. if they know the recipient is in a meeting).

- As we identified in our research, SNSs serve a broadly similar purpose to email and IM, in that they are primarily for communicating with a large group of people rather than an individual or small group.[84] For this reason the same findings apply to SNSs as they do for the potentially close substitutes of email and IM.

- The growth of mobile broadband could help to make email and IM closer substitutes by allowing mobile users to access Internet services from mobile devices such as smart phones. The most immediate and closest substitute is likely to be between these services and SMS (where the nature of the services is very similar). As with SMS, if this ability resulted in users checking their emails or spending more time signed into IM accounts, this could increase the immediacy of contact through these methods and so make them closer substitutes for voice calls. However, the evidence suggested to us that it was unlikely that they would be very close substitutes for the period of this review.[85]

- We noted that as more people take up smartphones it is possible more people will begin using such applications.[86] However, use of these applications will only constrain MTRs if a sufficiently large number of people consider that communicating via these media is a close substitute for voice calls. We considered it unlikely that this would be the case within the period of this market review.

3.70 We also noted one important, but (for our purposes) not quantified issue is that one of the benefits of a voice call which all three of these options (and SMS) lack is the conveyance of paralanguage (e.g. the pitch, volume and intonation of speech). These elements are often fundamental to the meaning of a communication. Although text-only communications have developed various means of expressing paralinguistic elements (e.g. emoticons, capitalisation), these are often imperfect and can still lead to misunderstandings.

Call-back arrangements

3.71 We considered that call-back[87] could render an increase in MTRs unprofitable if the profitability of outgoing calls is lower than that of incoming calls, and call-back is carried out in sufficient volume. However, our view was that call-back arrangements are not sufficiently widespread:

[84] *Social Networking: A quantitative and qualitative research report into attitudes, behaviours and use*, Research Document, 2 April 2008, at date: http://stakeholders.ofcom.org.uk/binaries/research/media-literacy/report1.pdf

[85] Data from MSA II suggests that only 13% of mobile phone users use IM on their mobile, and only 5% use it for email access. This suggests that use of these mobile broadband applications may not be widespread enough for people to consider them close substitutes for a mobile voice call (see MSA II, Figure 7). http://stakeholders.ofcom.org.uk/binaries/consultations/msa/summary/msa.pdf

[86] UKCMR 2009 shows that 13% of mobile users had accessed email on their phone, but that the proportion was much higher for smart phone users (35%) and considerably higher for iPhone users (75%). In addition, take-up of smart phones is increasing, with smart phones making up 15.6% of all handset sales in Q1 2009, compared to 3.7% in Q1 2005. Vodafone suggested that smartphone sales will account for 30-40% of its unit sales in the 2010/11 financial year (Vodafone Group plc Interim Management Statement for the 3 months ended 31 December 2009, available at http://www.vodafone.com/etc/medialib/attachments/q3_2010.Par.79960.File.dat/q3_ims_presentation.pdf).

[87] Call-back refers to a situation where the direction of a call is 'reversed' and the calling party is called back, either by the call recipient (in the case of an ad hoc arrangement) or by a provider of a specialised call-back service.

- Call-back requires co-ordination between the caller and call recipient. In particular, it requires that the recipient is willing to become the caller and hence pay the price for the call. In many cases there would seem to be little incentive for the recipient to do this. Under CPP, the called party pays nothing, but if they became the caller, they would pay for the call. Hence, even if the call charges were shared between them, the original called party would still pay more than they would if they just received the call.

- The evidence suggested to us that, whilst *ad hoc* call-back arrangements may be significant for some users, they are not widespread across all users.[88]

VoIP

3.72 In previous market reviews, we considered that, while VoIP services may develop into a substitute for circuit-switched mobile voice services, they were still in their infancy and so their effect on MCT was still unclear. Since that time, we have seen considerable developments in this area.[89] These developments make it necessary to determine where VoIP calls sit in relation to the market definition of MCT.

3.73 In our April 2010 consultation, we considered that VoIP is unlikely to constrain a SSNIP on MTRs.

- We considered it clear that, for VoIP calls between fixed points (such as home PCs), similar arguments hold as in relation to substitution of a call to a mobile for a call to a fixed line – namely that the importance of convenience and immediacy of contact limits the extent to which these services can be considered substitutes.

- For the SSNIP test, what matters is whether a call is *terminated* as a VoIP call. If the number range holder chooses to terminate the call using circuit-switched technology, this call will still be subject to a normal MTR. Thus, the question is how far end-to-end VoIP calls (i.e. calls both originated and terminated as VoIP calls) will constrain a SSNIP in MTRs.

- If the consumer cannot choose to make/receive an end-to-end VoIP call, then they will not be a constraint. At present, it is not possible for the caller to influence how the call is terminated. However, in some circumstances it is possible for the recipient to influence how they receive the call.

- A second factor is how far consumers would want to make a 'pure' VoIP call as opposed to a circuit-switched call. If consumers consider VoIP calls to be inferior to circuit-switched calls, they may view them as a more limited substitute or, at the extreme, as being of insufficient quality to be considered a substitute. In some

[88] According to the Jigsaw research, 17% of respondents who use a mobile phone request a call back at least once a week. However, more than half (58%) never request a call back.

[89] Rather than make a circuit-switched voice call, a caller may choose to make a VoIP call. Some of these calls (for example, Skype calls) are made using user-names rather than mobile numbers. However, others (such as Truphone calls) can be made to and from mobile numbers. There are a growing number of providers, such as Truphone and Jajah, which charge MTRs even though calls are not terminated on a 2G/3G circuit-switched network, and charge their subscribers for making calls. This charge (on a per call basis) is often comparatively low or, in some cases, zero. They also charge their subscribers a significantly higher rate for receiving calls where these calls are forwarded to other mobile numbers.

ways VoIP services can be inferior to circuit-switched voice calls.[90] In addition, the quality of some VoIP services can be erratic compared to the quality of circuit-switched voice calls.

- However, consumers' expectations of service quality are lower for mobile calls than fixed calls.[91] Thus, VoIP services may be more comparable to circuit-switched mobile services than to fixed voice services. In addition, improvements to mobile networks in terms of coverage, capacity and the increasing availability of VoIP-enabled mobile devices may be increasing the perception of mobile VoIP as a suitable alternative. On the other hand, improvements to coverage mean that consumer expectations of mobile services may be increasing, so circuit-switched mobile voice calls are still likely to be viewed more favourably than VoIP.[92]

- We noted that, for the purposes of the Hypothetical Monopolist Test, we were interested in people who would change their behaviour *in response to a SSNIP* in MTRs; i.e. we should only be concerned about those customers not currently planning to switch to VoIP and whether they would be likely to make such a switch in response to a SSNIP.

- The evidence shows that the majority of those with access to VoIP already use it, and that the use of VoIP is growing.[93] This suggests that there has been and most likely will continue to be some migration to and take-up of VoIP within the period of this review without any change in the price of non-VoIP voice calls.

- It could be argued, given that there are already opportunities for consumers to make significant cost savings by using VoIP, that those who are likely to switch to VoIP will probably do so without a SSNIP, and that a relatively small increase in the price of circuit-switched mobile calls as the result of an increase in MTRs may not encourage others to do so. Thus, we considered that VoIP is unlikely to constrain a SSNIP in MTRs.

Reaction by call recipients

3.74 The CPP regime means that increases in MTRs do not directly affect call recipients. This suggests that call recipients would be less likely to react to increased MTRs than callers. Nevertheless, we stated in our April 2010 consultation that increases in MTRs may provoke a reaction by call recipients if:

- the three conditions set out in paragraph 3.60 (namely, callers are sufficiently aware that they are calling a mobile on a specific network; callers are sufficiently aware of the price of calling that particular network; and callers are sensitive to changes in the prices of calling the network they want to reach) are met; *and*

[90] For example, using VoIP over WiFi while in motion is more likely to result in interruptions to service and more dropped calls than using a 2G or 3G network, as the latter type of networks have better integrated handover between cells.
[91] For example, survey evidence suggests that consumers may realise that some areas have poorer mobile reception than others and so accept that they are more likely to experience dropped calls or interruptions to service when using a mobile. Reliability is the only measure of satisfaction where fixed outperforms mobile (see *The Consumer Experience,* November 2008, at http://stakeholders.ofcom.org.uk/binaries/research/consumer-experience/research.pdf).
[92] The Jigsaw research found that reliability of service was a key factor in current network choice for 15% of respondents.
[93] According to the UKCMR 2009, 70% of people with access to VoIP use it, and the use of VoIP (across all platforms) is growing (see UKCMR 2009, in particular pp. 251-252).

- call recipients value incoming calls to such an extent that they will modify their behaviour such that a SSNIP becomes unprofitable.

3.75 The evidence presented in paragraphs 3.59 to 3.73 above suggests that the conditions with respect to the *calling* party's behaviour may not be met. This section considers whether the condition above relating to the call recipient's behaviour is met.

3.76 The evidence suggested to us that mobile subscribers did not consider the cost to others of calling them to be an influential factor when choosing their MCP.[94] Whilst a constraint on MTRs could arise if consumers used multiple numbers in order to minimise the cost to others of calling them (by providing a choice of MCPs on which to reach them), we considered that there was very limited evidence that this type of behaviour occurs at a significant level in the market.[95]

3.77 We considered that another way MTRs might be constrained might be by recipients choosing to receive calls as VoIP calls rather than as circuit-switched calls. It is easier for a call recipient to decide to receive circuit-switched calls instead of VoIP calls (by switching off their packet connectivity, thus forcing the terminating operator to route the call via the circuit-switched network) rather than vice versa, although such functionality is developing (but not widespread).[96] However, the recipient still has relatively little incentive to do this in a CPP regime as they do not pay for receiving the call and so will not save money by doing this. In addition, VoIP providers rely on either the 2G/3G data connection or access to WiFi. The packet access rates of these services are unregulated and so the service quality cannot be guaranteed. We considered that MCPs are therefore unlikely to be constrained by this in their setting of MTRs, particularly where the VoIP provider relies on access to their data connection. Furthermore, we did not foresee these applications developing sufficiently within the period of the next market review as to become mainstream applications.

3.78 We therefore considered, on the basis of the available evidence, that the behaviour of call recipients is unlikely to constrain MCPs' ability to set excessive MTRs.

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[94] Respondents to the Jigsaw research were asked what the main factor in their current choice of network had been. No one mentioned the cost to others of calling them as an influential factor in choosing their network. A small proportion (7%) chose their network on the basis that friends/family were on that network as well. While part of the reasoning behind this may be that on-net calls are cheaper and so it will cost less for this group to contact the respondent, it would also mean that the cost to the respondent of calling their close contacts will be lower. This is likely to be the more important consideration to most respondents, as it reflects the most popular consideration ('general cost overall'). In any case, 7% is a small proportion of respondents, which suggests this is not an important factor for many.

[95] Only 11% of adult mobile users have more than one mobile phone or SIM card with different numbers. Of those who do, for 84% the SIM card on which they make most calls or texts is the same as that on which they receive most calls or texts. This suggests that most people who use more than one SIM card are not receiving calls on a separate number than the number they use to make calls. In addition, when asked why they used more than one SIM/phone, allowing friends to call or text on the number which offers them the lowest cost was the main reason for only 4% of respondents. By far the most popular response (given by 35% of respondents) was to separate numbers for work and personal calls. See UKCMR 2008 Figures 5.62 and 5.65.

[96] For example, the iCall application for the iPhone allows the recipient to switch a call from 3G to WiFi if they are in range of a WiFi hotspot without interrupting the call. It is possible that such applications may develop for other smart phones and even for 'normal' phones. This would allow recipients to easily switch between IP termination and circuit-switched termination, and so may increase the likelihood of this imposing a constraint.

Retail supply-side substitution

Could retail supply-side substitution constrain termination rates?

3.79 Having considered retail demand-side substitution in our April 2010 consultation, we then proceeded to look at retail supply-side substitution.[97]

3.80 For retail supply-side substitution to impose a constraint on MTRs, an operator that does not currently offer calls to mobiles would need to be able to switch into such provision. This would entail bypass of the MCP which holds the mobile number that the caller wishes to contact. Instead, the new provider would use its own network technology to connect a call to that number, thus undermining any price set above the competitive level by the MCP.

3.81 As mentioned above, a consumer may have more than one mobile number (sometimes on a single device). However, once a caller has dialled a particular mobile number, only the MCP to whom that number has been allocated can terminate the call. Thus, the MCP that has control of the mobile number range that contains the dialled number has control over the routing of calls to that number.

3.82 We noted in our April 2010 consultation that a MCP has other options for terminating a call, such as using data services (for example Skype calls to a 3G or Wi-Fi network). However, although there are more methods for routing and terminating a call now than at the time of previous market reviews, it remains entirely the decision of the recipient's network which methods it makes available and which is ultimately employed for any given call. As a result, we considered that this would not place a competitive constraint on the MCP's termination charge.

3.83 We noted that it is not presently possible to offer retail calls to a mobile number without depending upon the MCP to which that number belongs to terminate such calls. We also stated that we were unaware of any technologies that are widely available and adopted which allow a call provider to bypass the recipient's MCP. In addition, we considered it unlikely that such technologies would develop by 2015 to such an extent that they would represent a material constraint on MTRs.

Conclusions on the relevant retail and indirect competitive constraints

3.84 In our April 2010 consultation we proposed that the narrowest possible retail market is a circuit-switched voice call to a specific mobile number associated with a subscriber to a particular MCP.[98] We did not consider that callers and/or call recipients are likely to behave in a manner that would constrain a MCP's ability to set wholesale MTRs above the competitive level. This is partly because we were unable to identify any alternative methods of communication that would *individually or collectively* provide a suitable substitute for a voice call to a mobile number in a sufficient number of instances to present a constraint on a hypothetical monopolist of MCT.[99]

[97] Paragraph 3.44 and paragraphs A4.109 – A4.112 (Annex 4) of our April 2010 consultation. http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf
[98] Paragraphs A4.113 – A4.116 (Annex 4) to our April 2010 consultation. http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf
[99] It should be noted that, even were other services included in the relevant retail market, this would not automatically imply there was an indirect constraint. The relevant test would be whether a SSNIP in wholesale MTRs (which might translate to a much smaller increase in prices at the retail level)

3.85 In addition, we did not consider it likely that, within the period covered by this review, it would be possible to bypass the MCP to which a call recipient's mobile number was allocated in order to connect a call to that number. Thus, we considered that there were no material retail supply-side substitution possibilities.

3.86 We stated that it followed from our retail market analysis that the wholesale market should not be defined any wider based on indirect competitive constraints. However, we then discussed whether there are any possible direct competitive constraints at the wholesale level.

Direct competitive constraints

3.87 We noted that direct competitive constraints could arise in the wholesale market if there are realistic alternatives to acquiring MCT from a given MCP, or if providers not currently offering MCT could quickly and easily enter to offer MCT to a particular group of customers. Hence, these competitive constraints could arise due to demand-side substitution or supply-side substitution. In our April 2010 consultation, we considered each of these in turn, before reaching our provisional conclusion in relation to direct competitive constraints.[100]

Wholesale demand-side substitution

3.88 An operator wishing to offer calls to a specific mobile number possessed by a customer of a specific MCP must purchase termination from that MCP or it will not be able to terminate such calls.[101] Therefore, purchasing wholesale MCT from a different provider will not be a substitute for MCT from the holder of the desired mobile number, and so does not impose a direct constraint upon MTRs. As discussed in paragraph 3.79 to 3.86, we did not consider it likely that there will be technological developments that will make retail supply-side substitution more likely. We therefore considered that, during the period under consideration, there was little prospect for termination to be provided, in relation to calling a specific number, other than by the MCP to which that number is allocated.

Wholesale supply-side substitution

3.89 Wholesale supply-side substitution requires that firms not currently providing MCT to a specific number in a MCP's number range be able to move into such provision at short notice and without incurring substantial sunk costs in response to an increase in MTRs.

3.90 When a MCP has total control of its mobile number range, no other operator can intervene into the termination process and 'steal' termination from the number-holding MCP. Wholesale supply-side substitution of this nature would require an active decision and positive action by the call recipient to manually switch SIM cards or phones, or adopt a multiple SIM handset, in order to receive calls from different networks. We noted in our April 2010 consultation that we did not observe such

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would induce enough consumers to switch to the alternative services in the market to impose a competitive constraint.

[100] Paragraphs 3.45 to 3.49 and paragraphs A4.117 to A4.124 (Annex 4) of our April 2010 consultation.
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf

[101] In practice, only the MCP providing the mobile service is able to (a) determine the location of the called user (as location information in kept within the Home Location Register or other functional equivalent element in the MCP's own network); and (b) to access that user's device in order to deliver the call (for example, by controlling access and user authentication processes).

behaviour to any great degree in the market, and considered it unlikely that this would develop to a great extent, in the period covered by this review.

3.91 A separate consideration is whether there are different 'types' of termination. We have shown that end-to-end VoIP calls will not impose a constraint in the retail market and so should not fall within the retail market definition. However, we also suggested that consumers may not be sensitive to whether calls are terminated via circuit-switched technology or via IP. Thus, a number range holder can choose to terminate a call via circuit-switched technology or via IP piggybacking on the consumer's existing wireless broadband or WiFi access. Either way, it is the number holder's choice (with the exception of the limited set of circumstances set out in paragraph 3.77), but MCPs do not tend to distinguish between the two for the purposes of setting MTRs (and have little incentive to do so).

3.92 In addition, the distinction between IP and circuit-switched termination may become blurred in the future. For example, LTE uses packet-switched technology and voice may be delivered as another service over the packet-switched network. Thus, even MCPs that currently offer predominantly circuit-switched calls may use both circuit and packet-switched technology to deliver MCT services within the period under review.

3.93 We therefore proposed in our April 2010 consultation that IP termination should be considered within the market for wholesale MCT, not because it imposes a competitive constraint on circuit-switched termination, but because it is provided under a equivalent pricing regime whereby the terminating MCP can control the MTR.

Conclusions on direct competitive constraints

3.94 The MCP that controls a number range also controls termination to the numbers in that range. Thus, an OCP cannot purchase MCT from another network in order to terminate calls to these numbers (and hence there are no wholesale demand-side substitutes), nor can other providers switch in to provide MCT to these numbers (and hence there are no wholesale supply-side substitutes). We concluded that there are no significant direct competitive constraints on a MCP's ability to set MTRs above the competitive level – both for termination via IP as well as termination via circuit-switched technology. Since MCPs do not distinguish between the two 'types' of termination with respect to the price charged to other CPs, our view was that IP termination should also fall within the market for wholesale MCT.

Broadening market definition beyond mobile voice call termination provided for an individual number

3.95 The market definition analysis summarised above considered whether there are likely to be any significant constraints on a MCP's ability to set MTRs for voice calls to an individual mobile number. We provisionally concluded in our April 2010 consultation that there is not any significant constraint. However, we saw strong arguments for widening the market definition from individual mobile numbers, to the level of all of the numbers in a particular allocated number range held by a single MCP.[102]

3.96 In particular, we considered that the provision of off-net MCT to different numbers held by the same MCP should be included in the same market because:

[102] Paragraphs 3.50 to 3.51 and paragraphs A4.125 (Annex 4) of our April 2010 consultation. http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf

- a MCP is likely to face homogeneous competitive conditions in providing wholesale MCT to the different numbers in its number range, which implies that its conduct in supplying this service in relation to different numbers is likely to be similar; and

- the MCP faces a common pricing constraint through its billing system which would make it difficult/costly to charge different prices for MCT to different numbers even if it wanted to.

Mobile voice call termination call types

3.97 In our April 2010 consultation, we also considered whether different call types were within the relevant defined market.[103]

Calls to ported numbers

3.98 Under General Condition 18, mobile numbers which were originally allocated to one MCP may be ported to another MCP at the subscriber's request. The current portability arrangements mean that MTRs for a ported number are not set by the MCP to which the number has been ported (the recipient network) but by the MCP to which the number was initially allocated (the range holder).

3.99 We proposed in our April 2010 consultation that, since the recipient MCP does not set the MTR for calls to a ported-in number, calls to these numbers do not fall within the recipient MCP's market. Conversely, the range holder does set the MTR for calls to numbers which have been ported out, and this MTR is subject to the same common pricing constraint as MTRs for calls to numbers it still controls. Therefore calls to ported numbers fall within the market of the range holder.

3.100 We therefore considered that the market for any given MCP extends to calls made to mobile numbers which have been ported out, but not to calls to mobile numbers which have been ported in.

Calls to voicemail

3.101 A call to a mobile number which the intended recipient does not answer is sometimes sent to voicemail, where the caller can leave a message for the recipient. We therefore stated that it is unlikely to be an indirect competitive constraint – the call is made from and to the same number, and, generally, the caller does not choose to be given the option of leaving a voicemail message instead of a connected call. In addition, the MCP which decides whether the call is sent to voicemail is the same MCP which decides whether and how to connect the call when the recipient wants to answer.

3.102 We considered that calls to voicemail should be included in the relevant market due to the homogeneous competitive conditions between these calls and conventional voice calls. Only the number range holder can determine how and whether to pass calls to voice, and exercises de facto control over voicemail messages left to its number range, in the same way it controls calls made to those numbers. It also faces the same incentives in setting the MTR for voicemail as for calls to its numbers – it is a wholesale charge, and so does not directly influence what its own customers pay for leaving a voicemail message compared to making a call.

[103] Paragraphs 3.52 to 3.53, paragraphs 3.62 to 3.66 and Annex 5 to our April 2010 consultation. http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf

3.103 In addition, we noted that during the enforcement of our previous MCT charge control, several MCPs acknowledged that their systems did not allow them to differentiate between calls which ended on voicemail from other calls. This suggested to us that MCPs cannot set a different charge for terminating these calls and so they are subject to a common pricing constraint in relation to MCT.[104]

3.104 This suggested to us that off-net calls which end on voicemail should be *included* in the relevant market.

National roaming

3.105 In the case of national roaming[105], a user may receive a call to a number registered with MCP A, but the call would be received and terminated on MCP B's network. However, MCP A still controls the termination of the call and sets the MTR. It is merely using MCP B's network as an input into its own termination service.

3.106 We therefore proposed that calls to an MCP's number range which are received while the user is roaming on another MCP's network should be treated in the same way as any other call to the first MCP's number range (i.e. as if the user were not roaming).[106]

International roaming

3.107 In Annex 5 of our April 2010 consultation we stated that the way we were treating international roaming calls would depend on how the call is routed[107]. If the call is routed directly, then we treated the call like any other call originated on the UK network (i.e. an on-net call).

3.108 However, in some cases the call may be 'tromboned' – sent from the originator to the home network abroad, which then effectively terminates the call and sets up a separate call to the UK network on which the subscriber is roaming (i.e. off-net). In that Annex we considered four examples, to illustrate how we believed we should consider international roaming calls, in the context of this review.

Other call types

3.109 We noted that we were aware of other call types (e.g. test calls, calls to a MCP's customer service line) which are not typical calls between end-users and so which

[104] A secondary factor is the degree of common pricing constraint at the retail level that is, in practice, often applied between voice calls that are connected, and those passed to voicemail platforms – although some MCPs also offer free voicemail in some packages.

[105] Some MCPs enter into agreements with a rival national MCP to provide coverage over a greater area, or more effectively, than they would otherwise reach. The ability to roam from one network in the UK to another is referred to as domestic or national roaming.

[106] For example, a call from a H3G mobile number to a H3G number which is roaming on Orange's network should be treated as an on-net call and so would be excluded from the charge control. However, a call from a Cable & Wireless mobile number roaming on Orange's network to an Orange number would be treated like an off-net call to an Orange number and so would be included in Orange's market.

[107] International roaming occurs might best be described as a service which allows mobile subscribers to use their mobile while abroad. The services available to subscribers, the price for using those services and whether a service can be obtained at all will be determined by a number of factors, including the subscriber's 'home' provider, their current tariff and the country in which they are roaming. For the remainder of this section, we focus on calls made between numbers either roaming on or registered to the same UK network e.g. between an EE subscriber and a foreign subscriber whose network has a roaming agreement with EE.

may not logically face the same competitive constraints or create the same incentives for MCPs. However, given that these calls represent only a very small proportion of total volumes, we did not consider it proportionate to engage in a detailed analysis of these call types in our April 2010 consultation. We noted however, for the avoidance of doubt, that where these calls are made to a mobile number and face the same common pricing constraint as other calls to mobile numbers, we would consider them to fall within the relevant market.

Product market definition proposed in our April 2010 consultation

3.110 In light of the evidence and analysis summarised above, we provisionally concluded in our April 2010 consultation that the relevant product market comprised termination services provided by an individual MCP to another communications provider, for the termination of voice calls to UK mobile numbers that MCP has been allocated by Ofcom and for which that MCP is able to set the MTR.[108]

3.111 We considered that there were 50 MCPs (listed in Annex 7 to our April 2010 consultation) providing MCT which met this definition:

- **The four national MCPs.** The four national MCPs (H3G, O2, EE[109] and Vodafone) that currently use 2G and 3G mobile networks to terminate mobile voice calls across the UK (and might use other technologies, such as LTE, before the end of the review period);

- **New entrant MCPs with their own networks**. We observed that many new entrant MCPs are employing very different business models to the established big four MCPs. We noted the new MCPs (for example, C&W) providing mobile service using DECT guard-band spectrum and new infrastructure. Whilst some MCPs are combining infrastructure roll-out and roaming arrangements to achieve near national coverage, others have chosen to target specific geographic areas. Common to these new MCPs is that each is allocated UK mobile number range(s), which provides the path enabling them to deliver mobile services to the end-user. The 'exclusive' nature of this number range allocated to MCPs and which the MCP controls, enables it to set MTRs. For this reason we concluded that our analysis applied equally to new entrant MCPs which are capable of setting their own MTR.

- **MVNOs.** We stated that the extent to which a MVNO could influence the MTR it receives depends upon its relationship with its partner MCP. We noted our understanding that calls to most UK MVNO's subscribers are routed directly to the host MCP's network and the host MCP sets (and receives from the originating operator) the applicable MTR. However, where an MVNO has its own allocation of mobile numbers, it would be able to control the MTR for calls made to these numbers. MVNOs with control over wholesale MTRs are likely to face similar incentives as other MCPs when setting MTRs to other networks. This is because calling parties and other communications providers (OCPs) have no choice but to use that MVNO's wholesale MCT services to deliver calls. Thus we proposed

[108] Paragraphs 3.4 to 3.5, paragraphs 3.54 to 3.61 and paragraphs A4.126 to A4. 130 (Annex 4) to our April 2010 consultation http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf

[109] In our April 2010 consultation we listed T-Mobile (UK) Ltd and Orange Personal Communications Services Ltd (Orange) separately. Orange is now a subsidiary of EE (previously known as T-Mobile (UK) Ltd.

that, where a MVNO is able to control the MTR, termination of calls to that MVNO's number range would represent a separate market.

- **Other new entrant MCPs.** We also observed the entry of MCPs that do not offer services using a typical mobile network at all. Instead, they terminate calls by transferring them as a data service across the internet (for example, over a WiFi network) to a mobile number. Not only does this mean that they have a very different cost base to traditional MCPs, but in some cases a call to a mobile number provided by one of these new entrant MCPs may, at different times, be routed to a mobile device and at others to a fixed line. However, all MCPs allow their subscribers to forward calls to their mobile numbers to fixed lines, and so this aspect is not unique to new entrant MCPs' service offerings. We therefore considered that, where an MCP provides interconnection to a mobile number to other operators and could set a charge for this, it falls within the market definition of providing wholesale MCT. Even where it chooses not to charge a MTR, it still provides a MCT service for voice calls and could, in principle, charge for this.

Stakeholder views on product market definition

3.112 In our April 2010 consultation, we posed three specific questions to stakeholders on product market definition:[110]

a) Do you agree with our views on whether and when new MCPs should form separate markets? Are there any other factors we have not considered which should inform this view?

b) Are there any other types of providers we should also consider?

c) Do you agree with our views on the specific call types that should be included in the market? Are there any factors we have not considered which should inform this view, resulting in call types other than those identified being either included or excluded from the market?

3.113 In the rest of this section we summarise stakeholders' responses and, finally, set out our conclusions, having taken account of these responses.

Proposed market definition

Most respondents generally agreed with our approach to market definition

3.114 Fifteen MCPs provided comments on the proposed market definition – and, out of these, 13 agreed with our analysis.

3.115 In particular, a number of respondents (including H3G, BT, O2 and Vodafone) agreed with the proposal to define markets on the basis of services provided, rather than on the underlying technology used to deliver services.

3.116 Vodafone and O2 agreed, in general terms, with our views on whether and when MCT supplied by new MCPs should form separate markets.[111] In its response H3G commented that:

[110] Section 3 of our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf

> "Three agrees that calls to a given number range for which an MCP can determine the termination rate should be defined as separate markets" [112]

3.117 In its response BT commented that:

> "There seems to be little disagreement that Ofcom's established market definition is correct. Under the "calling-party-pays" system, there is no substitute for terminating a voice call on the network of the subscriber's chosen provider so the relevant economic market is that for all calls that terminate on the individual network(s) in the UK. The refinements that Ofcom has made to the definition – that is, to anchor the control to mobile numbers rather than networks and to couple this with the ability to control the termination rate – appear successfully to remove specific technologies from the equation and enable Ofcom to regulate the specific economic activity in question. There cannot be any question that the definition fully complies with the intention of the European Commission in listing wholesale mobile voice call termination markets as susceptible to ex ante regulation in its Recommendation."[113]

3.118 Flextel took a fundamentally different view of the concept of market definition and significant market power in mobile termination. It submitted that our review and regulation should be focused at the retail level (e.g. capping retail prices).

3.119 In answer to Flextel's concern, we maintain that reviewing the wholesale market is appropriate. In the absence of market power in such retail markets, controlling retail prices would typically be inappropriate for an economic regulator. Moreover, even if the downstream retail markets were not effectively competitive and/or were themselves regulated, in offering a retail call service it remains the case that the downstream operator is still dependent on the input from a monopoly supplier upstream (i.e. the MCP which enables the call to terminate to the number of the called party in question).

3.120 ✂

3.121 ✂

3.122 ✂[114]

3.123 In answer to our specific consultation question on market definition no other respondents made any substantial comments, nor did any respondent identify other types of provider that we should consider.

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[111] See Vodafone's response to questions 3.1 to 3.4 of our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf and O2's response to the same questions in our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf

[112] See page 71, paragraph 252 of H3G's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf

[113] See page 6, section 1.1 of BT's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/BT.pdf

[114] ✂

Calls within the scope of the market

3.124 Given our proposals (described at paragraphs 3.97 to 3.109 above) concerning the call types that we considered fell within the market for wholesale MCT, we set out in our April 2010 consultation a table, which is also set out below. The table sets out the different call types which we consider to be included within the relevant market, set alongside the position in relation to these call types set out in our 2007 MCT statement.

Table 3.2: Comparison of call types included in our 2010/11 market review

Type of call	2007 market review	2011 market definition
Voice calls	Terminated on mobile network only	Terminated to a mobile number
Off-net (1)	**Yes**	**Yes**
Ported-in	**Yes**	No
Ported-out	No	**Yes**
Calls to voicemail	No	**Yes**
Voice calls to mobile terminating on IP	No	**Yes**
National roaming (2)	**Yes**	**Yes**
Call forward (including international)	No	**Yes**

Additional notes (1) DECT guard-band MCP's (for example C&W and Colt), femtocells and picocells may have been captured by the market defined in 2007 had they been operational technologies at the time. (2) For example, H3G or C&W use a 2G network to provide full UK coverage. A 'Yes' in the columns means call types are included within the market definition.

Source: Ofcom

The majority of respondents agreed with our proposals on call types

3.125 Most of those respondents, who commented on our proposed MCT call types, agreed with our position – this includes EE, BT, H3G, Virgin Media, Talktalk, Colt, Mundio, Telephony Services and XLN.

3.126 The Post Office also agreed with our analysis of MCT call types, but questioned why we excluded short message services (SMS), because SMS provide a large amount of revenue. As noted at paragraphs 3.67 to 3.68 above, we consider SMS to be only a limited substitute for calling a mobile at the retail level; it does not act as a competitive constraint at the wholesale level. For that reason we do not consider wholesale SMS termination to be in the same market as wholesale MCT. There was nothing in the Post Office's response which would cause us to change our view.

3.127 Vodafone also questioned the inclusion of ported-out calls in the proposed market definition. Vodafone suggested that including this call type "will lead to very strange

termination rate gradients" by which it meant a distorted set of time-of-day rates being applied to termination.[115] Vodafone noted that an alternative (to excluding ported-out calls in the market definition) may be to apply a different remedy to this call type.

3.128 The question of remedies is discussed in section 6. The reason that ported-out calls fall within the relevant market is related to the reason for ported-in calls falling outside the market definition for the MCP in question. The critical issue is that the MTR for a ported number is not set by the network to which the number has been ported (i.e. the recipient network) but by the donor network to which the number was initially allocated (i.e. the range holder).[116] This is because, today, calls to ported numbers are first routed via the range holder's switch and then forwarded ('onward routed') to the recipient network. Since current wholesale billing practices do not allow MCPs to set different MTRs for ported-out numbers (as compared to non-ported numbers) there is a common pricing constraint across ported and non-ported numbers.

3.129 Therefore, termination of voice calls to mobile numbers that have been ported out falls within the market for MCT because the MCP (the range holder) will still determine the charge for terminating voice calls to these mobile numbers, even though we acknowledge that it will not retain the revenue, bar a conveyance charge levied on the recipient network.[117]

3.130 Finally, Vodafone's concern that the treatment of ported numbers may distort time-of-day rates is no longer relevant, given that our charge control remedy will apply a maximum charge ceiling across *all* time-of-day periods.[118] As a result, we consider that in practice charge-controlled MCPs are likely to set the same MTR at all times within a given year.

Conclusion on product market definition in light of stakeholder responses

3.131 Having carefully considered and taken account of responses from stakeholders, we conclude that the relevant product market is as proposed in our April 2010 consultation and described above.

Further discussion with the European Commission on product market definition

European Commission's request for further information

3.132 As required by Article 7 of the Framework Directive, we notified the European Commission of our proposed measure (including our proposed market definition) and the reasoning on which it was based. The European Commission wrote to us on 6

[115] Vodafone further noted that this consideration would be irrelevant only where ported out traffic had an identical time-of-day mix to the terminated traffic which related to calls to current customers of the operator (or if a single annual flat rate for termination were to be mandated). See Vodafone's answers to question 3.3 (at page 69) and question 9.6 (at page 72) of its response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf

[116] See paragraphs 3.98 to 3.100 above for a more detailed discussion of this issue

[117] When a call to a ported number is onward routed by a donor network to the recipient network, the donor network levies a charge on the recipient known as donor conveyance charge (DCC) for the provision of onward routing.

[118] This has been done to address the detriments associated with so-called flip-flopping. See section 10 for further discussion of this point.

May 2010 requesting further information on our notification.[119] With respect to market definition, the European Commission posed questions on the following matters in particular:

- the consistency of our proposed market definition with market 7 of the 2007 EC Recommendation (in light of the reference to mobile number ranges in our proposed market definition) (see paragraphs 3.84 to 3.86 above); and

- further details of the MCPs provisionally designated in our April 2010 consultation (see paragraph above), including the type of operator (e.g. MVNO) and whether they are active on the retail market for mobile voice calls and the corresponding wholesale market.

3.133 We responded to the European Commission's request on 17 and 21 May 2010. In the following paragraphs we summarise the additional information we provided to the European Commission in response to these particular queries.

Consistency of our proposed market definition with 2007 EC Recommendation

3.134 We informed the European Commission that the development of the UK mobile market, new entrants, new methods of terminating calls to mobile devices and more disputes fuelled by regulatory uncertainty all contributed to our view that, in this market review, we should reconsider from first principles and applying the text of the 2007 EC Recommendation, how best to describe what constitutes '"*voice call termination on individual mobile networks*". This thinking, coupled with a desire to simplify regulation where possible, led to our proposal to describe individual mobile networks by reference to the mobile number range operated on that network.

3.135 We believed that our approach maintains a focus on networks (in line with the requirements of the 2007 EC Recommendation) but recognised that not all MCPs themselves manage a radio access network. In some cases, MCPs terminate calls that are delivered using a radio access network that is operated by a third party (with the third party having no control over or visibility of, the MTR charged). In other cases, calls delivered to the core mobile network are terminated on, for example, a voicemail platform without being passed over a radio access network. In either case, the description of the market in our 2007 statement (which focussed on 2G/3G radio access networks) does not fit the market evidence today. The proposal to regulate calls to a mobile number range is consistent with the market 7 definition in the 2007 EC Recommendation and is more technology-neutral (and, hence, 'future-proof'), and helps ensure we maintain consistent open markets between the UK and the rest of the EC.

3.136 We explained to the European Commission that we consider our proposed market definition to accord with the 2007 EC Recommendation by definition, because the mobile numbers allocated to the MCP identify those calls that are switched to, and routed by, the recipient's network. Therefore, a reference to a mobile number / number range necessarily refers to the activity of the relevant individual mobile network. Given that there is scope for confusion in the use of the term 'network' (which in some contexts may be read by stakeholders as a reference only to a radio access network) we refrained from using the word 'network' in the proposed market definition. As noted above, market evidence in the UK suggests that the ownership or operation of a traditionally understood type of 2G/3G radio access network is not essential for the termination of mobile calls. (Use of the term 'network' would also be

[119] UK/2010/1068: mobile voice call termination, Request for information pursuant to Article 5(2) of Directive 2002/21/EC, dated 6 May 2010.

redundant since receiving calls in a number range necessitates activities that can only be undertaken by a network, such as switching and routing).

3.137 In describing the market as we have, we wanted to make clear that companies which are providing MCT services will fall within the market, even if they operate a core network (for switching) but do not themselves operate a radio access network.

Further details of MCPs provisionally designated in our April 2010 consultation

3.138 In our April 2010 consultation, we explained that we had provisionally defined 50 markets for MCT, which included markets for the termination of calls to an MVNO's number range, where the relevant MVNO is able to control the MTR.

3.139 Following the European Commission's request for further information, we referred back to the applications for mobile number ranges made by the 50 relevant MCPs. We were able to inform the European Commission that, on the basis of the information contained in these applications, all of the 50 MCPs could be considered to provide a Public Electronic Communications Networks (PECN). As all of them have at least a switch and/or PSTN interconnection and/or other associated network elements which they use to provide services in the UK.

3.140 We therefore informed the European Commission that we no longer considered any of the 50 MCPs listed in Annex 7 to our April 2010 consultation to be MVNOs. We qualified this statement by noting that the term MVNO is used differently in different Member States throughout the EU. However, we consider an MVNO to be a MCP that does not normally operate a mobile communications network, and in particular does not operate switching and/or call routing equipment.[120] As such, the markets we had provisionally defined did not include the termination of calls by MVNOs.

3.141 Our view was therefore that each of the 50 MCPs listed in our April 2010 consultation controls a network (although different MCPs control different elements of their networks), which enables them to control the MTR set for a call terminating on that network.

3.142 We informed the European Commission of our belief that each of these MCPs were providing (at least) MCT services and may provide other services as well. In response to the European Commission's query as to whether all of these MCPs were active on the same nationwide retail market for mobile voice calls, we explained that all of these MCPs had supplied evidence of their intention to offer retail mobile services (when they applied for their mobile number allocation). On that basis we believed that they all offer services which, to a greater or lesser extent, compete in the same overall retail market for mobile voice calls.[121]

3.143 We informed the European Commission that we were engaging further with the smaller MCPs to ensure that they did provide wholesale MCT services. This analysis is described in more detail at paragraphs 3.146 to 3.150 below.

European Commission's "Article 7 decision"

3.144 On 23 June 2010, the European Commission issued its decision in relation to our proposed notification, including its comments pursuant to Article 7(3) of the

[120] As noted in paragraphs 3.57 – 3.59 (and associated footnotes) of our April 2010 consultation. http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf

[121] We noted however that we had not undertaken analysis of whether, nor did our findings rely on the conclusion that, each MCP competes in the same single national retail market (although we noted that it is plausible that they do). For example, smaller sub-national markets may exist but this does not change the reasoning underpinning our proposals for regulating the wholesale charges with respect to terminating calls to the number range operating on each individual mobile network.

Framework Directive.[122] On the basis of our proposed notification and the additional information we provided, the European Commission had three comments. Of these, only one comment was relevant to market definition:

> "Ofcom indicated... that, as part of the parallel national consultation process, it currently enquires whether the small MCPs do indeed provide mobile voice call termination. Against this background and in view of the fact that the outcome of the ongoing national consultation is still uncertain, the Commission urges Ofcom to make sure that all MCPs designated as having SMP in the currently notified draft measure do indeed also provide mobile voice call termination services and to designate only those operators as having SMP which are active on the relevant market..."[123]

3.145 We describe below our further enquiries on this point, and the conclusions we have reached in light of the additional evidence gathered.

Further analysis of number of defined markets

3.146 We gathered further information from the 45 smaller MCPs[124] using our information gathering powers under section 135 of the Act ("section 135"), to whom mobile number ranges had been allocated. In this information request we asked each MCP:

3.146.1 for confirmation that the named MCP had the listed mobile number ranges allocated to them and did not use any additional number ranges allocated to them;

3.146.2 for confirmation that the named MCP provided wholesale voice call termination services on the numbers allocated to them, and if so whether the MCP set the MTR for these voice call services;

3.146.3 the pence-per-minute (ppm) MTR they charged at the time, including any time-of-day variations;

3.146.4 for a list of operators which the named MCP interconnected with, and whether different MTRs were applied to different interconnecting operators;

3.146.5 the type of services offered by the named MCP on each of the numbers allocated to the MCP, the total number of customers provided by the named MCP and the total number of inbound call minutes received over the last quarter for voice services where the named MCP set and received an MTR;

[122] Commission decision concerning case UK/2010/1068: voice call termination on individual mobile networks, dated 23 June 2010, at: http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/European_Commission.pdf

[123] See page 5, section III (Comments) of the European Commission's response to our April 2010 consultation dated 23 June 2010 at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/European_Commission.pdf

[124] Information was requested from the 45 MCPs listed under "conclusions on market definition" in a table in section 3 of our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf. These 45 MCPs were identified on the basis that they had been allocated mobile (07x) number ranges by Ofcom. These smaller MCPs exclude Vodafone, O2, EE (previously separate national MCPs T-Mobile and Orange) and H3G.

3.146.6 for a brief description of how the named MCP provided services to its customers including any network infrastructure or equipment operated directly by the MCP and/or wholesale services purchased from other companies;

3.146.7 the routing path for terminating calls to mobile numbers allocated to the named MCP, including the network equipment involved in termination and the interconnection link with the PSTN; and

3.146.8 a brief overview of the business conducted by the named MCP, including total employees, the type of services offered, total number of customers, and total retail revenues for the financial year 2009-2010.

3.147 41 of the 45 MCPs responded to this information request. Of these 15 responded to the request saying that they did not provide mobile voice call termination services on number ranges allocated to them. There were a variety of reasons why this was the case; the majority were simply providing other call services, for example call forwarding services, though some number ranges were simply inactive.

3.148 For the four MCPs which did not respond, we undertook a check on Companies House to see if the companies were still active. One, Awayphone Ltd, was found to have dissolved – and therefore has been excluded from the market. We have pursued the remaining three, but have received no further contact from these MCPs and have therefore categorised them as in the market based on the latest information which they have given us – i.e. their statement of intended use of the mobile ranges in their numbering applications.

3.149 Finally, in the period between our April 2010 consultation and this statement one MCP (Wire9 Telecom Plc) has ben placed into liquidation and therefore excluded from the final list of designated MCPs in this statement.[125]

3.150 Following these further enquiries and the responses received to our section 135 information requests, we have identified a total of 32 separate markets for wholesale MCT services. This comprises 28 smaller MCPs, and the four national MCPs. The MCPs for each of these markets are as listed in Table 3.3 below, and also in Annex 1.

Conclusion on product market definition

3.151 As a result of this further analysis, we have therefore now concluded that there are 32 separate product markets for wholesale MCT, comprising termination services provided by an individual MCP to another communications provider, for the termination of voice calls to UK mobile numbers that MCP has been allocated by Ofcom and for which that MCP is able to set the MTR.

Part 2: Geographic market definition

3.152 Having reached a conclusion as to the relevant wholesale product markets, we now move on to consider the geographic scope of the relevant economic market. In order to assess the scope of geographic markets, the market assessment should look at the extent to which competitive conditions are sufficiently similar (as between

[125] We have been informed that Cloud9 Communications Limited, a newly incorporated company has purchased the assets of the former Wire9 Telecom Limited and Cloud9 Mobile Communications (Wholesale Services) Limited out of Administration.

different areas) such that a wider geographic market (e.g. a national market) can be defined. To do this, geographic market analysis often considers various competitive indicators such as whether pricing is the same across different geographies (suggesting a common pricing constraint) or looking more directly at indicators of the degree of competition between different geographic areas.

Proposals in our April 2010 consultation

3.153 In our April 2010 consultation,[126] we stated that the narrowest possible geographic market is the area covered by the network assets (e.g. the RAN) owned and operated by the MCP capable of terminating a call. If the MCP were to rely entirely on its own network (i.e. it had no other formal or informal agreements to use the networks of other mobile or fixed CPs) then this would be the only area where it could provide a MCT. During all previous reviews of the MCT market, the MCPs that were being considered all had (or planned to develop) national networks, and so effectively their geographic market was the UK.

3.154 Some MCPs have entered the market with network roll-out only in limited geographic locations, but in some cases these MCPs supplement their own network assets by entering into agreements with other MCP(s) to use their networks to deliver services, including MCT (i.e. a national or sub-national roaming agreement). An originating operator would still need to interconnect with such an MCP, so this MCP will control the MTR on its number range even when the call terminates in an area outside of its own network coverage. Thus, the competitive conditions an MCP faces when terminating a call using another MCP's network are the same as those it faces when terminating a call using its own network. Therefore, it follows that the scope of its geographic market is the network over which it has control of the MTR.[127] In market definition terms, this geographic market is defined on the basis of there being homogeneity of competitive conditions as between its own physical network and the network (typically 2G/3G) on which its customers can roam.

3.155 We noted that the nature of MCT services provided over networks other than 'traditional' mobile networks (e.g. using WiFi to connect VoIP calls) is such that MCPs do not need formal contractual arrangements in place in order to use other types of network assets to terminate voice calls on their mobile number range. Calls transferred as VoIP over data connections still require interconnection with the number range holder. Therefore the competitive conditions in these situations are exactly the same as where the MCP owns the network assets itself.

3.156 It is possible that the services provided to different numbers may have different geographic footprints. For example, one consumer may subscribe to use WiFi hotspots that another consumer does not, and so the former will receive calls in areas where the latter will not. However, the competitive conditions in serving these customers are exactly the same in both cases. There is no strengthening or weakening of competitive pressure on the MCP as a result of the consumer choosing to widen the area over which he or she can receive calls. We therefore considered it appropriate to aggregate calls to individual mobile numbers to cover the entire geographic area over which the MCP provides calls to its number range for which it can determine the MTR.

[126] Paragraphs 3.67 to 3.71 and paragraphs A4.132 to A4.140 of our April 2010 consultation. http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf
[127] Our approach to defining the geographic scope of the market follows the framework that is set out in paragraph 56 of the SMP Guidelines.

3.157 As in the product market definition, we proposed to find a number of different call types in each mobile call termination market. We noted that different call 'types' are likely to have different geographic 'reach'. For example, when a call is made to a consumer outside their coverage area, this call may be sent to voicemail. Therefore, the geographic market for calls which go to voicemail will cover a greater area than voice calls which the recipient answers. However, we considered that the conditions of competition in the provision of voicemail are exactly the same as the conditions of competition for 'normal' voice calls, regardless of the location where the call is received.

3.158 We noted that the only way to terminate a mobile voice call where the call recipient is currently located in the UK is by terminating that call on the UK network serving the recipient (i.e. it is not possible to terminate that call on a network located outside the UK). Accordingly, we did not consider that the relevant geographic market is wider than the UK.

3.159 Thus, our view set out in our April 2010 consultation was that the geographic market should be the area of the UK within which the relevant MCP provides and can set a charge for MCT services.

Stakeholder views on geographic market definition

3.160 In our April 2010 consultation, we posed one specific question to stakeholders on the geographic scope of the market:

- Do you agree with our view that the geographic market for each of our proposed markets should be the area of the UK within which the MCP provides and can set a change for mobile voice call termination services?

3.161 Most respondents agreed with our proposal, including BT, H3G, Talk Talk, FCS, Mundio, Telephony Services and Virgin Media.

3.162 Only Flextel explicitly disagreed with our proposed geographic market definition, stating that it was 'irrelevant' because it was arguing against our overall approach to the review. We have considered this point at paragraph 3.119 above.

Conclusion on geographic market definition

3.163 In light of these responses, our view of the geographic scope of the market remains the same as that set out in our April 2010 consultation and described at paragraphs 3.153 to 3.159 above.

Overall conclusion on market definition

3.164 In light of the analysis and evidence discussed above, we have concluded that there are 32 separate markets for the provision of MCT on individual mobile networks. Each of these markets, with respect to each MCP, comprises:

> "termination services[128] that are provided by [named mobile communications provider] ("MCP") to another communications provider, for the termination of voice calls to UK mobile numbers

[128] Call termination is the service necessary for a MCP to connect a caller with the intended recipient of the call originating from a caller on a different CP's number range. If call termination were not available, a CP could only terminate calls to other customers on its own number range.

which that MCP has been allocated by Ofcom[129] in the area served by that MCP and for which that MCP is able to set the termination rate".

3.165 In the remainder of this statement we refer to these markets collectively as 'the Defined Markets' and, when referring to an individual market, as the 'Relevant Defined Market' in relation to a particular MCP.

3.166 Our approach to market definition follows our analysis of competitive constraints, which is set out in detail in this section (see paragraphs 3.44 to 3.94). We believe that the markets we have identified are consistent with market 7 of the 2007 EC Recommendation.

3.167 Paragraph 2 of the 2007 EC Recommendation states that NRAs should ensure that the "three criteria" are cumulatively met where they identify markets which differ from those set out in the 2007 EC Recommendation. The three criteria are (a) the presence of high and non-transitory barriers to entry; (b) a market structure which does not tend towards effective competition within the relevant time horizon; and (c) competition law alone would be insufficient to adequately address the market failures identified.

3.168 Notwithstanding our view that the markets defined in Table 3.3 below are consistent with market 7, we have in any event applied the three criteria and consider that these have been met. We consider barriers to entry at paragraphs 4.36 to 4.43, we conclude that a lack of effective competition exists at paragraph 4.95 in section 4 and we discuss why *ex post* competition law alone is insufficient at paragraphs 5.19 to 5.29 in section 5.

3.169 As explained at paragraphs 3.132 to 3.150 above, we notified the European Commission of our proposed measure (including our proposed market definition) and the reasoning on which this was based, in accordance with Article 7 of the Framework Directive. The European Commission has not raised any serious doubts about the compatibility of our proposed measure with Community law.[130]

3.170 The MCPs that fall within the scope of this market review are as set out in Table 3.3 below. We have also listed the mobile number ranges currently allocated to each MCP for information.

Table 3.3: MCPs within Relevant Defined Markets

MCP	Mobile Number Range(s)	Area served

[129] Applicable to those mobile number designations and allocations that are made by Ofcom in accordance with the UK's National Telephone Numbering Plan. Further details of which can be found at, http://stakeholders.ofcom.org.uk/binaries/telecoms/numbering/numplan201210.pdf. While Ofcom allocates mobile numbers to MCPs in Jersey, Guernesy and the Isle of Man, these jurisdictions are not part of the UK or the EU, and those MCPs are therefore not within the scope of this market review.

[130] http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/European_Commission.pdf

24 Seven Communications Ltd	07911 2, 07911 8, 07406 6, 07893 1	The area served by 24 Seven Communications Ltd within the UK
British Telecommunications plc	07777 0-9	The area served by BT plc within the UK
Cable & Wireless Ltd	07822 8	The area served by Cable & Wireless plc within the UK
Callax Ltd	07874 5, 07978 0	The area served by Callax Ltd within the UK
Cheers International Sales Ltd	07978 4, 07406 0-2 07822 7	The area served by Cheers International Sales Ltd within the UK
Coralbridge Ltd	07520 7	The area served by Coralbridge Ltd within the UK
Core Telecom Ltd	07559 7	The area served by Core Telecom Ltd within the UK
Everything Everywhere Ltd[131]	07504 0-9, 07505 0-9, 07506 0-9, 07507 0-9, 07508 0-9, 07534 0-9, 07535 0-9, 07538 0-9, 07539 0-9, 07550 0-9, 07572 0-9, 07573 0-9, 07574 0-9, 07722 0-9, 07726 0-9, 07757 0-9, 07758 0-9, 07804 0-9, 07806 0-9, 07847 0-9, 07852 0-9, 07903 0-9, 07904 0-9, 07905 0-9, 07906 0-9, 07908 0-9, 07910 0-9, 07913 0-9, 07914 0-9, 07930 0-9, 07931 0-9, 07932 0-9, 07939 0-9, 07940 0-9, 07941 0-9, 07942 0-9, 07943 0-9, 07944 0-9, 07945 0-9, 07946 0-9, 07947 0-9, 07948 0-9, 07949 0-9, 07950 0-9, 07951 0-9, 07952 0-9, 07953 0-9, 07954 0-9, 07956 0-9, 07957 0-9, 07958 0-9, 07959 0-9, 07960 0-9, 07961 0-9,	The area served by Everything Everywhere Ltd within the UK

[131] Orange Personal Communications Services Limited ("Orange") is a subsidiary of Everything Everywhere Limited. The mobile number ranges listed therefore include those allocated to Orange.

	07962 0-9, 07963 0-9, 07981 0-9, 07982 0-9, 07983 0-9, 07984 0-9, 07985 0-9, 07986 0-9, 07987 0-9. 07409 0-9, 07416 0-9, 07419 0-9, 07420 0-9, 07421 0-9, 07422 0-9, 07527 0-9, 07528 0-9, 07529 0-9, 07530 0-9, 07531 0-9, 07532 0-4, 07536 0-9, 07556 0-9, 07579 0-9, 07580 0-9, 07581 0-9, 07582 0-9, 07583 0-9, 07772 0-9, 07773 0-9, 07779 0-9, 07790 0-9, 07791 0-9, 07792 0-9, 07794 0-9, 07800 0-9, 07805 0-9, 07807 0-9, 07811 0-9, 07812 0-9, 07813 0-9, 07814 0-9, 07815 0-9, 07816 0-9, 07817 0-9, 07837 0-9, 07854 0-9, 07855 0-9, 07866 0-9, 07870 0-9, 07875 0-9, 07890 0-9, 07891 0-9, 07896 0-9, 07929 0-9, 07964 0-9, 07965 0-9, 07966 0-9, 07967 0-9, 07968 0-9, 07969 0-9, 07970 0-9, 07971 0-9, 07972 0-9, 07973 0-9, 07974 0-9, 07975 0-9, 07976 0-9, 07977 0-9, 07980 0-9, 07989 0-9.	
Hutchison 3G UK Ltd	07400 0-9, 07401 0-9, 07402 0-9, 07403 0-9, 07533 0-9, 07575 0-9, 07576 0-9, 07577 0-9, 07578 0-9, 07588 0-9, 07723 0-9, 07727 0-9, 07728 0-9, 07735 0-9, 07737 0-9, 07782 0-9, 07828 0-9, 07830 0-9, 07832 0-9, 07838 0-9, 07846 0-9, 07848 0-9, 07853 0-9, 07859 0-9, 07861 0-9, 07862 0-9, 07863 0-9, 07865 0-9, 07868 0-9, 07869 0-9, 07877 0-9, 07878 0-9, 07882 0-9, 07883 0-9, 07886 0-9, 07888 0-9, 07897 0-9, 07898 0-9, 07915 0-9, 07916 0-9, 07988 0-9	The area served by Hutchison 3G UK Ltd within the UK
IV Response Ltd	07978 9	The area served by IV Response Ltd within the UK
Lycamobile UK Ltd	07404 0-9, 07405 0-9, 07424 0-9, 07466 0-9	The area served by Lycamobile UK Ltd within the UK

Mars Communications Ltd	07559 0	The area served by Mars Communications Ltd within the UK
Magrathea Telecommunications Ltd	07893 0	The area served by Magrathea Telecommunications Ltd within the UK
Mundio Mobile Ltd	07520 2, 07589 4-7, 07892 1	The area served by Mundio Mobile Ltd within the UK
Nationwide Telephone Assistance Ltd	07700 1	The area served by Nationwide Telephone Assistance Ltd within the UK
O2 (UK) Ltd	07510 0-9, 07511 0-9, 07512 0-9, 07513 0-9, 07514 0-9, 07515 0-9, 07516 0-9, 07517 0-9, 07518 0-9, 07519 0-9, 07521 0-9, 07522 0-9, 07523 0-9, 07525 0-9, 07526 0-9, 07540 0-9, 07541 0-9, 07542 0-9, 07543 0-9, 07544 0-9, 07545 0-9, 07546 0-9, 07547 0-9, 07548 0-9, 07549 0-9, 07560 0-9, 07561 0-9, 07562 0-9, 07563 0-9, 07564 0-9, 07565 0-9, 07566 0-9, 07567 0-9, 07568 0-9, 07569 0-9, 07590 0-9, 07591 0-9, 07592 0-9, 07593 0-9, 07594 0-9, 07595 0-9, 07596 0-9, 07597 0-9, 07598 0-9, 07599 0-9, 07701 0-9, 07702 0-9, 07703 0-9, 07704 0-9, 07705 0-9, 07706 0-9, 07707 0-9, 07708 0-9, 07709 0-9, 07710 0-9, 07711 0-9, 07712 0-9, 07713 0-9, 07714 0-9, 07715 0-9, 07716 0-9, 07718 0-9, 07719 0-9, 07720 0-9, 07724 0-9, 07725 0-9, 07729 0-9, 07730 0-9, 07731 0-9, 07732 0-9, 07734 0-9, 07736 0-9, 07738 0-9, 07739 0-9, 07740 0-9, 07742 0-9, 07743 0-9, 07745 0-9, 07746 0-9, 07749 0-9, 07750 0-9, 07751 0-9, 07752 0-9, 07753 0-9, 07754 0-9, 07756 0-9, 07759 0-9,	The area served by O2 UK Ltd within the UK

	07761 0-9, 07762 0-9, 07763 0-9, 07764 0-9, 07783 0-9, 07784 0-9, 07793 0-9, 07801 0-9, 07802 0-9, 07803 0-9, 07808 0-9, 07809 0-9, 07819 0-9, 07820 0-9, 07821 0-9, 07834 0-9, 07835 0-9, 07840 0-9, 07841 0-9, 07842 0-9, 07843 0-9, 07844 0-9, 07845 0-9, 07849 0-9, 07850 0-9, 07851 0-9, 07856 0-9, 07857 0-9, 07858 0-9, 07860 0-9, 07864 0-9, 07871 0-9, 07872 0-9, 07873 0-9, 07874 0-3, 07874 6-9, 07885 0-9, 07889 0-9, 07892 3-4, 07892 6-9, 07893 2, 07893 4-7, 07894 0-9, 07895 0-9, 07902 0-9, 07907 0-9, 07912 0-9, 07921 0-9, 07922 0-9, 07923 0-9, 07925 0-9, 07926 0-9, 07927 0-9, 07928 0-9, 07933 0-9, 07934 0-9, 07935 0-9, 07936 0-9, 07938 0-9, 07955 0-9, 07999 0-9	
Oxygen8 Communications UK Ltd	07589 1-3, 07822 9, 07978 6	The area served by Oxygen8 Communications UK Ltd within the UK
QX Telecom Ltd	07978 1	The area served by QX Telecom Ltd within the UK
Resilient Networks plc	07559 9	The area served by Resilient Networks plc within the UK
Sound Advertising Ltd (trading as Mediatel)	07537 6	The area served by Sound Advertising Ltd, trading as Mediatel within the UK
Sky Telecom Ltd	07872 7	The area served by Sky Telecom Ltd within the UK
Stour Marine Ltd	07537 1	The area served by Stour Marine Ltd within the UK

Subhan Universal Ltd	07520 3	The area served by Subhan Universal Ltd within the UK
Swiftnet Ltd	07822 1, 07537 3	The area served by Swiftnet Ltd within the UK
Switch Services Ltd	07864 4	The area served by Switch Services Ltd within the UK
Teledesign plc	07520 0	The area served by Teledesign plc within the UK
Telephony Services Ltd	07893 8, 07822 4, 07822 6	The area served by Telephony Services Ltd within the UK
TG Support Ltd	07406 7	The area served by TG Support Ltd within the UK
Truphone[132] Ltd	07408 0-2, 07408 8-9, 07417 8, 07978 8, 07559 4	The area served by Truphone Ltd within the UK
Vectone Network Ltd	07822 5, 07978 5	The area served by Vectone Network Ltd within the UK

[132] Previously listed as Software Cellular Network Ltd

Vodafone Ltd	07407 0-9, 07423 0-9, 07500 0-9, 07501 0-9, 07502 0-9, 07503 0-9, 07537 4, 07551 0-9, 07552 0-9, 07553 0-9, 07554 0-9, 07555 0-9, 07557 0-9, 07570 0-9, 07584 0-9, 07585 0-9, 07586 0-9, 07587 0-9, 07717 0-9, 07721 0-9, 07733 0-9, 07741 0-9, 07747 0-9, 07748 0-9, 07760 0-9, 07765 0-9, 07766 0-9, 07767 0-9, 07768 0-9, 07769 0-9, 07770 0-9, 07771 0-9, 07774 0-9, 07775 0-9, 07776 0-9, 07778 0-9, 07780 0-9, 07785 0-9, 07786 0-9, 07787 0-9, 07788 0-9, 07789 0-9, 07795 0-9, 07796 0-9, 07798 0-9, 07799 0-9, 07810 0-9, 07818 0-9, 07823 0-9, 07824 0-9, 07825 0-9, 07826 0-9, 07827 0-9, 07831 0-9, 07833 0-9, 07836 0-9, 07867 0-9, 07876 0-9, 07879 0-9, 07880 0-9, 07881 0-9, 07884 0-9, 07887 0-9, 07899 0-9, 07900 0-9, 07901 0-9, 07909 0-9, 07917 0-9, 07918 0-9, 07919 0-9, 07920 0-9, 07979 0-9, 07990 0-9	The area served by Vodafone Ltd within the UK
Euro Thai Exchange Process Company Limited, trading as Yim Siam Telecom	07589 0, 07893 3	The area served by Euro Thai Exchange Process Company Limited, trading as Yim Siam Telecom within the UK

Notes: [(1)] For each of the mobile number ranges identified, the number range comprises those numbers in the 07 range of 07xxx xxx xxx.

Section 4

SMP analysis

Summary

4.1 This section sets out our conclusions as to whether each of the MCPs operating in a Relevant Defined Market is able to act, to an appreciable extent, independently of competitors, customers and, ultimately, consumers – that is, whether it has significant market power (SMP) in that market.

4.2 In the April 2010 consultation, we asked for views on our analysis and our proposal to determine that each MCP listed in Annex 7 of that document has SMP. Furthermore, we asked whether there were other developments that may constrain prices (potentially removing the underlying causes of SMP) and also whether there were any other MCPs with SMP that we had not identified.

4.3 Following consideration of consultation responses, we have decided to designate each MCP listed in the first column of Table 3.3 in section 3 with SMP in a Relevant Defined Market.

4.4 The rest of this section covers the following:

a) a summary of the legal framework and criteria for assessing SMP;

b) how we treat existing regulation when assessing SMP;

c) the analysis and proposals presented in our April 2010 consultation, based on those criteria;

d) a summary and assessment of stakeholder responses to our proposals; and

e) our final conclusions on the SMP assessment.

The legal framework

Ofcom's power to make SMP determinations

4.5 Having defined the markets we must assess competition in those defined markets in accordance with the Act and the common regulatory framework and impose regulation where competition in those markets is found to be ineffective, i.e. where one or more undertakings have SMP.

Definition of SMP

4.6 An undertaking has SMP if, "…*either individually or jointly with others, it enjoys a position equivalent to dominance, that is to say, a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers*."[133]

[133] Section 78 of the Act, Article 14(2) of the Framework Directive available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:108:0033:0050:EN:PDF, and paragraph 70 (p 14-15) of the SMP Guidelines available at

The criteria for assessing SMP

4.7 As set out in our April 2010 consultation, our starting point in assessing SMP is to take account of the SMP Guidelines, in accordance with section 79 of the Act.

4.8 The SMP Guidelines identify market shares as being an important proxy for market power but recognise that high market shares are not, of themselves, sufficient indicators of market power, and therefore set out other criteria relevant to an assessment of SMP.[134] The European Regulators' Group (ERG)[135] has also issued a working paper on SMP (the ERG SMP Position) that builds on the SMP Guidelines.[136]

4.9 In our April 2010 consultation we focused on four broad areas, contained within the SMP Guidelines and/or the ERG SMP Position, that we think are most pertinent to the markets under consideration, namely:

i) market shares;

ii) barriers to entry;

iii) pricing;[137] and

iv) countervailing buyer power (CBP).[138]

4.10 Our assessment of SMP is based on these criteria, and is consistent with the approach we took in our two previous wholesale MCT market reviews.[139] It takes

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http://ec.europa.eu/information_society/topics/telecoms/regulatory/new_rf/documents/smp_guidelines/c_16520020711en00060031.pdf .

[134] The SMP Guidelines state that the following criteria can be used, in addition to market shares, to measure the power of an undertaking to behave to an appreciable extent independently of its competitors, customers and consumers: overall size of the undertaking, control of infrastructure not easily duplicated, technological advantages or superiority, absence of or low CBP, easy or privileged access to capital markets/financial resources, product/services diversification, economies of scale or scope, vertical integration, a highly developed distribution and sales network, absence of potential competition and carriers to expansion. A dominant position can derive from a combination of these criteria which taken separately may not necessarily be determinative. See SMP Guidelines, paragraphs 78 - 79, p.16 http://ec.europa.eu/information_society/topics/telecoms/regulatory/new_rf/documents/smp_guidelines/c_16520020711en00060031.pdf.

[135] BEREC has now replaced the European Regulators Group (ERG), the group through which NRAs exchange expertise and best practice and give opinions on the functioning of the telecoms market in the EU – for more details, see http://erg.ec.europa.eu/about/index_en.htm.

[136] *Revised ERG Working paper on the SMP concept for the new regulatory framework*, ERG (03) 09rev3, September 2005, at http://www.erg.eu.int/doc/publications/public_hearing_concept_smp/erg_03_09rev3_smp_common_concept.pdf.

[137] Whilst pricing is not listed as one of the criteria in the SMP Guidelines, excessive pricing is listed in the ERG SMP Position. In particular, "*...the ability to price at a level which keeps profits persistently and significantly above the competitive level is an important indicator for market power*." (ERG SMP Position, paragraph 20, p. 14).

[138] SMP Guidelines, paragraphs 75 – 80; ERG SMP Position, section 3, pp. 3 – 8. We have previously considered all of the other criteria listed in the SMP Guidelines and the ERG SMP Position in our 2007 Statement (see paragraphs 4.25 - 4.63, pp. 57 – 65). However, we concluded that these other criteria had less relevance to an assessment of SMP in wholesale MCT markets.

[139] The 2004 Statement at http://stakeholders.ofcom.org.uk/binaries/consultations/mobile_call_termination/statement/Statement_

account of relevant case law as well as the impact of relevant regulation. It also considers the commercial context in which MCT is sold and the relative strength of any CBP.

Framework for assessing countervailing buyer power (CBP)

4.11 The European Commission has noted that a market definition of MCT on individual networks does not automatically mean that every network operator has SMP. This depends on the degree of any CBP and other factors potentially limiting that market power.[140]

4.12 CBP is not an absolute concept. It reflects the degree of restraint that a purchaser is able to place on a seller by imposing an effective counter on any attempt by the seller to set its prices above the competitive level. If the purchaser is sufficiently important to the seller, then the threat of the purchaser reducing its demand or purchasing from alternative suppliers may be sufficient to constrain any potential SMP vis-à-vis the individual purchaser.

4.13 The Office of Fair Trading (OFT) has set out guidance which states that the strength of buyers and the structure of the buyers' side of the market may constrain the market power of a seller.[141] The OFT guidance notes that the relevant consideration in assessing the impact of buyer power on the ability of the seller to set a price is not the size of the buyer, but whether a buyer would have the choice, or, in other words, the benefit of a credible 'outside option'. The ERG SMP position lists a number of specific factors relevant to assessing CBP, including the availability of alternate sources of supply.[142]

4.14 The Court of Appeal has also issued a judgment concerning the evidential basis for a finding of CBP, in the context of an appeal by H3G against our 2007 Statement. In considering whether BT was able to exert CBP in dealing with H3G, emphasised the strong presumption of SMP for terminating MCPs in view of their 100% market share, with the burden being upon any terminating MCP to rebut the presumption by providing "clear and convincing evidence" of the absence of SMP.[143]

4.15 Another relevant factor is whether suppliers can set different prices for different buyers (price discrimination). If suppliers set different prices and buyers differ in the alternatives available to them, purchasers with a degree of CBP do not "protect" the other buyers, so the suppliers may still have SMP in the market even if some individual buyers might be able to pursue strategies that protect them, individually, from the consequences of that SMP (but not in sufficient numbers to constrain SMP overall).

4.16 A further relevant factor in the context of MCT is whether the negotiations between parties are reciprocal. In some circumstances, MCPs may negotiate MTRs with each other on a bilateral basis. This is because customers on one network would look unfavourably on a situation in which they were able to make calls to customers on another network, but were unable to receive calls from them. This means that where bilateral negotiations take place, that each MCP is likely to keep in mind that it not

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on_Wholesale_Mobi1.pdf and the 2007 Statement at http://www.ofcom.org.uk/consult/condocs/mobile_call_term/statement/statement.pdf

[140] Explanatory Memorandum to the 2007 EC Recommendation, page 25 (section 4.2 and 4.3)

[141] OFT 415, *Assessment of Market Power: Understanding Competition Law*, December 2004, at http://www.oft.gov.uk/shared_oft/business_leaflets/ca98_guidelines/oft415.pdf

[142] ERG SMP Position, paragraph 11, p. 5.

[143] *Hutchison 3G UK Ltd v Office of Communications* [2009] EWCA 683, at paragraph 101.

only sells MCT to the buyer but is also likely to purchase MCT or other telecoms services from that party. The price it sets for its services may therefore influence the deal it can get for the services it purchases.

Treatment of existing regulation

4.17 When assessing whether SMP exists with respect to a particular market, we need to consider how to account for the effects of both existing and proposed regulation. Without taking this step, our market analysis could fail to identify significant market power where providers' behaviour is constrained by existing regulation (or the threat of regulation).[144] Therefore, assessing SMP in the relevant market requires consideration of a hypothetical market:

- assuming the absence of any regulation in the proposed market - whether current or potential - that arises or would arise from a finding of SMP; and
- taking into account any regulation that will continue to exist throughout the period being assessed in this market review and which is independent of an SMP finding in the market concerned.

4.18 We return to this concept below and explain how we have applied it in practice in this market review.

Summary of the provisional conclusions in our April 2010 consultation

4.19 In our April 2010 consultation we provisionally found **high and sustained market shares** - on the basis of our market definition, each MCP has 100% share of the Relevant Defined Market and, for each MCP, for the period in which they have operated in this market, this position has endured. This implies, in the absence of other considerations, a strong presumption that each MCP has SMP.

4.20 We then assessed whether there were other factors that might rebut this presumption:

- **high barriers to market entry** - the nature of MCT markets implies that there is no scope for market entry (both in terms of actual entry or the likely threat of future entry), which results in a lack of competitive pressure on MCPs;
- **evidence of prices** - pricing behaviour and trends, both for the four national MCPs and for MCPs with fewer subscribers, does not provide evidence of competitive pressures; and
- **absence of or low CBP** - while we noted that some originating CPs (such as the national MCPs) have sought to reduce MTRs charged by MCPs with fewer subscribers, by applying pressure as relatively large buyers of MCT, this did not appear to have constrained price-setting behaviour appreciably. The MTRs currently being set by new entrant MCPs are usually materially above the (regulated) MTRs of the four national MCPs. That is, we saw no convincing evidence of sufficient CBP to constrain MCPs' price-setting behaviour.

[144] This 'modified Greenfield' approach was endorsed by the Court of Appeal when assessing CBP in the context of H3G's appeal against our 2007 Statement. *Hutchison 3G UK Ltd v Office of Communications* [2009] EWCA 683, at paragraphs 53 and 64.

4.21 On the basis of the evidence and reasoning above, we proposed to conclude that each MCP listed in Annex 7 of our April 2010 consultation had SMP on the relevant market. This included the four national MCPs and also MCPs with fewer subscribers.[145]

Most respondents to our assessment of SMP agreed with our analysis

4.22 A number of respondents agreed with our analysis and findings of SMP in relation to MCPs with fewer subscribers, including BT, C&W, H3G, Talk Talk, Colt, FCS (the Federation of Communication Services), Mundio Mobile, Telephony Services Limited, UKCTA, Virgin Media, XLN and ✂

> "We do not object in principle to Ofcom's market definition or to necessarily being designated as having SMP as the impact on us is not dissimilar to what we face today" *146*

> "Three therefore agrees with Ofcom's proposals to … define as separate markets each market for all calls to a given UK mobile number range for which a communications provider can determine the termination rate and designate each undertaking that has been allocated one or more of these number ranges as having significant market power (SMP) with respect to the market for terminating calls to that range" H3G*147*

> "Colt agrees with Ofcom's finding that all mobile number range holders have SMP in call termination"*148*

> "We strongly agree with Ofcom's view that SMP exists in mobile call termination. There are very weak if any competitive constraints that would prevent mobile operators from exercising market power in this economic market."*149*

4.23 Four respondents disagreed with our analysis. Flextel made a general point that our overall approach to this review (including SMP) was incorrect and that we should focus on the retail market. We responded to Flextel's point earlier in this Statement at paragraph 3.119.

4.24 [✂][150]

4.25 O2 suggested that MCPs could be constrained in setting MTRs:

[145] See section 4 of our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf.
[146] See page 5 of Cable and Wireless' response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Cable_Wireless_Worldwide.pdf
[147] See paragraph 252 of H3G's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf
[148] See page 4 of Colt's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Colt.pdf
[149] See page 3 of Talt Talk's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/TalkTalk_Group.pdf
[150] Paragraphs✂ response to our April 2010 consultation

> "…if Ofcom's assumptions about price elasticity of demand are correct, then mobile communication providers are constrained in setting MTRs, and do not have significant market power"[151]

We discuss this point at paragraph 4.60 to 4.67 below when we examine MCPs' pricing behaviour.

4.26 Also, [✂] an MCP with fewer subscribers, which submitted a confidential response, did not agree with a 'universal SMP designation' and argued that national MCPs have CBP vis-a-vis MCPs with fewer subscribers.[152] We discuss this point in relation to CBP at paragraphs 4.87 to 4.93 below. No respondents specifically suggested any additional criteria for us to review or explicitly considered that the criteria we had identified were incorrect.

Criteria for assessing SMP

4.27 In the remainder of this section we consider the four criteria for assessing SMP that we refer to above (i.e. market shares, barriers to entry, evidence of pricing behaviour and absence of CBP). In relation to each of those criteria we summarise the analysis contained in our April 2010 consultation, then set out stakeholder responses and our consideration of these responses, before reaching our conclusion.

Market shares

Summary of our April 2010 consultation

4.28 We noted in our April 2010 consultation that market shares are often used as a proxy for market power. Although a high market share alone is not sufficient to establish SMP, it is unlikely that a firm without a substantial share of the relevant market would be in a dominant position. On the other hand, very large market shares usually are taken as a clear indicator that SMP is present in the relevant market.[153]

4.29 We stated that each MCP has a 100% market share in the Relevant Defined Market. We considered that this analysis was applicable to all types of MCP that fall within our proposed market definition:[154]

- ***The four national MCPs:*** only the terminating MCP can terminate calls to its own subscribers. Therefore, based on our market definition, this means that each MCP has a 100% share of the Relevant Defined Market. This applies to calls terminated over each operator's 2G and 3G network and to calls terminated by other technological means on the MCP's mobile number range. This means that each MCP is, in effect, a monopolist in the supply of MCT to its customers.

- ***Other MCPs with access to licensed wireless spectrum:*** Providers such as Mundio Mobile and C&W make use of licensed wireless spectrum to offer mobile services and to terminate calls on their own networks. The distinction, compared to the four national MCPs, is that these MCPs with fewer subscribers may not

[151] See page 64 for O2's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf
[152] Page ✂ response to our April 2010 consultation
[153] We discussed market shares at paragraphs 4.29 to 4.44 of our April 2010 consultation.
[154] We also considered the position of MVNOs in our April 2010 consultation, but concluded that they were not relevant to our assessment of SMP for wholesale MCT markets, as the ultimate control of MTRs resides with the wholesale provider of the MCT service (i.e. the MVNO's host MCP), rather than with the MVNO itself.

have their own network coverage across much of the UK. Instead, they typically rely on another provider's network to terminate calls to their subscribers where their own network does not offer complete coverage. Nevertheless, taking C&W as an example, calling parties and OCPs have no choice but to use C&W to terminate those calls (even if C&W ultimately uses another provider to terminate some calls when the called party has roamed onto C&W's partner network). Therefore, each of these MCPs with fewer subscribers will also have 100% share of their Relevant Defined Market.

- ***Other MCPs:*** The main alternative means by which new entrants (such as Truphone) are currently providing mobile services is by using VoIP-based technologies. These providers typically provide an additional mobile number for a handset that can then be used to terminate calls using a WiFi connection (where this is in range of the user's handset). In some cases, it could be that an end-user's handset will also have another mobile number (possibly provided by another MCP). While this would mean that a VoIP provider would not necessarily have a 100% share of calls terminating on the handset, mobile VoIP providers would have a 100% share of calls for termination to consumers hosted on their mobile number ranges. Our market definition relates to MCT provided by a given MCP to those mobile numbers for which it can set the MTR. Therefore, we consider that mobile VoIP providers would each have a 100% share of their Relevant Defined Market.

4.30 We also considered ported calls in our April 2010 consultation. As explained in section 3, calls to numbers which have been ported-out by a particular MCP would still fall within that MCP's Relevant Defined Market, as it would retain the ability to set the MTR for those calls. Conversely, calls to numbers which are ported-in to an MCP could not fall within its Relevant Defined Market, as it does not have the ability to set the MTR. We stated that, in the timeframe of this review, we did not envisage any changes to the regulatory regime for mobile number portability which would alter this analysis. In any event, we considered that changes to porting arrangements would not change the nature of our SMP assessment.

4.31 We provisionally concluded therefore that each MCP has 100% market share, implying, in the absence of other considerations, that each MCP has SMP in their Relevant Defined Market for MCT.

Stakeholder responses

4.32 No stakeholders commented specifically on our view that, in the context of our proposed market definition, each provider had 100% market share. Submissions either supported our view or argued (in one case) that the presence of other factors (such as CBP) meant that it did not have SMP.

4.33 While Mundio Mobile was in broad agreement with our findings, it felt that we also needed to "*review the relation between voice, SMS and data as potential issues still exist with SMP on SMS and data*".[155]

4.34 As previously noted, our starting point for this market review is "voice call termination on individual mobile networks". In the context of reviewing the markets for that service, we have considered whether SMS or data termination are substitutes for this

[155] See response to question 4.1 in Mundio Mobile's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/mundio-mobile.pdf

service (in section 3).[156] To the extent that Mundio Mobile's submission is urging us to undertake the distinct task of reviewing markets for SMS and/or data termination, that request falls outside the scope of this market review.[157] Before commencing any new market review, a critical question to consider would be what evidence was available of consumer harm arising in relation to those markets; Mundio's submission does not provide evidence directly relevant on this point.

Conclusion on market shares

4.35 Having considered the responses from stakeholders, we conclude that each MCP (as listed in Table 3.3 in section 3) has a 100% share of supply in its Relevant Defined Market and that in this case this creates a presumption that it has SMP in its Relevant Defined Market.

Barriers to entry

Summary of our April 2010 consultation

4.36 In the April 2010 consultation, we considered whether there was scope for a third-party MCP to offer MCT on another MCP's network to undermine the SMP of the existing MCP.[158]

4.37 We noted that this was a theoretical possibility, given that each mobile phone is generally within the coverage area of three or four different mobile networks. In these circumstances, it might technically be possible for OCPs to choose which network terminates its calls. However, we also noted that this type of entry into MCT markets would be unlikely given the substantial technical changes and cooperation required, the lack of available infrastructure over the short to medium term and because MCPs do not have strong incentives to open access to their subscribers in this way – since they would forgo the monopoly profit that can be earned on MCT.[159]

4.38 Another factor we discussed in the April 2010 consultation was whether technological developments, such as wider deployment of mobile VoIP, would have any impact on our assessment of SMP.[160] We found that mobile VoIP may assist operators to become MCPs and to offer MCT services, but not to terminate calls to the mobile number range controlled by another MCP. It remains the case that, irrespective of the technology used to terminate a call, each MCP can still set the MTR for the mobile number ranges that it controls and it is a monopolist in the provision of such MCT. Therefore, actual entry (or the threat thereof) does not place any material competitive pressure on the MCPs.

4.39 As a result we did not identify any expected changes to the current charging arrangements (i.e. a move away from calling-party network pays) or the introduction

[156] See paragraphs 3.67 to 3.70 for further detail of our analysis on this point.
[157] We have made no plans to review SMS or mobile data termination markets in our current Annual Plan, although it would be appropriate to do so if the '3 criteria' test was met, and we considered it was consistent with our duties to prioritize that review over other policy tasks. Ofcom's most recent Annual Plan is available at http://www.ofcom.org.uk/about/annual-reports-and-plans/annual-plans/annual-plan-2010-11/
[158] In our April 2010 consultation, we considered barriers to entry at paragraphs 4.45 to 4.51
[159] Another provider cannot terminate calls to a specific mobile number, because current mobile technology protocols associate a mobile number with a unique subscriber identity on a specific mobile network.
[160] See paragraphs 4.47 to 4.51 of the April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf.

of new services that would allow one MCP to compete in terminating calls to another MCP's subscribers. The nature of MCT implies that these markets have high (and sustained) market shares and significant entry barriers.

Stakeholder responses

4.40 While no respondents raised points or provided evidence which contradicted our view of high barriers to entry, H3G stated that our assessment of SMP might change if there were another effective way of terminating calls to subscribers outside the control of the subscriber's MCP. H3G suggested that *in future* VoIP might facilitate this – it gave the example of Skype launching an iPhone VoIP application using 3G (instead of just Wi-Fi) and noted that this, for the first time, can mean:

> "a customer can make a VoIP call from one MCP to another, but outside of the MCP's control …..at the moment, this is a new development. It nevertheless could potentially remove the underlying causes of SMP" – H3G[161]

Conclusion on barriers to entry

4.41 As noted in paragraph 4.46 *et seq*. of our April 2010 consultation and in paragraphs 3.72 to 3.73 above, software applications that rely on an IP address to IP address voice communication – such as Skype – are out of scope of the Defined Markets because they do not use a mobile number range but operate instead on the basis of 'client IDs' e.g. using email addresses or user names.

4.42 Therefore, given current technology and looking ahead to the period covered by this market review, these applications do not undermine the SMP of an existing MCP because they do not constitute entry to the Relevant Defined Market for that MCP (i.e. the service provided by the software application does not constitute the termination of voice calls to the number range controlled by that MCP and for which it can set the MTR).

4.43 Having considered the responses from stakeholders, we remain of the view that there are very significant barriers to entry in the Defined Markets. This supports our finding of SMP.

Evidence of pricing behaviour

Summary of our April 2010 consultation

4.44 In our April 2010 consultation, we looked at historic prices charged for MCT by the four national MCPs and also by the MCPs with fewer subscribers.[162]

Behaviour by the four national MCPs

4.45 In the April 2010 consultation, we noted that existing SMP regulation imposes a constraint on the pricing of the four national MCPs and that those MCPs have continued to price up to the full amount permitted by those caps - over the first two years of the current control (07/08 and 08/09) all four national MCPs have priced

[161] See page 74 of H3G's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf
[162] See paragraphs 4.52 to 4.61 of our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf.

within 1% of the cap. While this behaviour alone does not conclusively imply SMP, neither does it contradict the other economic factors that support a finding of SMP for these MCPs.

4.46 We also noted that, while they are complying with the charge control, some MCPs have engaged in "flip-flopping"; i.e. seeking to manipulate the charge control formula to increase revenues from call termination, resulting in significant volatility in MTRs by time of day. This behaviour, while driven by an exploitation of the prevailing charge control formula, may also be consistent with the ability to price independently of competitors, customers and ultimately consumers. However, because the behaviour is motivated by exploitation of the charge control (i.e. behaviour in the presence of regulation) we are wary of inferring too much from it.

4.47 Finally, our April 2010 consultation noted responses from stakeholders which suggested that when MCPs have not been subject to a charge control, their MTRs have been set independently of competition and consumers. Similarly, in previous market reviews we had noted that 2G and 3G termination charges appeared to have been set substantially above a reasonable estimate of each MCP's costs for a number of years (despite formal and informal regulation).[163]

Pricing behaviour of MCPs with fewer subscribers

4.48 We noted in our April 2010 consultation that MCPs with fewer subscribers – i.e. those other than the four national MCPs – have not so far been subject to SMP regulation. We considered that the prices charged by these MCPs gave an indication as to how MCPs with fewer subscribers might behave in future, if there were no regulation of their MTRs.[164]

4.49 We referred to two disputes in which we had assessed new entrant MCPs' pricing for MCT.[165] We noted that the comparisons contained in those dispute determinations suggested that the new entrants (MCom and C&W) were seeking to levy MTRs well above both our cost estimates and those derived from the cost benchmarks which the Competition Commission had established in the context of the appeals against the price control contained in our 2007 Statement.[166]

[163] For example, in our 2007 Statement, we noted that in the case of 3G mobile termination, the underlying 3G charges that were unregulated within the blended charges proposed by three of the four 2G/3G MCPs were substantially greater than the 3G charges that H3G levied. Furthermore, we noted that the underlying 3G charges proposed by all 2G/3G MCPs were substantially greater than our estimates of efficient 3G unit costs for these MCPs.

[164] One important caveat which we noted, however, is that these observations of pricing behaviour may not be conclusive in respect of SMP, as the threat of potential regulation may alter the behaviour of market participants. This means that what we see now may not necessarily be the pricing we would observe if there were no threat of ex-ante regulation.

[165] Final determination of a dispute between Mapesbury Communciations and T-Mobile, see: http://www.ofcom.org.uk/consult/condocs/mapesbury_tmobile/statement/mcom_deter.pdf; Final determination of a dispute between C&W and T-Mobile, see: http://www.ofcom.org.uk/bulletins/comp_bull_index/comp_bull_ccases/closed_all/cw_01004/cwdispute.pdf.

[166] Competition Commission, Mobile call termination: reference to the CC made by the CAT on 18 March 2008 in the consolidated appeals Hutchison 3G UK Limited v Office of Communications (1083/3/3/07) and British Telecommunications plc v Office of Communications (1085/3/3/07), at http://www.competition-commission.org.uk/appeals/communications_act/mobile_phones_determination.pdf

4.50 We stated that we were not aware of any MCPs with fewer subscribers that face binding competitive constraints such that, in the absence of ex-ante regulation or the threat of regulation, they would seek to set prices at a competitive level.

4.51 We listed the available data on MTRs (as listed on BT's Carrier Price List) which related to a number of these MCPs with fewer subscribers.[167] On the basis of this pricing data, we noted that there was a relatively wide variation in the MTRs set by each unregulated MCP. In particular, we noted that some MCPs had chosen to set relatively high MTRs compared to others.

4.52 We compared these MTRs to the average charge cap which applied to the four national MCPs at that time (4.9 ppm in 2009/2010). In almost all instances, MCPs' charges were above this average. An updated version of this pricing data is included in Table 4.1 below.

4.53 Simple price comparisons are not in themselves conclusive in respect of SMP. Nevertheless, we noted that the observed pricing behaviour did not suggest that there were sufficient competitive constraints operating in MCT markets, since all of these MCPs were charging MTRs substantially above our estimated costs for a hypothetically efficient provider.

4.54 We provisionally concluded that the pricing behaviour we observed was consistent with the other economic factors pointing to the presence of SMP.

Stakeholder responses

4.55 Very few submissions raised evidence that contradicted observations about existing prices, although generally MCPs with fewer subscribers (and their trade association, the FCS) raised a range of concerns associated with the challenge of entering the market and the tactics that they considered national MCPs used to resist new entry. [✂](who submitted a confidential response) reported on its experience of negotiating MTRs with national MCPs, submitting that, as a result, it was unable to set prices independently of these purchasers of its MCT service.[168]

4.56 O2 raised issues on pricing, related to our price elasticity of demand assumptions and the implications for a finding of SMP. Essentially, O2 argued that if consumers were very sensitive to call prices but insensitive to subscription charges, then MCPs would have an incentive to negotiate very low bilateral MTRs with other MCPs (even if they had to apply these for fixed communications providers too). O2 concluded that if Ofcom's assumptions on demand elasticity were correct, MCPs would be constrained in setting MTRs and would not have SMP.[169]

4.57 While we believe that it is possible that lower MTRs could enhance the number/duration of calls with a limited impact on ownership, as noted in section 7 we do not believe that the demand for mobile calls is highly elastic. In any event, as we discuss below, the available evidence suggests that MCPs price at the cap (when regulated) and above the regulated rate (when able to do so e.g., when unregulated).

[167] In the April 2010 consultation, we provisionally designated 46 MCPs (other than the national incumbent MCPs) in our market definition. Table 3 only contained information on 32 of the MCPs with fewer subscribers, as these were the MCPs listed on BT's CPL at that time.
[168] Page ✂ response to the April 2010 consultation
[169] See page 64 for O2's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf

4.58 More fundamentally, SMP depends on competitive interaction as well as pure demand-side conditions. MTRs are a wholesale charge which impact on rival MCPs and, irrespective of downstream (i.e. retail call market) elasticity, a MCP still has an incentive (potentially among other factors) and the ability to raise its MTR in order to raise rivals' costs. This is discussed in detail in section 8 and Annex 3 where we explain why we believe national MCPs like O2 would charge excessive MTRs in the absence of regulation because of their SMP in the Relevant Defined Market.

4.59 We therefore conclude that the available pricing evidence continues to support the position set out in our consultation. That evidence indicates that MCP pricing, when unregulated, appears high and insufficiently constrained by the behaviour of competitors, customers and ultimately consumers.

Further analysis of MTRs charged by MCPs with fewer subscribers

4.60 Since our April 2010 consultation, we have updated our analysis of the MTRs charged by MCPs with fewer subscribers (see paragraph 4.51 above and Table 4.1 below). We have carried out the same exercise of comparing these MTRs with the average charge cap imposed on the four national MCPs.[170] We have updated our data as follows:

- 4.60.1 we include only those MCPs in relation to whom we have defined a market in section 3 (see Table 3.3);
- 4.60.2 we used the latest available MTRs on BT's Carrier Price List (CPL);
- 4.60.3 we updated our estimate of the average charge cap imposed on the four national MCPs in 2010/11;[171]
- 4.60.4 we have now also included MTRs of MCPs with fewer subscribers that use a transit provider such as C&W (where the smaller MCP's number range and MTR is on BT's CPL against the transit provider's listed rates).[172]

4.61 This updated pricing analysis is shown in Table 4.1 below.

4.62 The sixth column in table 4.1 the 'weighted average charge' - shows our estimate of the average MTR for the relevant MCP (with fewer subscribers) based on the MTRs listed on BT's carrier price list. In the seventh column we show the variation of the MCPs' (with fewer subscribers) MTRs to the average rate imposed on the four national MCPs (i.e. 4.45ppm in charge control year 2010/11).

[170] We have not repeated the analysis for those MCPs that we no longer consider to fall within our market definition.
[171] We used the most up to date estimates of the nominal TAC applicable to each MCPs. We then used relevant traffic volumes to calculate the weighted average TAC for the four national MCPs. This volume data was based on their last available charge control compliance returns for 2009/10. We used the same volume weights to estimate an average MTR of each of the MCPs with fewer subscribers.
[172] For example, Stour Marine's number range (75371) is listed as against its transit provider (C&W) in the BT CPL.

Table 4.1 Mobile termination rates for MCPs with fewer subscribers

Mobile Communications Provider	Number Range	MTR (ppm)			Weighted average charge (i)	Charge relative to average regulated nominal TAC (10/11) (ii)	Date MTR was effective from (iii)
		Daytime	Evening	Weekend			
24 Seven Communications Ltd	74066, 78931	12.0	8.0	4.0	9.0	**203%**	09/07/10
24 Seven Communications Ltd	79112	10.0	10.0	10.0	10.0	**225%**	01/06/09
24 Seven Communications Ltd	79118	7.6	5.5	4.0	6.2	**139%**	06/04/10
British Telecommunications plc	7777 0-9	4.4	4.4	4.4	4.4	**99%**	01/04/10
Cable & Wireless plc (iv)	78228	5.5	2.5	2.5	3.9	**88%**	01/09/10
Callax Ltd	78745	6.0	6.2	6.4	6.2	**139%**	17/02/11
Callax Ltd	79780	12.0	8.0	4.0	9.0	**203%**	16/11/09
Cheers International Sales Ltd	74060-2	10.0	10.0	10.0	10.0	**225%**	18/02/10
Cheers International Sales Ltd	78227	12.0	8.0	4.0	9.0	**203%**	19/03/09
Cheers International Sales Ltd	79784	7.6	5.4	4.4	6.2	**140%**	08/12/06
Coralbridge Ltd (v)	75207	10.0	10.0	10.0	10.0	**225%**	13/05/09
Coralbridge Ltd (v)	78224, 78226, 78938	6.0	6.2	6.4	6.2	**139%**	13/05/09
Core Telecom Ltd	75597	10.0	10.0	10.0	10.0	**225%**	01/02/11
IV Response Ltd	79789	7.6	5.4	4.4	6.2	**140%**	03/05/07
Lycamobile UK Ltd (vi)	7404 0-9, 7405 0-9, 7424 0-9, 7466 0-9	6.0	6.2	6.4	6.2	**139%**	23/06/10
Magrathea Telecommunications Ltd	78930	8.9	6.3	4.3	7.1	**159%**	23/05/06
Mars Communication Ltd (v)	75590	12.0	8.0	4.0	9.0	**203%**	03/08/10
Mundio Mobile Ltd	75202, 7589 4-7, 78921	7.2	7.2	7.2	7.2	**163%**	20/11/09
Nationwide Telephone Assistance Ltd	07700 1	Data not available on BT CPL					
Oxygen8 Communications UK Ltd	75891	6.0	6.2	6.4	6.2	**139%**	05/11/09
Oxygen8 Communications UK Ltd	75892, 78229,79786	12.0	8.0	4.0	9.0	**203%**	05/11/09
Oxygen8 Communications UK Ltd	75893	10.0	10.0	10.0	10.0	**225%**	05/11/09
QX Telecom Ltd	79781	12.0	8.0	4.0	9.0	**203%**	11/02/08
Resilient Networks Plc	75599	7.6	5.5	4.0	6.2	**139%**	05/09/08
Sky Telecom Limited	78727	10.0	10.0	10.0	10.0	**225%**	02/03/11
Sound Advertising Ltd	75376	Data not available on BT CPL					
Stour Marine Ltd (vi)	75371	4.4	4.4	4.4	4.4	**99%**	01/11/10
Subhan Universal Ltd (v)	75203	12.0	8.0	4.0	9.0	**203%**	20/02/08
Swiftnet Ltd	75373	6.0	6.2	6.4	6.2	**139%**	04/12/08
Swiftnet Ltd	78221	10.0	10.0	10.0	10.0	**225%**	04/12/08
Switch Services Ltd	78644	12.0	8.0	4.0	9.0	**203%**	12/01/09
Teledesign plc (vi)	75200	5.7	5.7	5.7	5.7	**129%**	28/01/09
Telephony Services Ltd	78224, 78226, 78938	6.0	6.2	6.4	6.2	**139%**	13/05/09
TG Support Ltd (vii)	74067	4.4	4.4	4.4	4.4	**98%**	01/07/10
Truphone Ltd	7408 0-2, 7408 8-9, 75594, 79788, 74178	Data not available on BT CPL					
Vectone Network Ltd	78225, 79785	8.3	8.3	5.1	7.6	**171%**	11/05/07
Euro Thai Exchange Process Company Ltd, trading as Yim Siam Telecom (v)	75890, 78933	10.0	10.0	10.0	10.0	**225%**	13/11/09

Source: BT's Carrier Price List (BT CPL): http://www.btwholesale.com/pages/static/service_and_support/service_support_hub/online_pricing_hub/cpl_hub/cpl_pricing_hub.html

Notes:

i. Weighted average charge based on aggregate day, evening and weekend termination volumes for the currently charge-controlled MCPs for the control year 2008/09. The latest available submission is for 2009/10 which uses prior year volumes in the financial year 2008/09.

ii. We calculated a weighted average nominal TAC for charge controlled MCPs of 4.45 ppm based on the TAC of each of those MCPs in 2010/11. The weighting in this calculation reflected the total volume of termination minutes for each charge controlled MCP.
iii. In some cases the same MTRs are applied by a MCP across different number ranges. Where there are different effective dates for number ranges for which the same MTR applies, we selected the most recent effective date.
iv. We note that C&W's average MTR appears below the weighted average MTR for the charge controlled MCPs. C&W's MTR was subject to a dispute determination of 20 May 2009, when Ofcom determined that its MTR should be no higher than the lowest regulated MTR prevailing at the time, then 4.71ppm in 2009/10 prices – see http://stakeholders.ofcom.org.uk/binaries/enforcement/competition-bulletins/closed-cases/all-closed-cases/cw_01004/cwdispute.pdf. The fact that C&W's average MTR appears below the weighted average TAC we consider to be due to the weights applied in the table above being derived from the traffic for other MCPs – i.e. those that are charge controlled. The time of day weights applicable to C&W were specified in the 2009 Determination but were to produce time of day rates consistent with an average MTR of 4.71ppm (i.e. no lower than today's weighted average TAC of 4.4ppm) .
v. On BT's CPL there is no MTR listed against these providers, but the number ranges that these providers use do have a relevant MTR on the BT CPL. We have therefore reported these rates in the table above.
vi. On BT's CPL Lycamobile, Stour Marine and Teledesign's number ranges are listed against C&W - however, we understand this is because these MCPs use C&W are their respective transit provider.
vii. The weighted average MTR for TG Support Limited also appears below the weighted average TAC but only marginally so (e.g. TG Support's MTR to two decimal places is 4.37 ppm for its day, evening and weekend rates) compared to 4.45 ppm for the weighted average TAC).

4.63 There are four MCPs listed in Table 4.1 which have a weighted average charge at or narrowly below the nominal TAC we have used as our benchmark. In some cases the relevant MCPs charge has been set (broadly to the rate set for the national MCPs) by Ofcom in a regulatory dispute.

4.64 For three of the listed MCPs, no data was available on the BT CPL. However, we requested further information using our powers under section 135 of the Act from all of the smaller MCPs on their MTRs. The MTRs for Nationwide Telephone Assistance Ltd and Truphone Ltd currently set [✂].[173]

4.65 The other twenty one listed MCPs have all set MTRs which produce a weighted average charge of between 129% and 225% of the nominal weighted average TAC we have used as a benchmark.

4.66 As noted at paragraph 4.53 above, simple price comparisons are not in themselves conclusive in respect of SMP – particularly as regulation (or the threat of regulation) can affect the price that MCPs set. Nevertheless, having updated our analysis, we remain of the view that the majority of the MCPs with fewer subscribers are charging MTRs substantially above our estimated costs for a hypothetically efficient provider. This suggests that there are insufficient competitive constraints operating in MCT markets. Whilst not determinative of our SMP assessment, we consider this to be consistent with the other economic factors pointing to the presence of SMP.

Conclusion on pricing behaviour

4.67 In light of responses to our April 2010 consultation and the further analysis we have carried out, we remain of the view that the pricing behaviour we observe – for both the four national MCPs and the majority of the MCPs with fewer subscribers - is consistent with the other economic factors pointing to the presence of SMP.

Countervailing buyer power (CBP)

4.68 As noted at paragraph 4.12 above, CBP is the degree of restraint that a purchaser is able to place on the seller by imposing an effective counter on any attempt by the seller to set its prices above the competitive level. To rebut the strong presumption of SMP arising from the very high market shares and barriers to entry seen in MCT

[173] ✂

markets, it is not sufficient for a buyer to have some CBP. The buyer must be able to exert sufficient CBP that a seller is unable to act to an appreciable extent independently of its competitors, customers and ultimately consumers.

Summary of our April 2010 consultation

4.69 Before assessing in our April 2010 consultation whether any purchaser of MCT has CBP, we first considered the regulatory background, and determined what regulation we needed to disregard to undertake that assessment. We referred to the reasoning of the Court of Appeal which endorsed the application of the "modified Greenfield" approach (see paragraphs 4.17 to 4.18 above). Under this approach, in assessing SMP Ofcom does take into account regulatory obligations that are unrelated to the SMP assessment. The judgment provides clear guidance that Ofcom's *ex post* dispute resolution powers should be disregarded when assessing SMP.

4.70 In line with that judgment, we did not take account of our *ex post* dispute resolution powers in assessing CBP in our April 2010 consultation, but we did take into account the following:

- regulation of BT's and FCPs' fixed termination rates and other services;[174]
- BT's carrier pre selection[175], indirect access[176] and local loop unbundling[177] obligations;
- likely buyer behaviour in the absence of our *ex-post* powers (in particular, our dispute resolution power);
- BT's end-to-end (E2E) connectivity obligation.[178]

4.71 We stated that the precise CBP that each FCP or MCP will have when negotiating with individual MCPs will vary to some extent, so a detailed analysis of every single bilateral negotiation (involving up to 60 MCPs and more than 100 FCPs) would theoretically be needed. We noted that this would be an extremely difficult exercise to

[174] Regulatory conditions imposed both on BT and on other FCPs constrain the exercise of SMP in fixed network call termination markets and prevent them from setting excessive charges in those markets.
[175] CPS is a mechanism that allows end-users to select, in advance, an alternative CP to carry their calls without having to dial a prefix or install any special equipment at their premises. The end-user subscribes to the services of one or more CPS operators (CPSOs) and chooses the type of calls (e.g. all national calls) to be carried by them. The end-user may have a direct retail relationship with the CPSO, or may purchase the service via a CPS reseller. The end-user is billed for these calls by the CPSO or CPS reseller.
[176] IA is a service provided by a CP ("Provider A") to an end-user that means when an end-user selects an IA Access Code when making a call that call is routed and billed through Provider A, even though the call originated from the network of another CP ("Provider B").
[177] LLU is the process where BT makes its local access network (the cables that run from customers' premises to the telephone exchange) available to other CPs. These CPs are able to upgrade individual lines using DSL technology to offer a variety of services, including high speed broadband. In the case of Full LLU (MPF), the CP is able to provide both voice and broadband service to a customer. This contrasts with Shared LLU (SMPF), which only allows a CP to provide broadband to a customer.
[178] BT has a regulatory obligation to purchase (on reasonable terms) wholesale narrowband (fixed and mobile voice and narrowband data) call termination services from any provider of public electronic communications networks (PECN). The rates which BT agrees thus provide a benchmark for MTRs for MCPs with fewer subscribers, and interconnection with BT forms a very common route to market for MCPs with fewer subscribers.

carry out in practice, and that the difficulty of undertaking this task is widely recognised.[179] In particular, for the CBP assessment in this MCT market review, we noted that we would have needed to model the negotiations of a large number of MCPs and FCPs, taking into account various assumptions about the existing (and separate) regulations, and the potential spill-over effects that individual agreements would have on other bilateral agreements. Although we noted in practice that the number of negotiations would be more limited as small MCPs, in particular, would be likely to have only a limited number of commercial interconnection agreements in place because of the use of transit operators.

4.72 We then considered, in practical terms, the potential for CBP to constrain the pricing of terminating MCPs, by looking at the role played by BT and also the presence and effect of CBP in two-way negotiations, both between BT and MCPs, and between the four national MCPs and MCPs with fewer subscribers.

4.73 Our preliminary view was that FCPs, and most MCPs, are unlikely to have sufficient CBP to negate the SMP of individual MCPs in order to prevent the latter charging appreciably above the competitive level.[180]

BT's role is critical, and BT does not appear to have CBP

4.74 We arrived at our preliminary view by noting the role that BT plays as the largest transit provider and as the largest overall purchaser of MCT. It purchases MCT from the MCPs in every one of the Defined Markets – and its end-to-end (E2E) connectivity obligation means that it is interconnected, either directly or indirectly, to each MCP.

4.75 We also noted the CAT statement which supported the view that it is logical to take BT as the starting point for an assessment of CBP: "*if [BT] were found not to have a level of CBP sufficient to negate any prima facie finding of SMP, it could necessarily be assumed that neither would any other purchaser of mobile termination*".[181]

4.76 We set out BT's role in (directly or indirectly) interconnecting with other originating operators, and highlighted its importance in terms of the setting of MTRs. We stated that BT was an important outlet for all sellers in terms of the volume of MCT services it purchases. We also stated that the MTR BT agrees with each MCP can act as a 'floor' on MTRs for individual bilateral negotiations between OCPs and terminating MCPs.

4.77 In the presence of two-way access negotiations, our analysis indicated that:

- regulation prevents BT (and other FCPs) from using FTRs as a bargaining lever in negotiating MTRs with MCPs (i.e. by threatening to raise the rate they levy on MCPs for wholesale FCT);

[179] For example, recent economic papers in this area model the results of negotiating among a limited number of FCPs and MCPs, with some restrictive assumptions to make the modelling task manageable. See Armstrong, M. and Wright, J. (2009), '*Mobile Call Termination*', Economic Journal, Royal Society, Vol. 119(538), pp. F270-F307; and Jullien, B., Rey, P. and Sand-Zantman, W. (2009), '*Mobile Call Termination Revisited*', IDEI Working Papers 551, Institut d'Économie Industrielle (IDEI), Toulouse.
[180] We discussed CBP at paragraphs 4.62 to 4.89 of our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf.
[181] Hutchinson 3G UK Limited V Ofcom [2008] CAT 11 at paragraph 48: http://www.catribunal.org.uk/files/Jdg_CAT11_1083_H3G_200508.pdf

- regulation also requires that BT must connect with other operators (and C&W will have a commercial incentive to agree similar rates to BT to compete for transit business), so if MTRs are unregulated, MCPs are likely to set MTRs to BT (and C&W) that are too high;

- many of BT's wholesale communication services, other than fixed call termination (e.g. many MCPs rely on BT to provide backhaul network components from radio base stations) are also regulated. Therefore, regulation of BT in a number of other markets is likely to constrain its ability to adjust the terms on which it sells those services in the course of negotiation of the mobile call termination rate with the MCP; and

- new entrant MCPs routinely secure high MTRs with BT (and C&W).

4.78 We concluded that the above factors suggested that it was unlikely that BT (or C&W) would have sufficient CBP vis-à-vis MCPs.

Stakeholder responses

4.79 Several respondents agreed with our analysis of CBP. In particular H3G noted that our conclusion reflected the Court of Appeal's judgment.[182] H3G stated that the judgment would make it difficult for an MCP to demonstrate that it has sufficient CBP to counteract the effects of SMP in termination.[183]

4.80 In its response BT makes the following comment in response of our assessment of CBP:

> "All those with the unique ability to set the termination rate for calls terminating on their mobile numbers have monopoly power. Barriers to entry in the termination market remain extremely high, regardless of the technology that might be employed, because the mobile number range-holder determines the termination rate. As Ofcom points out, this power is enduring and results directly from the calling-party-pays system, which is highly unlikely to change over the course of the coming control period. Finally, we concur with Ofcom's assessment of BT's own level of countervailing buyer-power which, if it exists at all given BT's connectivity obligations, is insufficient to negate the market power of mobile communication providers (MCPs)."[184]

Conclusion on BT's CBP

4.81 Having considered the responses from stakeholders we conclude that BT (or C&W) does not have sufficient CBP to constrain the pricing of the four national MCPs. We also conclude that BT (or C&W) does not have sufficient CBP to constrain the pricing of the 28 MCPs with fewer subscribers.

[182] Hutchinson 3G Limited V Ofcom [2009] EWCA Civ 683]
[183] Paragraph 262 of H3G response to the April 2010 consultation. http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf.
[184] See page 6, section 1.2 of BT's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/BT.pdf

MCPs with fewer subscribers

4.82 MCPs with fewer subscribers may set different MTRs for national MCPs, but the evidence still suggests they can charge high MTRs for other communication providers.

4.83 We also considered the possibility and effect of CBP in terms of national MCPs (as originating operators and relatively larger buyers of MCT) compared with MCPs with fewer subscribers.

4.84 We observed that once a new entrant MCP has established direct interconnection with BT (or C&W) and set relatively high MTRs, in the majority of cases, national MCPs simply pay the high MTRs too.[185] In these instances, the outcomes imply that the national MCPs effectively have no CBP with respect to the MCPs with fewer subscribers.

4.85 Nevertheless, we also recognised that, in a limited number of cases, some national MCPs have sought to reduce the MTRs charged by MCPs with fewer subscribers, by threatening not to open the number ranges of the MCPs with fewer subscribers to their subscribers until a MTR acceptable to the national MCP has been agreed ('number-blocking'), or by threatening to place the retail calls to these numbers from their subscribers outside their retail call bundles.

4.86 We went on to state that, even if we were to accept that some national MCPs have CBP vis-a-vis certain MCPs with fewer subscribers, lower MTRs could be achieved only in bilateral negotiations; there is no mechanism by which these lower MTRs for the national MCPs would 'spill over' to lower the MTRs charged to other originating CPs. We provisionally concluded, therefore, that *at most some* national MCPs would have CBP vis-a-vis MCPs with fewer subscribers, but this would not be sufficient to force the MTRs charged by those MCPs to the competitive level for many other OCPs (including BT, C&W and possibly a number of smaller MCPs). This means that MCPs have SMP in the supply of MCT.

Stakeholder responses

4.87 Only [✂] response to our April 2010 consultation disagreed with our analysis of CBP. The respondent did not agree with "a universal SMP designation" for MCPs with fewer subscribers, and considered that the national MCPs have CBP in dealing with MCPs with fewer subscribers. It submitted that it had faced significant CBP when dealing with the national MCPs, due to the factors such as 'number blocking' and calls to its number ranges being excluded from the retail bundles offered by the national MCPs (described in paragraph 4.55 above).[186]

4.88 We agree that number-blocking, placing numbers out-of-bundle and allegations of refusal to supply are all potential obstacles faced by prospective new entrants to retail mobile markets – and that in some cases, if those practices become widespread, they might raise the question of whether more direct regulation were required (as C&W and [✂] urged us to do). However, there is also evidence that market entry can be, and is, achieved, and that the commercial incentives on national

[185] This is because establishing direct interconnection with these operators with limited traffic would not be cost effective so OCPs simply direct their traffic through transit providers (such as BT and C&W) and pay the high MTRs already set.
[186] Page [✂] response to the April 2010 consultation

MCPs (for example, to open up number ranges for the benefit of their own customers) may undermine attempts to thwart entry.

4.89 But we do not consider that these issues themselves outweigh our view that, in the Relevant Defined Market for call termination to its own number ranges, even those MCPs with fewer subscribers have SMP, taking the Relevant Defined Market as a whole. We reiterate the point that we made in the April 2010 consultation that, even if we were to accept that some national MCPs have CBP vis-a-vis certain MCPs with fewer subscribers, lower MTRs could be achieved only in bilateral negotiations; there is no mechanism by which these lower MTRs for the national MCPs would 'spill over' to other OCPs. This critical aspect of our analysis was not challenged by any of the respondents to our consultation.

4.90 So while the MCPs with fewer subscribers may in a limited number of cases set different MTRs when facing national MCPs as purchasers, they can keep MTRs higher for other FCPs and MCPs, which represent the majority of voice traffic (particularly once transit operators are included). [✂]This means that any behaviour by national MCPs towards MCPs with fewer subscribers does not appear to have constrained price-setting appreciably, as the MTRs set by MCPs with fewer subscribers are typically – and often significantly – above the regulated MTRs set for the national MCPs (see Table 4.1 above).

4.91 We also note that [✂] highlighted the expanding series of disputes concerning MTRs being set by new entrant MCPs substantially in excess of the efficient cost of their services, suggesting that this may provide evidence that any CBP is insufficient to limit their charges.[187] We note that disputes could indicate that buyers do not have the strength to negotiate rates down, or alternatively that buyers are negotiating too low a rate relative to what the terminating MCP is holding out for.

4.92 Having considered the responses from stakeholders, we conclude that one or more of the four national MCPs might achieve lower MTRs in bilateral negotiations with a smaller MCP in a particular case. However we do not consider that this amounts to sufficient CBP to constrain the pricing of any of the smaller 28 MCPs (listed in Table 3.3 in section 3), taking the Relevant Defined Market as a whole.

Conclusion on CBP

4.93 Having considered the responses from stakeholders, we continue to believe that buyers of MCT are not likely to have sufficient CBP to negate the SMP of individual MCPs in order to prevent the latter charging appreciably above the competitive level, taking the Relevant Defined Market as a whole.

Overall conclusion on SMP

4.94 On the basis of the four criteria that we consider to be most relevant to assessing the existence of SMP in the Defined Markets - market shares, barriers to entry, pricing behaviour and absence of CBP - and in the light of our analysis and the responses to the April 2010 consultation, we conclude that, for each of the 32 Relevant Defined Markets identified in Table 3.3 of section 3 and in Annex 1, it is appropriate to conclude that the respective MCP operating in that market has SMP.

[187] Paragraph [✂] s response to the April 2010 consultation

Section 5

Harm arising from a lack of effective competition, absent regulation

Introduction

5.1 In carrying out a market analysis under Article 16 of the Framework Directive, the key issue for us is to determine whether the market in question is effectively competitive.[188]

5.2 We have concluded that each MCP listed in section 3 has SMP in a Relevant Defined Market. Because a provider in each market has SMP; the Defined Markets are therefore not effectively competitive. Where national and Community competition law remedies are not sufficient to address the problem, we are required to impose one or more appropriate remedies in each market.[189]

5.3 We therefore need to assess the nature and scale of the problem arising from SMP in these markets (in the absence of any regulation) and decide if competition law remedies would be appropriate and sufficient to address that problem. If they are not sufficient then we must impose an SMP remedy.

5.4 Remedies must be based on the nature of the problem identified, proportionate and justified in light of the objectives laid down in Article 8 of the Framework Directive.[190]

We believe that MCPs would set excessive MTRs if there were no regulation

5.5 Our primary concern is that, without regulation, MCPs will have both the incentive and the ability to set excessive MTRs.[191] In addition to this primary concern (explained further below), we are also concerned that, without regulation, MCPs would be able to exploit their SMP in other ways, such as exclusionary conduct through refusing to supply or supplying on discriminatory terms (e.g. through undue price and non-price discrimination). This would also affect retail competition, as those offering calls to mobiles (and hence, seeking to purchase MCT) will be disadvantaged in the retail market if they cannot purchase MCT from a terminating MCP at all, or only on unreasonable terms and conditions.

5.6 As we noted in the April 2010 consultation,[192] while some academic literature suggests that (especially for mobile-to-mobile calls) MTRs could be set at, or even

[188] See Article 16(2) of the Framework Directive at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:108:0033:0050:EN:PDF. Recital 27 to the Framework Directive clarifies the meaning of that concept, noting that "[*it] is essential that ex ante regulatory obligations should only be imposed where there is not effective competition, i.e. in markets where there are one or more undertakings with significant market power, and where national and Community competition law remedies are not sufficient to address the problem*".

[189] See Article 16(4) of the Framework Directive, section 87 of the Act and paragraphs 21 and 114 of the SMP Guidelines at http://ec.europa.eu/information_society/topics/telecoms/regulatory/new_rf/documents/smp_guidelines/c_16520020711en00060031.pdf.

[190] And Article 8(4) of the Access Directive at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:108:0007:0020:EN:PDF .

[191] By "excessive MTRs" we mean that MCPs would be able to set MTRs at excessively high levels.

[192] See paragraphs 5.15 to 5.30 of our April 2010 consultation.

below, marginal costs, these papers are generally inconclusive and heavily dependent on various, and sometimes quite different, assumptions for their conclusions.[193] We noted the market evidence which supported our view that MTRs would be set at excessively high levels absent regulation:

5.6.1 Before any regulation of MTRs, operators set termination charges substantially above costs (and new entrants set MTRs above the regulated rates until their MTRs were also regulated);[194]

5.6.2 Today, those MCPs with fewer subscribers (which are currently not regulated) generally set MTRs above the regulated rates of the national MCPs (see paragraphs 4.48 to 4.67 in section 4).

5.7 If MCPs set excessive MTRs, they may be able to earn excess profits for that service. However, these excess profits from MCT could be 'handed back' to consumers in the form of incentives to buy mobile services – such as lower call prices and/or handset subsidies. This competing away of excess profits is known as the 'waterbed' effect. Our view in the April 2010 consultation was that, while the evidence was not conclusive, we considered that the waterbed effect operated in these markets but that it was unlikely to be complete (that is, less than 100% of the excessive profit would be competed away). We discuss all the available evidence and our conclusions on the waterbed effect in section 7.

5.8 Taking a conservative view, in our April 2010 consultation, we decided not to rely on concerns over excessive prices overall, when assessing the harm flowing from unregulated SMP. As explained below, we considered that, even if the waterbed effect led to a full "recycling" of higher MTRs (which we do not believe to be the case), excessive MTRs would still harm consumers' interests by leading to economic inefficiency, competition concerns and distributional impacts that we discuss below.

Economic inefficiency

5.9 In our April 2010 consultation we stated that, even if excess profits on MCT were fully competed away, the resulting structure of prices in retail and wholesale markets was likely to be *inefficient*, distorting consumer choices and harming consumers' interests.[195] Some services would be consumed more than is efficient; others consumed less than is efficient (compared to the situation of prices reflecting true resource costs).

5.10 Examples include:

[193] The results depend on whether MCPs set their MCT charges cooperatively or unilaterally, the nature of retail competition, and the presence or absence of call externalities. For an overview of this literature, see Armstrong (2002), "*The Theory of Access Pricing and Interconnection*", in *Handbook of Telecommunications Economics*, eds. Cave, M., Majumdar, S. and Vogelsang, I., North-Holland, and Mark Armstrong & Julian Wright (2009) "*Mobile Call Termination*", Economic Journal, Royal Economic Society, vol. 119(538), pages F270-F307, 06. Armstrong and Wright explain why arbitrage would force MCPs to set high MTRs for both FCPs and MCPs.

[194] See paragraph 5.21 of the April 2010 consultation and Cellnet and Vodafone**,** *Reports on references under section 13 of the Telecommunications Act 1984 on the charges made by Cellnet and Vodafone for terminating calls from fixed-line networks,* December 1998. Part 1, Summary and conclusions - see: http://www.competition-commission.org.uk/rep_pub/reports/1999/421cellnet.htm#full .

[195] See paragraphs 5.11 to 5.14 and 5.31 to 5.35 of our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf.

5.10.1 The price of calls to mobiles from fixed lines would be relatively high, and other charges for mobile services[196] relatively low. This inefficient structure of prices would lead to over-consumption of mobile retail services and under-consumption of other retail services that use MCT, such as fixed-to-mobile calls.

5.10.2 If MCPs set excessive MTRs while fixed communications providers (FCPs) were able only to charge regulated (cost-oriented) termination rates, this would result in a transfer of funds from FCPs to MCPs. This transfer would not represent an efficient allocation of resources (and, in a situation where FCPs and MCPs compete with one another to some degree, would also distort competition – this is also discussed in detail in section 8 and Annex 3 below).

5.10.3 Even with respect to mobile-to-mobile calls, excessive MTRs would create distortions. MTRs set a floor on the price of mobile-to-mobile calls between networks (i.e. 'off-net calls'). This would lead to higher charges for off-net calls than for on-net calls, and therefore a distortion in the consumer choices between the two call types (see the discussion in section 8 and Annex 3 below).

Competition concerns

5.11 The power to set high MTRs in the absence of regulation will generate profits which affect competition in retail mobile markets. In our April 2010 consultation,[197] we noted that if all MCPs have similar market shares, they might have similar levels of market power in the retail mobile market, so that distortion of existing competition in retail mobile markets would be limited. But as new MCPs enter, without regulation, the risk remains that anti-competitive pricing by incumbent MCPs would create barriers to entry or expansion for new entrant MCPs or MCPs with fewer subscribers, for example:

5.11.1 Incumbent MCPs could charge higher MTRs to new entrant MCPs or MCPs with fewer subscribers than they charge to each other.[198]

5.11.2 Even if unregulated MTRs were symmetric, excessive MTRs would affect a new entrant, given that it would be very much smaller than its incumbent rivals. For example, it could find itself at a disadvantage in offering retail access and outgoing call services for market segments where outgoing calls exceed incoming calls. We explored this competition effect in a further supplemental consultation issued on 29 November 2010 (the "November 2010 competition consultation").[199] The analysis therein, the responses to it and our analysis are set out in full in section 8 and Annex 3 of this Statement.

[196] For instance monthly access fees.
[197] See paragraphs 5.6 to 5.10 and 5.41 to 5.46 of our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf.
[198] We note that, if a smaller MCP is unable to negotiate reasonable terms for off-net MCT (or is unable to establish direct interconnection), it may instead seek to use another CP (such as BT) to transit the call to the terminating MCP. The call will then be terminated under the terms of that transit operator's mobile termination agreement. BT offers such services and, therefore, the MTR paid by BT to the other MCPs (and the transit charge) can effectively act as a ceiling on the maximum charge any new entrant would have to pay for off-net MCT to rival MCPs.
[199] See http://stakeholders.ofcom.org.uk/binaries/consultations/mct-large-small/summary/mct-large-small.pdf

5.11.3 Excessive MTRs would also likely lead to higher (retail) charges for off-net calls than for on-net calls and create competitive distortions to the disadvantage of smaller networks, which again would be detrimental to consumers in the long run. This is also extensively discussed in section 8 and Annex 3.

5.11.4 Excessive MTRs would also distort competition between fixed and mobile networks. The scope for increased competition between fixed and mobile services may be a source of significant benefit to consumers – in the form of innovative services and lower prices – during the period under consideration in this market review (2011 to 2015). This is also discussed extensively in section 8 and Annex 3 of the Statement.

Distributional impacts

5.12 We also noted in our April 2010 consultation that, under the waterbed effect, excessive MTRs result in transfers between different groups of consumers.[200] This may raise equity concerns too, such as:

5.12.1 If MTRs are high, consumers face two effects: higher prices for calling a mobile are offset by lower prices for mobile services – but if lower prices are targeted at particular mobile services, not all mobile-using consumers may benefit.[201]

5.12.2 Any benefit that mobile consumers receive may also be offset by the higher cost of calling a mobile phone from their own handset and from their fixed-line phone (if they have one). Therefore, the impact of high MTRs, possibly offset by lower retail prices (e.g. subsidised subscription charges or handsets), can particularly disadvantage consumers who make many off-net calls to mobiles.[202]

5.12.3 The biggest losers from excessive MTRs are fixed-only consumers – as MTRs are a major component of the price of calls to mobiles, these consumers may face excessive charges while mobile subscribers may benefit through artificially lower prices for mobile services. This may create equality impacts, because certain classes of disadvantaged consumer groups (such as the elderly) are likely to be fixed-only households or use fixed lines more than mobiles.

Consultation responses

5.13 Eleven submissions responded to our questions on consumer harm. Eight of these either fully or broadly agreed that we had correctly identified the consumer harm in

[200] Paragraphs 5.5 and 5.36 to 5.40 of our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf

[201] Mobile-only and mobile-and-fixed consumers may benefit from lower mobile prices, but only to the extent that those are for services used by those particular consumers. For example, retail price reductions might be targeted on subsidies aimed at retaining the most price-sensitive retail consumers and much less to the price insensitive.

[202] There will also be transfers within the group of mobile users, some of whom may benefit or lose disproportionately from those subsidised services and handsets. For example, those who frequently change their (subsidised) mobile phone and also make few fixed to mobile calls are more likely to benefit from subsidies funded by high termination charges than those who do not change their handset from year to year and are frequent callers from fixed to mobile phones.

the absence of regulation of SMP providers (Virgin Media, XLN, Mundio Mobile, Telephony Services Ltd, FCS, TalkTalk, H3G and BT).

5.14 BT agreed with our analysis:

> "BT agrees with Ofcom's assessment, in Section 5 of the Consultation, of the potential harm to competition and to consumers from the mobile network operators' (MNOs) exercise of SMP – that is, economic inefficiency, excessive prices and distortion of consumer choice….".[203]

5.15 At the time of publication, the Terminate the Rate campaign has more than 161,000 signatories. The campaign advocates a faster reduction in the level of the regulated rate for MTRs but on a more general level, argues that consumers are losing out as a result of high MTRs. Its position concurs with a number of the categories and examples of consumer harm that we identified.[204]

5.16 H3G agreed with our view, but also submitted that we had understated consumer harm, particularly the harm to competition caused by excessive termination rates.[205] These issues are fully explored in section 8 and Annex 3 below.

5.17 The other three national MCPs (EE, O2 and Vodafone) disagreed, to varying degrees, with our identification of consumer harm. Most of the national MCPs did not explicitly disagree with our view that consumer harm would exist in the absence of regulation. Instead, their arguments relate to particular categories of harm and, to the risks of significant (and, in their view, arguably greater) detriments to investment in services and consumers from regulating MTRs at a level which is too low. We discuss in detail the issue of the appropriate level of regulation of MTRs in sections 6, 7 and 8 and also in Annex 3. In particular the discussion in Annex 3 of the beneficial effect of lower MTRs under pure LRIC (compared to the level under LRIC+) addresses exhaustively all the points raised by EE, O2 and Vodafone about the lack of consumer harm arising from unregulated MTRs.

5.18 Having considered the responses of stakeholders, and for the reasons explained fully in sections 7 and 8 and Annex 3, we remain of the view that the lack of effective competition in the Defined Markets would give MCPs both the incentive and the ability to set excessive prices for MCT. We consider that the excess profits that would result would not be fully competed away (i.e. we believe the waterbed effect will not be complete). In any event, even if the waterbed effect were complete (which we do not believe it is), excessive MTRs would result in significant consumer harm because of economic inefficiency, competitive distortion and distributional impacts which would harm consumers.

Sufficiency of *ex post* competition law

5.19 Having considered the nature and scale of the problem arising from SMP in these markets (in the absence of any regulation) we must also decide if competition law remedies would be sufficient to address that problem. If they are not sufficient then we must impose an SMP remedy.

[203] Page 6 of BT's response to the April 2010 consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/BT.pdf.
[204] For example, see the factsheet on the terminate the rate website at http://www.terminatetherate.org/stylesheet.asp?file=411_the_facts .
[205] See paragraphs 270 to 271 of H3G's response to the April 2010 consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf.

5.20 In our April 2010 consultation document, we considered whether it was necessary to regulate MCT at all, or whether we could rely solely on *ex post* competition law or use our dispute resolution powers.[206] We stated that we considered *ex ante* regulation to be necessary, given the ability and incentives of MCPs to charge excessive MTRs.

5.21 As discussed above and more fully in sections 7 and 8 and Annex 3 below, if there were no regulation of MTRs there will be excessively high prices for mobile termination which would be detrimental to consumers, a lack of transparency of MTRs, the possibility of discrimination between contractual terms and difficulties as new entrants and others seek network access. We consider that *ex post* competition law (under Article 102 of the EU Treaty and Chapter II of the Competition Act 1998) would be insufficient in order to deal with these problems.

5.22 The nature of the problem here is one of persistent market failure. There is no natural commercial check on companies increasing termination rates. Each company operates in a distinct product market, with an absolute barrier to entry. As shown above, companies would inevitably raise MTRs to excessively high levels which would have adverse consequences for end users and consumers. The scale of the problem which would arise in the absence of any regulation, in Ofcom's view justifies *ex ante* intervention. Allowing that problem to arise and tackling it after the event through *ex post* competition still enables the problem to occur in the first place. Imposing obligations on an *ex ante* basis ensures there is consistent and timely intervention by the regulatory regime. In fast moving markets where technology evolves rapidly *ex ante* regulation is more suited than *ex post* competition law for creating conditions for effective competition.

5.23 Some problems can only be remedied fully effectively by means of *ex ante* SMP conditions and cannot be remedied fully under *ex post* competition law. For example, an obligation to publish charge, an access obligation (to grant access to all other companies on reasonable request) and an obligation not to discriminate between particular persons, which apply across the board, would not apply across the board under *ex post* competition law. It is possible that certain refusals to supply network access or discriminatory practices would be caught by *ex post* competition law in particular cases, but this would depend very much on the facts of the case.

5.24 Imposing obligations on an *ex ante* basis also provides legal certainty which is appropriate when viewed with the widespread nature of this market failure.

5.25 We also noted that it was unclear whether deregulation would reduce the burden of regulation, given our statutory duty to resolve disputes. A failure of negotiations may lead to a breakdown in connectivity, with consumers unable to make calls to certain other consumers or, more generally, unable to enjoy the benefits of increased competition and lower prices for calls to mobiles.

5.26 Although *ex ante* periodic reviews of mobile termination markets are resource-intensive both to us and to stakeholders, we believe that the benefits to consumers significantly outweigh the costs of setting regulation.

5.27 We stated that some form of regulation for MCT was required, at least in the short to medium term, although a deregulatory approach might be appropriate at some point in the future. With the exception of one response from an individual, no stakeholder challenged this analysis.

[206] See paragraphs 6.19 to 6.36 of the April 2010 consultation.

5.28 We remain of the view, as set out in our April 2010 consultation, that *ex post* competition law is not sufficient to address the lack of effective competition in the Defined Markets. We believe that this holds true both today, and for the period covered by this market review.

Conclusion

5.29 With respect to the period considered in this market review, and in the context of the Defined Markets, we find that, in the absence of regulation, MCPs have the ability and incentive to set excessive MTRs. Absent regulation, this is would result in a structure of prices in retail and wholesale markets that would then be less efficient, distort customer choice, restrict or distort competition and generate adverse distributional impacts. We consider that *ex post* competition law would not be sufficient to address these problems, and we therefore proceed in the next section to consider which remedy or remedies would be appropriate.

Section 6

Conclusion on remedies

Summary

6.1 In sections 3 and 4 we have identified 32 Relevant Defined Markets and set out our reasons for designating a specific MCP with SMP in each of those markets.

6.2 For all those designated MCPs we are imposing an obligation of transparency and a network access obligation (i.e. to provide network access on reasonable request and on fair and reasonable terms including charges). These obligations are set out in condition M1 and condition M4, respectively, in the notification attached as Annex 1 to this Statement. Our decision to impose these conditions is explained at paragraphs 6.20 to 6.48 and 6.49 to 6.67 below.

6.3 For the four national MCPs - Vodafone, O2, EE and H3G – we have decided to impose two additional obligations. The first is a requirement not to unduly discriminate, which is condition M2 in the attached notification. Our reasoning in relation to the imposition of this condition is set out at paragraphs 6.68 to 6.86 below.

6.4 We have also decided to impose a charge control on MTRs on the four national MCPs, which is condition M3 in the attached notification. Our reasons for imposing this condition, and our underlying evidence and analysis, are set out in sections 7 to 10 of this Statement (together with the associated Annexes). At paragraphs 10.137 to 10.150 of section 10, we conclude that this charge control condition is objectively justifiable, proportionate, non-discriminatory and transparent, and that our decision to impose it accords with our statutory duties.

Legal tests relevant to the imposition of remedies

6.5 There are a number of legal tests we need to consider when imposing remedies on MCPs designated as having SMP.

6.6 Having concluded that the Defined Markets are not effectively competitive and having identified an MCP with SMP in each Relevant Defined Market, we are required to impose appropriate regulatory obligations on those MCPs.[207]

6.7 Remedies must be based on the nature of the problem identified, proportionate and justified in light of the policy objectives set out in Article 8 of the Framework Directive.[208] In section 5 of this Statement, we identified the nature of the problems that arise from a lack of effective competition in MCT markets, absent regulation. In accordance with Article 8 of the Framework Directive, section 4 of the Act requires us to act in accordance with six European Community requirements for regulation.

6.8 The remedies which are available to us in this market review are set out in sections 87 and 88 of the Act (which implement Articles 9 to 13 of the Access Directive). They comprise obligations of access to and use of specific network elements,

[207] See Article 16(4) of the Framework Directive, section 87 of the Act and paragraphs 21 and 114 of the SMP Guidelines.
[208] Article 8 of the Access Directive.

transparency, non-discrimination, accounting separation, price control and cost accounting.

6.9 Specific legal requirements may need to be satisfied, depending on the SMP condition in question. In determining whether a dominant MCP should be obliged to provide network access, we must take into account factors including the feasibility of the provision of the proposed network access, the investment of the MCP initially providing or making available the relevant network and the need to secure effective competition in the long term.[209]

6.10 We can only impose a price control where it appears to us from our market analysis carried out for the purpose of setting the condition that there is a relevant risk of adverse effects arising from price distortion, and that the setting of the condition is appropriate for the purposes of:

- promoting efficiency;
- promoting sustainable competition; and
- conferring the greatest possible benefits on the end-users of public electronic communications services.[210]

6.11 For these purposes, there is a relevant risk of adverse effects arising from price distortion and lack of effective competition if the dominant MCP might fix and maintain prices at an excessively high level, or impose a price squeeze, with adverse consequences for end-users.

6.12 In setting a price control, we must also take account of the extent of the investment in the matters to which the conditions relates of the MCP to whom it is to apply.[211]

6.13 Any remedy we impose must be: (a) objectively justifiable in relation to the networks, services, facilities, apparatus or directories to which it relates; (b) not such as to discriminate unduly against particular persons or against a particular description of persons; (c) proportionate to what the condition or modification is intended to achieve; and (d) in relation to what it is intended to achieve, transparent.[212]

6.14 We must also act consistently with our primary duty (to further the interests of citizens, and to further the interests of consumers, where appropriate by promoting competition) and have regard to our other duties set out in section 3 of the Act. Insofar as it is relevant to the remedies under consideration, we must have regard to the 2009 EC Recommendation (see section 2 for a more detailed explanation of how we take this into account).

The proposals we made in the April 2010 consultation

Remedies for all MCPs

6.15 For all MCPs that we provisionally designated as having a position of SMP, we proposed that they be required:

[209] Section 87(4) of the Act and Article 12(2) of the Access Directive.
[210] Section 88 of the Act and Article 13 of the Access Directive.
[211] Section 88(2) of the Act and Article 13(1) of the Access Directive.
[212] Section 47 of the Act and Article 8(5) of the Framework Directive.

- to provide network access on reasonable request and on fair and reasonable terms, and
- to provide price transparency.

6.16 With respect to the transparency obligation, we proposed to require all MCPs to publish their MTRs, and to publish proposed changes in MTRs 28 days prior to such changes being made. We also proposed that MCPs should notify Ofcom of any proposed changes in MTRs at least five working days prior to their first notification to purchasers of MCT.

Additional remedies for the four national MCPs

6.17 In addition to the remedies detailed above, we proposed that the four national MCPs (Vodafone, O2, EE and H3G) be subject to:

- a charge control, and
- a requirement not to unduly discriminate.

Other considerations

6.18 In the April 2010 consultation we also considered, and rejected, a range of alternative approaches to MCT regulation: capacity-based charging (CBC), reciprocity between mobile and fixed termination charges, and 'bill and keep'.[213] These alternative proposals were first considered in our May 2009 consultation. We do not consider these options again in this section, though we respond to new comments raised by Vodafone, O2 and EE on CBC and two-part charging in section 8 and Annex 3.

Remedies imposed in the MCT markets

6.19 In this section we consider in turn each of the four remedies detailed above. In each case, we summarise the position set out in our April 2010 consultation, stakeholder responses, our further thinking and analysis in light of these responses and our conclusion. Where we decide to impose a remedy, we then assess the remedy against the legal tests referred to above.

Requirement to provide network access on reasonable request and on fair and reasonable terms and conditions

April 2010 consultation

6.20 We proposed to oblige all designated MCPs to meet reasonable requests for network access, and to provide such access as soon as reasonably practicable and on fair and reasonable terms and conditions (including charges).[214] We noted in our April 2010 consultation that this obligation was intended to prevent MCPs with SMP from unreasonably withholding the supply of MCT to other CPs, and, where supplied, to ensure that MCT is provided on terms that are fair and reasonable.

[213] Paragraphs 7.8 – 7.61 of our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf.
[214] Paragraphs 7.70 – 7.86 of our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf.

6.21 We also believed that there were clear benefits in providing guidance to MCPs on how we would typically apply the proposed requirement for "fair and reasonable" MTRs, if we were called to do so in the context of a dispute. We proposed that symmetric rates were likely to be fair and reasonable.

6.22 We provisionally concluded that a "fair and reasonable" obligation, alongside (with the possibility of dispute resolution) and our proposed guidance, would provide sufficient controls on the level of MTRs charged by smaller MCPs. However, we did not consider this would, of itself, be sufficient to control the MTRs of the four national MCPs. In our view, the absence of a specific charge control applied to the four national MCPs, would lead to the detrimental effects discussed in section 5.

Consultation responses

6.23 We did not receive any comments objecting to the application of this condition. On this basis, we have adopted our proposal to impose this condition.

6.24 We received a number of submissions in relation to what this condition would mean in practice (that is, our guidance on how we would interpret the interpretation of 'fair and reasonable' in any future dispute - and in particular the suggestion that symmetric MTRs were likely to be fair and reasonable).

6.25 Some smaller MCPs, such as Mundio Mobile, were in "*broad agreement*"[215] with the proposal of symmetry. Virgin Media also supported our proposal that symmetric rates could be appropriate for all providers of MCT.

> "Virgin Media … welcomes Ofcom's guidance on how it will interpret the fair and reasonable condition and its view that generally speaking, in the context of mobile call termination, symmetric rates would be fair and reasonable as between MCPs."[216]

6.26 Other respondents, including Colt, worried that symmetric rates would not allow adequate cost recovery for smaller MCPs.

> "Adequate cost recovery is vital for new entrants to the technology neutral mobile market place. Whilst Ofcom is not proposing that the technology neutral providers be charge controlled, their charges must be fair and reasonable. They will inevitably be forced to track the MCT charges downwards."[217]

6.27 Yet other respondents were concerned that symmetric rates would enable some smaller MCPs to earn excessive returns. For example, EE and O2 stated that:

> "…symmetrical rates do not take sufficient account of the efficient costs of the termination [used] across different operators. For example, allowing a niche MCP to earn rates based on the costs of a

[215] See page 2 of Mundio's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/mundio-mobile.pdf
[216] See page 4 of Virgin's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Virgin.pdf
[217] See page 5 of Colt's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Colt.pdf

national operator will clearly be excessive when the MCP has only a cheap, limited network in low cost areas."[218]

"If the four national mobile communication providers are to be subject to cost based charge controls, then so should other mobile communication providers. The F&R approach is, essentially, arbitrary, because it would allow the non-national mobile communication providers to charge MTRs without reference to their own costs. This would distort competition in downstream retail markets." [219]

Conclusion on requirement to meet reasonable requests for network access

6.28 Having considered respondents' comments, we have concluded that it is appropriate to impose an obligation on all designated MCPs to provide network access upon reasonable request and on fair and reasonable terms and conditions (condition M1).

6.29 We consider that the requirement to provide network access on reasonable request is appropriate because, without it, dominant MCPs could refuse to supply other CPs who request MCT services. We consider that the terms and conditions of such provision should be fair and reasonable, including the level of charges.

6.30 We recognise that there are a number of issues relating to the interpretation of what is likely to be considered 'fair and reasonable' under different circumstances.

6.31 If a designated MCP and an interconnecting CP are unable to reach agreement on the terms and conditions that should apply, they may refer the matter as a dispute to Ofcom under section 185 of the Act. We would then determine what is fair and reasonable on the facts of that particular case. In exercising our dispute resolution powers in this context, we are required to consider what would be fair between the parties, and reasonable taking into account the regulatory objectives of the Act and the Common Regulatory Framework.[220]

6.32 It is also possible that new MCPs will begin providing MCT services during the period of this review. Whilst these new MCPs would not be subject to SMP conditions, an interconnecting CP, unable to agree terms of access, may nevertheless refer a dispute to us for resolution.

6.33 In the April 2010 consultation we consulted on how we would approach the question of fair and reasonable rates, if we were called to do so in any future dispute. We considered that MTRs set under the proposed charge control for the four national MCPs would be an appropriate benchmark. We therefore proposed that we would consider symmetrical MTRs set at this level by the other MCPs to be fair and reasonable.

6.34 In light of submissions received since the April 2010 consultation and subsequent market and regulatory developments, we think the approach set out in the April 2010 consultation needs to be revised for MCPs that provide MCT without incurring (directly or indirectly) the costs of the radio access network.

[218] See page 63 of EE's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf
[219] See page 65 of O2's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf
[220] *T-Mobile (UK) Limited and others v Ofcom (Termination Rate Disputes), Judgment on Core Issues* [2008] CAT 12, at paragraph 178.

6.35 On 7 January 2011, we therefore published draft guidance as to how we would be likely to assess what was fair and reasonable if called to do so in a dispute.[221] As in the April 2010 consultation, we proposed that symmetry might be a fair and reasonable outcome in many cases, particularly for services using conventional technology or business models. However, we recognised that a particular MCP's costs of providing MCT will in some cases be substantially and structurally different from the costs of the national MCPs, due to their choice of technology and business model. We did not consider that a symmetric MTR would be appropriate in these circumstances. For these MCPs, we set out a proposed graduated scale of MTRs.

6.36 For some services – in particular those that do not incur the costs of an access network (or do so to a limited degree) – we proposed that it might be more appropriate to benchmark their MTRs against the fixed voice call termination rate. For services which combine different technologies within the same mobile communications service, we suggested an approach which would blend the mobile and fixed termination rates in a commercially feasible way.

6.37 Our consultation on this draft guidance closed on 18 February 2011. In light of responses received, we expect to publish our final guidance on how we would resolve any future dispute regarding what constitutes fair and reasonable shortly.

6.38 Condition M1.1 requires MCPs with SMP to meet reasonable requests for network access. Condition M1.2 requires that terms and conditions (including charges) should be fair and reasonable. It is necessary to impose this condition, requiring the supply of network access on fair and reasonable terms, even in the presence of charge control conditions (as applied to the four national MCPs), as we believe that without it, each MCP would have the ability and incentive to set excessive MTRs, or otherwise adopt unfair or unreasonable terms or conditions. We therefore consider the condition to be appropriate in light of the nature of the competition problems we identified in section 5.

6.39 Condition M1.3 states that charges for calls covered by condition M3 (the charge control applied to the four national MCPs), must also be compliant with that condition. We have included this condition to ensure that the four national MCPs have certainty as to the appropriate call termination charges, i.e. the rules regarding the level of charges are contained in condition M3.

6.40 Condition M1.4 requires the SMP provider to comply with any direction that Ofcom may make from time to time under condition M1 (i.e. regarding the provision of reasonable network access).

Assessment of remedy

6.41 Section 87(3) of the Act authorises the setting of SMP services conditions requiring the dominant provider to provide network access, as Ofcom may from time to time direct. These conditions may, pursuant to section 87(5), include provision for securing fairness and reasonableness in the way in which requests for network access are made and responded to, and for ensuring that the obligations in the conditions are complied with within periods and at times required under the conditions. When considering the imposition of such conditions in a particular case, Ofcom must have regard to the six factors set out in section 87(4) of the Act. In imposing this condition, we have taken into account all of these factors (in particular,

[221] Ofcom, *Mobile call termination: Consultation on proposed guidance on dispute resolution*, 7 January 2011. See http://stakeholders.ofcom.org.uk/consultations/mct-fair-reasonable/

the technical and economic viability of installing other competing facilities and the feasibility of the proposed network access and the need to secure effective competition in the long term).

6.42 We do not consider it to be technically or economically feasible to install competing facilities for the purpose of providing call termination services to a particular MCP's end users in the period considered by this review.[222] However, given that MCPs are currently providing network access (that is, terminating voice calls to numbers within the Relevant Defined Market), Ofcom considers that provision of network access remains feasible. We also consider that the condition will help to secure effective competition in the long term as it will ensure that purchasers of MCT are not disadvantaged in the retail market by the imposition of unreasonable terms and conditions by terminating MCPs.

6.43 Section 87(9)(a) of the Act authorises the setting of a SMP services condition imposing charge controls in relation to matters connected with the provision of network access.

6.44 Section 88(1) of the Act authorises the setting of a SMP condition falling within section 87(9) where it appears to us that there is a relevant risk of adverse effects arising from price distortion (as discussed in section 5, see in particular paragraphs 5.9 to 5.12); and it also appears to us that the setting of the condition is appropriate for the purposes of promoting efficiency, promoting sustainable competition and conferring the greatest possible benefits on the end-users of public electronic communications services.

6.45 We set out our view in section 5 that it appears to us from our market analysis that there is a relevant risk of adverse effects arising from price distortion, as MCPs might fix and maintain MTRs at an excessively high level. As required by section 88(1)(b) of the Act, Ofcom considers that this obligation therefore promotes efficiency and confers the greatest possible benefits on end-users, by avoiding the detrimental effects of excessive MTRs. By ensuring that providers competing for customers in the retail market are not exploited by MCPs setting unreasonable conditions in the wholesale market, we consider that the condition is also appropriate for the purpose of promoting effective and sustainable competition. The condition permits us to take into account of the costs and reasonable rates of return on investments required by MCPs in providing wholesale MCT services. As such, this obligation takes account of the extent of any investment in the matters to which the condition relates to MCPs, as required by section 88(2) of the Act.

6.46 This condition meets the relevant legal tests set out in section 47 of the Act in that it is justifiable, non-discriminatory, proportionate and transparent. The condition is objectively justifiable, in that it is aimed at ensuring that MCT services are provided by all MCPs, such that competition develops to the benefit of consumers. It does not unduly discriminate, in that it applies equally to each MCP designated as having SMP. It is proportionate since it does not require MCPs to provide access if the request is unreasonable, and requires access to be provided only to other CPs operating a PECN. It is transparent in its operation and because it is accompanied, in this document, by an explanation of the intended operation and effect of the conditions.

[222] We considered the potential for technological changes in our 2007 market review. In our April 2010 consultation we again noted our view (consistent with our findings in 2007) that such alternatives were not viable over the period of this review. See paragraphs 7.9 to 7.11 of our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf.

6.47 We also consider that this condition promotes the European Community requirements set out in section 4 of the Act (in particular the requirements to promote competition in the provision of electronic communication networks (ECN) and electronic communication services (ECS), to encourage network access for the purpose of securing efficient and sustainable competition and the maximum benefit for retail consumers)

6.48 In imposing this condition, we have also considered our duties under section 3 of the Act. In particular we consider that the imposition of the condition is consistent with our primary duty to further the interests of citizens and to further the interests of consumers, where appropriate by promoting competition. By ensuring that competing providers are not disadvantaged through the application of unfair or unreasonable terms, the requirement helps to secure effective and sustainable competition and ultimately furthers the interests of consumers and citizens.

Requirement to publish and notify charges

Proposal in our April 2010 consultation

6.49 In our April 2010 consultation, we proposed that all designated MCPs should be subject to an obligation to publish their MTRs and to notify changes at least 28 days in advance of those changes coming into effect. We also proposed that MCPs should notify Ofcom of any proposed changes to MTRs at least five working days in advance of their notification to purchasers of MCT.[223]

6.50 We concluded that a price transparency obligation would not, by itself, impose a sufficient constraint on MCPs to ensure that MTRs are set at the competitive level. However, we considered that the imposition of a transparency requirement would benefit consumers.

6.51 Publication of MTRs and of changes to MTRs provides certainty for CPs purchasing MCT services. A rule to publish MTRs sets clear expectations for interconnecting parties as to the level of MTRs and would facilitate monitoring of compliance with other SMP obligations.

6.52 The costs of complying with transparency obligations are relatively low. In the case of the four national MCPs, such an obligation has been in place for a number of years. In the case of the other designated MCPs, we saw no material distinctions that would cause us not to apply a transparency rule to them as well, since they have also been found to hold a position of SMP.

Consultation responses

6.53 Most respondents broadly agreed with some form of transparency obligation for MTRs. For example, both Virgin Media and EE found the obligation to publish uncontroversial.

> "Virgin Media agrees with Ofcom's view that price transparency is necessary for all MCPs who have SMP"[224]

[223] Paragraphs 7.62 – 7.69 of our April 2010 consultation.
[224] See page 4 of Virgin's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Virgin.pdf

> Everything Everywhere agrees that publication of rates is reasonable.[225]

6.54 Although respondents did not generally disagree with the transparency obligation *per se*, a number of respondents commented on issues relating to the length of the proposed notice period. BT questioned why the notice period was 28 days, rather than the 90-day notice period that is present in fixed call termination markets.

> "we note that Ofcom has applied a different notice period in respect of mobile rates from that which was applied in analogous fixed markets last year … if 28 days is considered to be long enough for this to happen when mobile rates change, then it must surely be sufficient for changes to any other wholesale input charges such as fixed call origination and termination."[226]

6.55 Virgin Media argued that a longer notice period than 28 days would be an effective way to prevent flip-flopping.

> "... all MCPs with SMP should be required to publish their charges and to give 56 days notice prior to any changes being made… a longer price notification period would be a more proportionate way of dealing with flip flopping than the methods proposed by Ofcom .. A longer period of notice that rates were going to change would allow originators to adequately respond to price changes."[227]

6.56 EE argued that: "...*we believe that a requirement for the publication of rates 28 days in advance is an unnecessary imposition on commercial processes and that the obligation should be limited to publishing current rates*".[228]

6.57 In relation to the notice period, some responses, particularly those arguing for a longer notice period, were aimed at addressing the issue of flip-flopping. We have addressed this problem through changes to the charge control itself (see section 10) and therefore do not see a reason to extend the notification period beyond 28 days for this purpose.

6.58 BT argued that we should extend the notice period beyond 28 days so that it is in line with the 90-day notice period applicable in fixed termination markets.

6.59 In respect of an extension to notice periods, whilst we note that these are both termination markets, this market review is addressing MCT only – not fixed call termination. The 28-day notice has been used in previous MCT regulation and appears to have worked satisfactorily in that context. Whether 90 days remains appropriate for the notice period for regulation of fixed call termination is a matter for the next wholesale fixed narrowband market review.

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[225] See page 62 of EE's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf

[226] See page 32 of BT's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/BT.pdf

[227] See page 4 of Virgin's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Virgin.pdf

[228] See page 62 of EE's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf

6.60 As noted above, we also proposed that MCPs should notify Ofcom of any proposed changes in MTRs at least five working days in advance of the published change. O2 did not consider that this was objectively justified:

> "The proposal that Ofcom should be notified of changes to MTRs five days before notification to other communication providers is new. Ofcom has not identified any detriment that might be remedied by this. Therefore, this proposal has not been objectively justified and cannot be implemented."[229]

6.61 In light of responses to our consultation and the introduction of a simpler charge control condition, which is intended to address issues of flip flopping (see section 10), we now consider that a five working-day prior notification to Ofcom is unnecessary, and we have amended the condition accordingly.

Conclusion on requirement to publish MTRs and changes to MTRs

6.62 Having considered the responses to our April 2010 consultation, we have concluded that it is appropriate to require all designated MCPs to publish their MTRs, and to publish any amendments to those MTRs at least 28 days before the amendment comes into force (condition M4). As noted above, we have amended condition M4.4 to delete the obligation for prior notification to Ofcom.

6.63 We do not agree with EE that this places an unnecessary imposition on commercial processes and that as a consequence the obligation should only be limited to publishing current rates. We consider that requiring at least 28 days prior notice of changes to MTRs is necessary (and in some cases, MCT purchasers and providers may agree longer periods). It provides certainty to all purchasers of MCT and allows time for purchasers to make the necessary amendments in their own wholesale or retail price plans.

6.64 However, as noted above, this condition will not, by itself, ensure that MTRs are set at a competitive level. Nonetheless, we consider that the obligation is appropriate, as it will provide certainty to all purchasers of MCT and enable them to check whether other MCPs are complying with their regulatory obligations.

Assessment of remedy

6.65 Section 87(6)(b) of the Act authorises the setting of SMP conditions which require a dominant provider to publish, in such manner as Ofcom may from time to time direct, all such information as Ofcom may direct for the purpose of securing transparency.

6.66 This condition meets the relevant tests set out in section 47 of the Act in that it is justifiable, non-discriminatory, proportionate and transparent. The condition is objectively justifiable, in that it ensures that MTRs are published, and this will increase transparency to stakeholders and thus facilitate compliance with other SMP conditions. It does not unduly discriminate in that it applies equally to all designated MCPs. It is proportionate as it is the least onerous obligation to address the concerns described above and to facilitate compliance with regulatory obligations without raising issues of commercial confidentiality. The condition had been drafted so as to secure maximum transparency possible within the confines of commercial confidentiality and network security, which is aided by the explanation as to the

[229] See page 65 of O2's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf, page 65

intended operation and effect of the condition, as set out in this document. The obligation contained within the condition also promotes pricing transparency.

6.67 In imposing this obligation, we have considered the European Community requirements set out in section 4 of the Act (in particular the requirements to promote competition in the provision of ECS and ECN, and to encourage network access for the purpose of securing efficient and sustainable competition and the maximum benefit for customers of CPs) and our duties under section 3 of the Act (in particular our primary duty to further the interests of citizens, and to further the interests of consumers where appropriate by promoting competition). This transparency obligation provides certainty to CPs and facilitates compliance monitoring. It thus complements the other SMP conditions, such as the obligation to provide network access on fair and reasonable terms and the charge control. We therefore consider that the transparency obligation ultimately promotes competition and benefits consumers.

Requirement not to unduly discriminate

April 2010 consultation

6.68 In our April 2010 consultation, we proposed that the four national MCPs would be subject to a prohibition on undue discrimination.[230] We noted that some forms of discrimination may raise concerns. For example, the proposed condition would be important in preventing the four national MCPs from using their position of SMP to distort and reduce competition in the retail mobile market, particularly with respect to new entrants.

6.69 We noted that these concerns needed to be viewed in the light of the other regulatory remedies being applied, and the possibility for any discriminatory behaviour to be addressed through *ex post* powers. Applying an *ex ante* prohibition on all discrimination could have the effect of limiting the emergence of innovative, more efficient, charging agreements between certain providers.

6.70 While we proposed other remedies such as transparency, a fair and reasonable obligation and a charge control for the four national MCPs, these remedies essentially relate to pricing. While a prohibition on undue discrimination would include pricing conduct, there are other forms of non-price conduct by which MCPs might discriminate. For example, such conduct might include service degradation for particular types of terminating traffic (e.g. competitors' traffic).

6.71 An obligation not to unduly discriminate has been a long-standing SMP remedy for the four national MCPs. We provisionally concluded that they were of sufficient size and scale to warrant retaining this condition upon them.

Consultation responses

6.72 A few respondents commented on the obligation not to unduly discriminate, proposed for the four national MCPs. Of those that did, most broadly agreed. For example, BT, TalkTalk and the FCS agreed that the requirement not to unduly discriminate was necessary in relation to the four national MCPs:

[230] Paragraphs 7.88 – 7.90 of our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf.

> "There is no doubt that mobile network operators have a monopoly position in the voice call termination market and there is a significant risk that they could use their size to hamper the development of competition by imposing both price and non-price conditions on other providers. It is therefore entirely appropriate to continue to impose a requirement not to unduly discriminate on the established network MCPs"[231]

> "We believe it is essential to impose an ex ante no-undue discrimination obligation on the five mobile operators to prevent any potential price and non-price discrimination from arising that would cause competitive distortion and consumer harm."[232]

> "We fully support an ex ante undue discrimination clause and effective enforcement" [233]

6.73 In its response Vodafone questioned whether this requirement was necessary:

> "We know of no instances in which discriminatory behaviour has been a problem or, indeed, how operators could, in practice degrade a rival's service. We therefore question whether such a condition is required."[234]

6.74 EE commented that undue discrimination needed to be assessed within the specific context in which it is taking place, adding that this is best regulated using ex-post competition law:

> "undue discrimination can best be regulated through ex post competition law applicable to all players rather than attempting to do so through ex ante regulation on only some players"[235]

6.75 We agree that no cases of non-price discrimination have, to date, been identified in markets relevant to this review. However, we do not agree that the apparent absence of such behaviour in the past necessarily means that national MCPs will not have the ability (and incentive) to engage in non-price discrimination over the period of this market review. First, the four national MCPs have been subject to a prohibition on undue discrimination since the 2004 statement[236] and a similar condition was also in place under the previous Telecommunications Act licensing regime.[237] Given that the conduct of the national MCPs has been within the context of *ex ante* regulation prohibiting undue discrimination, we do not accept that the absence of potentially

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[231] See page 31 of BT's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/BT.pdf

[232] See page 4 of Talk Talk's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/TalkTalk_Group.pdf

[233] See page 4 of FCS' response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/fcs.pdf

[234] See page 70 of Vodafone's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf

[235] See page 62, paragraph 243 of EE's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf

[236] http://stakeholders.ofcom.org.uk/binaries/consultations/mobile_call_termination/statement/Statement_on_Wholesale_Mobi1.pdf

[237] http://www.ofcom.org.uk/static/archive/oftel/publications/mobile/mid1200.htm

discriminatory conduct can be taken as evidence that no such concerns would arise absent such *ex ante* regulation.

6.76 Second, we expect significant technological and market changes over the next four years (including the emergence of new technological and business models for the delivery of voice calls, such as VoIP). In that context, and being mindful of the risks to competition arising from the unconstrained exercise of SMP, a condition that prohibits undue discrimination is a proportionate preventative intervention.

6.77 Third, we do not consider the prohibition on undue discrimination to be overly burdensome on the four national MCPs, whereas the risk to effective competition from undue discrimination by large MCPs could be significant. The four national MCPs are currently subject to this prohibition as a result of our 2007 MCT Statement. Although the retail mobile market has developed significantly since our last market review, there has been no material change in the wholesale MCT markets which would lead us to conclude that the condition is now disproportionate or inappropriate. As such whilst ex-post competition law powers could be used in cases of undue discrimination, on balance we believe that *ex ante* provisions are required and that in applying this remedy the relevant legal tests are met (see paragraphs 6.82 to 6.86 below).

6.78 Virgin Media considered that an undue discrimination condition should be imposed on all MCPs with SMP.[238] We are not imposing this condition on the other designated MCPs (i.e. other than the four national MCPs). In the case of these other MCPs, the facts are different: they have not previously had this form of obligation imposed on them (raising concerns about the impact of doing so), there are fewer grounds for concern about impact on retail markets and, on balance, the case for imposing such a condition appears not to be sufficiently made out to warrant doing so, at this stage.

Conclusion on requirement not to unduly discriminate

6.79 Having considered the responses from stakeholders, and for the reasons set out above, we have concluded that it is appropriate that the four national MCPs be subject to an obligation not to unduly discriminate in respect of the supply of MCT (condition M2).

6.80 Some forms of discrimination may raise concerns. For example, certain forms of price discrimination by large MCPs might have exclusionary effects – such as pricing up to the charge control cap for some OCPs but pricing very low, perhaps even bill and keep, for other OCPs. There are also forms of non-price discrimination which might be a concern; for example, service degradation in the provision of MCT for certain OCPs (e.g. smaller MCPs and/or FCPs).

6.81 Although the retail mobile market has developed significantly since our last market review of MCT, we consider that concerns about the potential for discrimination in relation to smaller or new entrant MCPs remain relevant today, particularly given the emergence of smaller MCPs and the ongoing prospects for technological change, and the release or liberalisation of more spectrum for mobile services.

Assessment of remedy

6.82 Section 87(6)(a) of the Act authorises the setting of an SMP services condition requiring the dominant provider not to unduly discriminate against particular persons,

[238] See page 4 of Virgin Media's response to our April 2010 consultation.

or against a particular description of persons, in relation to matters connected with the provision of network access.

6.83 This condition meets the relevant legal tests set out in section 47 of the Act in that it is objectively justifiable, non-discriminatory, proportionate and transparent. The condition is objectively justifiable, in that it provides safeguards to ensure that competing CPs, and ultimately consumers (who would gain the benefits of competition), are not disadvantaged by an MCP unduly discriminating between them. It is transparent, in that it has been drafted so as to secure maximum transparency, which is aided by the explanation as to the intended operation and effect of the conditions, as set out in this document. Transparency is further aided by our published guidelines on how we treat undue discrimination.

6.84 The condition does not discriminate unduly against any MCP and it is proportionate to what it is intended to achieve. We considered imposing the condition on all of the designated MCPs, but concluded that it was appropriate to impose it only on the four national MCPs. The size and scale of the four national MCPs is such that we are concerned about the resultant impact of any discriminatory practices on the retail market. Whilst the other designated MCPs could also potentially engage in discriminatory practices, their smaller size and scale means that we have fewer grounds for concern in this respect. We also took account of the fact that these other MCPs have not previously had this form of obligation imposed on them (raising concerns about the impact of doing so). On balance, we considered that it would be disproportionate at this stage to impose such a condition on these other MCPs.

6.85 We also consider that the condition is proportionate, insofar as it safeguards against price and non-price discrimination with potential exclusionary effects, but is the least burdensome means of doing so. In particular, we consider that the costs of complying with this obligation would not be material. We also note that this has been a long-standing SMP remedy for the four national MCPs.

6.86 In imposing this obligation, we have considered all of the European Community requirements set out in section 4 of the Act (in particular, the requirement to promote competition in the provision of ECS and ECN, and to encourage network access for the purpose of securing efficient and sustainable competition and the maximum benefit for customers of CPs) and our duties under section 3 of the Act (in particular, our primary duty to further the interests of citizens, and to further the interests of consumers, where appropriate by promoting competition). An obligation not to unduly discriminate ensures that other CPs are not unfairly disadvantaged in the provision of access to MCT by the dominant MCP in question. By ensuring that competing providers are not discriminated against so as to materially affect their ability to compete, the requirement therefore helps to secure effective and sustainable competition and furthers the interests of consumers and citizens.

Charge control

April 2010 consultation

6.87 In our April 2010 consultation,[239] we proposed that a charge control should apply to the four national MCPs because we did not consider it likely that the three SMP conditions requiring: (i) transparency; (ii) access on fair and reasonable terms and (iii) the prohibition of undue discrimination, would be sufficient to regulate their MTRs.

[239] Paragraphs 7.91 – 7.92 of our April 2010 consultation.

6.88 By contrast, we considered that transparency, and a requirement to provide network access on fair and reasonable terms (accompanied by guidance as to our interpretation of 'fair and reasonable') was likely to be sufficient to limit the MTRs of newer and smaller MCPs. We considered that this approach was proportionate to the size, scale and available resources of these smaller MCPs.

Consultation responses

6.89 We did not receive any comments which suggested that it was inappropriate or disproportionate to impose a charge control on the four national MCPs, nor that a charge control should be extended to the other smaller MCPs.

6.90 There were many comments relating to the form and design of the charge control, which are discussed in detail in sections 8, 9 and 10. There were also comments from O2, Vodafone, EE and H3G relating to capacity-based charges and two-part wholesale tariffs, which we had raised as possible alternative approaches in our May 2009 consultation. These comments are dealt with in section 8 and Annex 3.

Conclusion in relation to a charge control

6.91 We have concluded that MCT supplied by the four national MCPs should be subject to a charge control. The charge control is implemented by Condition M3. The reasoning on which our decision is based, our evidence and analysis, and implementation timetable are contained in sections 7 to 10. At the end of section 10 (see paragraphs 10.139 to 10.150), we assess the charge control condition in light of the legal test for imposing remedies, and set out our conclusion that our decision accords with our statutory duties.

Overall conclusion on remedies

6.92 Having carefully considered the responses to our April 2010 consultation, we have decided to impose on all designated MCPs:

- an obligation to provide network access on reasonable request and on fair and reasonable terms and conditions (including charges); and
- an obligation to publish MTRs and changes to MTRs.

6.93 In addition, we have decided to impose on the four national MCPs:

- an obligation not to unduly discriminate; and
- a charge control.

Section 7

Empirical analysis of consumer effects

Introduction

7.1 Section 6 set out our reasons for concluding that we should regulate MTRs by imposing a charge control obligation on the four national MCPs and a 'fair and reasonable' pricing rule on all other MCPs designated as having SMP.

7.2 In our April 2010 consultation we identified two possible cost standards[240] for regulating the MTRs of the four national MCPs, the cost standard used in the existing MTR charge controls (LRIC+) or a new cost standard consistent with the 2009 EC Recommendation (pure LRIC). We proposed to adopt pure LRIC, although we recognised that the decision between the two standards was finely balanced.

7.3 In making our final decision in this statement we have considered responses to the April 2010 consultation and additional data gathered from CPs, within the framework for assessment that we set out in the April 2010 consultation.[241] Our proposed framework and any comments we received on it, are considered in section 8 and Annex 3.

7.4 We have split our analysis into two parts:

- Part 1 comprises this section (section 7) and section 8 and sets out the framework and information upon which we have relied in making our decision about the specific charge control obligations that will apply to the four national MCPs. Annexes 3 to 5 provide further detail supporting the discussion in these sections.

- Part 2 comprises section 9 and section 10, and provides detail on the cost modelling, for both cost standards and for other related charge control issues (for example the glide path). Annexes 6 to 10 provide further detail supporting the discussion in these sections.

7.5 Taken together, the analysis in these sections and in section 6, in conjunction with the relevant annexes and our previous consultations, represents our Impact Assessment (IA).

7.6 Before considering each cost standard against our framework for assessment (see section 8), we first consider the likely impact on competition in the retail mobile market (and on consumers) of lower MTRs generally and, to the extent possible, of the incremental effect of a switch to pure LRIC. In particular, we have compared how the number of users of mobile services and the use of those services by users is likely to be affected, at MTRs based on pure LRIC versus LRIC+.

7.7 We have organised our consideration of potential consumer impacts under the following five headings:

- Effect on mobile retail prices;

[240] We have also considered other possible approaches such as CBC, as set out in Annex 3.
[241] See paragraph A12.7-A12.10 of the April 2010 consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf.

- effect on mobile subscriptions and ownership;
- effect on mobile use;
- effect on FCPs' retail prices; and
- effect on fixed line customers.

7.8 The conclusions from this section form the background to the assessment of each cost standard set out in section 8.

Empirical analysis of likely consumer impacts

7.9 We have considered how the four national MCPs would be likely to respond when faced with low MTRs and the effects this would be likely to have on consumers.

7.10 Throughout most of this section, we analyse the likely effect of lower MTRs in general terms. Either pure LRIC or LRIC+ leads to lower MTRs, but adopting pure LRIC leads to a lower MTR at the end of the charge control than LRIC+ (0.69ppm vs. 1.61ppm). That means that effects associated with lower MTRs we discuss in this section will be more pronounced and/or more likely to happen under pure LRIC than LRIC+. Put more simply, if an effect is positive, its positive impacts are greater under pure LRIC than LRIC+; if it is negative, its harm is greater under pure LRIC. It is very difficult to quantify precisely the incremental effect (or likelihood of these effects occurring) specifically as a result of the difference between a reduction to 1.61ppm, compared to a reduction to 0.69ppm. Where it is possible to do so, we have sought to do so, and this is noted specifically in the text.

7.11 As any IA necessarily considers future market outcomes, the risk of errors in forecasting and uncertainties about future market conduct are particularly acute in this part of our analysis. The mobile market is a competitive oligopoly supplying multiple services using rapidly changing technology, with innovation in service offers, pricing and bundling meaning that the future market may look significantly different to the conditions seen today. We cannot know in detail what the true impact of our decision will be for individual consumers. What we present here is our estimate of the impact of the most likely effects, for consumers in general and for particular groups of consumers, given the information available to us.

7.12 This difficulty is acknowledged by respondents; for example, O2 states: *"…amendments in retail pricing can only be carried out in the context of the competitive environment, and it is not possible to say what will happen in practice."*[242]

7.13 To inform our analysis, we have used evidence put forward in our consultations, views and evidence put forward by CPs and by other respondents (both in response to the April 2010 consultation and also during previous market reviews and appeals), market observations and data collected in the course of this review and in carrying out our other duties, and historical evidence.[243]

[242] Paragraph 103 of O2's response to the April 2010 consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.
[243] O2 argued (at paragraph 190 of its response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf) that historical evidence is irrelevant, as previous changes in MTRs have been based on LRIC+. It may be the case that there will be different pressures on price levels to the extent that some common costs which would be recovered from wholesale charges under LRIC+ instead must be recouped from retail prices

What is the right comparison between LRIC+ and pure LRIC?

7.14 In the April 2010 consultation, we argued that the correct way to assess the impact of choosing a cost standard was between the level of MTRs estimated under LRIC+ and pure LRIC over the course of the next charge control (2011 to 2015).

7.15 Only Vodafone disagreed with this approach. It argued that we should compare our estimate of pure LRIC to its estimate of what it described as a 'profit neutral' rate of 3.7 ppm by 2014/15 under LRIC+.

7.16 We noted in the April 2010 consultation that, as the true costs of call termination have fallen faster than was predicted in 2007, MCPs obtained the benefits of higher efficiency, as well as lower input costs and higher volumes than we expected in 2007.[244] [245]

7.17 Vodafone's suggested approach means that the impact of declining MTRs (if calculated on a similar basis as in the 2007 statement) would not affect profits. We see no justification for moving away from this principle of MTRs reflecting cost as doing so in 2011 would allow MCPs to maintain (illegitimately) the (legitimate) windfall profits gains during the 2007 to 2011 charge control period.

7.18 We therefore do not agree that we should consider the impact on operators by reference to a 'profit neutral' rate. We do not see a reason why we should allow MCPs to charge in excess of their efficiently incurred costs for access to an SMP service,[246] as there is no reasonable basis for carrying this benefit forward in a new market review with a fresh assessment of call termination costs. No other respondent disputed that this efficiently incurred cost is, at most, the correctly calculated LRIC+ rate.

7.19 Therefore the comparison considered in this statement is between our estimate of LRIC+ (1.61ppm in 2008/09 prices) and of pure-LRIC (0.69ppm in 2008/09 prices). Table 10.1 in section 10 summarises these MTRs for 2011 to 2015, calculated on a pure LRIC basis.

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under pure LRIC. However, by far the greater pressure on pricing choices by operators will come as a result of the level of MTRs rather than the specific standard used to calculate the price cap. We therefore consider that O2's arguments overstate the influence of the difference between LRIC+ and pure LRIC in the effect on prices, and so the validity of historical comparisons. Nonetheless, we recognise one must be careful in using past events to predict future developments, particularly in a fast changing market. Related to this, H3G argued that *"[d]ue to the fact that increased importance of data services in mobile telephony is a recent development, comparisons based on historical data cannot adequately take into account the effect of data services on the effect of termination regimes"* (paragraph 480 of H3G's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf). Therefore, historical trends and data are only one piece of evidence we use.

[244] April 2010 consultation paragraphs 9.197 – 9.200, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf.

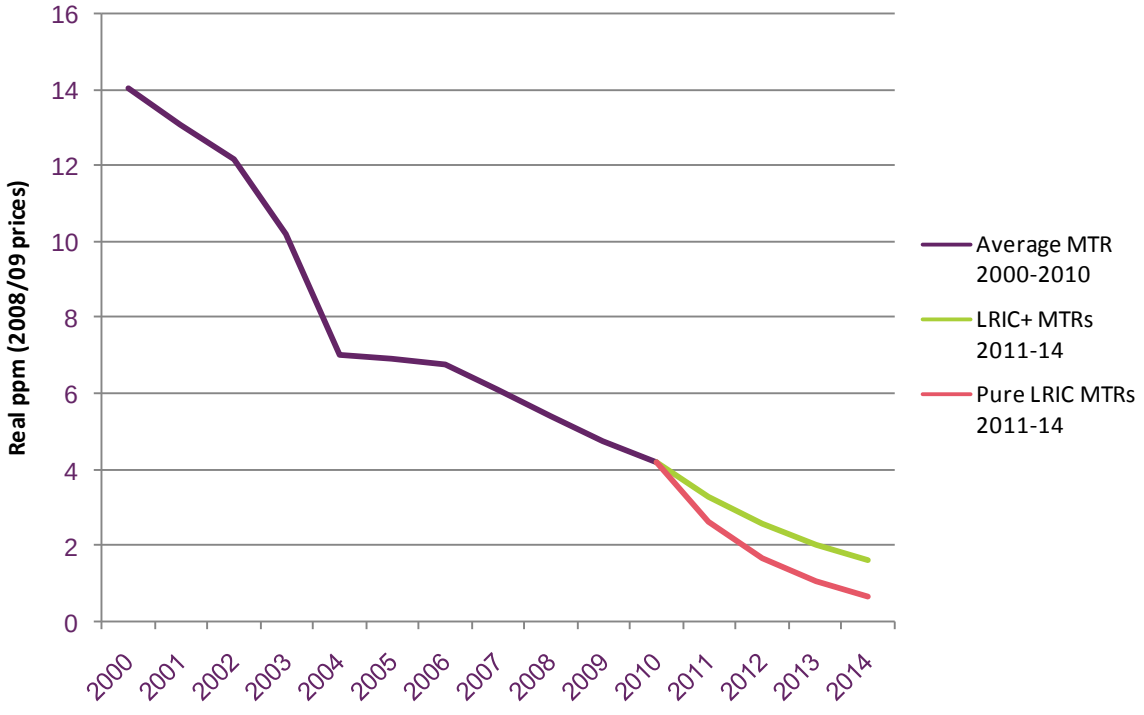
[245] In its submission, Vodafone accepted that MTRs during the 2007 – 2011 charge control period were above the cost of termination. It submitted that the margin contribution from MTRs should remain unchanged for the next charge control period, with MTRs only declining to reflect falling costs, thereby leaving the margin contribution in terms of pence per minute unchanged. See page 6 of Vodafone's response to the April 2010 consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf.

[246] As we set out in Annex 3, the main reason for setting MTRs through regulation is to correct the distortion created by SMP, not to pursue other policy goals such as social inclusion; in fact, MTRs are an inefficient means of achieving such goals.

7.20 To put this in context, Figure 7.1 shows the decline of MTRs since 2000. MTRs have been regulated, with prices set using a LRIC+ cost standard, for the last decade.

7.21 Continuing to apply LRIC+ would, we estimate, reduce MTRs to 1.61ppm (in 2008/09 prices) in 2014/15. This would be a reduction of around 62% from current values. Adopting pure LRIC would, we estimate, reduce MTRs to 0.69ppm (in 2008/09 prices) in 2014/15, a reduction of about 84% compared to today. Set against this historical background the difference in MTRs based on LRIC+ and pure LRIC is relatively small, although the size of both reductions is substantial. For example, in 2000, average MTRs were approximately 14ppm in 2008/09 prices, and in 2004 they were approximately 7ppm in 2008/09 prices (a 50% reduction) and have now fallen a further 40% to 4.2ppm. In this context, an absolute difference of 0.92ppm between pure LRIC and LRIC+ based MTRs in 2014/15 (in 2008/09 prices) (with the pure LRIC figure representing a 22% greater reduction than LRIC+) seems relatively minor, particularly considering that even under LRIC+ calculations, MTRs would have fallen from 4.2ppm to 1.61ppm during this charge control.

Figure 7.1: Comparison of future declines in MTRs LRIC+ and pure LRIC against estimated average historic trends in regulated MTRs



Source: Ofcom, Competition Appeals Tribunal, Competition Commission

Note: MTRs are weighted by subscriber numbers and averaged across different times of day; 2010 uses Q2 2010 subscriber numbers, other years use year-end figures

Key conclusions in our April 2010 consultation

7.22 In the April 2010 consultation, we considered that lower MTRs would be likely to change the retail price structure for mobiles. We identified two drivers for these changes:[247]

- first, that MCPs receiving less revenue from FCPs for MCT would try to recover this 'lost' revenue by raising various retail prices; and
- second, that the wholesale cost structure for off-net mobile-to-mobile (M2M) calls would change because MCPs would pay less and receive less for M2M terminating calls. Although this decline in the flow of funds would broadly balance out in the industry as a whole, there would be winners and losers among the MCPs due to different traffic patterns among MCPs (and because of the effect on the MCPs' incentives).

7.23 We considered that these changes in the mobile pricing structure could result in:

- potentially higher fixed (e.g. monthly) fees for consumers using mobile services (in various forms) as MCPs would try to recover a greater amount of fixed and common costs from retail subscribers;
- lower M2M off-net call charges (as MTRs are the main cost input into these calls and retail competition can be expected to put pressure on operators to pass this cost reduction through to consumers);
- lower fixed-to-mobile (F2M) call charges (as MTRs are the main cost input into these calls);[248] and
- the potential for introduction of charges for inbound calls, although this seems very unlikely.

7.24 If these changes occurred, they would affect different subscribers differently. Some subscribers might not be affected at all, while others might be significantly affected, either positively or negatively. How significantly a consumer is affected depends on their price sensitivity and their preferences for different price structures (for example, higher fixed or usage charges).

Effect on mobile retail prices

Our views in the April 2010 consultation

7.25 In our April 2010 consultation, we suggested that the most significant and likely effect of lower MTRs would be on the structure rather than the level of prices. We argued that lower MTRs would be likely to lead to a rebalancing of prices, with lower usage prices for some types of calls and higher fixed charges.

7.26 We noted the difficulty in establishing exactly how the structure of prices would change, given the complexity of the market dynamics. However, we suggested that

[247] Paragraphs A13.18-A13.21, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf.
[248] We also considered whether reducing MTRs could affect the prices of other fixed services, since competition in the fixed market is more focused on bundles of services which traditionally exclude calls to mobiles.

this could take the form of larger bundles (i.e. more minutes, data or texts) for higher subscription prices for post-pay users, a reduction in handset subsidies, and/or various changes to pre-pay tariffs such as the introduction of time-expired credit, minimum top-up requirements or a fee for every day the phone is used.[249]

7.27 We considered it unlikely that operators would move towards a receiving-party-pays (RPP) system of charging, as the available consumer evidence suggests that consumers would likely react more negatively to such a change than to alternative revenue-raising measures.[250] We also noted, as we did in the preliminary consultation (May 2009), that on/off-net price differentials, which we would expect to decrease as MTRs fall, had already significantly reduced over time.[251]

7.28 In considering the level, as opposed to the structure, of prices we noted that there may be a 'waterbed' effect,[252] which would increase retail prices overall (as MCPs sought to rebalance revenues). However, we noted that the recent empirical studies suggest that this effect is incomplete; as MTRs[253] decline, overall retail rates may increase but not by the same amount. The likely size of any rise in overall retail prices may be such that overall revenues may decline.

7.29 We also noted that it was difficult to be certain how price increases may differ for different types of consumers - i.e. to what extent MCPs would be able to price discriminate in practice. However, we noted that, given the current widespread practice of retail price discrimination, it is likely that MCPs will be able to tailor their retail tariff structures to different consumer groups.

7.30 In our analysis we focused more on the effect of expected changes in the structure of retail charges than on the level of prices, as this is where we expected the greater effect (given the uncertainty over the size of the waterbed effect and the potential for price discrimination to spread the size of price changes differently across consumers).

Views of respondents to the consultation and further analysis undertaken

7.31 We first consider what may happen to the *general level* of prices as MTRs decline. We then consider arguments about what may happen to the structure of prices, considering both usage and subscription charges. Finally, we examine how these changes may vary between different types of consumers.

7.32 As is evident from the responses below, including the four national MCPs, there is no consensus within the industry about the impact of lower MTRs on either the level or

[249] Paragraph A13.42, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf.
[250] Paragraph A13.58-A13.59, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf.
[251] Paragraph A13.139, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf.
[252] The waterbed effect is where a change in one set of prices leads to changes in prices in a different part of the market. There is a wide body of literature on the waterbed effect in relation to telecommunications, such as Schiff, A (2008) *The waterbed effect and price regulation,* Review of Network Economics, Vol. 7, Issue 3, pp.392-414 and Genakos, C. and Valletti, T. *Testing the 'waterbed' effect in mobile telecommunications*, Journal of the European Economic Association (forthcoming), available at http://www.sel.cam.ac.uk/Genakos/Genakos%20Valletti-Testing%20Waterbed%20Effect.pdf
[253] The Genakos and Valletti study examined the impact of changes in regulated F2M MTRs only (but examined the effect this may have on M2M MTRs) on an index of retail prices.

structure of prices. We have used these responses as a source of informed forecasts of the general shifts in pricing and price trends that are likely to occur, alongside the other evidence available to us, such as analysts' forecasts and market data.

General level of mobile retail prices for voice services

Respondents' views

7.33 Respondents had differing views on the likely changes that would be made to retail prices, both in terms of the level and the structure. O2,[254] EE[255] and Vodafone[256] agreed that there would be a waterbed effect, and that retail prices would increase to some extent.

7.34 EE[257] argued that international comparisons show that lower MTRs do not necessarily lead to lower retail prices. It highlighted that the CEG study[258] found no robust statistical correlation between lower MTRs and lower retail prices. It also highlighted that mobile prices in the US and Canada are among the highest, according to OECD data, with prices for medium-use baskets over 230% higher in the US than the UK. In addition, it presented data from a web search, showing that a call between two pre-pay customers would lead to total charges (including charges for both making and receiving the call) of 28ppm in the US and 44ppm in Canada; meanwhile, average UK pre-pay call prices are around 22ppm, and in Denmark can be as low as 8ppm, even though termination charges are many times higher than in North America.

7.35 EE[259] also argued that we have not taken into account the risk that mobile VoIP would erode MCPs' voice revenue streams, undermining the scope to recover common costs from the retail side of the market.[260]

7.36 Virgin Media[261] argued that lower regulated MTRs might lead to lower charges for consumers in the short term, but submitted that would be unlikely to be sustainable in the medium to longer term, as choice and competition reduce.

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[254] Paragraph 233 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.
[255] [✂]
[256] Page 6 of Vodafone's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf.
[257] Paragraph 52 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.
[258] *Wholesale termination regime, termination charge levels and mobile industry performance: A study undertaken for Ofcom*, available at http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/annexes/annex7.pdf
[259] Paragraph 125 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.
[260] EE also cites a paper by Armstrong and Wright, which found that unregulated charges would not be set at the monopoly level, and that the welfare optimal level of MTRs is always above cost as long as the structure of charges affects the number of mobile subscribers (paragraph 268 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf). This reflects the fact that there is a positive network externality in having higher mobile take-up, and higher termination profits can be used to provide more attractive tariffs to attract more subscribers. However, as we discuss in Annex 3, a mark-up on MTRs has previously been found to be an inefficient way to support the expansion of mobile take-up. We would also note that the paper finds that, although the unregulated MTRs would not be set at the monopoly level, it would still be set excessively high.

7.37 Colt[262] believed that, although the waterbed effect is incomplete, such large reductions in MTRs would necessitate retail price increases (or at least slower reductions than would have occurred otherwise) in order to compensate.

7.38 BT[263] and TalkTalk[264] suggested that, if there is a waterbed effect, this is not necessarily bad, and competition would ensure that excessive retail price rises would be competed back down.

7.39 BT[265] also observed that the EC[266] noted that the waterbed effect is often lower in high-penetration markets. The UK Competitive Telecommunications Association (UKCTA)[267] also noted the EC's conclusion that there seems to be no empirical support for the argument that a decline in MTRs would lead to increases in mobile retail prices.

7.40 Consumer Focus[268] noted that retail prices are expected to fall further, but believed that further reductions in MTRs may be difficult to absorb, linking this difficulty to the current economic climate and upcoming investment requirements.

7.41 The Post Office,[269] however, considered that the loss of revenue could easily be absorbed by MCPs without front-loading cost onto outgoing calls, linking this perspective to the level of revenue MCPs invest in marketing and sponsorship.

7.42 H3G argued that setting MTRs at pure LRIC "will result *in a large overall reduction in voice prices as competition increases".*[270] It submitted that the current MTR regime creates a strong disincentive to compete on price, as reducing prices only increases outbound traffic which leads to greater outpayments to other MCPs with little compensating MTR revenue. In contrast, setting MTRs according to pure LRIC will increase price competition, as MCPs with a high share of subscribers will need to respond to the offers from MCPs with fewer subscribers rather than waiting for them to become unsustainable.[271] We consider the impact on competition in section 8.

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[261] Page 2 of Virgin Media's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Virgin.pdf.
[262] Page 5 of Colt's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Colt.pdf.
[263] Page 17 of BT's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/BT.pdf.
[264] Page 2 of TalkTalk's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/TalkTalk_Group.pdf.
[265] Page 17 of BT's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/BT.pdf.
[266] Commission Staff Working Document accompanying the EC Recommendation on the regulatory treatment of Fixed and Mobile Termination Rates in the EU: *Implications for Industry, Competition and Consumers*, p.39, available at http://ec.europa.eu/governance/impact/ia_carried_out/docs/ia_2009/sec_2009_0599_en.pdf.
[267] Page 5 of UKCTA's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/UKCTA.pdf.
[268] Page 4 of Consumer Focus's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Consumer_Focus.pdf.
[269] Page 3 of the Post Office's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Post_Office_Limited.pdf.
[270] Paragraph 85 of H3G's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf.
[271] Paragraphs 7 and 83 of H3G's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf.

7.43 H3G[272] argued that *"[t]he existence of a waterbed effect in the mobile telecoms industry is already widely discredited"*. It highlighted that investment analysts and MCPs' parent companies recognise that reductions in MTRs will continue to lead to lower prices, revenues and profits, and suggested that empirical studies are inconclusive with regard to the existence of the waterbed effect. It also argued that the competitive constraints on it caused by MTRs mean that the waterbed effect is at least incomplete, as competition is not as fierce as it would be with lower MTRs.[273]

Our view

7.44 We reiterate here that, as we highlighted in our consultation (paragraph A13.42) this is not intended to be, and should not be viewed as, a definitive prediction of what will happen in the retail market in future. Actual developments, including the pricing practices of providers, will evolve over time and will be strongly influenced by competitive and technological changes and consumer behaviour and preferences that to some extent will differ from what we currently expect.

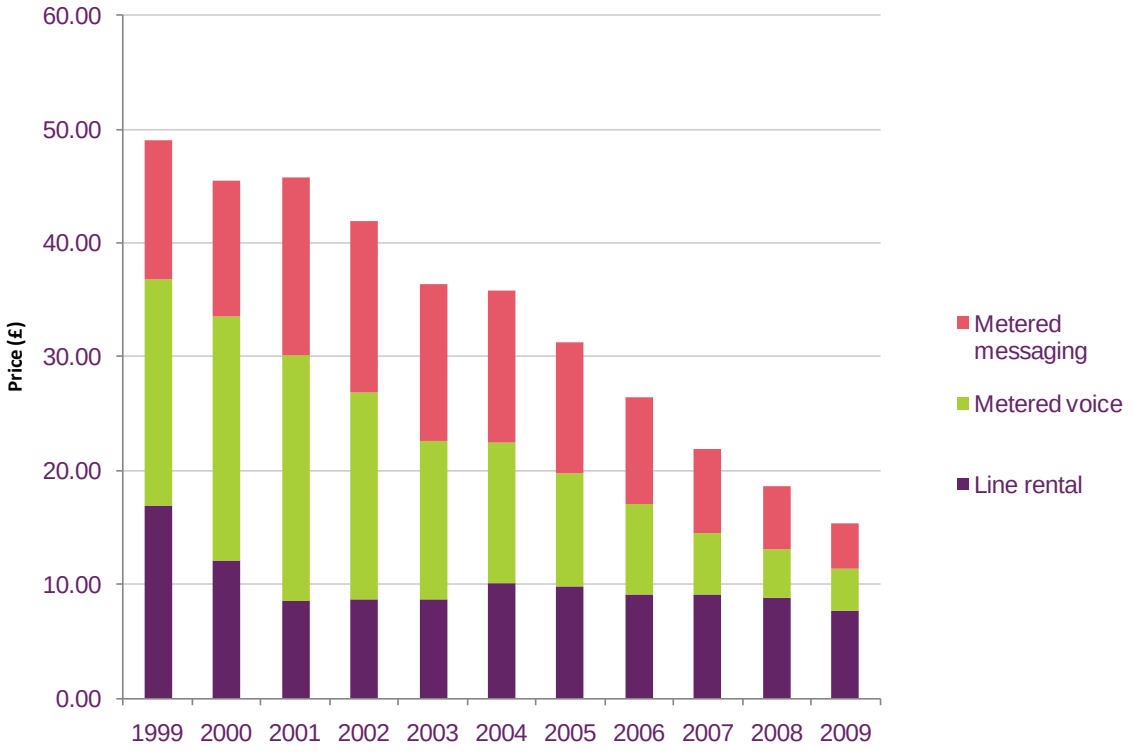
7.45 The price of mobile voice services has been falling for a long time as the market has grown and matured. For example, as Figure 7.2 shows, the real price of a representative basket of mobile services has declined from £49.03 in 1999 to £15.33 in 2009.

7.46 From 1999 to 2009 metered voice charges fell from £19.90 to £3.66, and line rental fees (with inclusive calls, texts and data) fell from £16.91 to £7.67.[274]

7.47 The main cause of these falling retail prices has been the lower cost of providing retail services.[275] Given that costs are expected to continue falling (as shown by our estimates for MTRs over the next charge control period), there will be continuing competitive pressure for retail prices to continue to decline, all other things being equal.

[272] Paragraphs 75-76 and 125 of H3G's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf.
[273] Paragraph 378 of H3G's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf.
[274] This also reflects the growth in take-up of contracts, and the increase in inclusive calls and texts in these contracts, which is discussed further in paragraph 7.74.
[275] Evidence for this view includes the fact that this trend can also be seen in the estimated costs determined by regulators (in the form of regulated MTRs) which have also fallen over this period and the cost of handsets (see Figure 7.6).

Figure 7.2: Real price of a basket of mobile voice services[276]



Source: Ofcom/operators

Note: Includes estimates where Ofcom does not receive data from operators; excludes non-geographic voice calls; adjusted for RPI; includes VAT.

7.48 As noted in paragraph 7.10, in this section we are considering the likely effect of lower MTRs and to the extent possible the incremental effect of shifting from LRIC+ to pure LRIC in setting MTRs. This has two implications for MCPs' wholesale termination revenue, which may in turn affect MCPs' retail prices.

7.49 First, all MCPs will receive less revenue for terminating non-M2M calls.[277] We estimate that this could be around £0.2bn less revenue across the mobile industry.[278]

[276] This was produced by constructing a single basket of mobile services, then calculating the cost of this to a consumer in each year. Given that the pattern of consumption of mobile services has been changing, this does not necessarily reflect the price consumers would have paid for the service they actually bought.

[277] We consider the effect on revenue earned from M2M calls in paragraph 7.53.

[278] This is effectively the impact on revenue in the final year of the charge control of choosing to use the pure LRIC standard rather than LRIC+, assuming there is no change in volumes. While the majority of this reduction relates to F2M calls, it also captures other non-M2M calls, such as international calls to UK mobile numbers. We have also attempted to calculate the effect on F2M revenue for the period covering the charge control, allowing for the fact the glide path smoothes the reduction in revenue over time, and accommodating some increase in volumes as a result of F2M price reductions (but still assuming that, with no change in MTRs, F2M volumes would remain constant i.e. there is no underlying trend growth/contraction of F2M volumes). We have used Ofcom estimates for F2M volumes and revenues in 2009 as the base for calculating these changes (see http://stakeholders.ofcom.org.uk/binaries/research/cmr/q2_2010.pdf). We then worked out the percentage change in average revenue per minute (ARPM) resulting from an incremental reduction in MTRs along the LRIC+ and pure LRIC glide paths assuming a pass-through into F2M prices between 0% and 100%, and the effect this would have on F2M volumes assuming an elasticity of demand for

The waterbed effect means that all MCPs will try to recover this shortfall in revenue from their own retail customers, by adjusting their overall mix of charges so that profits remain as high as possible. Some charges (and mobile retail prices overall) may rise, or (more plausibly, given the long-term reductions in retail prices over many years) fall more slowly than they would otherwise have done.[279]

7.50 Several investment analysts seem to expect that, even with a waterbed effect, mobile retail prices will continue to fall. For example, Credit Suisse suggests that prices will fall, but gradually, which will allow time for consumer behaviour to change.[280] Berenberg suggests that MTR regulation will have a negative effect on revenues and margins (although other long-term trends, such as smartphone adoption, may be more important).[281]

7.51 We note also that H3G's response to the April 2010 consultation[282] reported quotations from executives of the parent companies of the three largest UK MCPs. In analyst briefings, these executives highlighted the impacts that lower MTRs (and hence lower termination receipts) would have on retail pricing, revenues and profitability. The overall concern expressed is that MCPs would be unlikely to be able to recoup fully lower termination revenues due to competitive pressures on prices in retail markets.

7.52 This suggests that the waterbed effect may not be complete, a view which has some support in the academic literature.[283] [284] If this is the case, then given the general

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F2M minutes between 0 and 1. The results of this suggest that reducing MTRs according to pure LRIC rather than LRIC+ will lead to an average reduction in revenue from FCPs of around £90m per year in NPV terms. This is not directly comparable to the £0.2bn calculation, because it uses a different set of volumes (to focus only on the F2M effect) and the difference between LRIC+ and pure LRIC is smaller in the years preceding 2014/15 (due to the use of a glide path to reduce MTRs and the values this generates for LRIC+ and pure LRIC over the course of the charge control).

[279] In its submission (available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf), H3G argued that the waterbed effect holds only in markets with free entry and exit. However, this is not the case, as the waterbed also holds in markets where the marginal revenue and/or marginal costs of unregulated products are dependent on the price or quantity of the regulated product. In fact, the paper H3G quoted in support of its argument (Schiff, A. (2008), *The 'Waterbed' effect and Price Regulation*", Review of Network economics, Vol. 7, Issue 3), actually cites F2M call termination as an example of where a waterbed effect can be expected to exist. In addition, although H3G suggested that the empirical literature is inconclusive as to the existence of a waterbed, the two studies quoted actually both find evidence that there is a waterbed effect, although the findings differ in terms of the strength of the waterbed effect. However, as we note above, the expectations of MCPs and investment analysts that falling MTRs can be expected to lead to falling revenues and profits indicates that the waterbed effect is unlikely to be complete.

[280] Credit Suisse, *Mobile pricing: Price cuts to lag MTRs*, 29 June 2010.

[281] Berenberg, *Greater confidence in revenue inflection, secular (not cyclical),* 15 July 2010.

[282] See paragraph 75 of H3G's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf.

[283] Genakos, C. and Valletti, T. *Testing the 'waterbed' effect in mobile telecommunications*, Journal of the European Economic Association (forthcoming), available at http://www.sel.cam.ac.uk/Genakos/Genakos%20Valletti-Testing%20Waterbed%20Effect.pdf. This looked at changes in MTR regulation across 13 countries (Australia, Austria, Belgium, Czech Republic, Denmark, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, Turkey and the UK) between Q3 2002 and Q1 2006. In addition, in a study prepared as part of a research programme for the German regulator BNetzA, Wernick et al (2010) find that lower MTRs tend to result in a lower retail price (Wernick, C., Growitsch, C. and Marcus, J. S. *The effects of lower Mobile Termination rates (MTRs) on Retail Price and Demand*, April 8 2010, available at http://ssrn.com/abstract=1586464). However, they highlight that this result must be interpreted with

downward trend in prices and the comparatively limited size of the revenue loss (when considered in relation to the size of the mobile market[285]), this revenue loss may be compensated by a slower reduction in price decreases rather than requiring actual price increases.[286]

7.53 Second, MCPs will also receive less revenue for terminating M2M calls from other MCPs. However, they will also pay out less to other MCPs when their subscribers make off-net M2M calls. Within the industry, this will net off and, while it could change the structure of prices (as we discuss later at paragraphs 7.58-7.95), it would not necessarily affect the overall level of mobile prices. This is not to say that individual MCPs may not be better or worse off as a result of this effect, depending on their share of subscribers and the composition of their subscriber bases. As discussed in section 8 and Annex 3 this raises an important implication for competition among MCPs.

7.54 Given these two effects, we consider that the impact of lower MTRs on the level of mobile prices will mostly arise from the potential impact of a decline in MTR payments from FCPs. This is in line with the empirical findings of a Genakos and Valletti's recent paper, which highlighted that *"…the overall impact of regulation of termination rates will balance both effects arising from fixed-to-mobile and mobile-to-mobile calls. While the first effect unambiguously should push up mobile retail prices, the latter is less clear, and will depend on the type of tariff the customers subscribe to."*[287] We assess the effect on different price structures below.

General structure of mobile retail pricing (including a possible introduction of RPP)

Respondents' views

7.55 There were also mixed views on the effect on the *structure* of prices. A general point EE[288] made is that pure LRIC will lead to a highly inefficient structure of prices, as it forces all common costs to be recovered from the retail side, leading to large and inefficient differences between prices and underlying costs for these services.

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caution, as the retail price proxy they use (service based revenue per minute of use, from Merrill Lynch data) includes wholesale termination revenue and so suffers from some problems with endogeneity. In addition, the data do not take into account equipment prices, and so the results do not exclude the possibility that handset prices would increase.

[284] EE notes that the studies include markets less competitive than the UK, and so understate the strength of the waterbed in the UK. As we have noted, the evidence in the round (including some of the arguments EE makes in other parts of its submission) suggest that the waterbed is not complete.

[285] The revenue loss for MCPs from terminating mobile minutes when comparing 2014/5 revenues with those of 2010/11 (i.e. the reduction from today's MTRs to MTRs based on pure LRIC, not the incremental effect of moving from LRIC+ to pure LRIC based MTRs) represents around 4% of 2009 revenues.

[286] We also note that current observations of the extent of the waterbed effect (i.e. that it is likely to be strong but incomplete) do not necessarily have to hold on a forward looking basis. The waterbed effect is not a parameter that remains fixed over time. Indeed, past observations and empirical studies on the extent of the waterbed effect are based on historic data and are a function of the market conditions at that time (we discussed this also in Annex 6 of our May 2009 consultation). In our economic analysis for this market review, on the basis of the available evidence, we have however assumed that a strong (but incomplete) waterbed effect is the most likely scenario going forward.

[287] Genakos, C. and Valletti, T. *Seesaw in the Air: Interconnection Regulation and the Structure of Mobile Tariffs,* Information Economics and Policy (forthcoming), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1687814, p.21.

[288] Paragraph 53 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.

7.56 In terms of the likelihood of the introduction of RPP charging structures, only EE,[289] O2[290] and FleXtel[291] mentioned this as a possibility.[292] H3G submitted that lower MTRs would not automatically lead to RPP, and argued that recipient charges would not be introduced.[293] O2, however, argued that H3G has a small pre-pay base and does not actively seek to acquire pre-pay voice customers, whereas O2 has a very large base of pre-pay customers. It suggested that the worth and relevance of H3G's commitment not to introduce RPP (set out in H3G's response to our May 2009 consultation[294]) should be judged against the size of its pre-pay customer base.[295] O2 argued that, since retail call prices may rise (or not decrease), Ofcom is wrong to discount the possibility that arbitrage will make RPP necessary.[296]

7.57 EE submitted that it is still considering this as a possibility, and its survey research (considered in more detail in Annex 5) seems to suggest that the consumer response to such a move would be more muted[297] (compared to that engendered by other types of price changes) than is indicated by other research (such as the survey carried out by Jigsaw on our behalf for our May 2009 preliminary consultation).[298] It highlighted that price increases would be even greater than in our baseline case where no MCPs introduce RPP, as MCPs would need to recover the cost of implementing new billing systems to enable charges to be imposed for receiving calls.[299]

Our view

7.58 We consider that most of the effect on price structures arises from the impact of lower MTRs on M2M off-net traffic and charges (although the revenue transfer 'lost'

[289] Paragraph 50 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.
[290] Paragraph 170-174 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.
[291] Page 8 of FleXtel's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/FleXtel.pdf.
[292] Swiftnet refers to the effect lower MTRs will have on its business model of offering free incoming calls to international roaming customers (response available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Swiftnet.pdf). However, we consider that this has different implications (which are largely operator-specific) from a situation where all mobile users were charged for incoming calls. While the business models of different CPs may need to adapt, if the central selling point of a particular model (in this case, free calls while roaming) is attractive to consumers, it is likely that such models could be profitably sustained (e.g. by increasing the cost of signing up to the service, or increasing outgoing call costs).
[293] Paragraphs 455 and 476 of H3G's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf).
[294] Page 50 of H3G's response to our May 2009 consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/responses/Hutchison_3G_UK_Limited.pdf.
[295] Paragraph 173 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.
[296] As we argue at paragraph A13.59 of the April 2010 consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf.
[297] The response to incoming charges (detailed in paragraph 74 of its response) does not seem significantly different to the reactions to other price changes (set out in paragraphs 75 and 77 of its response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf).
[298] See annex 10.1 and 10.2 of our May 2009 Consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/annexes/annex10_1.pdf and http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/annexes/annex10_2.pdf.
[299] Paragraph 56 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.

from FCPs may be relevant to the extent that MCPs can recover this from their own subscribers through changing their pricing structure). We consider the specific effects of lower MTRs on subscription and usage charges below.

7.59 We still consider that MCPs' ability and incentive to move towards RPP will be constrained by consumers' antipathy towards such a system, and the complication of introducing such a system, given the present calling party pays (CPP) arrangements.[300] O2 argued that MCPs would be forced to introduce RPP to undermine arbitrage opportunities;[301] however, we consider that this hinges on whether call prices fall or rise – if call prices fall as MTRs fall, the profitability - and attractiveness - of such arbitrage will remain limited. It should also be noted that in 2003 O2 similarly argued that "*If the gap [between outgoing and incoming charges] were to widen…call-back services similar to those that had been developed in relation to international calls would almost certainly start up*."[302] Call-back operations for non-international calls are not widely used and remain at the margins of the market. In addition, at that time O2 did not argue that such call-back arbitrage would lead to RPP, but rather that it would lead to time-limited voucher policies.[303] This calls into question whether RPP is inevitable as a response to arbitrage, even if it were to arise.

7.60 We also have identified a number of problems with the approach used in EE's survey research, which are detailed in Annex 5. In our view, it seems more likely that consumers would react more strongly to the introduction of RPP than to other price changes, which would make such a move commercially unattractive.

7.61 We therefore consider that the available evidence suggests that the introduction of RPP is an unlikely commercial response to the proposed reductions in MTRs. Furthermore, it seems very unlikely that this will be triggered by the estimated difference between the level of LRIC+ and pure LRIC.

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[300] In its response (page 8, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/FleXtel.pdf), FleXtel highlights that "*CPP won over [R]PP for very sound economic reasons that benefited the consumer*". If this is still the case, then clearly MCPs will not seek to introduce RPP. Setting MTRs on the basis of pure LRIC is not equivalent to the system used in the US (which FleXtel cites as evidence), and market conditions (including consumer preferences over charges to receive calls) between the two are likely to be different. A comparison of mobile termination regimes in a number of countries (including the US) was presented in Annex 8.1 of our May 2009 consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/annexes/annex8_1.pdf.

[301] In its response to our May 2009 Consultation, O2 highlighted that "*absent a charge for incoming calls, there exists an arbitrage opportunity involving the setting up of two incoming calls, instead of a conventional call involving a calling party and a called party. If incoming calls are free, and there are no wholesale termination charges, it is possible to establish a service that allows calling parties to effectively become called parties. The service provider sets up two calls: one to the original "calling party" (prompted by that party), and the other to the called party; and connects the calls. Under this arrangement, no payment is made for the use of either network, either by the end users, or by the service provider*" (page 22, available at http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/responses/Telefonica_02_UK_Limited.pdf). In its response to the April 2010 Consultation, O2 highlighted that these opportunities will also arise where MTRs and call prices diverge, without MTRs necessarily having to fall to zero (paragraph 172, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf).

[302] Paragraph 11.1(b) of Vodafone, O2, Orange and T-Mobile: Reports on references under section 13 of the Telecommunications Act 1984 on the charges made by Vodafone, O2, Orange and T-Mobile for terminating calls from fixed and mobile networks, available at http://www.competition-commission.org.uk/rep_pub/reports/2003/fulltext/475c11.pdf.

[303] That is, where credit top-ups expire after a certain period of time.

Subscription charges

Respondents' views

7.62 With regard to subscription charges, both Vodafone[304] and BT[305] submit that fixed fees would be likely to increase. However, O2[306] argued that "*Ofcom's assumption, that lower termination rates would have the effect of increasing mobile subscription charges and reducing call charges, is far too simplistic*". Both O2[307] and EE[308] argued that the majority of customers, being on pre-pay tariffs, do not pay such fees and are clearly sensitive to doing so, as they choose to avoid them. Therefore, they argued that MCPs would not be able to levy such fees, or if they were to do so, this would result in many consumers choosing to give up their ownership of a mobile phone.[309] EE[310] also submitted that even post-pay customers are reluctant to pay fixed charges, with recurring charges varying closely with inclusive minutes. This means that these tariffs are actually a pre-payment for bundled minutes which retain significant long-run marginal prices for calls (as post-pay customers wishing significantly to increase the number of calls they make will optimally choose to pay more to acquire a larger bundle). O2[311] further suggested that competition for consumers who make more calls than they receive will increase, which will put pressure on prices (including the fixed charges) for these customers. H3G argued that price discrimination would mean that if fixed charges did increase on average, they would increase least (if at all) for the customers with the highest demand elasticity for subscriptions.[312]

7.63 In terms of specific types of fixed (or equivalent) charges, FleXtel[313] suggested that the cost of pre-paid handsets may rise; EE[314] also indicated that it is considering reducing or eliminating handset subsidies. EE[315] also indicated it considered that the required increase in upfront charges could be substantial. Consumer Focus[316] suggested that the lengthening of contract terms may be an attempt by MCPs to

[304] Page 6 of Vodafone's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf.
[305] Page 18 of BT's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/BT.pdf.
[306] Paragraph 105 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.
[307] Paragraphs 153 and 167-169 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.
[308] Paragraph 48 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.
[309] We consider the effects of price changes on mobile ownership in paragraphs 7.115-7.149 below.
[310] Paragraph 49 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.
[311] Paragraph 162 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf
[312] Paragraph 86 of H3G's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf).
[313] Page 8 of FleXtel's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/FleXtel.pdf.
[314] Paragraph 50 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.
[315] Paragraph 76 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.
[316] Page 4 of Consumer Focus's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Consumer_Focus.pdf.

recover costs over a longer period of time.[317] However, Consumer Focus noted that there has not been an obvious widespread reduction in handset subsidies in recent years as MTRs declined.

7.64 A further issue that has been raised is the effect of MTR reductions on the viability of pre-pay as a tariff option. EE[318] and O2[319] suggested that there is a danger that pre-pay may become unsustainable, while Virgin Media[320] also highlighted that reducing MTRs could negatively affect low-value pre-pay users. They argued that much of the revenue earned from pre-pay subscribers (particularly consumers who make few outbound calls) comes from the MTRs earned when these subscribers receive calls.

7.65 If MTRs fall, some MCPs argue that they will not earn enough revenue from pre-pay to make it worthwhile serving these consumers, unless an additional revenue stream can be found, such as introducing a fixed element to pre-pay tariffs. They argue that this would fundamentally change the pre-pay offer. In terms of the types of price changes which may fall on pre-pay customers, one MCP[321] suggested that this could take the form of minimum top-up requirements combined with credit expiry. O2[322] and EE[323] also suggested that re-introducing time-expired credit would be a possible response to lower MTRs.

7.66 EE[324] submitted that significant numbers of pre-pay subscribers will become uneconomic following the reductions in MTRs proposed, unless retail prices change. EE argued that this is significant in itself, but also because elderly[325] and low-income consumers are significantly more likely to take a pre-pay tariff.[326] O2 also stated it is

[317] Although it also notes that this has been offset to some extent by the introduction of SIM only contracts.
[318] Paragraphs 70-79 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.
[319] Paragraph 21 of O2's response (available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf) refers to the "demise" of pre-pay, while paragraph 195 states that "*pre-pay customers are likely to be greatly affected by a fall in MTRs, since, generally, the revenue stream from net termination payments is, proportionately, a more important factor for these customers because they spend less money than post pay customers and they receive more calls*".
[320] Page 13 of Virgin's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Virgin.pdf. Virgin Media's arguments are also closely linked to the effect on vulnerable consumers, which is considered in detail in Section 8 and Annex 3.
[321] [✂]
[322] Paragraph 104 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.
[323] Paragraph 50 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.
[324] Paragraphs 14 and 71 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.
[325] While the elderly are more likely to use a pre-pay tariff than other mobile users (see figure 19 of the *Consumer Experience Report 2010*, available at http://www.ofcom.org.uk/static/tce-10/fig-19.html), they are also less likely than the general population to use a mobile at all (see figure 15 of that document, available at http://www.ofcom.org.uk/static/tce-10/fig-15.html) and more likely to use a fixed line (see figure 10, and also figure 23 which shows those aged over 65 are substantially less likely to be mobile-only – see http://www.ofcom.org.uk/static/tce-10/fig-10.html and http://www.ofcom.org.uk/static/tce-10/fig-23.html). We consider the impact of lower MTRs on consumers of fixed line services in paragraphs 7.199-7.211.
[326] Paragraph 210 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf. We consider the effect of lower MTRs on vulnerable consumers specifically in Annex 3, and the effect on specific equality groups in Annex 11.

"shocked that Ofcom is ambivalent to its [pre-pay's] demise", and submitted that this is inconsistent with policymakers' efforts to increase the availability of mobile data to all.[327]

7.67 However, H3G and BT disputed whether lower MTRs would lead to detrimental effects on pre-pay. BT claimed that evidence from India and the US shows that "*it seems clear that it is not only simplistic, but also wrong, to claim that low mobile termination rates will result in damage to the pre-pay sector*".[328] It argued that the EC[329] found no correlation between ARPU and the size of the pre-pay segment (although it concedes that low users are more likely to be pre-pay than post-pay users).

7.68 H3G[330] submitted that economic theory suggests that pre-pay may not be as vulnerable as suggested. It argued that low-user tariffs (such as pre-pay) are set at levels that just allow these users to participate in the market. High-user tariffs (such as post-pay), however, have to be priced such that high users have an incentive to choose the post-pay tariff instead of pre-pay, and so are less profitable (in fact, H3G argued the theory suggests they would only recover marginal costs). H3G argued that even with lower F2M revenue transfers, many of these pre-pay consumers will remain profitable to serve.

7.69 H3G went on to submit that the high level of profitability, and the fact that pre-pay customers are already at their participation constraint,[331] would mitigate any effect on pre-pay tariffs and users. It also argued that that those on post-pay tariffs are likely to make more calls than those using pre-pay (because post-pay calls are cheaper) and so, while pre-pay users attract more termination revenue, this traffic originates from post-pay users, and as such it is not correct to allocate this revenue simply to pre-pay users. In addition, H3G argued that termination revenue may be used to subsidise low-priced post-pay tariffs (rather than propping up pre-pay tariffs).

Our view

7.70 With regard to post-pay customers (who, by definition, are willing to pay subscription charges), we consider that the greatest impact will be an increase in subscription charges rather than in usage charges (which should decrease).

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[327] Paragraph 21 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf. Another stakeholder ([✂]) has made a similar argument in discussions with us. As we set out in Annex 3, intervention in setting MTRs is primarily designed to correct the distortion created by SMP in the market for mobile call termination, rather than pursuing broader policy goals. We would address any concerns about the availability of mobile data using the appropriate statutory tools available to us. EE also raised the issue that increasing data prices would significantly reduce demand for data (paragraph 41 of its response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf). We consider future demand for data services in our cost modelling (see Annex 6).

[328] See page 20 of BT's response to April 2010 consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/BT.pdf.

[329] Commission Staff Working Document accompanying the EC Recommendation on the regulatory treatment of Fixed and Mobile Termination Rates in the EU: *Implications for Industry, Competition and Consumers*, p.39, available at http://ec.europa.eu/governance/impact/ia_carried_out/docs/ia_2009/sec_2009_0599_en.pdf.

[330] Paragraphs 304 and 392-408 of H3G's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf.

[331] That is, these customers are already paying the highest price they are willing to pay without choosing to drop out of the market.

7.71 This view is consistent with the empirical evidence in a recent paper in which Genakos and Valletti[332] assessed the effect of reducing MTRs on different tariff structures. They found that, for post-pay customers, there was a strong waterbed effect, and that this mainly came through the fixed component (i.e. the subscription fee) rather than the variable component (i.e. usage charges).

7.72 It is also consistent with the views of some analysts. One suggests that "*voice [will become] one app among many to which customers gain access through their monthly subscription charge*".[333] Another suggests that "*[t]he obvious result of low marginal cost (following a big cut in MTRs) and phone customers typically valuing simplicity and certainty is a gradual move to flat rate voice pricing (a monthly fee in turn for unlimited calls)*."[334]

7.73 It is harder to generalise with regard to pre-pay users. It is likely that some consumers are sensitive to paying a recurring access charge, although we cannot determine what proportion of consumers this may be.[335] For these customers, it would probably be more profitable for the MCP to avoid increasing fixed charges.

7.74 However, many consumers are already moving away from pre-pay tariffs. As we noted in our April 2010 consultation, the proportion of mobile subscribers using pre-pay tariffs is declining (although they still account for the majority of subscriptions),[336] but overall ownership and subscription levels have continued to increase, which suggests that more consumers are now choosing post-pay subscriptions.[337] In addition, a greater proportion of revenue (more than 75% of retail revenue) comes from post-pay subscribers compared to pre-pay, as post-pay subscribers have a substantially higher ARPU (see figure 7.3). This suggests that the market is already shifting more towards bundles of minutes, which may be partly, although not solely, facilitated by trends in MTRs.

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[332] Genakos, C. and Valletti, T. *Seesaw in the Air: Interconnection Regulation and the Structure of Mobile Tariffs,* Information Economics and Policy (forthcoming), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1687814

[333] Berenberg, *Vodafone Group plc: Mobile Skype hype does not add up*, 12 October 2010, p.1.

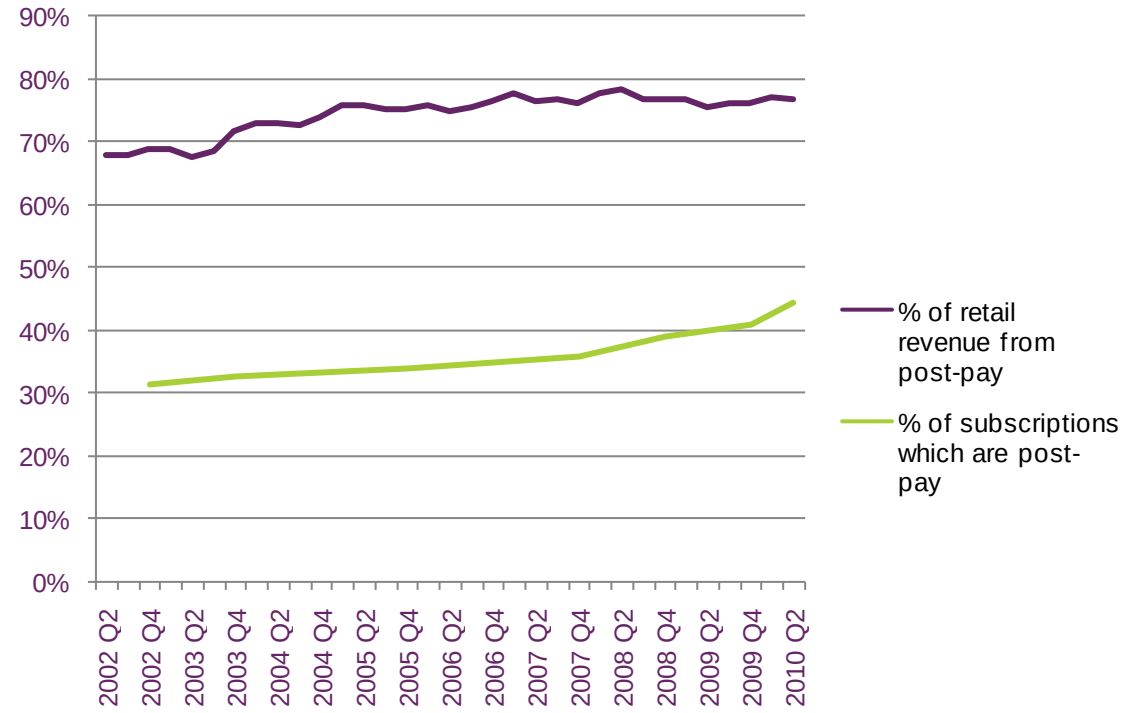
[334] Credit Suisse, *Mobile pricing: Price cuts to lag MTRs*, 29 June 2010, p.9.

[335] We consider there may be other reasons for consumers to choose a pre-pay tariff than the avoidance of fixed charges per se, for example the desire to avoid being tied into a long-term contract (for example, see section 4.3.2 of http://stakeholders.ofcom.org.uk/binaries/research/consumer-experience/annex4.pdf). Approximately 20% of contract sales are now for one month rolling periods, which targets pre-pay users who do not want to commit to long term contracts (see Figure 5.24 of Telecoms and networks section of Ofcom's *Communications Market Report 2010,* available at http://www.ofcom.org.uk/static/cmr-10/UKCM-5.24.html). As we note in our *Consumer Experience Report 2010*, "*[SIM-only contracts] provide greater flexibility than ordinary contract packages, allowing consumers to retain some level of control over their spending while potentially benefiting from the lower call charges associated with contract phones.*" (See section 3.2.9 of http://stakeholders.ofcom.org.uk/binaries/research/consumer-experience/tce-10/consumer-esperience-10.pdf). This has contributed to the shift in subscriptions towards contracts described above.

[336] According to the *Communications Market Report 2010*, pre-pay accounts for more than 59% of subscriptions (see Figure 5.26, Telecoms and Networks section of Ofcom's *Communications Market Report 2010*, available at http://stakeholders.ofcom.org.uk/binaries/research/cmr/753567/UK-telecoms.pdf), while the Consumer Experience Report 2010 reports that 55% of consumers use a pre-pay package (see Figure 17, available at http://stakeholders.ofcom.org.uk/binaries/research/consumer-experience/tce-10/consumer-esperience-10.pdf).

[337] Consumer Focus noted this trend in page 4 of its response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Consumer_Focus.pdf.

Figure 7.3: Proportion of subscriptions that are post-pay and retail revenue earned from post-pay



Source: Ofcom/operators; does not include data for H3G

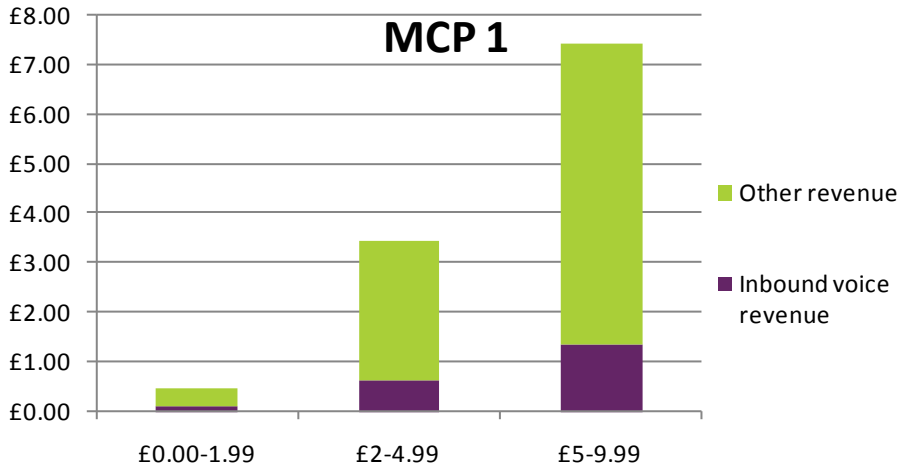
7.75 Data gathered using our statutory information gathering powers and set out in Annex 4 shows that, for the MCPs we asked, on average about [✂]of total revenue earned from pre-pay customers comes from inbound call termination revenue, compared to post-pay, where [✂]of revenue comes from inbound call termination. This shows that a greater proportion of the revenue earned from pre-pay comes from inbound call termination revenue, although the difference between pre-pay and post-pay is not as significant as suggested by some MCPs.[338]

7.76 We also examined the situation for different cohorts of subscribers based on the average revenue they generate (e.g. those who generate £0.01-1.99, £2-4.99, etc of revenue per month on average). [✂]The data are shown in more detail in Annex 4.

7.77 Of course, by definition, the MCP earns more revenue in total from higher-spending customer groups and so a loss of termination revenue would not be expected to jeopardise their profitability, even if this accounted for a significant proportion of current revenue. However, it is worth highlighting that, even in the lower-spending pre-pay cohorts, the majority of revenue comes from sources other than termination payments (as illustrated by figure 7.4 below which shows the sources of revenue earned for one particular MCP – data for other MCPs show a similar trend and is shown in more detail in Annex 4).

[338] Nonetheless, it is important to bear in mind that MTRs play a significant role in M2M competition independently of their level as even zero or very low MTRs under a B&K arrangement have an effect on the retail prices charged by the MCPs.

Figure 7.4 - Revenue earned from different sources, for one MCP



Source: Data gathered using statutory section 135 powers by Ofcom from one MCP, pre-pay subscribers only.

7.78 Nevertheless, voice termination revenues are more important for pre-pay on average, and these revenues can be expected to decline as MTRs are reduced.

7.79 It is likely that pre-pay customers are as diverse in their preferences as consumers more generally, and so it is likely that it will be possible to encourage some pre-pay subscribers to accept some form of fixed tariff element. This is in line with the market evidence that pre-pay users are beginning to move towards taking up lower-cost contract offers instead.[339] However, where pre-pay users are highly sensitive to fixed charges, it may not be possible to secure such a revenue stream. The question is whether a potential shift to pure LRIC is likely to have such an impact as to make pre-pay – and pre-pay users – such an unattractive proposition to MCPs that they withdraw such tariffs from the market.

7.80 Data gathered using our statutory information gathering powers and set out in Annex 4 shows that pre-pay tends to have a much lower customer lifetime value (CLV) than either post-pay or SIM only customers. This may suggest that reductions in revenue (such as termination revenues) may have a greater impact on the viability of these tariffs. However, as MTRs decline, both revenue and cost streams will reduce – for pre-pay on average, traffic tends to be balanced (as discussed in Annex 3).[340] Therefore, the magnitude of any effect on the value of pre-pay subscribers will be off-set to some degree by reductions in costs as well as revenues.

7.81 A number of submissions predicted that as the profitability of individual consumers fell, MCPs would withdraw tariffs, forcing some consumers out of the market, on the basis that there were significant costs to be saved by avoiding serving 'unprofitable'

[339] For example, the *Communications Market Report 2010* notes that "*An ongoing trend in the UK market is the gradual migration of consumers from pre-pay (pay-as-you-go) to post-pay (pay monthly) packages"* (see http://www.ofcom.org.uk/static/cmr-10/UKCM-5.26.html). It also notes that "*Growth of SIM-only sales is primarily being driven by consumers who are unwilling to commit to long contracts (many of these were previously pay-as-you go users) but who are attracted to the inclusive minutes, texts and data allowances"* (see http://www.ofcom.org.uk/static/cmr-10/UKCM-5.25.html).

[340] This does undermine H3G's argument that pre-pay users are likely to be more profitable than post pay users given their lack of an incentive constraint, as this data shows that pre-pay tariffs generally have a lower margin and a lower lifetime value than post-pay.

consumers.[341] These submissions appear to be inconsistent with the data gathered using our statutory information gathering powers and set out in Annex 4. For example, the costs of serving existing pre-pay consumers are likely to be very low, such that even with lower MTRs, many would still be profitable.[342] Several MCPs indicated that they would not avoid any cost by disconnecting a single inactive user.[343] Others did not measure the cost, but one indicated that it *"would anticipate incremental network costs to be low, given that most such costs tend to be sunk"*.[344] Two MCPs attempted to calculate the avoided cost in response to our section 135 request.[345] [✂].[346] In addition, this MCP indicated that it incurs a licence fee for each pre-pay connection, but could avoid this fee when signing up a new customer if it disconnected an existing one. Similarly, another indicated that the only cost saving would be in avoiding some incremental cost by freeing up space on the pre-pay platform.[347]

7.82 [✂] [348].[349]

7.83 Over a sequence of market reviews, MCPs have argued that reductions in MTRs in the past would have serious negative effects on pre-pay services – predictions that have proved to be wrong. For example, in 2003 the CC reported that O2 had argued that reductions in MTRs "*could have particularly deleterious consequences for prepay users, as many prepay users were only marginally profitable to the mobile operators such that losing their termination revenue was likely to make them unprofitable*".[350] MTRs have since fallen considerably; from approximately 10.2ppm to

[341] Note that this abstracts away from the obvious counter-argument that the current level of penetration might simply be a function of the fact that mobile users have historically been subsidised by fixed users and that removing this subsidy would simply move us back to the efficient level of mobile penetration.
[342] This is true when considering the incremental on-going costs of serving a subscriber who is already on the network (i.e. excluding acquisition costs). We consider the implications of reducing MTRs for subscribers who switch MCP (and who are new to the market) later in this Section at paragraphs 7.106 to 7.107.
[343] We gathered data under section 135 on the incremental cost which would be avoided by disconnecting a single pre-pay customer. We sought to avoid including traffic related costs, as such traffic would also be expected to generate revenue – we were interested in the *underlying* cost of serving a customer. This is set out in Annex 4.
[344] [✂]
[345] This is set out in more detail in Annex 4.
[346] These MCPs also argued that a contribution to retail costs should be included. However, while MCPs will need to recover these costs from their subscriber base, they would not avoid these costs by ceasing to serve an existing subscriber. We have therefore excluded these costs. Likewise one argued that we should take into account the average handset subsidy incurred for PAYG customers and the upfront cost of provisioning a SIM card. As we have argued above, these are sunk costs and so would not be avoided by disconnecting an existing customer and so are also excluded.
[347] This MCP indicated that it considered the cost of trying to attract new customers to replace the inactive ones to be relevant. However, whether a MCP attempts to attract a new customer will depend on how attractive it expects these customers to be – even if it did not lose any customers, it is likely a MCP would still try to attract new ones and how much this costs will depend on how much it is willing to expend in attracting them. This argument also implies that MCPs care only about the sheer number of subscribers on their network – maintaining a constant 'pot' – rather than the 'quality' of these customers (e.g. how profitable they are). This seems to be inconsistent with the response to the consultation by a number of MCPs which implies that MCPs will implement price changes which will cause many to disconnect.
[348] [✂]
[349] [✂]
[350] Paragraph 11.66 of Vodafone, O2, Orange and T-Mobile: Reports on references under section 13 of the Telecommunications Act 1984 on the charges made by Vodafone, O2, Orange and T-Mobile for

4.2ppm on average (in 2008/09 prices), and prepay tariffs remain the most popular form of mobile subscription (although consumers are moving towards post-pay tariffs).

7.84 One reason why these predictions are misplaced is that MCPs do not currently earn all their revenue directly from pre-pay customers; they receive call charges and termination rates, the latter of which could be thought of as a form of 'cross-subsidisation' from other users. We consider that such cross-subsidisation is likely to continue to some (albeit probably to a lesser) extent, but in different ways. For example, to the extent that pre-pay users are likely to receive on-net calls, these generate revenue for the MCP which it would not earn if the pre-pay user were not on its network, but it is not earned directly from the pre-pay user. This suggests MCPs might find it profitable to still serve some 'directly unprofitable' customers.

7.85 Similarly, the existence of calling circle groups (such as 'friends and family' tariffs) allow MCPs to earn additional revenue as a result of having subscribers, including pre-pay users. It may therefore be profitable in practice for the MCP to maintain (at least some) such users even with lower termination rates. In essence, while examined on their own, some customers may appear unprofitable, this does not take into account that their presence brings benefits to other subscribers to the same MCP. In other words, if an MCP were to force these subscribers out of its network some of its own profitable subscribers may suffer and be less willing to pay for a connection.[351] This is in line with the findings of the EC's analysis on this issue:

> "Network operators have incentives to have as many subscribers on their networks as possible because subscribers benefit from being able to call other subscribers located on the same networks as themselves (i.e. network or club effects are generated). Revenue-generating customers benefit from being able to call more users and are more likely to stay on the network and make calls when those customers are available. The incentive for operators to create communities of interest suggests mobile network operators would seek to retain their pre-paid customers, even if their termination rates were regulated on a pure LRIC basis. Thus, it may be expected that mobile network operators would seek to retain their pre-paid customers on their networks even if they were no longer subsidised by above-cost termination rates paid by customers of other networks."[352]

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terminating calls from fixed and mobile networks, available at http://www.competition-commission.org.uk/rep_pub/reports/2003/fulltext/475c11.pdf.

[351] For example, see page 4 of O2's presentation on customer segmentation analysis, which shows that if one member of a calling circle leaves, the likelihood of the other members leaving increases significantly, and page 6, which illustrates how customers with the same average bill may be more important to retain depending on the size of their community and their influence within it: http://www.demographicsusergroup.co.uk/resources/2009conf-Andrew_Day.pdf. Data gathered under section 135 and set out in Annex 4 show evidence of strong calling circles, with a disproportionate amount of traffic going to a relatively small number of contacts. However, these data show mixed evidence on how far calling circles gravitate to a single network, as data from some MCPs suggest the majority of contacts/calls even within small circles are off-net. Therefore, operator-level network externalities are likely to be significant, but not fully internalising network effects. Nevertheless, on-net contacts can account for a significant part of consumers' calling groups which they may not be willing to lose.

[352] Commission Staff Working Document accompanying the EC Recommendation on the regulatory treatment of Fixed and Mobile Termination Rates in the EU: *Implications for Industry, Competition and*

7.86 In addition, while commercial logic dictates that each offer a MCP launches must be profitable on average, there will inevitably be a distribution of subscribers around this average – some contributing more revenue, some less – and so a number of subscribers will in fact be 'unprofitable'. This may explain why MCPs argue that they already have a large proportion of subscribers who appear unprofitable according to their own calculations. We discuss this further in Annex 4. It seems unlikely that marginally lower MTRs (comparing pure LRIC to LRIC+) would change the underlying dynamic, which means that it is profitable to serve these consumers as a segment rather than trying to distinguish the profitability of individuals.

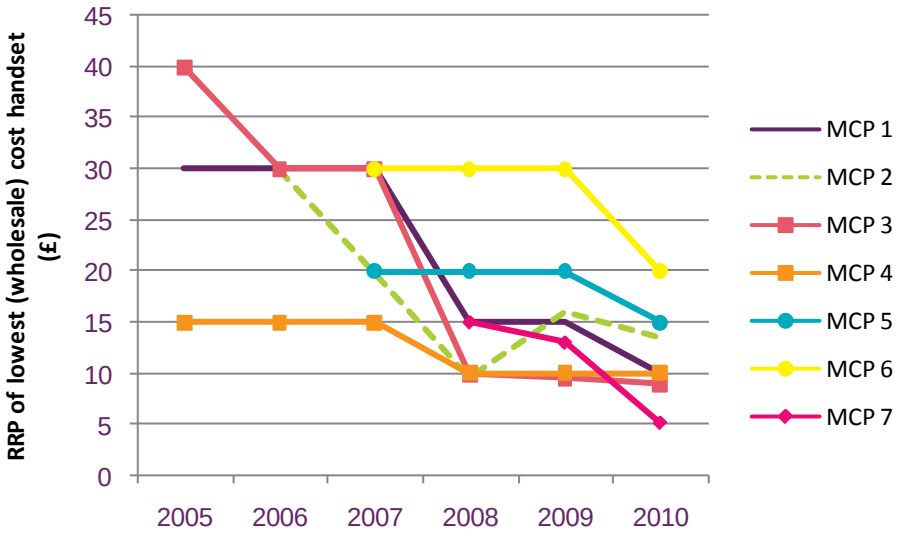
7.87 MCPs may also increase the prices they already charge pre-pay users,[353] namely call prices or handset and SIM prices.[354] While this would not guarantee an ongoing stream of revenue, it would be an increase compared to what they earn currently. Data gathered using our statutory information gathering powers and set out in Annex 4 suggest that the retail prices of the handsets that cost the least at the wholesale level have been falling (see Figure 7.5), although how far this is due to reductions in wholesale costs and how far it is due to changes in the level of subsidy provided varies across MCPs. Since the wholesale cost of these handsets has also been falling (see Figure 7.6), MCPs could increase their revenue streams by maintaining the current level of handset prices, without having a discernable impact from the perspective of a pre-pay user.

Consumers, p.39, available at http://ec.europa.eu/governance/impact/ia_carried_out/docs/ia_2009/sec_2009_0599_en.pdf.

[353] [✂] suggested that MCPs may reduce payments to third parties, which may threaten the economics of third party supply [✂]. Third-party distribution is an important channel used to reach consumers. Research by Enders Analysis shows that just under half of handset sales in the year to April 2010 were made through independent retailers (Enders Analysis, *Mobile user survey 2010: The rise and rise of smartphones*, July 2010). It is therefore unlikely that MCPs would choose to completely withdraw from third party supply. However, they may choose to rationalise their distribution channels based on the profitability of the customers attracted by different suppliers. This is already a common practice; Enders Analysis notes that the share of distribution through independents has fallen *"mostly at the expense of the smaller indies, who tend to deliver worse quality of subscribers than the national chains Carphone Warehouse and Phones4U, and we suspect this was due to operators culling their distribution networks".*

[354] O2 argued that the belief that consumers will trade-off higher handset costs for lower call prices and so will continue to participate in the market rests on the assumption that consumers are insensitive to the costs of ownership, display price elasticity of demand for calls and make purchasing decisions rationally with a suitably low discount rate such that future call savings have a bearing on the decision to subscribe (paragraph 165 of its response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf). While this seems like a reasonable assumption to make, we considered it would be disproportionate to attempt to accurately measure how far consumers may trade-off upfront charges and future costs. (The Jigsaw research did try to compare responses where off-setting reductions were made to call charges with those where there was no such off-set, but as noted in Annex 10.1 of our May 2009 consultation (available at http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/annexes/annex10_1.pdf), there are reasons to be cautious in using these results).

Figure 7.5 - Recommended retail price of lowest-cost handset



Based on recommended retail price, actual price may vary from this; includes VAT

Source: Data gathered using statutory section135 powers

7.88 Enders Analysis also suggests that while MCPs will absorb most of the MTR reduction, they may attempt selective price increases. Enders specifically highlights the possibility of increasing ppm charges or reducing handset subsidies for low end pre-pay users.[355] We would note that MCPs already price discriminate within pre-pay plans in order to encourage greater use and generate additional revenue. For example, under some plans consumers are offered bonuses (such as free texts or rewards) for topping up,[356] while those who do not top up receive no such rewards and face comparatively high usage charges.

7.89 In their more recent paper, Genakos and Valletti found that, when looking at the best deals available in their sample, the waterbed effect was equally strong for pre-pay as for post-pay contracts. However, they also examined the difference in the waterbed effect between pre-pay and post-pay users, when each type of consumer is limited to choosing within the same type of contract (i.e. pre-pay users only want to look at other pre-pay offers).

7.90 In this situation, they found that while MTR regulation still led to an increase in pre-pay prices, this was not significant, indicating that regulation had a more uncertain impact on pre-pay deals on average. In addition, the magnitude of the waterbed effect for pre-paid deals is significantly smaller than that for post-pay contracts.[357]

7.91 This therefore suggests that pre-pay tariffs are likely to be selectively affected by lower MTRs. MCPs are likely to try to encourage consumers to select other tariffs (as

[355] Enders Analysis, *UK mobile termination rates: terminated*, 6 April 2010.
[356] For example, see Vodafone's Freebees offers (http://www.vodafone.co.uk/personal/price-plans/pay-as-you-go/vodafone-freebees/index.htm) and T-Mobile's Weekend Rewards offers (http://www.t-mobile.co.uk/shop/pay-as-you-go/costs-rewards/).
[357] Genakos and Valletti found that, in reaction to MTR regulation, the total bill for monthly post-pay contracts increased 15.9%, but pre-pay prices increased by 5.1% (the result on pre-pay customers is not statistically significantly different from zero though). See Genakos, C. and Valletti, T. *Seesaw in the Air: Interconnection Regulation and the Structure of Mobile Tariffs,* Information Economics and Policy (forthcoming), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1687814

we have already observed) or raise call or handset prices to compensate for the lost termination revenue, and may attempt to move towards introducing some fixed elements to pre-pay pricing. However, it is unlikely that this will be the case for all pre-pay options, as there will remain a segment of pre-pay users for whom it is still profitable to cater, but who are highly sensitive to fixed charges.

Usage charges

Stakeholder views

7.92 Most respondents (including Consumer Focus[358] and H3G[359]) agreed that mobile usage prices were likely to decrease (although, as we discuss in paragraphs 7.153 to 7.159 below, some were less convinced of the effect this would have on usage). BT stated that *"the changed relative prices are likely to mean lower call charges and higher fixed fees"*.[360] [✂] [361] However, EE,[362] O2[363] and FleXtel[364] claimed that mobile usage charges would also increase. EE[365] argued that the waterbed effect would force up usage charges as well as subscription charges, particularly given consumers' sensitivity to fixed charges. O2[366] also argued that, given consumers' sensitivity to subscription charges, MCPs would have to increase usage prices to recover revenues.

7.93 H3G[367] claimed that there will be pressure on all retail prices, including call prices due to the reduction of the price floor created by MTRs. However, O2[368] argued that there is no price floor, as many M2M calls (specifically calls within a bundle when the bundle is fully utilised) are currently priced below the regulated MTR.[369] H3G[370] also claimed that there are on/off-net price differences that we have not considered, but which are present in the market. Conversely, EE[371] argued that there is no evidence that any remaining differentials harm – or have ever harmed – consumer welfare, and

[358] Page 4 of Consumer Focus's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Consumer_Focus.pdf.
[359] Paragraph 78 of H3G's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf.
[360] Page 18 of BT's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/BT.pdf.
[361] [✂]
[362] Paragraph 49 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.
[363] Paragraph 153 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.
[364] Page 8 of FleXtel's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/FleXtel.pdf.
[365] Paragraphs 48-49 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.
[366] Paragraph 153 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.
[367] Paragraphs 42-45 and 85 of H3G's response (available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf), for example.
[368] Paragraph 154 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.
[369] BT argued that the fact on-net calls are often charged below the regulated MTR, even though an on-net call makes twice as much use of network facilities as terminating an off-net call, is evidence that the current MTR level is greatly in excess of the true cost of termination.
[370] Paragraph 353 of H3G's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf.
[371] Paragraph 122 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.

noted that this has become less common, due to a consumer preference for flatter tariff structures. We consider the evidence on on/off-net retail price differentials in Annex 3.

Our view

7.94 As we noted earlier, one of the effects of reducing MTRs is that the cost of providing (off-net) M2M calls falls. In a competitive market (such as the retail mobile market), we would expect this to lead to pressure to reduce these retail prices for these calls (for example, by increasing the size of bundles to include more off-net calls).[372] A recent academic paper also suggests that when consumers do not know which MCP they are calling – i.e. whether they are making an on- or off-net call - on-net call charges may also decline if MTRs are lowered.[373] However, where consumers are less sensitive to usage prices than to other charges (such as subscription fees), it might be more commercially attractive to direct cost savings towards keeping such other charges low.[374] Therefore, the question is whether consumers would respond more (i.e. by increasing their usage) to low usage prices or to low subscription charges. As noted in paragraph 7.79, consumers are highly heterogeneous, so we would expect that some will be more sensitive to the former and others to the latter.

7.95 We expect that MCPs will take consumer preferences into account when re-designing their tariff structures. If consumers prefer high usage charges in return for lower fixed fees, the MCP can still offer such a tariff option with lower MTRs. However, they would also have the option to offer different price structures, which are less commercially attractive with high MTRs.[375] This is further discussed in section 8 and Annex 3 below.

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[372] On O2's point that many M2M calls are already priced below the MTR, we note that O2 gives an example of a particular package of 600 minutes for £20, which if fully utilised would mean an effective price of 3.3ppm, which is below the current levels of MTRs. However, we would note that a) bundles are often not fully utilised (as discussed in paragraph 7.162 below) and as a result the ppm price will often be higher than 3.3ppm. In addition, the minutes included can be used for calls to fixed lines, which attract a much lower termination charge. Therefore, while the average price per minute may be below the MTR level, the average cost may be less than the MTR level as well. A MCP can choose to offer tariffs including off-net calls with effective ppm prices below the MTR, but in doing so takes the risk that many consumers fully utilise their calling allowance to make only off-net calls, which would result in them making a loss.

[373] Lo, Y-S, *Market shares, consumer ignorance and the reciprocal termination charges*, Discussion Paper 09/19, Department of Economics, University of York, available at http://www.york.ac.uk/media/economics/documents/discussionpapers/2009/0919.pdf.

[374] This is the parallel of the argument we made in the April 2010 consultation (available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf) in relation to FCPs, that savings from MTR reductions may have been used to reduce the price of bundles rather than calls to mobiles specifically.

[375] Vodafone argued that bundles of similar size and price are available in the UK and the US despite differences in MTRs. There are clearly many factors which influence prices in different countries, of which MTRs are only one. While MTRs are not an absolute barrier to offering large bundles of minutes, it does make them less commercially attractive due to the risk that they will attract consumers who routinely use a high proportion of off-net calls. We would note that in the US, most contracts include over 900 (inbound and outbound) minutes a month, and there are very few available with less than 450 minutes; while bundles of this size are available in the UK, they are much less common compared to smaller bundles. International price comparisons are included as part of Ofcom's *International Communications Market Report 2010* (see Section 2, available at http://stakeholders.ofcom.org.uk/binaries/research/cmr/753567/icmr/ICMR_2010.pdf. See in particular Section 2.2.3 for the summary of findings with respect to mobile pricing). We reviewed UK and US tariffs in Annex 9 of the May 2009 consultation.

Distribution of price changes between different types of consumer

7.96 An additional consideration is how price changes will be spread between different groups of consumers.

Stakeholders' views

7.97 Vodafone[376] argued that MCPs would attempt to recover from each cohort of customers the same amount of revenue as they lose from that cohort through lower MTRs. It argued that MCPs would not direct price increases only towards non-marginal customers in order to limit the effect on marginal customers, as this would make non-marginal customers more attractive to competitors and so they would risk losing them. Similarly, EE[377] argued that MCPs would not be able to limit the impact on price-sensitive customers as "*operators would not be in a financial position to support the substantial group of customers who would be made uneconomic to serve because of Ofcom's proposals*". Therefore, mobile customers who receive relatively large volumes of calls (and hence generate significant termination revenues relative to outgoing call revenues) are likely to be made worse off as they would end up bearing sharply higher prices as long as they can be properly identified and targeted by the MCPs.

7.98 O2[378] stated that *"[i]n practice, the dynamic competitive process would result in increases and decreases for different mobile subscriptions and call charges".* O2[379] argued that competition for some types of customers (specifically those who make more calls to off-net mobiles than they receive) would intensify, meaning that MCPs would not be able to raise prices for these customers. This means that a greater degree of revenue recovery would fall on lower-usage (and by implication, more marginal) consumers, and so the knock-on effects of price changes would be more severe when there is price discrimination than if there were uniform price changes. By contrast, H3G argued that increasing prices to those most likely to leave "*defies normal commercial logic*".[380]

7.99 Vodafone[381] also argued that data on pricing trends show that as MTRs have fallen, price reductions have been larger for high-usage (contract) customers than for low users (pre-pay), even though low users are expected to be more price sensitive. [✂] Vodafone also cited Teligen data showing that medium and high users have experienced the largest price reductions, as well as data from the Ofcom Mobile Citizens, Mobile Consumers publication.[382]

[376] Page 29 of Vodafone's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf.
[377] Paragraph 68 and 71 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.
[378] Paragraph 105 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.
[379] Paragraph 185-186 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.
[380] Paragraph 14 of H3G's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf.
[381] Page 29-31 of Vodafone's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf.
[382] Available at http://stakeholders.ofcom.org.uk/binaries/consultations/msa08/summary/msa.pdf.

7.100 Virgin Media argues that applying pure LRIC will lead to material price increases for lower-usage mobile customers, [✂] [383] Vodafone calculated the impact of reducing MTRs on fixed fees and usage charges for different spending cohorts. This showed that, assuming price discrimination, only those spending £25 or more per month would make sufficient savings on call prices to offset the increase in fixed charges.[384]

Our view

7.101 Economic theory tells us that, in order to raise more revenue from a price increase, demand must be inelastic. The degree of price elasticity is likely to vary considerably for different consumers (and groups of consumers); some pre-pay users will be highly sensitive to (subscription and usage) prices, while others (most post pay users) will be relatively unresponsive to price changes. This is discussed in paragraphs 7.70 to 7.73 above.

7.102 We therefore consider that it makes commercial sense for each MCP to target price increases as far as possible towards those whose demand (for subscription and usage) is less price elastic (post pay users), and limit (or completely avoid) price increases for those who are more sensitive to price changes (particularly for subscription) such as some pre-pay users. [385] Any other behaviour on the part of MCPs would be counter-intuitive, as it would result in them earning less revenue (and, because the cost of retaining customers, once acquired, is likely to be low,[386] lower profits).

7.103 Insofar as pre-pay users are more price-sensitive (for subscription charges) than post pay consumers, it is more likely that price increases will be greater for the latter category. While price discrimination is imperfect, the extensive second-degree price discrimination, evident in the array of tariff options available, suggests that it is relatively sophisticated.[387] We consider that O2's point (set out at paragraph 7.98 above) fails to take into account that all MCPs *will face the same incentives from*

[383] Page 7 of Virgin Media's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Virgin.pdf.
[384] Page 33 of Vodafone's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf.
[385] EE highlighted that the reductions in MTRs will require a fundamental review of retail pricing, which is best done by gradually testing consumers' sensitivity to different options. However, it argued that large cuts would mean that MCPs will have to implement largely untested responses (paragraph 249 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf). We consider the arguments on the speed of reductions (which influences the glide path) in section 10. There we recognise that while both consumers and industry are likely to benefit from as smooth an adjustment as possible, we would also wish to avoid unduly delaying the benefits of lower MTRs. Nevertheless, we have ultimately concluded in favour of a four year glide path. On the specific point raised by EE here, it should be noted that MCPs are continuously testing new service and tariff offers, and have built up a great deal of knowledge about consumers and their preferences (as mobile penetration is now around 90% of the population and has been a mass-market service for over a decade). The MCPs are therefore not starting from a 'blank sheet' but will be building on a wealth of pricing and marketing experience in a mature retail mobile market.
[386] As discussed in paragraph 7.81 above and Annex 4.
[387] In paragraph 59 of its response (available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf), EE argues that in fact most UK consumers are on a handful of pre-pay tariffs, which gives MCPs limited information or ability to price discriminate between customers. It is unclear why MCPs would offer such a wide range of tariffs, and continue to launch new ones, if there was no demand for them. In any event, there can be a considerable degree of price discrimination even within the same base tariff through the use of add-ons and extras, as highlighted in paragraph 7.88.

falling MTR revenues and so, while price increases above the competitive level would be competed down, MCPs will face similar constraints and incentives in how they raise prices and to whom, and so price increases, even to more attractive customers, may be possible where these customers are less price sensitive.

7.104 This argument holds as long as the customer remains profitable to serve. It is true that, as the (net) incoming revenue from termination declines, some pre-pay users who are currently only just profitable to serve over the course of their 'lifetime' will become unprofitable. However, the majority of the costs incurred by a MCP are the up-front costs of acquisition (for example, any handset subsidy used to attract the customer), which are a form of sunk costs and would not actually be avoided by the provider disconnecting the existing pre-pay user from the network.

7.105 The actual cost the MCP would avoid by no longer offering service to an individual pre-pay user are likely to be minimal, and so it is likely that it would still be worth serving these consumers in the short term. As set out in paragraph 7.81 above, information gathered using our statutory section 135 powers and set out in Annex 4 indicate that the cost of keeping a subscriber on the network (as opposed to actively disconnecting them) is likely to be very low.

7.106 However, in the long run all consumers will need to replace their handsets and some new consumers will enter the market,[388] and most will want to change their package or provider at some point as their needs change.[389] At this point MCPs will re-evaluate their potential lifetime value and, in order to ensure they remain profitable, will alter the offer they make so as to either increase revenue (for example, increasing the price of tariffs or charging for a SIM) or reduce the acquisition costs (for example, by offering a lower handset subsidy).[390]

7.107 The effect of lower MTRs on pre-pay users may be mitigated by continuing reductions in equipment costs. For example, data gathered using our statutory section 135 information gathering powers shows that the wholesale cost of the lowest-cost 2G handset purchased by a MCP and offered to pre-pay customers has fallen from almost £35 in 2005 to £15-20 in 2010, which suggests that ownership is becoming more affordable for most consumers even without a handset subsidy. In its response to the April 2010 consultation, H3G[391] states that the *"handset cost*

[388] In paragraphs 84.5 and 125.2 of its response (available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf), O2 highlights that if consumers responded to lower handset subsidies by keeping their current handsets for longer, this would result in lower take-up of smartphones with knock-on effects on service and application development. CMR 2010 highlighted that research shows the large majority of mobile handsets in use are already capable of providing internet access, and over a quarter of users already have a smartphone (see section 5.1.6 of CMR 2010, available at http://stakeholders.ofcom.org.uk/binaries/research/cmr/753567/UK-telecoms.pdf). We consider that this is a peripheral point, as many factors affect smartphone take-up, and so the link between this and low MTRs is weak.

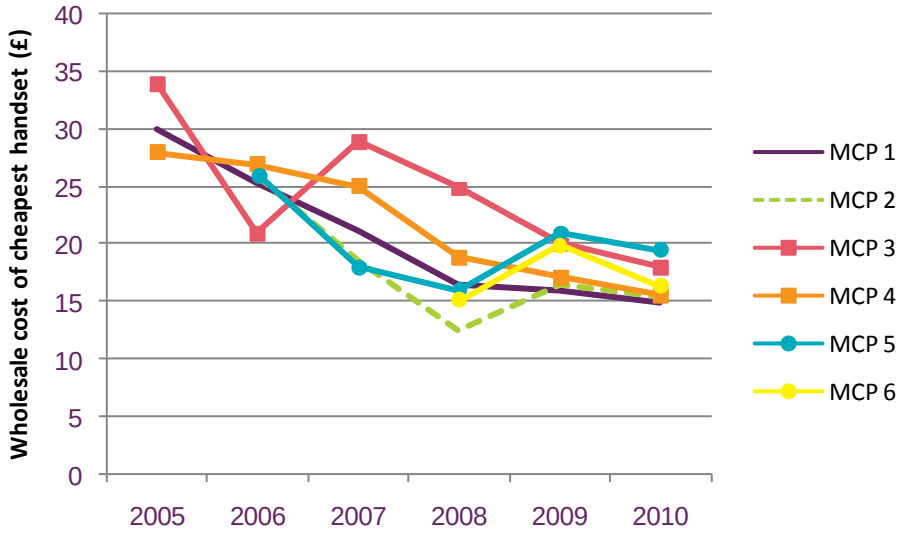
[389] Virgin Media suggests that the knock-on effect of reducing MTRs on pricing will encourage consumers to give up or change their packages more quickly or migrate to other service bundles, and that this would lead to confusion and disruption (see page 2 of Virgin Media's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Virgin.pdf). However, consumer switching between packages and/or providers is part of the normal competitive process. While the complexity of tariffs available in the market may lead to confusion, there are tools (e.g. price comparison websites) which can help reduce these barriers. Therefore, we do not consider this to be a strong argument against our proposals.

[390] [✂]

[391] Footnote 20 of H3G's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf.

premium [for 3G handsets] has now come down significantly", suggesting that the cost of some higher-end handsets is also on a downward trend. We therefore consider that MCPs might take advantage of these falling wholesale costs to reduce their handset subsidies without any material impact on the retail price faced by pre-pay users.

Figure 7.6: Wholesale handset costs



Source: Data gathered using statutory section135 powers

Handset models differ between MCP and for each year; in some cases this is the official list price and does not reflect where the MCP received a discount from a third party handset supplier; excludes VAT; excludes 3G handsets

7.108 The Teligen data,[392] cited by Vodafone, showing that medium and high users have experienced the largest price reductions, may be correct; however, we would also note the following:

- there are many factors affecting this result so it is extremely difficult to try to link this effect to changes in MTRs over time;
- the Teligen methodology includes only two UK operators (O2 and T-Mobile); and
- the Teligen baskets, although defined as high/medium/low, are not a good representation of genuinely high UK usage, as the high-usage basket (with 140 calls per month at an average call length around 1.7 minutes, and 42 SMS) corresponds quite closely to the average UK post-pay usage (236 minutes a month in 2009, while overall (post-pay and pre-pay combined), an average of over 100 SMS were sent per month).

7.109 Therefore, we do not consider that the Teligen data for the UK market is sufficiently reliable to adequately support Vodafone's argument.

[392] Teligen is a commercial organisation that collects and compares all available tariffs of the two largest mobile operators for thirty OECD countries over time. Teligen provides a low, medium and high usage basket (as well as a basket covering a low usage profile independently of whether they are pre-pay or post-pay tariffs) chosen to be broadly representative of consumption profiles of mobile services across the OECD. For each usage profile, Teligen calculates a price index by selecting the cheapest tariff for that usage profile from the available tariffs of the two largest operators.

7.110 In *Mobile Citizens, Mobile Consumers*,[393] we found that between 2001 and 2008 post-pay consumers generally received more or paid less, while prices for pre-pay stayed roughly the same. However, this period saw the beginning of the shift by consumers towards post-pay and away from pre-pay.[394] Therefore, the profile of the average post-pay and pre-pay consumer is likely to have changed over this period, as more pre-pay users with a more elastic demand for usage may have moved to low cost contracts to take advantage of inclusive minutes, texts and data. In addition, in analysing the price for low, medium and high usage pre-pay profiles, we found that the predicted pre-pay prices for each profile had remained stable or slightly increased. However, the largest increase seems to fall on the high-usage pre-pay group which, according to Vodafone's hypothesis, would be relatively less price sensitive than the low-usage pre-pay group. Therefore, we do not agree with Vodafone's argument that price reductions have been mostly targeted towards less price sensitive consumers.

7.111 As part of their recent paper, Genakos and Valletti[395] explore the dynamic effect of MTR regulation on different tariff structures over time. They find that for post-pay, there is an immediate effect on tariffs as soon as MTRs are changed, and this increases with every reduction in MTRs. However, for pre-pay, they find that immediately after implementation there is a short-lived non-significant decrease in prices, followed by a continuous non-significant increase in prices. However, there is an overall positive waterbed effect on pre-pay prices. This suggests that while in the short term, MCPs may resist increasing pre-pay prices, in the long term they raise these prices as well. This is in contrast to the effect on post-pay contract prices, which reacted immediately and much more strongly to changes in the level of MTRs.

Conclusion on effects on mobile retail prices

7.112 Overall, it is likely there may be small price increases to make up for the contribution to fixed and common costs which is no longer made by FCPs via LRIC+-derived MTRs, but these will be spread variably across consumers and service elements, depending on their price sensitivity.

7.113 In the long run, increased competition and falling costs will exert pressure to continue to reduce prices as we have seen in the past (although perhaps slower than would occur without MTR reductions, because of the reduction in the transfer of funds from FCPs). While it is likely that prices will generally move towards higher fixed fees and lower call charges, where consumers have a strong preference in favour of low or no fixed fees, MCPs are likely to be able to accommodate this.

7.114 Generally, lower MTRs will allow MCPs to structure their tariffs to cater for different demand and consumer preferences – i.e. higher fixed fees and lower call charges are easier to provide if MTRs are lower and will occur if consumers want them.

[393] *Mobile citizens, mobile consumers: Adapting regulation for a mobile, wireless world*, 28 August 2008, available at http://stakeholders.ofcom.org.uk/binaries/consultations/msa08/summary/msa.pdf.
[394] As is shown in Figure 51 of the April 2010 consultation (available at http://stakeholders.ofcom.org.uk/consultations/wmctr/), the proportion of pre-pay subscriptions in the market fell from 69% in 2001 to 61% in 2008.
[395] Genakos, C. and Valletti, T. *Seesaw in the Air: Interconnection Regulation and the Structure of Mobile Tariffs,* Information Economics and Policy (forthcoming), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1687814

Effect on mobile subscriptions and ownership

Our views in the April 2010 consultation

7.115 We argued in the April 2010 consultation that the effect on ownership would be muted as a result of price discrimination at the retail level, and more generally that the retail price increases would be limited to that required to maximise profits rather than revenues. The existence of multiple subscriptions meant that some reduction in the number of SIMs/phones used would fall on those who have more than one mobile subscription, which would have very limited effects on consumer welfare.

7.116 We were sceptical of over-reliance on surveys as a reliable method of estimating the impact of changes in the structure of prices on subscription decisions, due to the difficulties in extrapolating consumers' actual behaviour from their stated behaviour. We drew on evidence from academic papers, the estimates prepared for us by CEG in 2009 and historical trends in ownership.[396]

7.117 We noted that empirical studies tended to find that the (industry-wide) price elasticity of demand for mobile subscriptions was low, but noted that this was an imperfect measure of the likely impact of MTRs on take-up, as the (industry-wide) demand price elasticity assesses the impact of a price increase on output, rather than the effect of a change in the structure of prices.

7.118 We argued that the CEG estimates (which analysed, among other things, the relationship between MTRs and penetration rates for mobile subscriptions) provided more direct information than (industry-wide) demand price elasticity estimates as it directly estimated the impact of the level of MTRs on penetration and, hence, took into account the effect of potential changes in the structure (and possibly level) of prices. We noted that CEG's research suggested that, on average, a 1% increase in MTRs could be expected to lead to a 0.034% increase in mobile subscription penetration. However, we also suggested there were reasons to be cautious in interpreting the CEG results, as they are based on subscriptions rather than ownership, and the fall in MTRs in our proposal was outside the data range used by CEG and inferences may be inaccurate.

7.119 We also set out historical data on overall penetration and ownership rates, and pre-pay penetration, which we suggested indicated that past changes in MTRs have not had a dramatic impact on subscription penetration rates, although we argued that care is needed in reaching conclusions from simple comparisons of past trends, given that many other factors could have affected take-up of mobile subscriptions over this period.

7.120 Based on this evidence, we suggested that there would be only a small effect on the level of ownership as a result of the likely price changes arising from setting MTRs based on pure LRIC rather than LRIC+.

[396] In addition, for our May 2009 consultation, we commissioned research from Jigsaw Research to investigate, among other things, the possible reaction by consumers to various price change scenarios (Annex 10.2 of our May 2009 consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/annexes/annex10_2.pdf). However, due to the factors noted in Annex 10.1 of our May 2009 consultation (available at http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/annexes/annex10_1.pdf), we considered that the data is informative of relative differences in consumer behaviour and attitude towards these scenarios, but we did not rely on the detailed answers to the price change scenarios. Therefore, we considered that this is less relevant for analysing the absolute effect of lower MTRs on consumers' decision whether to subscribe to a mobile service.

Stakeholder views on the consultation

7.121 Both Vodafone and BT considered that the effect on take-up[397] should be our primary focus in analysing the effect of lower MTRs on mobile consumers. Vodafone[398] argued that any effect on subscriptions should be a concern to us, as (it argued) there would not be any countervailing benefit from increased usage.[399] BT[400] also argued that the primary focus in the analysis of the balance between possible positive and negative consequences for mobile users should be on take-up - i.e. only if there is evidence that there might be a significant fall in take-up could there be a case for continuing to use LRIC+ to set MTRs.[401]

7.122 That notwithstanding, the three largest MCPs all refuted our conclusion, claiming that there would be significant negative consequences for ownership, particularly among the vulnerable.[402] We consider this latter point in section 8. O2[403] highlighted that this would create a wider loss for society due to a negative externality effect.

7.123 EE[404] observed that mobile penetration is higher in the UK than in the US or Canada, where termination revenues are much lower. We considered international evidence in some detail in our May 2009 consultation.[405]

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[397] However, while Vodafone considered that we should be concerned about the effect on subscriptions as well as ownership, BT seems more focused on ownership (although it did not make a clear distinction between the two in its response).

[398] Page 15 of Vodafone's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf. Tangential to this, EE argued that no weight can be attached to the assumption that changes to the structure of prices would moderate the loss of subscribers (paragraph 61).

[399] In page 14 of its response (available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf), Vodafone also argues that any policy that reduces subscription rates would also compromise our duty to secure opportunities for mobile ownership. However, as we noted in paragraph A13.77 of the April 2010 consultation, while we have a duty to secure the availability throughout the UK of a wide range of services – including mobile services; that is, in this context, to *"ensure that opportunities exist for mobile ownership for all who live and work in the UK… we have no specific duty to maximise the use of services nor the number of subscriptions held by each user of mobile services."* For this reason, we place more weight on concerns about ownership than subscription levels.

[400] Page 18 of BT's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/BT.pdf.

[401] However, BT also suggested that if consumers do drop out, this could not have a high cost on the basis of allocative efficiency simply because the customers leaving the market do not value the service highly (page 20 of BT's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/BT.pdf). We consider allocative efficiency more broadly in section 8 and Annex 3.

[402] In paragraph 83 of its response (available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf), EE suggests that we should consider the possible knock-on effects of a significant reduction in ownership, such as the need to make more payphones available to ensure the most disadvantaged have access to telephone services.

[403] Paragraphs 169 and 233 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.

[404] Paragraph 78 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.

[405] See Annexes 5 (http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/annexes/annex5.pdf), 7 (http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/annexes/annex7.pdf), and 8.1 (http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/annexes/annex8_1.pdf) of our May 2009 consultation.

7.124 Vodafone[406] argued that even the CEG estimate we quoted in our April 2010 consultation amounted to an effect on 400,000 people as a result of a move to pure LRIC from LRIC+,[407] which, it argued, should not be regarded as 'small'. It further argued that the true comparison should be the effect of a reduction in MTRs from 3.7ppm (the 'profit neutral' MTR it estimates) to 0.5ppm, which would lead to a 1.4 million reduction in subscriptions. As set out in paragraphs 7.15 to 7.18 above, we do not agree with this latter view.

7.125 Vodafone[408] also submitted further survey evidence which showed a significantly greater effect on ownership (separate to subscriptions) than this. Specifically, the research showed that approximately 4 million people would drop their mobile in the face of the price changes Vodafone considered would have to be implemented in order to recover revenue lost as MTRs fall from the 'profit neutral' level of 3.7ppm to the pure LRIC level we consulted on (0.5ppm).[409] EE[410] also provided the results of a market research study they have commissioned to respond to our April 2010 consultation which showed that a large number (between 24% and 30% of pre-pay customers, depending on the price change scenario being considered) would consider dropping their mobile in response to the price increases posed in its questions. The survey evidence submitted by EE and Vodafone addressed two parts of our assessment: the impact on ownership overall (which we have considered in this section) and the impact on vulnerable consumers (which is considered in section 8 and Annex 3). We consider that there are significant concerns over the use of surveys generally for this purpose and with these surveys in particular. We detail these concerns in Annex 5.

7.126 O2 and Vodafone both accepted that survey evidence can overstate consumer reactions, although O2 stated (with reference to the Jigsaw research[411] conducted for our May 2009 consultation) that "*it is rather unsatisfactory for Ofcom to commission research and then discount the results on the basis that some of the questions were too difficult to interpret*".[412] O2 therefore focused more on revealed preferences from market data (see below), which, it suggested, is in line with the findings of the Jigsaw research, which showed that there would be an 8% drop in subscriptions if handset prices increased by £10.[413] Vodafone[414] argued that the fact that there is a

[406] Page 15 of Vodafone's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf.
[407] Although Vodafone refers to the impact on people in its response, we would note that CEG measured the effect in terms of subscriptions.
[408] Pages 17-20 of Vodafone's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf.
[409] It should be noted that Vodafone only tested the price changes it considered would be necessary to levy on low-spending customers (those spending less than £10 per month). [✂] On 11 March 2011, we received a letter from Vodafone stating that [✂]
[410] Paragraphs 74-77 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.
[411] See annexes 10.1 and 10.2 of our May 2009 consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/annexes/annex10_1.pdf and http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/annexes/annex10_2.pdf.
[412] Paragraph 187 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf. It should be noted that our concerns with survey research extend beyond whether the respondent understands the question being posed (although this can be a concern in some cases) – as we set out in more detail in Annex 5, it is also how accurately the respondent can foresee what they would do in the situation being posed.
[413] See Paragraph 84.5 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf

discrepancy between respondents' stated and actual behaviour is not a reason to discount survey evidence, especially if other evidence based on revealed preferences (such as the CEG study) points in the same direction. In addition, it argued that one would need to believe that the respondents substantially exaggerated their actual behaviour, given the scale of the negative response it found.

7.127 O2[415] suggested that the 7.7 million customers[416] in the market who do not make calls (as mentioned in its response to our May 2009 consultation) are unlikely to have more than one subscription, as there is no additional benefit from being contacted on more than one number. O2 argued that there is strong reason to believe that these customers would dispense with their mobile if charged a subscription fee (and that this would be the only option for raising revenue from these consumers, as they do not make outbound calls). Related to this, O2 highlighted that many are particularly sensitive to fixed/subscription costs, and could be expected to drop their mobile if forced to pay such charges. O2[417] argued that the very existence of pre-pay as a means of payment is good evidence of high elasticity of demand for subscriptions.

7.128 Vodafone[418] and O2[419] both contested our argument that those most likely to drop a subscription would have another, particularly given that most of those who hold more than one subscription do so in order to separate business and personal calls. They argued there is no reason to believe that a change in MTRs would affect the benefit for such consumers of holding more than one subscription (particularly where the employer is responsible for paying one of the bills). In addition, Vodafone argued that it was as likely that single SIM owners are marginal and multiple SIM owners infra-marginal as vice versa, and so any policy that reduced subscription rates would also reduce ownership. Vodafone also submitted that we needed to explain why choosing to give up a SIM (e.g. a personal SIM where the consumer has an additional work phone) is in a consumer's interests.[420]

7.129 BT[421] argued that, for low users (those most likely to drop their mobile subscription), the price increase involved – which it calculated to be about £12.50 per year – did not seem to suggest that the price impact would be a large factor. It highlighted that the incumbent MCPs had made similar arguments about the potentially devastating effect that reductions in MTRs might have on mobile penetration in the past, and that these predictions had proved incorrect. For example, one MCP estimated that some 25% of consumers would give up their mobile phones if prices rose to the degree they considered would be necessary to make up for the reduced MTRs imposed by

[414] Pages 16 and 18-19 of Vodafone's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf.
[415] Paragraph 179 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.
[416] In its response to our May 2009 consultation (paragraph 114, available at http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/responses/Telefonica_02_UK_Limited.pdf), O2 noted highlighted that research shown in the 2008 *Communications Market Report* estimated that 7.7 million pre-pay customers do not make outgoing calls. Although it describes this as Ofcom research, this research was carried out by Enders Analysis.
[417] Paragraph 84.2 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.
[418] Pages 13-14 of Vodafone's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf.
[419] Paragraph 177-178 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.
[420] Footnote 4 on page 8 of its response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf
[421] Page 18-19 of BT's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/BT.pdf.

Oftel in 2002.[422] Similarly, Consumer Focus noted that the negative consequences for consumers of lower MTRs, which have been predicted in the past, have not been observed to date. However, it noted that the more stringent economic circumstances currently prevailing must to be taken into account when considering past company behaviour.[423] Vodafone[424] and O2[425] both argued that historical trends are of limited use in making judgements about the likelihood of future developments, partly because other factors have played a role in market developments, and also because past reductions in MTRs were based on LRIC+, and Vodafone highlighted that they were smaller in magnitude.

7.130 Further, Vodafone argued that the historical data was not as clear cut as Ofcom suggested as, although subscription and ownership rates have increased overall, pre-pay subscription penetration has fallen since 2000.[426]

Our view of consultation responses and further analysis undertaken

7.131 We remain convinced that we should distinguish between the impact of our decision on mobile ownership and on the number of mobile subscriptions. Mobile subscription rates are higher than mobile ownership in the UK (and across Europe), as a result of consumers who choose to have more than one (pre-pay or post-pay) subscription. Therefore, there is not a direct one-for-one relationship between the loss of one mobile subscription and the loss of one unique mobile user. Even Vodafone's survey shows (despite its argument to the contrary) a material difference between the reduction in subscriptions and the reduction in ownership predicted by its survey.

7.132 We have a duty to secure the availability of a wide range of services, including mobile services.[427] It is therefore more of a concern to us if consumers are unable to afford or use mobile services at all, than if consumers face market incentives to rationalise multiple subscriptions. Hence, we place greater weight on concerns about ownership levels than subscription levels. The marginal benefit of an extra mobile subscription is likely to be much lower than that endowed by the initial subscription, as it is the latter which gives the consumer the benefit of being connected. Each additional SIM allows the subscriber to be contacted on a different number. The value that a consumer will place on a second subscription (and therefore their reaction to a potential restructuring of mobile prices as a result of a reduction in MTRs), is likely to depend to a large extent on the purpose for which they are maintaining their primary and secondary subscriptions:

7.132.1 The most common reason for holding more than one subscription is to separate work and personal costs (not to take advantage of lower

[422] Paragraph 12.88 of Vodafone, O2, Orange and T-Mobile: Reports on references under section 13 of the Telecommunications Act 1984 on the charges made by Vodafone, O2, Orange and T-Mobile for terminating calls from fixed and mobile networks, available at http://www.competition-commission.org.uk/rep_pub/reports/2003/fulltext/475c12.pdf. BT refers to this on p.8 of its response to our May 2009 consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/responses/BT.pdf.
[423] Page 3-4 of Consumer Focus's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Consumer_Focus.pdf.
[424] Page 17 of Vodafone's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf.
[425] Paragraph 190 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.
[426] Page 17 of Vodafone's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf.
[427] Section 3(2)(b) of the Act.

prices).[428] Vodafone stated[429] that we need to explain why giving up a personal SIM where a consumer has a work SIM would be in the interests of consumers. However, we consider that consumers who have multiple subscriptions for work and personal reasons may attach sufficient value to maintaining these separate subscriptions that they are less affected by MTR reductions (in other words, they may be relatively insensitive to an increase in subscription charges as for instance most of the work subscriptions will be paid for by the employers).

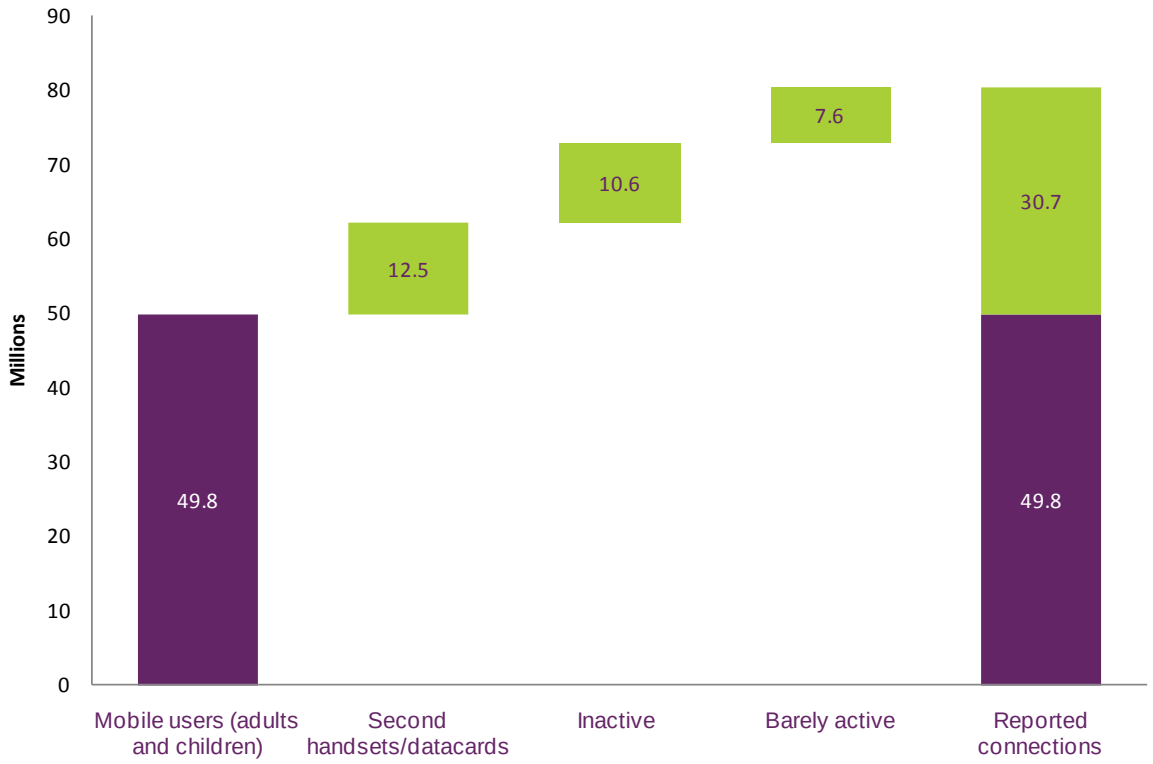
7.132.2 If the motivation for having multiple mobile subscriptions is to obtain cheaper call rates (for example, to exploit differences in on/off-net prices), then the expected reduction in these call charge differentials as MTRs decrease will reduce the value to the consumer of maintaining multiple subscriptions.

7.132.3 We also consider that there are a large number of secondary subscriptions which are inactive or barely active. In the 2008 Communications Market Report, we reported Enders Analysis estimates, which showed that there were 9 million inactive SIMs and a further 7.7 million barely active SIMs (leaving 9.4 million "genuine" second SIMs) in addition to the 49 million actual people who used a mobile.[430] For example, a user may have purchased a new subscription, but kept his or her old subscription for a period of time so that he (or she) can remain in contact with people who do not have his or her new number. Alternatively, a user may simply have forgotten to cancel his or her old subscription (particularly where this is a pre-pay subscription and so there is no ongoing cost to the consumer). Whilst we consider that second subscriptions which are barely active or inactive might potentially be cancelled as a result of MTR reductions, we do not consider that this will result in significant consumer detriment.

7.133 On O2's point that the 7.7 million subscribers who do not make calls are likely to be unique users, we do not agree that this is necessarily the case. As noted above, Enders Analysis' estimates show a large number of barely-active SIMs making up part of the 26.1 million connections that existed in addition to the 49 million actual people who used a mobile.[431] Therefore, where one of these subscriptions is cancelled, we maintain that this will not necessarily imply the loss of a unique mobile user and hence have no impact on ownership. More recent research from Enders Analysis on this is shown in Figure 7.7.

[428] See paragraph A13.78 of the April 2010 consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf.
[429] Vodafone response to the April 2010 consultation, footnote 4 on page 8, available at: http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf)
[430] UK CMR 2008, page 334 and figure 5.63, available at http://stakeholders.ofcom.org.uk/binaries/research/cmr/telecoms2.pdf.
[431] UK CMR 2008, page 334 and figure 5.63, available at http://stakeholders.ofcom.org.uk/binaries/research/cmr/telecoms2.pdf.

Figure 7.7: Breakdown of the difference between mobile users and reported mobile connections



Source: Based on Enders Analysis, Mobile user survey 2010: *The rise and rise of smartphones*, July 2010

7.134 The effect on ownership will depend on the effect that MTR reductions have on retail prices. We noted in paragraph 7.49 that lower MTRs will be likely to result in prices being higher than they otherwise would have been due to the reduction in the transfer of funds from FCPs and the waterbed effect (although whether this would be an increase compared to today's prices or just a slower rate of reduction compared to current trends – particularly given the rapid decline in costs we anticipate – is not certain).

7.135 Even if prices increase, it is not clear that the size of the increase would be sufficient to significantly influence consumers' decisions to purchase access to mobile services. We noted in paragraph 7.49 that the main effect of setting MTRs based on pure LRIC rather than LRIC+ would be to reduce the revenue earned from non-M2M inbound calls. We estimated this could be roughly £0.2bn, which for illustrative purposes would be equivalent to an average of roughly £2.50 per subscriber per year[432] or around £0.20 per month.[433] [434]This does not seem to suggest that these

[432] On the basis of current subscriber base of 80.3m mobile connections (see UK CMR 2010 at http://www.ofcom.org.uk/static/cmr-10/UKCM-5.29.html).
[433] Even looking at the reduction in MTRs from today's MTR of 4.3ppm to the pure LRIC MTR in the final year of the charge control (0.69ppm in 2008/09 figures), this would suggest operators would earn roughly £0.6bn less revenue from FCPs, which is equivalent to around £8 per subscriber per year or just under £0.70 per month. Even these price changes do not seem to be material enough to disenfranchise significant numbers of subscribers to the extent they would give up using a mobile phone.
[434] Looking over the entire period of the charge control and considering only estimated F2M volumes (while allowing for some increase in F2M volumes), the reduction from pure LRIC to LRIC+ is roughly £90m per year on average in NPV terms. This is equivalent to around £1.30 per subscriber per year,

price increases would be material enough to engender a significant decrease in ownership, particularly when price discrimination is taken into account (see paragraph 7.101 to 7.111).[435]

7.136 Our argument would be weaker if there was some reliable evidence showing that the (industry-wide) demand for subscriptions is highly price elastic. If this were the case, then the number of people dropping their subscriptions if prices increased would be higher than we predict, increasing the relevance of concerns about access to mobile services as a result of falling MTRs.[436] We do not consider this to be the case.

7.137 Some stakeholders argued that the (industry-wide) demand for subscriptions is highly price elastic. O2[437] pointed to the success of SIM-only offers as showing that many people value mobile subscriptions less than the modest price of a new handset, and pointed also to the success of lower-price contracts. While it is true that SIM-only offers are often cheaper and so may be expected to attract more price-sensitive customers, we consider that the growth of SIM-only could also reflect that some customers already have a high-end handset which they prefer to continue using instead of purchasing a new low-value handset.[438] O2[439] submitted that the fact that a significant proportion of its consumers have not been induced to take advantage of its reward scheme and free services by topping up regularly is evidence of price sensitivity. We consider this in paragraphs 7.165 to 7.169.

7.138 One MCP[440] cited a range of studies which find that the (industry-wide) elasticity of demand for subscriptions is, on average, 0.44. EE[441] highlighted the growth in subscriber numbers that has occurred as prices have fallen, and suggested that this shows that the overall levels of retail prices significantly affects subscriber numbers.

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or about £0.10 per month. Under these calculations, the difference between MTRs at the start of the charge control and pure LRIC in 2014/15 is approximately £300m per year on average in NPV terms, which is equivalent to £4 per subscriber per year, or £0.30 per month.

[435] We believe that this assessment would remain true even if LRIC+ estimates would be higher than the level estimated in this statement, given that even the change in revenue resulting from a reduction in MTRs from today's MTR to the pure LRIC MTR in the final year of the charge control does not, when considered on a per subscriber basis, seem to be material enough to disenfranchise significant numbers of subscribers.

[436] In its response to the November 2010 consultation, O2 claimed that, while we rejected Ramsey pricing on the basis the relative price elasticities of demand for subscription and usage are unknown, we also argued that pure LRIC could improve allocative efficiency based on an assertion about relative price elasticities, which is clearly contradictory (see paragraphs 53-54 of its response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/mct-large-small/responses/o2.pdf). However, this is not the case. In paragraph A12.54 of the April 2010 consultation (which O2 cites), we set out the theoretical case that *"a shift from LRIC+ to pure LRIC **could** improve allocative efficiency **if** the demand price elasticity of subscription is relatively low while that for calls relatively high"* (emphasis added). We then considered the evidence on price elasticities in order to assess the veracity of this argument in paragraph A12.56, which reiterates that we do not have reliable estimates of the relative price elasticities of demand for subscriptions and calls.

[437] Paragraphs 84.3 and 84.4 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf

[438] It could also reflect the fact that some consumers value the flexibility afforded by shorter contract lengths, as highlighted in our *Consumer Experience Report 2010* (see Section 3.2.9, available at http://stakeholders.ofcom.org.uk/binaries/research/consumer-experience/tce-10/consumer-esperience-10.pdf.

[439] Paragraph 84.5 of O2's response , available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf

[440] [✂]

[441] Paragraph 60 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.

7.139 But does the evidence bear out these claims? Looking at the evidence in the round, we consider that today demand for mobile ownership is likely to be relatively inelastic.[442] Firstly, the academic literature suggests that at the industry level ownership is inelastic. In our April 2010 consultation, we cited a number of papers which found that the (industry-wide) elasticity of demand for subscriptions was significantly less than 1 (around 0.5 or less).[443]

7.140 The studies cited by [✂] also suggest, on average, that the (industry-wide) elasticity is less than 0.5.[444] (This is in contrast to the elasticities implied by the survey results. As we highlighted in the April 2010 consultation, the Jigsaw research implies elasticity for subscriptions of 2.6.[445] The set-up of the scenarios used in the research undertaken by Vodafone and EE do not lend themselves to conducting an equivalent calculation, but it is likely to be of a similar order of magnitude to this, if not higher. This provides a further indication that the survey evidence is likely to significantly overstate the likelihood of consumers actually giving up their mobile).[446]

7.141 Further, access to telecommunication services is highly valued and mobile is the preferred method for many. Ofcom research has found that 45% of adults consider a mobile phone to be their main method of making and receiving telephone calls.[447] This suggests that consumers would modify their expenditure patterns in other ways before giving up their mobile altogether.

7.142 This view is consistent with the findings of research we have carried out for the Communications Market Reports in 2009 and 2010 on consumers' response to the recession. When asked what they would cut first from their household budgets, less

[442] In its response (available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf), O2 suggested that we had appeared to argue that mobile is a 'Giffen good' – a good with a positive price elasticity (such that as price rises, quantity consumed also increases). We should be clear that this is a misunderstanding of our argument. We argue that, in deciding whether to purchase a mobile service, consumers will consider the whole cost implied in this (cost of subscription, handset, likely usage costs, etc). If overall mobile retail prices were to increase (as they may due to the waterbed effect), then fewer consumers would purchase such services. However, once they have a mobile, they then decide how much to use it. If the price of usage declined (as we argue is likely), then usage is likely to increase. Both of these behaviours are consistent with a normal good. The question is by how much subscription will fall and usage rise – this depends on how far prices increase/decrease (which we consider in paragraphs 7.44 to 7.54), and the elasticity of demand for subscriptions and usage (paragraphs 7.136 to 7.140 and 7.177 to 7.179).

[443] A number of these were studies submitted to the CC in the course of appeals to our previous MCT decisions, which the CC had a number of concerns with (see Competition Commission, 2003, Vodafone, 02, Orange, T-Mobile: Reports on references
under section 13 of the Telecommunications Act 1984 on the charges made by Vodafone, O2, Orange and T-Mobile for terminating calls from fixed and mobile networks, pp. 244-245, available at: http://www.competition-commission.org.uk/rep_pub/reports/2003/475mobilephones.htm, in particular see paragraphs 8.7-8.51 for a description and critique of these estimates). These elasticity estimates, produced by or on behalf of the national MCPs, found the elasticity of demand for subscriptions to be inelastic. The CC itself used an industry-wide elasticity of -0.3 in its calculations, which also indicates inelastic demand.

[444] This includes one study at the upper end of this range which is more properly interpreted as a firm-level estimate of elasticity. However, excluding this study does not significantly change the average from the other studies.

[445] See paragraph A13.86 and footnote 208 of that document, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf.

[446] We discuss the significant concerns we have on the survey evidence submitted by Vodafone and EE in Annex 5.

[447] See Technology Tracker survey Q3 2010, available at http://stakeholders.ofcom.org.uk/market-data-research/statistics/.

than a fifth of consumers placed their mobile phone in their top three items.[448][449] Communications services in general seem to be highly valued – the only items less likely to be cut than the four communications services (pay-TV subscription, mobile phone, home telephone calls and broadband subscription) were household groceries and toiletries/cosmetics. This suggests that mobile services are highly valued by consumers and they would avoid reducing spend on their mobile if they had other options for saving money.

7.143 Figure 7.8 shows how ownership and price have changed over time. This shows that between 1999 and 2009, the real price of a basket of mobile services fell sharply, while both ownership and subscriptions have grown significantly.[450] However, it is important not to place too much weight on this as evidence, as many other factors will have affected ownership and prices over the period shown.

7.144 It is likely that the structure of prices as well as the level of prices *per se* has had a significant effect on both ownership and subscriptions. For example, it is generally accepted that the availability of pre-pay deals (with low up-front costs and higher usage charges) drove a great deal of growth in the early part of the decade, as it allowed consumers to enter the market with no recurring or up-front cost, other than the price of a handset. Handset prices have also been falling significantly which has also driven ownership (as well as making it more affordable to purchase multiple handsets).[451] It is also worth noting that it is highly likely that mobile ownership would have grown during this period regardless of these price changes, as the market was not yet saturated. Thus, while price reductions have undoubtedly made mobile more affordable to many, this is only one factor contributing to the continuous growth in mobile ownership. In addition, there is a considerable degree of inter-temporal price discrimination, whereby early adopters are charged higher prices, and prices are then reduced as the product becomes a mass market proposition. Therefore, wider ownership is both a cause and an effect of lower retail prices.

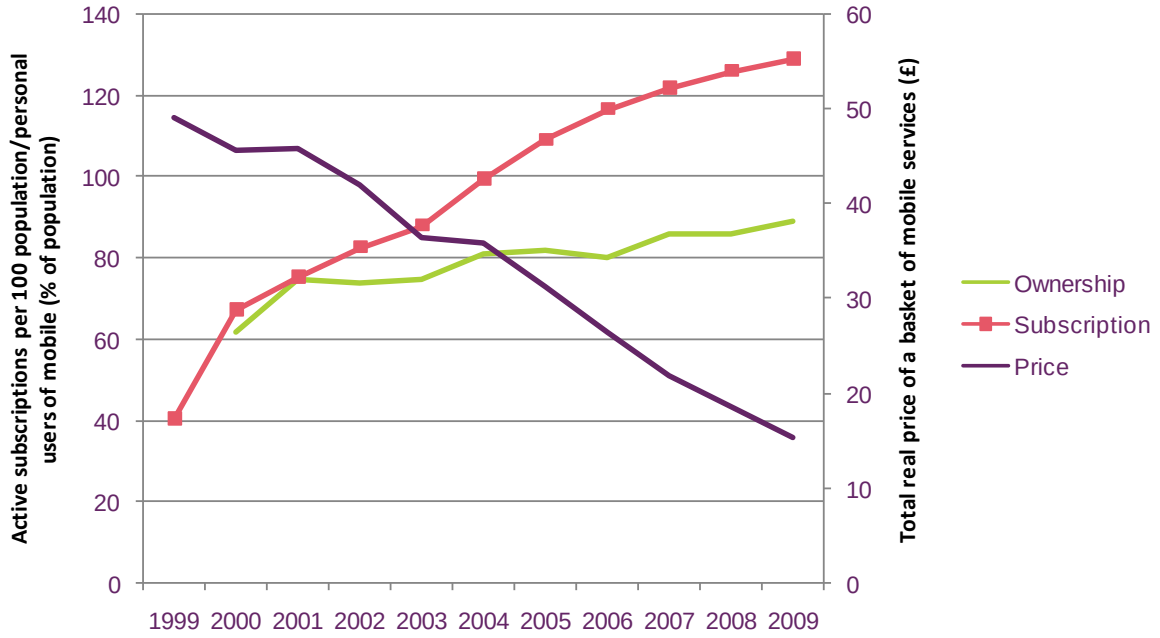
[448] See Figure 1.57, The market in context section of Ofcom's *Communication Market Report 2010*, available at http://www.ofcom.org.uk/static/cmr-10/UKCM-1.57.html.

[449] It should be noted that, when forced to choose, consumers who had all four communications services were most likely to cut back spending on their mobile phone, although the proportion choosing mobile fell between 2009 and 2010 (see Figure 1.58. The market in context section of Ofcom's *Communication Market Report 2010*, available at http://www.ofcom.org.uk/static/cmr-10/UKCM-1.58.html). However, as we noted in the *Communications Market Report 2009*, *"The identification of the mobile phone as first choice does not necessarily imply that it is the service consumers would be most happy to do without – it may be connected with the perception that their mobile service is the one where the scope for reduced spending is greatest (e.g. by switching to a SIM-only or pay-as-you-go tariff)."* (See page 26 of CMR 2009, available at http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr09.pdf).

[450] As noted above this does not necessarily reflect the price consumers would have paid for the service they actually bought due to changes in consumption patterns.

[451] As shown in Figure 7.5, data gathered from MCPs suggests that retail handset prices for entry-level models have fallen from £15 (or more typically £30-40) in 2005 to £10 in 2010. It should be noted that these retail prices include handset subsidies, and are the prices of the handset with the lowest wholesale cost which were offered to pre-pay customers.

Figure 7.8: Price, subscription and ownership of mobile



Source: Ofcom/operators

Note: Includes estimates where Ofcom does not receive data from operators; excludes non-geographic voice calls; adjusted for RPI; includes VAT

7.145 In any event, as we noted in our April 2010 consultation, if prices do begin to increase again, consumers are unlikely to drop out as rapidly as they took up mobile when prices fell from the earlier level (so, for example, if prices rise from £5 to £10, it is unlikely that as many people would drop out of the market as entered when prices initially fell from £10 to £5). While O2 is correct to say that we do not provide direct evidence of this related specifically to mobile telecommunications, there is a large body of literature which explores 'the endowment effect'. This is the theory that it is more difficult to give up an item once you have owned and experienced it.[452]

7.146 Therefore, a factor to consider in assessing elasticity estimates in the literature is when the data were gathered. Elasticity of demand may vary depending on the maturity of the market. As the market grows at a high rate, new consumers may be willing to join even with small price decreases. But in a mature market existing consumers may be less sensitive to price increases. We therefore consider that historical data about increases in ownership against a backdrop of reducing prices is not a reliable indicator of the (industry-wide) price elasticity of subscriptions at the current time. In particular, we do not think that the propensity to adopt when prices decrease is the same as the likelihood of ceasing to have a mobile as prices increase because of the 'endowment' effect.

7.147 Finally, the success of pre-pay and SIM-only tariffs seem to indicate a consumer preference for a particular structure of prices, and possibly that consumers may be more sensitive to the price structure than the level of prices *per se*. As set out in

[452] For example, see Kahneman, Knetsch and Thaler (1991), *Anomalies: The endowment effect, loss aversion and status quo bias*, Journal of Economic Perspectives, Vol. 5, Iss. 1, p. 193-206, available at http://www.princeton.edu/~kahneman/docs/Publications/Anomalies_DK_JLK_RHT_1991.pdf, which details a number of studies in this area.

paragraphs 7.94 to 7.95 above, where consumers demonstrate a clear preference for one price structure over another, it is in the commercial interests of MCPs to respond to this (as a number of respondents highlight in their responses). The presence of different packages therefore *all else being equal* reduces the (industry-wide) elasticity of subscriptions.

7.148 What remains true is that high MTRs made it difficult for MCPs to offer tariff packages that included large bundles of calls for a fixed fee, in case consumers routinely consumed a high proportion of off-net calls included in their bundles. Therefore, as noted above, the ability to offer more varied retail packages *all else being equal* should help to reduce the (industry-wide) elasticity for subscriptions.

Conclusion on effects on mobile subscriptions and ownership

7.149 We consider that the effect of lower MTRs on ownership is likely to be limited, as demand is generally inelastic and any retail price increases are likely to be directed more towards those post pay and pre-pay users who are less price sensitive. Estimates of reductions in subscriptions generated by survey research (and particularly that submitted by Vodafone and EE in their responses) are unlikely to be an accurate reflection of consumers' actual behaviour in practice.

Effect on mobile use

Our views in the April 2010 consultation

7.150 In the April 2010 consultation, we argued that any negative effects felt by mobile users as a result of retail price changes arising from reductions in MTRs could theoretically be mitigated by an expansion in use. Broadly, if a consumer faced higher subscription charges and lower usage charges (as a result of MTR reductions), and this allowed him or her to expand his or her use, then it is possible that he or she would be better off under the 'new' compared to the 'old' tariff structure when the comparison takes into account his 'new' usage pattern.

7.151 We then assessed how likely this might be to occur in practice, and argued that it is likely that mobile use will expand. We highlighted that off-net M2M minutes per subscriber have increased substantially compared to on-net call minutes (although there is still a gap), and argued that this is likely to have been (at least in part) the result of the reduction in on/off-net price differentials, which is facilitated by lower MTRs. However, we acknowledged that other factors will have influenced trends in call minutes over this period.

7.152 We noted that some of the evidence presented in our May 2009 consultation suggested that use per capita tends to be higher in countries with lower MTRs,[453] but also that the CEG study found no evidence of a direct significant relationship between MTRs and use.[454] We also noted that various empirical studies show estimates of industry-wide price elasticity of demand for calls to be between 0.09 and 0.8.[455] However, we noted that a number of these studies are relatively old, and also

[453] For example, see Annex 5 of that document, available at http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/annexes/annex5.pdf.
[454] *Wholesale termination regime, termination charge levels and mobile industry performance: A study undertaken for Ofcom*, available at http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/annexes/annex7.pdf.
[455] This includes one study at the upper end of this range which is more properly interpreted as a firm-level estimate of elasticity. Excluding this study, the empirical estimates range between 0.09 and 0.71

often use Average Revenue Per Minute (ARPM) as a proxy for call prices, which limits how much weight should be attached to these estimates.

Views of respondents to the consultation

7.153 O2 argued that the necessary condition for even a welfare-neutral effect for mobile consumers is that calling behaviour is sufficiently constrained under high MTRs so that higher access charges are offset by the ability to make more calls. It argued that, given the principle of diminishing marginal utility, a distinction should be made between call volumes that reflect actual demand and those originated for the sake of using up inclusive minutes.[456]

7.154 EE, O2 and Vodafone all argued that mobile use will not increase significantly in a 'low MTR' scenario. All three highlighted the CEG study, which found no robust relationship between use and MTRs. Vodafone[457] criticised our interpretation of the data. O2[458] argued that, since usage prices can be expected to increase (as it would not be possible to increase or introduce fixed fees for many customers), demand for calls will not increase. O2 also provided a variety of market evidence suggesting that mobile users are not responsive to price reductions.[459] According to O2, this suggests that a large increase in usage would be unlikely in any event.

7.155 EE[460] refuted our use of international evidence as it does not accurately account for the double-counting of on-net minutes in B&K countries, and also highlighted that RPP could significantly reduce usage, particularly if spam and nuisance calls became more common. O2[461] also stated that only limited importance can be attached to observations from other markets, quoting from a previous CAT judgment to support this point.

7.156 EE[462] argued that, since post-pay customers can change the bundle of minutes they acquire, the marginal price of calls will not be zero over a timeframe relevant to the proposed charge control.[463]

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[456] Paragraph 86.2 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.
[457] Pages 25-27 of Vodafone's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf.
[458] Paragraphs 95-97 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf
[459] Paragraphs 86.3-86.4 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.
[460] Paragraphs 55-59 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.
[461] Paragraph 101 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf. O2 referred to paragraph 261 of the CAT's judgment on non price control matters in *Hutchison 3G UK Limited v Ofcom* (2008) CAT 11.
[462] Paragraph 54 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.
[463] We would note that once a consumer has subscribed to a mobile package with a certain number of inclusive minutes, the marginal cost of each additional minute up to the bundle limit is zero. The average contract length is less than two years, and so during the course of the charge control, many consumers will change their bundle. At this point, consumers are likely to evaluate the bundles available assessing, among other things, the number of minutes available for a given monthly fee (effectively the implied average pence per minute, although bundles often include non-voice services as well). If consumers are able to get more minutes for the same price next time they switch their package, all other things being equal this would effectively reduce the implied average pence per

7.157 Vodafone[464] suggested that M2M usage cannot be expected to increase. It repeated the argument it made in response to our May 2009 consultation; that bundles of similar size and price as those in the US are available in the UK, but that consumers choose not to buy them. This indicates that consumer preferences are a far better explanation for the differences in usage between countries than differences in MTRs.

7.158 Vodafone refuted our argument that even where consumers do not currently use their full allocation of minutes, they could expand their usage as bundles get bigger, because the risk of exceeding the bundle limit reduces. Vodafone argued that the average bundle use is so far below capacity that this risk is insignificant. It submitted that this is evidence that there is little demand to make more calls than users already do (particularly among high users, who would be most likely not to cancel their subscriptions and so more likely to contribute to any increase in volumes). O2[465] made a similar point, highlighting that the Jigsaw research found 51% of post-pay respondents usually used less than their full allocation of minutes.

7.159 COLT[466] raised the concern that there may be an increase in spam calling to mobiles, suggesting that the higher MTRs deriving from LRIC+ would reduce the likelihood of mobile spam on cost grounds.

Our view of consultation responses and further analysis undertaken

7.160 We begin by responding to the various pieces of market evidence presented by respondents. Where it is available, we believe that evidence of actual consumer behaviour is often a preferable source of information than stated intentions or preferences.

7.161 First, we consider Vodafone's argument that consumers will not increase their usage, as they have the option to do so already (either by using their full bundle allowance or by purchasing one of the larger bundles available) and choose not to. We agree with Vodafone that consumer preferences indicate that at prevailing prices, consumers prefer to take smaller bundles and make fewer calls than their counterparts in the US. This does not mean that, if the prices of bundles were to fall (or the size of the bundles available for a given price was to increase) people would not make more calls. In addition, usage growth will come not only from consumers who already have a post-pay contract taking larger bundles, but also from more consumers taking up or switching to post-pay instead of or from pre-pay. As making calls within a post-pay bundle is essentially free up to the bundle limit, this would be expected to encourage consumers to make more calls than where they pay for each additional call. The average monthly outbound mobile call minutes per contract

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minute and so would encourage them to take a larger bundle. Once purchased, the consumer would have a greater allowance of minutes with no marginal cost, which would encourage an expansion of usage.

[464] Page 22-25 of Vodafone's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf.

[465] Paragraph 86.2 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.

[466] Page 6 of Colt's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Colt.pdf. However, it is not clear at what level of MTRs spam would become financially worthwhile, and so we cannot judge how much more likely spam is under pure LRIC compared with LRIC+.

subscription (236 minutes) are almost four times those from pre-pay subscriptions (61 minutes).[467]

7.162 Vodafone's second point was that most people taking bundles could already increase their usage (effectively) for free as their use is, on average, far below their bundle limit. However, it is possible that people choose their bundle on the basis of their expected usage allowing for a margin of error - i.e. they choose a bundle larger than they expect to use in order to allow for having to make additional unexpected calls, fluctuations in their average demand and some degree of uncertainty over their typical usage as the "penalty" for making out-of-bundle calls is relatively large.[468][469] In this situation, they would not think of increasing their usage up to the bundle limit as using 'free' minutes but as using up their 'safety allowance'. This would suggest that for people to increase their usage, they would want additional minutes on top of this 'safety allowance'. Vodafone's evidence only shows a snapshot of bundle utilisation, and we do not have data on the proportion of inclusive minutes used over time, and so we cannot test whether, as bundle sizes have increased, the proportion of bundle allowance used has also changed. Certainly, Vodafone's evidence suggests that, if this were true, people choose to maintain a very large safety allowance relative to their actual usage. This seems possible, although the evidence is not conclusive. We therefore do not think that the margin between usage and the bundle size in Vodafone's snapshot data undermines our argument that usage will likely increase.

7.163 Vodafone also highlighted that the gap between the US and the UK in terms of MoU per capita widened between 2002 and 2007 while at the same time US and UK MTRs converged, as illustrated by Figure 10 of Annex 5 of our May 2009 consultation. We acknowledged this at paragraph 34 of that document, where we stated:

> "The gap in MoU significantly increased over the period, suggesting that it may not perhaps be solely driven by differences in termination rates levels. A possible reason for the divergence could be the introduction of flat rate tariffs in the US in the early part of this decade."

7.164 This suggests that the introduction of flat rate tariffs (instead of packages that had RPP charges) may explain the divergence in use between the UK and the US. To the extent that reductions in MTRs lead to the emergence of flat rate packages in the UK, this may have a similarly positive impact on use.

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[467] See Figure 5.73 of CMR 2010, available at http://www.ofcom.org.uk/static/cmr-10/UKCM-5.73.html. However, this will also reflect the fact that those who have the most to gain from taking a post-pay package rather than a pre-pay tariff are those who make more calls.

[468] The actual difference between out-of-bundle charges and the equivalent 'price' for inclusive minutes (estimated by bundle charge/inclusive minutes) tends to be larger for larger bundles. In addition to this *actual* difference, the *perceived* difference between these costs may be important for consumers. For example, extreme examples of bill shock may be more salient in consumers' minds than the actual cost of exceeding their inclusive usage allowance when selecting their package. This may encourage them to take a very risk averse approach in choosing their package to avoid consuming outside of their bundle limit.

[469] In addition, we know that consumers are often over-optimistic in their expectations as to their future behaviour and so may overestimate how much they need even beyond the allowances they make above. However, this could equally work in the other direction, whereby consumers underestimate their typical usage and so choose too small a bundle. However, the evidence suggests that this is less common – for example, our Jigsaw research found that 15% of contract customers questioned usually exceeded their inclusive minutes, compared to the 51% who usually used less than their allowance.

7.165 We next consider O2's argument that consumers have in the past resisted inducements to make more calls. O2 claims that it has expended a great deal of effort trying to encourage more calls from their pre-pay customers by offering a range of 'free' calls (in addition to that allowed by their top-up) when customers top up a certain amount.[470]

7.166 O2 considered that, while some users have been induced to top up more as a result, the lack of response by other consumers suggests that a significant proportion are either perfectly or relatively price inelastic. We would argue that, since consumers are heterogeneous, we would expect some to be sensitive to call prices and others not to be – therefore, it is unsurprising that not all will choose to take up these offers. In addition, this is an 'opt in' scheme, where consumers have to take some positive steps in order to benefit.

7.167 Some consumers will choose not to do this in order to avoid the transaction costs involved. However, even where transaction costs are very low (as is the case here), we know from the empirical literature that even minor hurdles can significantly reduce a consumer's propensity to participate, due to inertia and default effects[471]

7.168 We therefore cannot be sure that consumers who would get extra minutes as a matter of course (for example, if the per-minute cost of a call fell) would behave in the same way as a consumer who had to clear some additional (albeit very minor) hurdle in order to get them. It should also be noted that the evidence provided by O2 shows that [✂] of those eligible for the scheme[472] do take up the available offers.

7.169 With regard to those who would need to increase their expenditure by "a relatively small amount" in order to qualify, we do not know how much these customers typically top up per month on average. It is possible that the increase necessary to participate in the scheme could represent a relatively large increase in expenditure. We also do not know how these consumers would react if they could get extra minutes for their current level of expenditure, as there is a difference between getting more of a service for more expenditure, and getting more of it for the same financial outlay.

7.170 O2[473] suggested that consumers are not responsive to changes in the price of calls to number translation services (NTS) and other necessary call types, which it suggested undermined our assumption of highly elastic demand for voice calls. However, as we

[470] See paragraph 84.5 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf

[471] For example, research from behavioural economics shows that whether a country adopts an 'opt-in' or an 'opt-out' system for volunteering for organ donation or enrolling in a pension scheme has a profound effect on how many people participate (see, for example, Johnson, E.J. and Goldstein, D.G. (2003) *Do defaults save lives?,* Science, Vol. 302, p.1338-1339, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1324774, and Choi, J.J., Laibson, D., Madrian, B. and Metrick, A. (2004) *For better or for worse: Default effects and 401(k) savings behaviour*, in Perspectives in the Economics of Aging, ed. David Wise, 81–121. University of Chicago Press. Available at http://books.google.co.uk/books?hl=en&lr=&id=2iBspNX-sSIC&oi=fnd&pg=PA81&ots=UuplvAFZxe&sig=4G8tiXK3h6ACm6GsVZHKWEa_0OI#v=onepage&q&f=false.). These are decisions which are relatively easy to change and involve relatively minor immediate costs, and which have far greater future consequences for consumers than whether they top up their mobile phone, and yet inertia and/or default effects still play a powerful role in consumers' decisions.

[472] That is, those who top up by the requisite amount to qualify for free services.

[473] See paragraph 86.4 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf

note in our consultation, *Simplifying Non-Geographic Numbers*[474] there are severe difficulties in terms of price transparency and consumer awareness in relation to NTS calls. This makes the example of NTS not very relevant for the issue discussed here.

7.171 O2[475] also noted that the introduction of price caps for retail voice international roaming charges has had no discernable effect on consumption of roaming calls. International roaming is used by only a subset of mobile users and makes up only 1-3% of traffic (depending on the time of year). In addition, in its report on the development of roaming services within the EU, the EC highlights that "developments in traffic volumes are influenced by the economic recession and the reduction in travel within the EU. The impact of the Roaming Regulation on volumes cannot be reliably isolated from the effects of the overall economic situation".[476] This suggests that it is difficult to use data on international roaming to make inferences about call volumes in general, especially at a time when other factors that affect consumption also change.

7.172 But what evidence is there on the likely effect of retail price changes on usage? The CEG study found no statistically robust relationship between MTRs and usage levels.[477] This may be because this relationship will be mediated by the effect on retail prices. To the extent that the effect of MTRs on retail prices may vary, the effect on usage may also vary. It follows that, to the extent that the effect on retail prices may be different for some consumers, the effect on usage will be different across the market. For example, where MCPs raise the call prices of some packages (for example, in order to maintain low subscription prices), then consumers taking these packages may decrease their usage as a result.[478] Where the price of calls decreases for consumers, this can be expected to encourage an increase in the amount of usage. The extent of this effect is what we focus on here.

7.173 First, we consider historic trends in prices and usage.[479] We are cautious in using this evidence to predict future trends, as many other factors are likely to have influenced the demand for mobile call minutes, other than prices.

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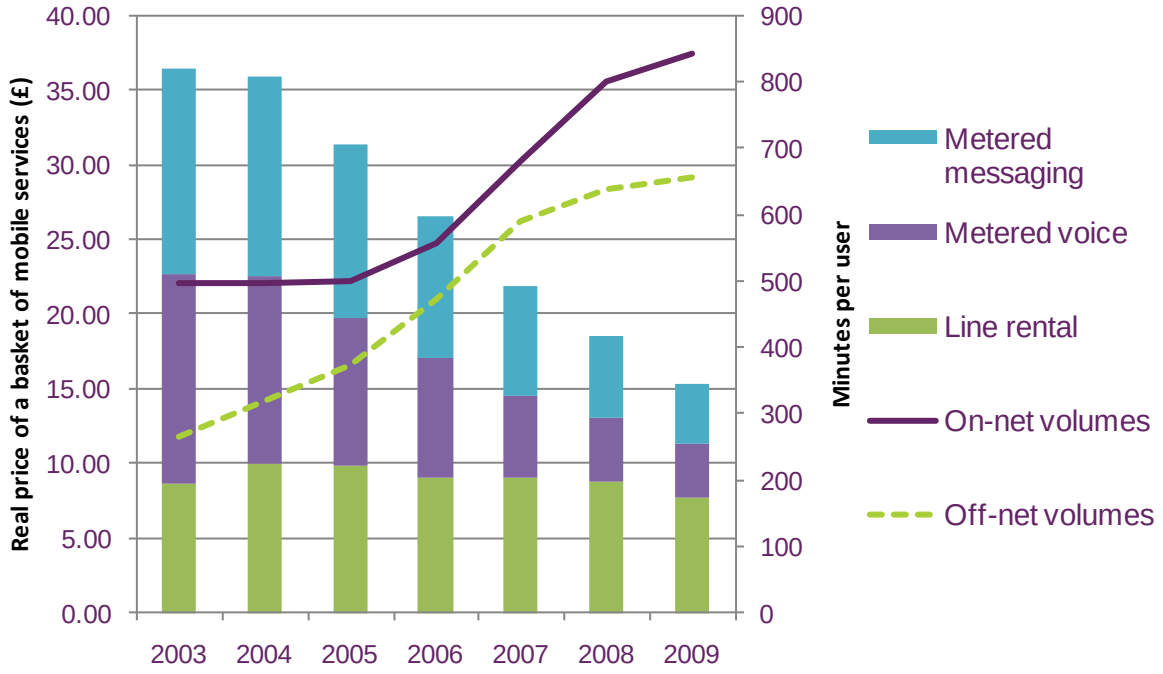
[474] Available at http://stakeholders.ofcom.org.uk/consultations/simplifying-non-geo-numbers/.
[475] See paragraph 86.4 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf
[476] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the interim report on the state of development of roaming services within the European Union, p.10, available at http://ec.europa.eu/information_society/activities/roaming/docs/interim_report2010.pdf.
[477] *Wholesale termination regime, termination charge levels and mobile industry performance: A study undertaken for Ofcom*, available at http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/annexes/annex7.pdf.
[478] Or at least not increase their usage as much as they would have done absent this price increase. However, it should be noted that, to the extent demand for calls is price inelastic, the increase in price would cause a proportionately smaller reduction in usage. We discuss our view of call price elasticity in paragraphs 7.177 to 7.179.
[479] In our April 2010 consultation, we presented a similar chart showing trends in MTRs and usage (see Figure 52 of that document, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf). In its response (see page 27, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf), Vodafone argued that MTRs were not a driving factor behind this trend on the basis that a) off-net minutes also increased in 2004-2006 when there was little change in MTRs and b) on-net minutes (which are not affected by MTRs) have also increased. Firstly, we would note that it is more appropriate to look at trends over a longer period rather than within one or two years, as clearly various factors can create 'noise' within particular years and mask trends which may become clearer when looked at over a

Figure 7.9: Mobile-to-mobile volumes and retail prices



Source: Ofcom/operators

Note: Includes estimates where Ofcom does not receive data from operators; excludes non-geographic voice calls; adjusted for RPI; includes VAT; volume data excludes H3G

7.174 Figure 7.9 shows that both on-net and off-net volumes have grown substantially since 2002, a period over which retail prices have fallen (although this is the price of a basket of mobile services, not just the price of calls).

7.175 It is not possible to disentangle average call prices from overall prices, due to increases in the number of call minutes bundled in with the cost of the line rental.[480] The balance between usage and subscription prices, as well as the total price, will have an important influence on use. Much less revenue comes from metered voice now than in previous years, and compared to line rental (which also includes inclusive calls, texts and, in an increasing number of tariffs, data), which demonstrates the growing importance of bundled minutes.

7.176 The chart shows that between 2003 and 2006, the gap between the volume of off-net calls and on-net calls narrowed as off-net volumes grew comparatively quickly, but has since started to diverge again as on-net volumes have grown more quickly. This is not clearly related to a change in the prices shown, but as it is an aggregate measure of price (e.g. does not distinguish between on-net and off-net prices), this is not surprising. Therefore, while lower prices are likely to have encouraged greater

longer period. The growth of both on- and off-net traffic has probably been facilitated by the growth of inclusive bundles where bundles include both types of calls (which implies a narrowing of on/off-net price differentials). It becomes commercially easier to offer bundles including large numbers of off-net calls at low prices as MTRs fall.

[480] We also cannot disentangle changes at the intensive margins (customers who have always had a subscription that is focus of the analysis here) from changes at the extensive margin (new customers joining as these are likely to be relatively lighter users). This means the overall trend is biased and the increase at the intensive margin is likely to be higher in practice.

mobile usage, we cannot tell how important falling prices have been in facilitating growth in volumes (or indeed, how far MTRs have been important in encouraging reductions in prices compared to other factors).

7.177 In addition, as noted by a number of respondents (including O2), the academic literature cited earlier at paragraph 7.152 indicates that the (industry-wide) elasticity of demand for usage is relatively low,[481] and we have previously assumed that it is 0.3. Further to this, Wernick et al (2010),[482] using data from 16 Member States[483] between 2003 and 2008, estimate the long-run price elasticity for mobile voice minutes to be in the range of 0.52-0.61.[484] They indicate that industry sources confirm that this is in line with the demand elasticity used for business planning purposes. In addition, Credit Suisse[485] suggests that (industry-wide) call demand elasticity is 0.75, and forecasts that it will recover to 0.8.[486] This suggests that there would be a less than proportionate increase in usage as prices fall, all other things being equal.

7.178 A possible caveat to this is that a reduction in MTRs may lead to more M2M off-net call minutes being included in bundles (for example, moving to bundles which are unlimited rather than having a finite number of 'any network' minutes), and hence their price would be zero at the margin once a post pay contract with a handset subsidy is signed. This is a change in price which is beyond point elasticity estimates.

7.179 Therefore, we cannot be sure how an increase in the availability of unlimited bundles will affect usage. However, we already observe MCPs offering very large bundles, and many consumers not using their total allowance of minutes (and not responding to the zero price of additional minutes already available to them). As we argue in paragraph 7.162, this may be because consumers do not view all minutes within the bundle as 'free' at the margin, as they may reserve some as a buffer against exceeding their call allowance.

Conclusion on effects on mobile usage

7.180 As set out in paragraph 7.94-7.95, we believe that, while MCPs will accommodate demand for low subscription prices and high usage prices, where this is what consumers want, in general we anticipate there will be a move towards lower call charges (and higher fixed fees).

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[481] As we noted in our April 2010 consultation (paragraph A13.141, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf), some of the calculations use real Average Revenue Per Minute (ARPM), which also included subscription charges, as a proxy for call prices, which may bring distortions into the calculations. In addition, these studies either do not specify which types of calls are included in their calculations, or include both on-net and off-net M2M calls (and in some cases, M2F calls as well). Therefore, these estimates do not refer specifically to the subset of calls which we believe will be most affected – i.e. M2M off-net calls. O2 argued (at paragraphs 86.1 and 86.4 of its response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf), however, that as most traffic is non-on-net, the elasticity of demand for calls should be similarly representative for off-net calls. Added to this, it submitted that the absence of on/off-net price discrimination suggests no significant difference in elasticity.

[482] Wernick, C., Growitsch, C. and Marcus, J. S. "The effects of lower Mobile Termination rates (MTRs) on Retail Price and Demand", April 8 2010, available at http://ssrn.com/abstract=1586464

[483] Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Poland, Portugal, Spain, Sweden and the UK.

[484] It should be noted that this study used Merrill Lynch data on voice service-based revenue as a proxy for price, which includes not only fixed monthly fees and usage based fees, but also wholesale termination revenue (although the authors claim the influence of this latter factor is minor).

[485] Credit Suisse, *Mobile pricing: Price cuts to lag MTRs*, 29 June 2010.

[486] Although underlying price elasticity (excluding GDP effects) is forecast to fall.

7.181 Taking all the evidence we have discussed into consideration, we believe that, where usage prices fall, there will be some increase in demand for making calls, which will increase welfare. However, we also observe that there is a sector-wide trend in increasing mobile usage, in part caused by people substituting mobile for fixed-line usage. To the extent that usage prices decline as a result of reducing MTRs based on pure LRIC rather than LRIC+, we can expect some additional increase in usage over and above this trend. However, the evidence in the round suggests that demand for calls is relatively price inelastic, and this suggests that the increase in usage resulting from falling prices (separate to the general existing trend) is unlikely to be very large.

Effect on FCPs' retail prices

Our views in the April 2010 consultation

7.182 In our April 2010 consultation, we argued that reducing MTRs would reduce the cost to FCPs of providing mobile calls and that this would lead to lower retail prices for fixed telephony users. We acknowledged stakeholders' arguments that revenue per minute for F2M calls appears to have actually increased since 2007 even as MTRs have fallen. We suggested that this could be because competition in fixed services centres on a focal bundle which does not currently include F2M calls and so, as FCPs structure their prices to enhance the attractiveness of their focal product, the price of F2M calls may not respond closely to changes in MTRs.

7.183 We argued that the correct approach is to consider prices (and margins) in the round rather than focusing on those for specific types of calls. We highlighted that in our Fixed Narrowband Retail market review, we had found that overall retail prices for a bundle of call types have fallen as MTRs have fallen, even if retail prices for F2M calls have decreased proportionally less.

7.184 We also observed that FCPs may be moving more towards competing on F2M calls, with BT and Virgin offering packages or add-ons which reduce the price of F2M calls. We suggested that this could indicate that MTR reductions may feed into F2M prices more directly in the future, particularly if this led to FCPs including F2M calls in focal bundles.

Views of respondents to the consultation

7.185 Many respondents (including Tesco Mobile and three of the national MCPs) expressed concern about the trend in retail prices for F2M calls and how far this would benefit fixed customers. EE,[487] O2,[488] Vodafone[489] and Virgin Media[490] all highlighted that F2M prices have increased significantly since 2006/7, even as MTRs have fallen. Virgin Media further argued that we are being optimistic in concluding that F2M call prices in future may fall in line with MTR reductions. O2[491] submitted that those consumers who are most price sensitive would be expected to have

[487] Paragraphs 42-45 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.
[488] Paragraphs 155-161 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.
[489] Pages 27-28 of Vodafone's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf.
[490] Pages 12-13 of Virgin Media's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Virgin.pdf.
[491] Paragraph 158 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.

unsubscribed their fixed-line connections already, reducing the incentive to pass on further MTR reductions.

7.186 EE and O2 also argued that MTR savings have not been passed on through other fixed retail prices either. O2[492] quoted the *Communications Market Report 2009* as showing that the average cost of residential fixed access has been fairly static over the past five years, and highlights that MTRs fell dramatically over this period. In addition, EE[493] used Ofcom telecoms market data to show that between December 2006 and December 2009, average access revenue per line increased by 8% and average call revenue per minute increased by 15%, and that increases by BT were even higher (9% and 29% respectively). It also highlighted that sector analysts expect the proposed reductions in MTRs to increase BT's profits. Consumer Focus,[494] the Post Office[495] and Tesco Mobile[496] also urged us to ensure that the benefits of lower MTRs are passed on in fixed prices.

7.187 Many FCPs (such as BT, Post Office and UKCTA[497]) characterised high MTRs as FCPs subsidising MCPs. BT,[498] Plusnet[499] and the Post Office,[500] as FCPs, all expressed a commitment to pass on the reduction to consumers, although the Post Office noted that this will require wholesale fixed telephony providers to pass the savings on to it (as it purchases wholesale end-to-end calls from other CPs). BT[501] and Plusnet[502] argued that lower MTRs will facilitate the introduction of new and innovative tariffs, such as unlimited bundles. Cable & Wireless[503] suggested that lower MTRs would facilitate the inclusion of F2M calls in all-inclusive packages. TalkTalk[504] also argued that competition will drive down F2M prices and ultimately lead to their inclusion in fixed bundles, although it stated[505] that this will require MTRs

[492] Paragraphs 214-215 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.
[493] Paragraph 45 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.
[494] Page 4 of Consumer Focus response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Consumer_Focus.pdf.
[495] Page 2-3 of the Post Office response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Post_Office_Limited.pdf.
[496] Paragraph 5 and Annex 1 of Tesco Mobile response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Tesco_Mobile.pdf.
[497] Page 4 of UKCTA's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/UKCTA.pdf.
[498] Page 22-23 of BT response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/BT.pdf.
[499] Page 1 of Plusnet response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Plusnet_NON-CONFIDENTIAL.pdf.
[500] Pages 2-3 of the Post Office response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Post_Office_Limited.pdf.
[501] Page 1 and 4 of BT's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/BT.pdf.
[502] Page 1 of Plusnet's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Plusnet_NON-CONFIDENTIAL.pdf.
[503] Page 1 of Cable & Wireless's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Cable_Wireless_Worldwide.pdf/.
[504] Page 11 of TalkTalk response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/TalkTalk_Group.pdf.
[505] Page 2 of TalkTalk response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/TalkTalk_Group.pdf.

as low as 0.5ppm. However, BT[506] stated that the introduction of truly Fixed Mobile Convergence (FMC) products and tariff packages with generous mobile allowances would require MTRs of c.1ppm.

7.188 BT[507] also suggested that, since the fixed retail market has been found to be effectively competitive, the waterbed effect should be at least as strong in the fixed market as in the mobile market, which will force FCPs to pass on cost reductions. BT highlighted that it had been able to demonstrate that it had passed on previous MTR reductions to consumers even when it was judged to have market power in the fixed retail market.[508]

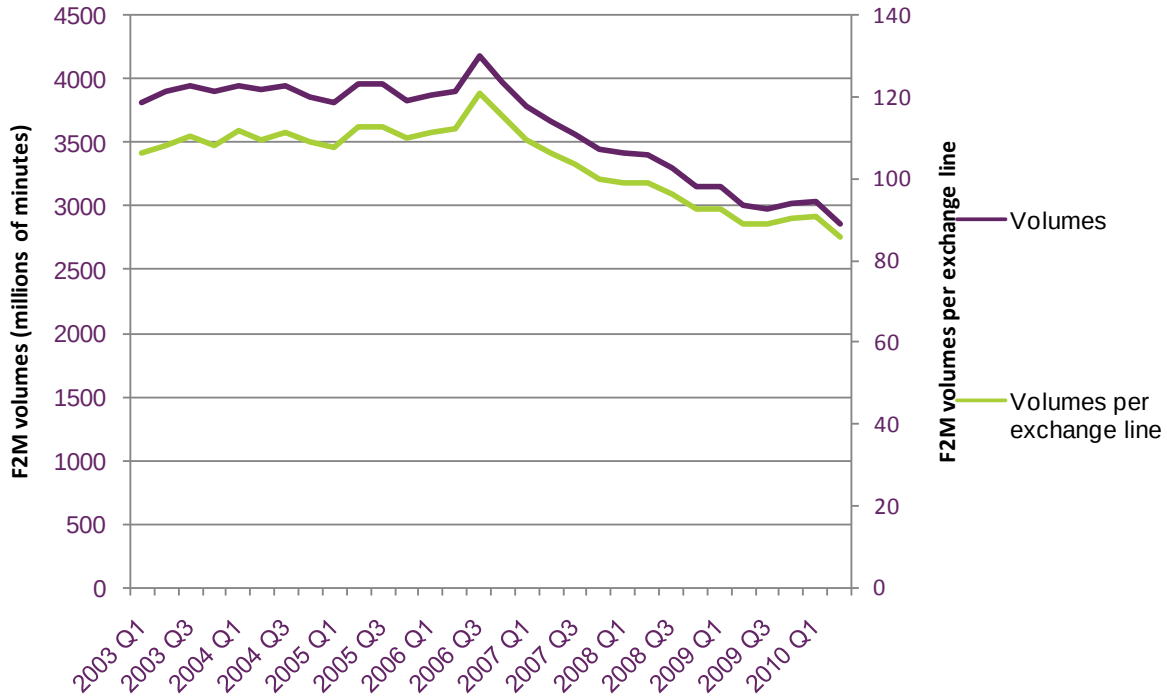
Our view of consultation responses and further analysis undertaken

7.189 In their responses, many stakeholders focused extensively on the issue of the apparent lack of pass-through of MTR reductions. Indeed, the data suggest that the retail price of F2M calls as a standalone service has gone up, and volumes of F2M calls have been declining since late 2006, both in total and on a per-exchange-line basis[509] as shown in Figure 7.10 (which would be expected where these prices were increasing, but also reflects a long term decline in fixed voice calls because of mobile substitution).[510]

7.190 Bank of America Merrill Lynch notes that this trend has been observed across Europe, where "[fixed line] Incumbents have for the most part not passed the reduction in [mobile] termination on to customers in the form of lower fixed-to-mobile (F2M) tariffs".[511]

[506] Page 26 of BT response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/BT.pdf.
[507] Page 23 of BT response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/BT.pdf.
[508] Until mid-2006, BT was subject to retail price controls (RPCs) which regulated the price of a basket of residential fixed retail telephony services (which included calls to mobiles), as well as a specific regulation to ensure the average retention (essentially the difference between the MTR and the retail price) on calls to mobiles to one MNO was similar to that for calls to any other MNO. As part of the decision to allow these controls to lapse, we were given assurances concerning pass-through in respect of MTRs by BT up to the end of 2007. Details of the RPCs and the decision to allow them to lapse are available at http://stakeholders.ofcom.org.uk/consultations/retail/.
[509] Bank of America Merrill Lynch notes that declines in F2M volumes have been largest in Finland, the UK and Denmark, and that this poses a threat to this "*very high margin revenue stream*" (Bank of America Merrill Lynch, "F2M is a hidden cash cow – and a hidden risk", 8 November 2010, p.6-7).
[510] See, for example, figures 5.32 (available at http://www.ofcom.org.uk/static/cmr-10/UKCM-5.32.html) and 5.40, (available at http://www.ofcom.org.uk/static/cmr-10/UKCM-5.40.html) in CMR 2010. A recent review of literature related to fixed-to-mobile substitution is given by Vogelsang, I. (2010) *The relationship between mobile and fixed-line communications: A survey*, Information Economics and Policy, Vol. 22, Iss. 1, p.4-17, available at http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6V8J-4XY5DTR-1&_user=10&_coverDate=03%2F31%2F2010&_rdoc=1&_fmt=high&_orig=search&_origin=search&_sort=d&_docanchor=&view=c&_rerunOrigin=scholar.google&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=91a68bb8a16eba8f74e2b8e8f9d969d0&searchtype=a.
[511] Bank of America Merrill Lynch, *F2M is a hidden cash cow – and a hidden risk*, 8 November 2010, p.1

Figure 7.10: Volume of fixed-to-mobile call minutes



Source: Ofcom/operators

7.191 As we set out in the April 2010 consultation, we consider that looking at the revenues and margins earned from individual services in isolation is inappropriate, as FCPs will react to a wholesale cost reduction and adjust the prices of different services that are (at least partly) jointly sold in different ways.

7.192 In the provision of fixed services, retail competition has focused more on a bundle of services (for example including broadband as well as traditional voice telephony services) than on services provided outside this bundle, such as F2M calls or calls to NTS numbers. This is to some extent reflected in the *Communications Market Report 2010*, which notes that while revenue earned from access (line rental) has increased, revenue from metered use has decreased as most FCPs are including more inclusive minutes within standard line rental tariffs (Figure 7.11).[512] The competitiveness of the fixed retail market has been examined separately,[513] and is not within the scope of this market review.

[512] See Figure 5.36 (reproduced at figure 7.11) and supporting paragraph available at http://www.ofcom.org.uk/static/cmr-10/UKCM-5.36.html.
[513] See *Fixed Narrowband Retail Services Markets: Identification of markets and determination of market power*, 15 September 2009, available at http://stakeholders.ofcom.org.uk/consultations/retail_markets/.

Figure 7.11: Nominal average monthly voice revenue per fixed line

Note: Includes spend on non-geographic voice calls

Source: Ofcom/operators

7.193 We consider it more appropriate to consider changes in the price of a basket of fixed services[514] (see Figure 7.12). This shows that the cost of a basket of fixed voice services has fallen in real terms since 2004.

Figure 7.12: Cost of a basket of fixed voice services

Source: Source: Ofcom / operators

Note: Includes estimates where Ofcom does not receive data from operators; excludes non-geographic voice calls; adjusted for RPI; includes VAT

7.194 MTRs are only one of a number of factors which influence costs and prices, making it impossible to isolate the effect of any downward pressure resulting from falling MTRs from other pressures which may have pushed prices up or down.

7.195 Previous price changes notwithstanding, we consider that lower MTRs will increase the likelihood that FCPs will include F2M calls within their focal bundles.[515] This is

[514] This also allows us to control for the effect of changes in usage on average prices. For example, narrowband call prices have historically been very cheap. As consumers moved away from using narrowband for calls, the average call price increased.

apparent in other fixed markets in Europe. For example, in Germany, Vodafone recently began to include 60 minutes of F2M calls in its mainstream double-play broadband package.[516] In addition, in France two fixed line providers have recently moved to include unlimited calls to mobiles for a relatively low fixed fee as part of some packages. [517]

7.196 This view is also supported by TalkTalk's recent launch of a new add-on package, offering 100 minutes of calls to mobiles for £2.93 which, if fully utilised, would more than halve the cost of evening F2M calls. In discussing this move, Credit Suisse suggests that "*for the industry as a whole, as MTRs decline, fixed line operators will increasingly bundle in F2M calls into flat rate products*".[518] This is also the direction the market is taking more widely, with more and more call types being included in bundles of both the mobile and fixed offers. A number of other FCPs have also expressed interest in creating unlimited bundles or bundles including calls to mobiles.[519]

Conclusion on the effect on FCP's retail prices

7.197 As MTRs decrease, FCPs in the competitive fixed voice market will reduce their prices to their customers, all other things being equal. However, it is difficult to predict what form these price reductions will take, as fixed services are increasingly bundled together, not just in bundles including access and calls, but also into double-play (including broadband) and triple-play (including broadband and pay TV) bundles. Fixed retail competition focuses on the headline prices of such bundles, and the price of calls outside of these bundles (such as calls to mobiles) is usually less important to consumers in choosing a provider. This means that while the cost of the overall bundle for the consumer would decrease the *relative margins* on the different services might change.

7.198 However, a number of FCPs have indicated that they are planning to introduce (or have already introduced) add-on bundles which reduce the cost of F2M calls to consumers. This trend is likely to continue as MTRs are reduced and has already started in other EU markets (e.g. France and Germany) as MTRs have declined.

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[515] Bank of America Merrill Lynch notes that FCPs are increasingly offering fixed-line bundles (including calls to mobiles) which means *"it will be less clear that customers are getting charged high prices for F2M calls"* (Bank of America Merrill Lynch, *F2M is a hidden cash cow – and a hidden risk*, 8 November 2010, p.6). This highlights that the risk that accompanies greater bundling is that there is less transparency about how much consumers are being charged for each constituent part of the bundle.

[516] J.P. Morgan Cazenove, *Is fixed-mobile substitution slowing? Some early thoughts*, 18 February 2011.

[517] Enders Analysis, *French fixed line retail upheaval*, 24 January 2011; J.P. Morgan Cazenove, *Is fixed-mobile substitution slowing? Some early thoughts*, 18 February 2011.

[518] Credit Suisse *First.Tel European Telecom Daily*, 30 September 2010. Further support of this view is provided by the recent announcement that BT is to start including calls to mobiles in its inclusive price plans (for example, see Mail on Sunday article *BT to include mobile calls in its price plans*, available at http://www.dailymail.co.uk/money/article-1356327/BT-include-mobile-calls-price-plans.html).

[519] For example, see p.4 of BT's response to our April 2010 consultation (available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/BT.pdf) and Plusnet's response (available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Plusnet_NON-CONFIDENTIAL.pdf).

Effect on fixed-line customers

Our views in the April 2010 consultation

7.199 In our April 2010 consultation, we argued that the expected reduction in fixed-line prices (either F2M prices, or fixed prices more generally) if MTRs fell would benefit fixed-line users. We also argued that by reducing MTRs, FCPs will have a greater degree of flexibility in their retail pricing, which may increase the attractiveness of fixed retail offers. This could increase fixed usage and penetration. However, we considered that the likely effect on penetration was likely to be immaterial.

Views of respondents to the consultation

7.200 BT,[520] Plusnet[521] and the Post Office[522] all suggested that lower MTRs would benefit fixed consumers, with the CMA also highlighting the benefits for business users. TalkTalk[523] submitted that the significant reduction in MTRs would "*all but remove the ongoing transfer of wealth from fixed telephony customers to mobile customers*". Tesco Mobile[524] agreed that most of the benefit of lower MTRs would come from lower fixed-line usage charges, and was concerned that past reductions had not been translated into lower fixed-line charges. EE,[525] O2[526] and Vodafone[527] similarly pointed out that FCPs have not passed on MTR reductions, and so any benefit to fixed consumers will be minimal.

7.201 BT[528] claimed that call volumes had been suppressed in the past due to high MTRs. Post Office[529] claimed that F2M call volumes would increase, as these have been suppressed in the past due to the common perception that these calls are expensive. However, EE[530] highlighted that, if we were correct that FCPs had passed cost reductions into prices other than F2M call charges, this would not increase F2M usage and so, it argued, lower MTRs would be ineffective in addressing the harm identified by Ofcom of an under-consumption of F2M calls. In any event, EE[531]

[520] Page 22 of BT's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/BT.pdf.
[521] Page 1 of Plusnet's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Plusnet_NON-CONFIDENTIAL.pdf.
[522] Page 2 of the Post Office's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Post_Office_Limited.pdf.
[523] Page 1 of TalkTalk's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/TalkTalk_Group.pdf.
[524] Page 5 of Tesco's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Tesco_Mobile.pdf.
[525] Paragraph 46 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.
[526] Paragraph 217.2 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.
[527] Page 27-28 of Vodafone's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf.
[528] Page 14 of BT's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/BT.pdf.
[529] Page 3 of the Post Office's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Post_Office_Limited.pdf.
[530] Paragraph 44 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.
[531] Paragraph 84 and 270 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.

claimed that there is no evidence that fixed-only customers can be expected to make a significant number of F2M calls.

7.202 O2 argued that the fact that FCPs have chosen to increase the price of calls to mobiles rather than increasing the prices for other services suggests that demand for making calls to mobiles is relatively inelastic (as FCPs do not expect to benefit much from reducing these prices).[532] Vodafone[533] stated that Ofcom has not provided evidence of a causal relationship between F2M calls (or any other kind of fixed usage) and MTRs. It also noted that there could be a reduction in F2M calls as a result of some mobile customers cancelling their subscriptions.

7.203 EE[534] argues that pure LRIC would distort demand in favour of F2M calls compared to M2F calls, which would not only directly harm consumers, but also enable FCPs to cross-subsidise other services for which they will increasingly compete with MCPs in future. By contrast, Scottish and Southern Energy (SSE)[535] argued that MTRs need to be reduced to avoid distortions between F2M and M2F prices.

7.204 In terms of the number of consumers who can expect to benefit, O2[536] highlighted that fixed-only ownership is on a downward trend, and is likely to have experienced a significant step reduction following changes to the social tariff. Therefore, the number of consumers who would unambiguously benefit will be lower than we suggest. In addition, O2 argued that 60% of these customers will be on the BT Basic tariff, which is not subject to competitive pressures to reduce prices (and has secured regulatory approval to increase subscription charges in line with inflation). We consider these points in section 8 and in greater detail in Annex 3 where we discuss equity considerations.

Our view of consultation responses and further analysis undertaken

7.205 Under-consumption of F2M calls is only one manifestation of the harm which arises from the transfer of funds between FCPs and MCPs as a result of high MTRs. This transfer is in general an inefficient use of resources, as we argued in our April 2010 consultation.[537] This also affects competition between FCPs and MCPs which feeds through into impacts on consumers in a number of ways, of which a suppression of demand for F2M calls may be one. It may also have an impact in the longer term as it may affect the relative attractiveness of investment in fixed and mobile services. We discuss this in section 8 and Annex 3.

7.206 Even if consumers choose not to make more F2M calls, this does not mean that lower MTRs have 'failed' to address the consumer detriment. This is because, to the extent that these reductions in the cost of F2M calls get passed through in the form of a price reduction for other types of calls or services (such as bundles of line rental

[532] Paragraph 86.5 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.
[533] Page 28 of Vodafone's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf.
[534] Paragraph 123 of EE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.
[535] Page 2-3 of SSE's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/SSEL.pdf.
[536] Paragraphs 203-219 of O2's response, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.
[537] See paragraph 5.32 of our April 2010 consultation document, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf.

and calls), fixed consumers will benefit.[538] The point is to ensure that consumers' decisions about how much they use any fixed service are not hindered or distorted artificially by MTRs.[539][540]

7.207 We consider it likely that F2M calls will increase to some extent,[541] largely because we consider lower MTRs are likely to afford FCPs a greater opportunity to move F2M calls into focal bundles, which is where, as we have argued previously[542] (and stakeholders seem to tacitly accept), competition is more intense. Placing calls into bundles can have a significant effect on usage as the marginal cost of an additional call minute becomes very low (or even zero). This can also be seen in other markets, where moving from usage-based charges to flat-rate pricing has dramatically increased usage. For example, DeGraba (2000) noted that the ISP market illustrates the importance of rate structure on usage. He noted that when AOL changed from usage-sensitive rates to a flat charge for unlimited use in late 1996 the number of customers and the usage per customer rose dramatically and other competitors soon followed.[543]

7.208 In terms of the effect on fixed take-up, no respondent argued that the reductions in fixed prices which may result from lower MTRs would encourage higher fixed ownership. However, as already noted, many MCPs did argue that the reduction in revenue for the mobile industry, and the corresponding increase in prices that this would imply for mobile consumers, would have a significant (negative) effect on mobile ownership.

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[538] As we noted that elderly consumers are less likely to be mobile-only and so should benefit from reductions in fixed prices. However, those over 65 are less likely to have broadband access at home (see figure 35 of the *Consumer Experience Report 2010*, available at http://www.ofcom.org.uk/static/tce-10/fig-35.html) and are less likely to take a bundle of services and more likely to take a standalone fixed line (see figure 45 of *Consumer switching and bundling: A report commissioned for Ofcom*, available at http://stakeholders.ofcom.org.uk/binaries/consultations/consumer-switching/annexes/switching-bundling.pdf). This suggests that elderly consumers may not experience all of the benefits that other fixed consumers may receive. However, elderly consumers may be more likely to be heavier users of fixed-line services (as they are less likely to have a mobile) and so may benefit more from, for example, receiving more inclusive minutes.

[539] The pass-through of MCT cost savings into different retail prices is likely to reflect consumer preferences (i.e. which prices consumer are most sensitive to) and so this would be considered to reflect rather than distort demand.

[540] On the other hand, if there is no increase in F2M calls, then the loss of revenue to MCPs, and so the impact on mobile consumers of any changes arising from this, will be more acute than if this were mitigated by an increase in demand. However, by the end of the charge control period when MTRs are at pure LRIC levels, the additional revenue MCPs would earn from higher call volumes would be equal to the cost of providing these additional calls, and so MCPs would not be better off. Higher F2M volumes would smooth revenue reductions in the short run rather than eliminating or mitigating it in the long run.

[541] How far fixed usage increases will depend in part on the relative changes in prices between fixed and mobile calls (particularly since, as we set out in paragraphs 7.94 to 7.95, we anticipate a continued decline in mobile usage prices) and the relative elasticity of demand for making calls from fixed and from mobiles.

[542] Paragraph A13.45 of our April 2010 consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf.

[543] DeGraba (2000) *Bill and keep at the Central Office as the efficient interconnection regime*, OPP Working Paper No.33, available at http://www.fcc.gov/Bureaus/OPP/working_papers/oppwp33.pdf. This is also noted in the Commission Staff Working Document accompanying the EC Recommendation on the regulatory treatment of Fixed and Mobile Termination Rates in the EU: *Implications for Industry, Competition and Consumers*, available at http://ec.europa.eu/governance/impact/ia_carried_out/docs/ia_2009/sec_2009_0599_en.pdf.

7.209 The majority of the revenue reduction for MCPs through lower MTRs relates to F2M calls, and so will equate to a gain to FCPs through lower out-payments. It would be odd, therefore, to suggest that the effect on take-up between mobile and fixed would be highly asymmetric,[544] particularly since this transfer would imply a much larger price change per subscription in the fixed than in the mobile market, given the smaller number of fixed connections (32.1 million in 2009) compared to mobile subscriptions (80.3 million in 2009).[545]

7.210 However, as we argue in paragraphs 7.131 to 7.149, we do not consider that there will be a significant impact on mobile ownership. Therefore, it is not inconsistent to argue that the impact on fixed take-up, even with full pass-through of cost savings to retail prices, is likely to be immaterial as well. Our 2010 *Consumer Experience* research report[546] shows that 7% of respondents voluntarily did not own a fixed line (the main reasons given being "no need for a fixed line" and "happy to use a mobile phone instead"), while just over half as many (4%) are involuntarily excluded (with affordability being the main reason). In addition, as we noted in the April 2010 consultation, while research for our fixed narrowband retail market review found that price was one of the most important reasons why respondents chose not to have a landline, a similar proportion of respondents answered that they did not see a need for a landline, or that they lived in rented accommodation. [547] This suggests that factors other than price affect take-up of fixed services.

Conclusion on effects on fixed-line consumers

7.211 As we have found the fixed retail market to be competitive, we expect the waterbed effect to ensure that cost savings from lower MTRs are passed through to fixed consumers. The fact that FCPs offer a range of services means we cannot be certain that this will translate into lower F2M prices (rather than other prices), although we consider that there is some evidence that this will be the case. In any event, fixed consumers will benefit from these price reductions. However, we consider that this benefit will mainly manifest itself in increased usage (either for F2M calls or fixed services more generally) and lower prices rather than in an increase in fixed-line take-up.

Conclusion on consumer impacts

7.212 If MTRs are reduced, the trend of MCPs offering bundles with higher fixed fees and lower call charges will be likely to accelerate, although it is likely that MCPs will still have the incentive and ability to cater for alternative demands by consumers; e.g. no or low fixed charges and higher call fees.

7.213 Overall, prices may increase in order to recover the contribution to fixed and common costs which will no longer be made by FCPs, although, given the trends in declining costs and increased competition, this may actually appear as a slower decline in prices than would otherwise occur. As a result of this, and the general (industry wide) inelasticity of demand for mobile ownership, we do not anticipate a significant fall in ownership. However, neither do we expect a large increase in usage, beyond the

[544] Unless we had reliable evidence that there was a significant difference in the elasticity of demand for fixed subscriptions compared to mobile subscriptions.
[545] See Figure 5.29 of Telecoms and networks section of Ofcom's *Communications Market Report 2010*, available at http://www.ofcom.org.uk/static/cmr-10/UKCM-5.29.html.
[546] See Sections 3.3.4 and 3.3.5 of http://stakeholders.ofcom.org.uk/binaries/research/consumer-experience/tce-10/consumer-esperience-10.pdf.
[547] Footnote 222 of our April 2010 consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf.

trend we have already observed, as (industry wide) demand for calls also appears to be relatively inelastic.

7.214 The incremental impact of setting MTRs based on pure LRIC rather than LRIC+ would be to increase the impact of these changes e.g. it would make it more likely that mobile retail prices will increase overall in order to recover the contribution to fixed and common costs which will no longer be made by FCPs, but it may also make it more likely that there will be further changes in the structure of prices. As a result there may be some additional effect on ownership and usage from moving to setting MTRs based on pure LRIC rather than our LRIC+ estimate. However, we consider that this cannot be reliably distinguished from the broader change of a significant reduction in LRIC+ based MTRs.

7.215 With regard to fixed-line consumers, lower MCT costs will allow FCPs to reduce their retail prices, although this may translate into lower prices for a bundle of fixed services rather than F2M call prices alone. However, there is an increased likelihood of such bundles including F2M calls with lower MTRs emerging in the marketplace. Again, these impacts will be larger as a result of a further reduction in MTRs from our LRIC+ estimate to the pure LRIC level.

Section 8

Assessment of LRIC+ vs. pure LRIC

Introduction

8.1 In the previous section we considered the available empirical evidence on the likely impact on consumers of a switch from a LRIC+ to a pure LRIC cost standard, in terms of prices, ownership and usage.

8.2 The most likely effect of a reduction in MTRs on prices is an acceleration of the trend of MCPs offering bundles with more inclusive minutes for a higher fixed fee and lower call charges. Overall retail mobile prices may slightly increase to reflect a reduction in F2M revenues, although, given current trends in declining costs and increasing competition, this may result in a slower decline in prices rather than an actual increase. We also do not expect a material effect on ownership or in usage for either mobile or fixed.

8.3 This section considers which of the two cost standards – pure LRIC or LRIC+ - we should adopt for the period of the next charge control.

Legal framework

8.4 The specific legal tests relevant to the imposition of remedies are summarised in section 6.

8.5 Insofar as our decision to impose a charge control remedy is concerned, our remedy must be based on the nature of the problem identified, proportionate and justified in light of the policy objectives set out in Article 8 of the Framework Directive.548 In section 5 of this statement, we identified the nature of the problems that arise from a lack of effective competition in MCT markets, absent regulation. In accordance with Article 8 of the Framework Directive, section 4 of the Act also requires us to act in accordance with the six European Community requirements for regulation.

8.6 We can only impose a price control where it appears to us from our market analysis that there is a relevant risk of adverse effects arising from price distortion,[549] and that the setting of the condition is appropriate for the purposes of:

- promoting efficiency;
- promoting sustainable competition; and
- conferring the greatest possible benefits on the end-users of public electronic communications services.[550]

[548] Article 8 of the Access Directive (http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:108:0007:0020:EN:PDF)
[549] For these purposes, there is a relevant risk of adverse effects arising from price distortion lack of effective competition if the dominant MCP might fix and maintain prices at an excessively high level, or impose a price squeeze, with adverse consequences for end-users.
[550] Section 88 of the Act and Article 13 of the Access Directive available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:108:0007:0020:EN:PDF.

8.7 In setting a price control, we must also take account of the extent of the investment in the matters to which the conditions relate of the person to whom it is to apply.[551]

8.8 Our remedy must be: (a) objectively justifiable in relation to the networks, services, facilities, apparatus or directories to which it relates; (b) not such as to discriminate unduly against particular persons or against a particular description of persons; (c) proportionate to what the condition or modification is intended to achieve; and (d) in relation to what it is intended to achieve, transparent.[552]

8.9 We must also act consistently with our primary duty (to further the interests of citizens, and to further the interests of consumers, where appropriate by promoting competition)[553] and have regard to our other duties set out in section 3 of the Act. These include, in particular, the duty to have regard to principles of best regulatory practice,[554] and the duty to have regard to the needs of particular groups of consumers, such as those on low incomes, the elderly and the disabled.[555]

8.10 We must also have regard to the 2009 EC Recommendation

8.11 The European Commission recommends that Member States adopt a common approach when setting price controls on wholesale call termination services.

8.12 The cost standard recommended by the EC is pure LRIC. The 2009 EC Recommendation also outlines the EC's view that MTRs for all MCPs should be symmetrical under most circumstances.

8.13 We explain how we have had regard to the 2009 EC Recommendation in our decision on whether to adopt a pure LRIC or LRIC+ cost standard at paragraphs 8.14 to 8.32 below.

Stakeholder submissions on legal framework

8.14 In our April 2010 consultation, we provisionally concluded that we should adopt the pure LRIC cost standard for the period of the next charge control. In reaching this position, we had regard to our statutory duties under the Common Regulatory Framework and the Act. In reaching this view, we also took account of the 2009 EC Recommendation. In doing so, we considered that we would need good reasons to depart from the approach that the European Commission recommends.[556]

8.15 Our provisional conclusion was as follows:

> "Our analysis suggests that there are merits in the pure LRIC approach as well as in the LRIC+ approach, and the economic judgment on which is better is finely balanced. Therefore, in the

[551] Section 88(2) of the Act and Article 13(1) of the Access Directive available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:108:0007:0020:EN:PDF.
[552] Section 47 of the Act and Article 8(5) of the Framework Directive available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:108:0033:0050:EN:PDF.
[553] Section 3(1) of the Act.
[554] Section 3(3) of the Act
[555] Section 3(4) of the Act.
[556] Paragraph 7.103 of our April 2010 consultation, http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf.

absence of sufficient reasons to depart from the approach set out in the Recommendation, we think that it is appropriate to follow it."[557]

Stakeholder comments

8.16 In summary, EE,[558] O2[559] and Vodafone[560] all submitted that Ofcom had not properly taken account of its statutory duties under the Common Regulatory Framework and the Act, and placed undue emphasis on the 2009 EC Recommendation, which favours setting regulated MTRs at pure LRIC. They argue that we should, instead, look at the totality of our legal obligations relevant to the imposition of remedies. The respondents argued that if we had taken what they consider to be an appropriate account of our statutory duties, we would not have favoured a pure LRIC approach.

8.17 Vodafone, EE and O2 also considered that there were sufficient reasons for us to depart from the 2009 EC Recommendation. Vodafone stated that there were adequate and compelling grounds, on the basis of the allocative and distributional harm that pure LRIC would cause.[561] O2 stated that we had not seriously grappled with the many reasons why we should depart from the 2009 EC Recommendation.[562] EE stated that there are significant differences between the UK mobile market and the majority of other EU mobile markets (specifically lower margins and return on investment in the UK mobile market).[563] According to EE, by following the 2009 EC Recommendation, we would fail to take account of these specific circumstances of the UK and the level of competition which already benefits consumers.

8.18 H3G opposed this view, submitting that Ofcom had taken the correct approach that there were no general reasons to depart from the 2009 EC Recommendation, and that *"t]here is certainly nothing about the UK mobile market that gives a reason to depart from the EC Recommendation*."[564]

Ofcom's view

8.19 We do not believe that the proposals in our April 2010 consultation failed to take into account our relevant statutory duties under the Act and the Common Regulatory Framework. We agree that any remedy we impose must meet the relevant legal tests and accord with our wider statutory duties. These tests and duties were taken into account in developing our April 2010 consultation. Our analysis of those duties, and the relevant tests contained in the Act and the Common Regulatory Framework, were

[557] Paragraph 7.110 of our April 2010 consultation http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf .
[558] Page 4 of EE's response to our April 2010 consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.
[559] Paragraph 5 of the executive summary of O2's response to our April 2010 consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.
[560] Paragraph 2.2 of Annex 1 of Vodafone's response to our April 2010 consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone_annexes.pdf.
[561] Page 72 of Vodafone's response to our April 2010 consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf.
[562] Paragraph 48 of O2's response to our April 2010 consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.
[563] Paragraph 229 of EE's response to our April 2010 consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.
[564] Paragraph 26 and pages 46 to 56 of H3G's response to our April 2010 consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf.

set out fully in section 7 of our April 2010 consultation (from paragraph 7.141).[565] The relevant legal tests were then also applied to each proposed remedy. In relation to the proposed SMP Condition M3 (which sets MTRs), paragraphs 7.177 to 7.183 of the April 210 consultation considered and applied the specific legal tests relevant to the imposition of remedies and our wider statutory duties.

8.20 As noted above, we said in our April 2010 consultation that our economic judgment was finely balanced as to whether pure LRIC or LRIC+ was the better approach. In light of the responses to that consultation and further evidence which we have subsequently obtained, we have carefully reconsidered and reassessed the merits of a LRIC+ and pure LRIC approach from an economic perspective as against our statutory duties.

8.21 We now consider, in light of the responses to the consultation and the further evidence, that pure LRIC is the better approach as it will maximise the benefits to consumers as it better promotes sustainable competition, is economically efficient and is unlikely to raise material equity concerns. We have reached this view having had regard to the relevant legal tests for the imposition of remedies and our wider statutory duties (see paragraphs 10.139 to 10.150 in section 10 for our detailed assessment).

8.22 We note that this approach is consistent with the 2009 EC Recommendation. We have, nevertheless, gone on to consider, when taking account of it, whether there are good reasons for us to depart from it. In doing so, we have taken into consideration the fact that, for the reasons set out in this statement, we believe that pure LRIC is the better approach having regard to our statutory duties. Further, we have considered whether there are any factors which might lead us to conclude that the harmonising objective of the 2009 EC Recommendation is inappropriate in the circumstances of the UK. In this respect, EE has suggested that lower profitability and return on investment in the UK market (relative to other EU markets) is a sufficient reason to reach that view.

8.23 We acknowledge that profitability since 2000 has been consistently lower in the UK than in Western Europe.[566] However, as set out in Annex 3, historic profitability in the industry will not necessarily be a good indicator of future profitability, given changes in market structure and market characteristics, as (a) the industry now comprises four national MCPs rather than five after the T-Mobile-Orange merger (and a number of industry analysts expect profitability to increase in a more concentrated market), (b) network sharing deals (e.g., EE/H3G) are reducing investment costs, and (c) the uptake of new products is growing rapidly (e.g. smartphones and dongles).[567] Further, in this statement we have undertaken a detailed assessment of the impact of our decision on UK consumers and UK MCPs (including on the investment and returns of the four national MCPs in the UK) and, for the reasons set out, we have concluded in light of this analysis of the UK market that a pure LRIC cost standard is appropriate and it will maximise consumer benefits (see paragraphs 8.33 to 8.163).

8.24 In the remainder of this section, we set out the framework for our assessment, the analysis and reasoning underpinning our decision and the information and evidence on which this is based.

[565] Available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf.
[566] See section 2.
[567] See paragraph A3.97 in Annex 3.

Framework for assessment

8.25 In our April 2010 consultation we assessed our choice of cost standard against the following criteria:

- economic efficiency – both static (allocative) and dynamic;
- competitive impacts;
- distributional effects on "vulnerable" consumers; and
- commercial and regulatory consequences.

8.26 No respondent objected to our use of these assessment criteria, and most responses commenting on our choice of cost standard (including BT, EE, H3G, O2 and Vodafone) discussed the relative merits of each standard against these criteria.

8.27 In the light of these responses, we conclude that these are the right criteria to apply in our assessment. They are consistent with our legal duties and obligations. In particular, any remedy must be appropriate in light of the competition problems identified.568 In section 5, we noted that, absent regulation, MCPs will have both the incentive and the ability to set excessive MTRs, which would harm consumers' interests by leading to economic inefficiency, competition concerns and distributional impacts. Our framework for assessment allows us to judge the extent to which our choice of cost standard would be appropriate in light of these concerns.

8.28 Any price control condition must be appropriate for the purposes of promoting efficiency, promoting sustainable competition, and conferring the greatest possible benefits on the end-users of public electronic communications services.569 Again, these purposes broadly correspond with three of our assessment criteria, and our framework will therefore enable us to judge whether our choice of cost standard is appropriate for these purposes. Whilst our third criterion is focussed on the distributional impacts on vulnerable consumers, we also summarise at paragraphs 8.102 to 8.126 below our conclusions as to the impact on consumers generally (which is considered in detail in section 7).

8.29 In setting a price control, we must also take account of the extent of the investment in the matters to which the conditions relates.570 We consider any potential impact on investment by the four national MCPs in our assessment of dynamic efficiencies at paragraphs 8.55 to 8.61 below.

8.30 As discussed in Section 7 our assessment compares the effect of adopting each cost standard over the period of this charge control. The conclusions that we reach in this section rely on the responses we received to our April 2010 consultation, additional evidence and data obtained from MCPs using our statutory information gathering powers (particularly the four national MCPs) and further analysis.[571] We have also relied on the responses to a supplemental consultation on the relationship between

[568] Article 8 of the Access Directive, available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:108:0007:0020:EN:PDF.
[569] Section 88 of the Act and Article 13 of the Access Directive at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:108:0007:0020:EN:PDF.
[570] Section 88(2) of the Act and Article 13(1) of the Access Directive at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:108:0007:0020:EN:PDF.
[571] Annex 12 lists major sources relied on in this statement.

MTRs, market shares and competition (the November 2010 competition consultation), published on 29 November 2010.[572]

8.31 The November 2010 competition consultation considered one specific mechanism by which MTRs could affect competition between MCPs. The stakeholder responses to the November 2010 competition consultation, and our conclusion on how the issues discussed in that consultation affect our overall analysis are set out in the relevant section below (paragraphs 8.62 to 8.116) and in Annex 3.

8.32 Annex 3 to this statement considers in detail the economic arguments presented by the stakeholders on the issues discussed in this section.

Which approach best promotes economic efficiency?

Discussion of allocative efficiency in the April 2010 consultation

8.33 Allocative efficiency is maximised when there is an optimal distribution of goods and services taking into account costs of supply and consumers' preferences.

8.34 Economic theory suggests that prices set at marginal cost lead to efficient outcomes, and are closer to the prices you might expect to find in a competitive market (assuming no fixed costs or externalities). Following this logic we should seek to set regulated MTRs as close to marginal cost as possible. This suggests that we should choose a pure LRIC, not LRIC+ cost standard.573

8.35 However, MCPs incur fixed and common costs and these need to be recovered in some way.574 The Ramsey pricing principle suggests that for a multi-service regulated firm, all (wholesale and retail) services, whose demand is not perfectly price elastic, make some contribution to common costs.575 Wholesale termination is unlikely to be perfectly elastic, although it is unclear what the relative elasticities of relevant services are. On this basis, the Ramsey principle alone would suggest that efficiency is maximised if at least some fixed and common costs are recovered from MTRs.[576] This would seem to favour the adoption of a LRIC+ cost standard if one

[572] *Mobile call termination: The relationship between mobile termination rates, market share and competition*, 29 November 2010, available at http://stakeholders.ofcom.org.uk/consultations/mct-large-small/.

[573] Pure LRIC is not equivalent to short term marginal cost, but for regulatory price-setting purposes, pure LRIC is a better approximation of the underlying economic concept of short run marginal cost than LRIC+. In network industries (such as mobiles) the short run marginal cost of a service may be very low or very high depending on whether usage is a long way from, or effectively at, installed capacity. This leads to very low (or zero) marginal cost most of the time, with small increments over which marginal cost is very high. In regulatory practice, long-run incremental cost has, therefore, been applied as a proxy, avoiding the volatility implied in setting prices on the basis of marginal cost which can be very variable in response to small changes in output. Pure LRIC measures service specific fixed and variable costs that arise in the long-run from the increment of output in question (in this case, all terminated minutes from other providers).

[574] Common costs are costs that are caused by the joint supply of multiple services and cannot be directly traced to the supply of individual services, while fixed costs (such as rents) are costs that during a particular time period do not change with the output produced.

[575] Ramsey pricing principles suggest that if prices are to be increased in order to recover fixed costs, it is efficient to increase the mark-up over marginal cost on goods or services with the more inelastic demand. In this way, the structure of prices will minimise distortions (in demand) from the level of demand that would arise if prices were set at marginal cost.

[576] One problem, is that the size of the '+' would be difficult to determine precisely under Ramsey principles. For example, as we note in Annex 3, the CC's 2002 determination on mobile call termination concluded there are *"there are formidable problems associated with computing correct*

were to treat revenues from competitive retail (and wholesale) market similarly to revenues from supplying bottleneck services to competing providers.

8.36 The Ramsey pricing approach therefore implies a mark-up on incremental costs and stakeholders suggested that LRIC+ was a closer proxy to the Ramsey principle than pure LRIC. The result that Ramsey pricing yields an efficient structure of prices is typically (but not necessarily) based on the assumption that the prices of all of the firm's services are set as linear charges. 577 This is not currently the case as retail prices are often non-linear (despite the fact that high MTRs increase the importance of call charges). With two-part tariffs,578 it may be possible to recover common costs more efficiently from retail services. If MTRs were set at pure LRIC, all fixed and common costs would be recovered solely from retail services (and/or other unregulated wholesale services such as domestic roaming).579

8.37 The variety of mobile retail tariffs currently available in the UK is evidence of widespread retail price discrimination.580 This suggests that it may be more efficient to recover most common costs from retail than wholesale services. This reasoning could favour the adoption of pure LRIC. However, this does not go as far as to suggest that all common costs should necessarily be recovered from retail services, as price discrimination is unlikely to be perfect.

8.38 In the light of these arguments and the evidence collected, we did not consider in our April 2010 consultation that there was much difference between the two in terms of (static) allocative efficiency.

Stakeholders' views

8.39 Stakeholders are polarised on this issue. Vodafone, O2 and EE cite the Ramsey pricing principle, arguing that at least some mark-up should be included when setting MTRs. They agree that demand for calling mobiles (as a proxy for wholesale MTRs), is price-insensitive compared to other services (such as retail voice and data services) and should, therefore, contribute more towards common costs. BT and H3G argue that evidence of strong retail price discrimination suggests that the efficient recovery of common costs should come mostly from retail services. MTRs

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Ramsey prices." http://www.competition-commission.org.uk/rep_pub/reports/2003/475mobilephones.htm (paragraph 1.4, page 6). In addition, Annex 17 of our 2007 MCT statement (http://stakeholders.ofcom.org.uk/binaries/consultations/mobile_call_term/statement/statement.pdf) considered and rejected the use of Ramsey pricing as the basis for setting MTRs including on the grounds of practicability.

577 With non-linear charges, it is possible to apply a fixed charge that covers the common cost elements (that need to be recovered to ensure long-term cost recovery) without having to mark-up the usage based element. Therefore two-part charges can allow the usage-based element of the charge to reflect the marginal/incremental cost of provision and so will be more allocatively efficient.

578 With two-part tariffs the amount consumers would pay for a particular product or service is calculated on the basis of two charging elements, which are typically (although not necessarily):

- A usage-based charging element (e.g. a pence per minute charge based on the number of calls the user makes);
- A fixed fee that does not vary with usage (e.g. a fixed annual or monthly subscription fee).

579 In some cases this may also include other wholesale charges such as those to MVNOs.

580 Bill Monitor (a price comparison service accredited by Ofcom) estimate there are more than 14,500 (and over 7.9m if handset and tariff combinations are included) price plans available to UK consumers.

should therefore be set closer to the marginal cost of providing the service (according to pure LRIC). Stakeholders' comments on this issue, and our response to those comments, are set out in more detail in Annex 3, paragraphs A3.11 to A3.70.

8.40 In response to both our May 2009 and April 2010 consultations, Vodafone raised the possibility of a two-part wholesale tariff, which it submitted might be a better approach to set wholesale MTRs than linear prices set to either pure LRIC or LRIC+.[581] In Vodafone's submission, pure LRIC could be used to set usage charges (in pence per minute), but we should allow for recovery of fixed and common costs through a fixed wholesale charge. O2 and Everything Everywhere also supported this approach.[582]

Ofcom's view

8.41 We can see some theoretical benefits of setting a two-part wholesale tariff but, in our view, this approach also raises a number of significant problems (a full discussion is in Annex 3, A3.50 to A3.60):

8.41.1 First, because of the fixed charge, MCPs with limited traffic could face a disadvantage and may be forced into relying on transit operators aggregating traffic, even where it might be more efficient for them to interconnect directly.

8.41.2 Second, it would add complexity to wholesale MTRs because of the need to set two tariff elements and the interactions between the two parts.

8.41.3 Third, it suffers from similar short-comings (particularly in terms of implementation) to capacity-based charging (CBC), which we considered as an option in our May 2009 consultation.[583] We rejected CBC in our April 2010 consultation largely, but not solely, because of stakeholders concerns about practical implementation. We recognised, as did many stakeholders, that CBC may be appropriate in the future though it was not a practical option at present. For example, O2 believed that CBC could only emerge through an industry-wide commercial agreement.[584]

8.42 Based on the above points (and the more detailed discussion in Annex 3), we therefore do not consider two-part tariffs to be an appropriate basis on which to regulate MTRs for the period of this review.

[581] Page 63 of Vodafone's response to our April 2010 consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf, and page 37 of its response to our May 2009 consultation, http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/responses/Vodafone.pdf.
[582] See paragraphs 109-122 of O2's and paragraphs 250 – 258 of EE's responses to our April 2010 consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf and http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf respectively.
[583] Paragraphs 7.14-7.26 of our May 2009 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/summary/mobile_call_term.pdf.
[584] Moreover, this type of two-part tariff has been rejected by H3G following our April 2010 consultation, after an approach to H3G by Vodafone.

8.43 In the April 2010 consultation[585] we also discussed whether the available empirical evidence on the effect on usage, subscriptions and ownership would shift the argument one way or another under the criterion of allocative efficiency. For example, LRIC+ could perform better under this criterion if the alternative (a switch to pure LRIC) led to a *substantial* reduction in ownership and with only a *limited* increase in usage (or failed to increase total usage). On the basis of the evidence discussed in section 7 above, a move from LRIC+ to pure LRIC would seem highly unlikely to trigger a substantial reduction in ownership and seem likely to generate only a limited increase in usage.

8.44 We also conclude our detailed assessment of allocative efficiency in Annex 3 by explaining that allocative (static) efficiency alone does not provide a clear answer as to whether a pure LRIC or LRIC+ cost standard should be preferred. (In any event in practice competition and efficiency considerations are linked so it is somewhat artificial to attempt to rank these cost standards on efficiency considerations alone without having regard to the implications for competition).

Dynamic efficiency in the April 2010 consultation

8.45 Dynamic efficiency refers to the ability and incentives of MCPs to continue to invest in the services they currently provide and to innovate by launching new or improved services. In the context of MTRs, the discussion of dynamic efficiency is about whether there is a sufficient contribution from (wholesale) termination and all the other mobile services (e.g. the retail side of the market including data services) for MCPs to continue to have sufficient incentives to invest.

8.46 Termination is one side of a two-sided market (the other side being the retail calls and access market) and we consider that the existence of a waterbed effect (though it may not be complete) means MCPs should be able to recover their costs and would continue to have incentives to invest in termination irrespective of whether MTRs were at or above pure LRIC.586

8.47 In the April 2010 consultation, we thought that LRIC+ would not raise as many concerns about MCPs raising insufficient revenues to cover the cost of termination. However, we did not consider that this was a strong argument in favour of LRIC+ relative to pure LRIC. We noted that MCPs do not invest in call termination separately from call origination. Pure LRIC would entail lower revenues from MTRs relative to LRIC+. But we considered that MCPs would be able to recover most of the common costs they previously recovered from termination from retail services. Our view was that the fact that a transfer of resources (mainly from the fixed sector) existed in the past, is not in itself a valid reason to maintain it. In terms of dynamic efficiency, the main concern is whether the decline in overall profits could be of such an extent to trigger concerns about the MCPs' ability to finance their investments going forward bearing in mind that future investment will be driven by their expectations regarding future profitability and their need to remain competitive in the retail market.

[585] Paragraphs A12.56-A12.66 of our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf.
[586] This also abstracts from the fact that MCPs carry both voice and data so the revenues from the supply of data services in a competitive retail market also count towards the cost of building and maintaining mobile networks.

Stakeholder responses

8.48 A number of stakeholders submitted that a move to pure LRIC would reduce investment by providers of MCT. Others did not agree. Some argued that pure LRIC would be consistent with promoting efficient investment and some argued that enhanced competition would be a spur to innovation and investment. These views are considered in more detail in Annex 3 (paragraphs A3.75 to A3.91).

Ofcom's view

8.49 In considering MCPs' ability to invest, we explain in Annex 3 that it is necessary to distinguish between termination revenues from:

8.49.1 Mobile-to-mobile (M2M) calls. The impact of adopting pure LRIC should be largely neutral on the industry as the traffic within the mobile industry must be balanced (though there are likely to be differences between MCPs at any point in time and importantly competitive effects among MCPs as discussed below); and

8.49.2 Fixed-to-mobile (F2M) calls. Under pure LRIC, the termination revenue from F2M calls would fall. MCPs would therefore be less profitable if the waterbed effect is incomplete. While we consider that the waterbed effect is strong, we consider that it is unlikely to be complete.[587]

8.50 Pure LRIC, compared with LRIC+, therefore may carry some risk of reduced investment in mobile networks, as it sets a lower MTR thereby generating lower overall revenues (and profits) for the MCPs. However, as discussed in Section 7 (paragraph 7.49) we believe that the overall shortfall (even before taking into account the waterbed effect) is unlikely to be very substantial. We estimate that based on non-M2M traffic volumes the reduction in termination revenues in 2014/15 would be £0.2bn (i.e. based on MTRs set at pure LRIC rather than LRIC+). This is not a significant difference in the context of the overall size of the mobile market. We conclude our discussion in Annex 3 explaining that we consider this risk of reduced investment to be small as the difference in termination revenues between LRIC+ and pure LRIC is small. In addition, this risk is further mitigated by recognition that termination assets are largely shared with origination assets (e.g. a given cell site or given base station equipment will be used both to originate and terminate calls and data traffic).

8.51 MCPs will always have an incentive to continue investing in infrastructure to deliver call origination and access. We have seen no evidence suggesting that in countries with very low MTRs (e.g. USA), the difference in policy on mobile call termination rates has led to investment and innovation in mobile services at materially different levels, compared with that seen in the UK or in other EU countries. It is interesting to note that H3G, which has the lowest profitability among the national MCPs, is in fact calling for lower MTRs. At the very least, H3G believes that with pure LRIC it will not recover fixed and common costs from retail markets.[588] In addition, H3G also

[587] The waterbed effect will reduce the loss in profits from termination. This is because with lower MTRs mobile consumers will receive more F2M calls. As the subscribers value these calls they would be willing to pay more to have a mobile phone. Hence, MCPs may be able to increase the fixed charge component of their retail tariffs.
[588] Paragraph 21 of H3G's response to our April 2010 consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf.

argues[589] that pure LRIC will enhance profit opportunities (through improving the ability of MCPs with fewer subscribers and new entrants to compete) and hence have a beneficial impact on dynamic competition and dynamic efficiency.

Competition Impacts - which approach best promotes competition?

8.52 In this section we follow the approach we adopt in Annex 3 by first considering the competition impacts *amongst* MCPs. We then consider the effects on competition *between* MCPs and FCPs. Paragraph A3.123 to A3.263 in Annex 3 contains a detailed discussion of our analysis of competition impacts. We summarise the main results in this section.

Competition amongst MCPs

8.53 MTRs above pure LRIC[590] may affect competition in a number of ways. They:

8.53.1 raise retail prices for M2M off-net calls leading to on-/off-net retail price differentials, as the level of MTRs effectively sets a floor for retail (fixed and mobile) call prices set by the MCPs (we have termed this 'retail effects');

8.53.2 dampen the incentives for MCPs to reduce call prices as MTRs act as a retail price floor for off-net calls (we have termed this 'market-wide effects'); and

8.53.3 make some consumer segments more or less profitable depending on the MCP's share of subscribers and the expected traffic profile of these consumer segments (we have termed this 'impact on competition for different consumer segments').

8.54 The first could be thought of as a direct retail effect on competition among MCPs, while the second and third could be thought as "wholesale" effects on competition for subscribers.

Retail effects

8.55 In our April 2010 consultation we recognised that the level of the MTR could affect the retail price differential for on-net and off-net calls. We noted that this may make MCPs with a larger share of subscribers more attractive to consumers. In its response to our May 2009 consultation,[591] H3G argued that this effect was significant, and that this price differential currently existed though other MCPs disagreed on this point. In response to these concerns in the April 2010 consultation[592] we considered that whilst we accepted that on/off-net retail price

[589] Paragraph 19 of H3G's response to our April 2010 consultation, available at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf.
[590] More generally the conclusions could apply to situations where MTRs are higher than marginal costs. Pure LRIC is an approximation of the marginal cost of call termination.
[591] See page 42 and Annex 6 of H3G's response to our May 2009 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/responses/Hutchison_3G_UK_Limited.pdf.
[592] See Section 7 and annex 12, paragraphs 7.122 to 7.123 and A12.88 to A12.91 of our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf (main document) and http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf (Annexes).

differentials may have an impact on competition among MCPs, this was likely to be an historical concern, when such differentials were more pronounced. We noted that the recent reduction in on/off-net retail price differentials and the likely ongoing reductions in MTRs (under either LRIC+ or pure LRIC) moving forward would further reduce such concerns.

8.56 H3G, in its response to our April 2010 consultation,[593] argued that there is still a differential between on-net and off-net retail call charges. In Annex 3 we examine further the evidence available and conclude that there are a number of retail tariffs where the differential still exists and that this will have an impact on competition. We expect that a move to lower MTRs under either cost standard would reduce some of the observed differences in retail prices and most likely pure LRIC could almost, if not fully, eliminate them. As such, the relevance of the 'club effect' might reduce in the future under both cost standards, but particularly so under pure LRIC. In its Explanatory Note to the 2009 EC Recommendation, the EC also recognises the potential for these competition effects.[594]

Additional 'wholesale' effects

8.57 In response to our April 2010 consultation H3G raised additional concerns that it considered were not based on the impact of higher MTRs via differences in on/off-net retail call prices.[595] It suggested that when MTRs are above pure LRIC, this would set a floor on the retail price of outbound calls. This reflects the fact that any MCP would have to pay a higher cost for calls terminating off-net (i.e. the MTR) whereas outbound calls that are on-net only face a MCP's own incremental network costs. H3G argued that no MCP has the incentive to set a retail price for outbound calls below this price floor. H3G further argued that high MTRs (such as those currently associated with LRIC +) undermine the incentives to compete aggressively on price. This is because lower call charges would likely increase the number of outbound calls that its subscribers make and lead to an increase in outpayments to other MCPs.

8.58 H3G submitted that the average cost of an outbound call for MCPs with fewer subscribers will be higher than for larger incumbent MCPs. This reflects the fact that a subscriber on a smaller network would be likely to make proportionally more off-net calls. Therefore, MCPs with fewer subscribers would be at a disadvantage (as a greater proportion of outbound calls would have to pay the MTR to another network). We discuss this below under 'market-wide effects'.

8.59 H3G submitted that high MTRs such as those that will arise under LRIC+ could affect the ability of MCPs' with different subscriber shares from competing as effectively for different consumers' types or segments. H3G argued that this effect existed irrespective of the existence of an observed on/off-net retail price differential.596 We also discuss this below under 'impact on competition for different consumer segments'.

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[593] Paragraph 353 of H3G's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf.

[594] Explanatory note accompanying the EC Recommendation on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU - SEC(2009) 600, page 16 (http://ec.europa.eu/information_society/policy/ecomm/doc/implementation_enforcement/eu_consultation_procedures/explanatory_note.pdf).

[595] Paragraphs 38 to 45 of H3G's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf.

[596] It noted that such price differential would exacerbate any impact (see Annex 3, paragraphs A3.112 to A3.114).

8.60 We therefore conducted further analysis, obtaining additional information from the MCPs using our statutory information gathering powers. This led to us issuing the November 2010 competition consultation (which considered the impact of high MTRs and subscriber shares on competition for particular consumer segments).

8.61 We summarise below at paragraphs 8.102 to 8.116 our revised conclusions, having undertaken this further analysis and taking into account further responses to the November 2010 competition consultation (the full discussion of these issues is in Annex 3).

Market-wide effects

8.62 This part of our discussion focuses on the impact of MTRs above pure LRIC on the net wholesale payments that MCPs make or receive from each other. The critical question is: what impact do MTRs have on the ability of MCPs to compete for subscribers?

8.63 MTRs are a variable cost for originating MCPs. This means that the cost of terminating calls for each originating MCP would be a weighted average of the cost of terminating calls off-net (for which they pay MTRs) and their own cost of terminating on-net mobile calls (pure LRIC).[597] The weighted average cost of terminating calls acts in effect as a price floor for the retail prices of calls to mobiles. MCPs have a disincentive to lower their off-net call prices because by so doing they generate more outbound traffic which attracts outpayments to rival MCPs.[598] If MTRs decrease, the cost of terminating calls decreases for each MCP (the price floor) and retail price competition increases as MCPs have stronger incentives to reduce their call charges. This means that all else being equal lower MTRs would increase competition in call charges, so pure LRIC delivering lower MTRs should be preferred to LRIC+.

8.64 The impact of this effect can also depend on the MCP's share of subscribers. MCPs with more subscribers would be expected to have proportionately more calls terminating on-net than MCPs with a smaller share of subscribers. All else being equal, MCPs with a larger share of subscribers would face a lower average cost for terminating calls than MCPs that have a lower share of subscribers. This is also linked to the retail effects discussed above as the precise retail tariffs offered by a MCP and its rivals will (among other things) determine the balance of on-net and off-net traffic.

8.65 We have explained in the past599 that we would expect traffic among all MCPs to be balanced overall (i.e. on average consumers are as likely to make as many minutes of calls to mobile numbers as they receive). Any net traffic imbalances between MCPs that might arise because of differences in subscribers' shares could largely be under the MCPs' control via their commercial strategy. For example, MCPs could seek to limit the proportion of calls they originate from terminating off-net by encouraging calling circles and by attracting consumer types that make a higher

[597] In Annex 3 we discuss in detail why it is appropriate to use pure LRIC as a proxy for the cost of on-net termination.
[598] In Section 7, we note that the (industry-wide) price elasticity of usage is relatively low. However, at the firm level price elasticity of usage is likely to be relative high. In our assessment of competition, the relevant consideration is at the firm level, as we are interested in the incentives of MCPs to compete given the likely consumer responses to that MCP's pricing (and that of its rivals).
[599] For example see our submission to the CC in the context of the appeals against our 2007 MCT Statement: "Mobile call termination appeals - price control issues: submission to Competition Commission", Ofcom, 29 January 2008.

proportion of on-net calls. As we note below though such strategies carry some costs.

8.66 For each MCP, Figure 8.1 shows the weighted average cost of outbound calls together with the weighted average revenue they receive from inbound calls.[600]

Figure 8.1: Illustrative impact of MTRs of 4.18 ppm on the cost of outbound calls (M2M) and on inbound termination revenues (all calls including F2M)

[✂]

8.67 Based on volumes in 2008/09, the illustrative weighted average cost of an outbound call for H3G was higher than the cost for its rivals. Notwithstanding these differences, as mentioned above, the effect of high MTRs is to set an overall retail price floor for every MCP. For example, if the above calculations of weighted average outbound M2M cost were indicative of relative end-to-end call costs601 among MCPs, the MCP with more subscribers at that time, O2, would not have an incentive to set the average outbound call prices below [✂] ppm, while the price floor under pure LRIC would have been around [✂] ppm.

8.68 However, we also need to account of differences in each MCP's inbound traffic and revenues. Taking H3G as an example (but this would equally apply to other MCPs with fewer subscribers) the higher proportion of inbound off-net originated calls (where it can receive the higher regulated MTR) acts to mitigate the disadvantage it faces on outbound calls. For example, based on volumes in 2008/09 and our symmetric MTR assumptions, the average inbound call would have generated revenues of [✂]for H3G compared to [✂] for [✂] (which based on volumes in 2008/09 received the fewest inbound off-net calls). For H3G, as suggested by Figure 8.1, the relative advantage that it receives for inbound calls does not fully counter its relative disadvantage for outbound calls.602

8.69 In Annex 3 we have compared the impact of reducing MTRs from the current level to the LRIC+ level in 2014/15. This substantially reduces the impact, but would not fully eliminate it, unless MTRs were set at pure LRIC.

8.70 As noted above, MCPs may counter this effect by trying to attract a mix of subscribers that ensure they have a more balanced on-net and off-net traffic profile overall. However, such steps are likely to carry some costs in terms of the competitiveness of the retail packages marketed by the MCP seeking to achieve this. In the next section we look in more detail at the ability of different MCPs to compete for consumer segments with different usage patterns.

[600] Calculations were based on the proportion of total outbound mobile traffic that was on- and off-net in the financial year 2008/09. This assumes for outbound calls, on-net origination and termination costs based on our incremental cost estimates (i.e. the pure LRIC cost estimate of 0.69 ppm (2008/09 prices) and off-net calls charged at the current lowest regulated MTR of 4.18 ppm (2008/09 prices). In addition, we show the average revenues on inbound calls based on the proportion of calls that are off-net and hence pay the MTR of 4.18 ppm.
[601] This assumes that retailing costs per call do not vary across MCPs and types of call.
[602] This is on the assumption that it receives the same MTR as other operators. This is not currently the case but MTRs will be symmetric from 2011/12 onwards.

Impact on competition for different consumer segments

8.71 In its response to the April 2010 consultation, H3G argued that MCPs with fewer subscribers may find it harder to compete for higher-revenue (typically post-pay) consumers when the (symmetric) MTR is above marginal cost.603

8.72 This effect arises because MTRs above marginal cost drive a wedge between the cost of on-net and off-net calls, making off-net calls more costly. When MTRs are above marginal cost, as the proportion of calls by a consumer that terminate off-net increases, all else being equal, the profitability of serving that consumer falls. For MCPs with fewer subscribers, this effect means that consumers who make more calls than they receive – i.e. that have a high outbound/inbound calling ratio - are less profitable than for a MCP with a larger share of subscribers. This is because consumers that subscribe to a MCP with fewer subscribers are likely to make a higher proportion of their calls off-net. As these are more costly than on-net calls when MTRs are above pure LRIC, that subscriber generates more outpayments than inbound revenues.

8.73 Some of these effects could be mitigated by MCPs adopting alternative commercial strategies. For example, the prediction that asymmetry may affect competition rests on the assumption that a MCP's share of subscribers correlates to the number of outbound calls that are off-net. In practice, MCPs can target calling circles – groups of mobile users such as friends and family that tend to call each other most often. In theory this may mitigate the effect considered here, although it is unlikely to significantly moderate the effect in practice. We discuss this issue in detail in Annex 3.

8.74 In our November 2010 competition consultation we explored the impact of higher MTRs (i.e. under LRIC+) on competition for consumers with different traffic patterns. We invited views from stakeholders on the likely materiality of this identified competition issue, in terms of its likely effect on competition in the retail mobile market.

8.75 We used an illustrative spreadsheet model published on 29 November 2010604 to consider how revenues from MTR payments for inbound calls net of the outpayments a MCP makes per outbound call might vary depending on the MCP's share of subscribers and the outbound/inbound calling ratio of different consumer groups. We calculated an indicative contribution margin (on a per subscriber basis) for different consumer groups under different MCP subscriber share assumptions (at various levels ranging from 1% to 50%). The illustrative model, the responses received from stakeholders and our conclusions are presented in Annex 3.

8.76 Our conclusions can be summarised as follows. Overall, we estimate that the contribution margins for the highest spending consumer segments (where consumers make more calls than they receive) are likely to be materially different today between MCPs with different subscribers' shares. Material differences in the contribution margin would mean that MCPs with different market shares are likely to have a disincentive to compete for certain consumer segments.

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603 Annex B, paragraphs 340 – 385 of H3G's non-confidential response at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf, which contains its main explanation of its concerns over the impact of the level of MTRs and its ability to compete for particular consumer segments.

604 http://stakeholders.ofcom.org.uk/binaries/consultations/mct-large-small/annexes/mct-model.xlsx.

8.77 The materiality of the differences in contribution margins (and therefore the impact on competition) would be substantially reduced with the current estimates for LRIC+ in 2014/15 (conversely the materiality would increase if we accepted some of the arguments used by the MCPs to support higher LRIC+ estimates).[605] As the difference between the levels of MTRs under pure LRIC and LRIC+ declines, the estimated difference in contribution margins will decline (and therefore the impact on competition would be smaller) .Therefore, competition could get a boost from either a move to LRIC+ or pure LRIC in 2014/15 relative to today's MTRs. The incremental benefit of selecting pure LRIC over LRIC+ would be less material. The remaining material concerns associated with adopting LRIC+ rather than pure LRIC in 2014/15 are more likely to be confined to the competition for post-pay consumers. To the extent that competition concerns remained, then pure LRIC would be better than LRIC+ in terms of competition impacts, as it would address these remaining concerns, thereby maximising consumer benefits.

Brokers' and analysts' views

8.78 We also note that a number of third parties (mainly brokers) have commented on the potential effects of lower MTRs across the EU in the context of the 2009 EC Recommendation (or have previously discussed the effect of lower MTRs). In general, the views expressed by brokers tend to support the view that high symmetric MTRs make it difficult for MCPs with fewer subscribers to compete effectively and reach a minimum viable scale. Brokers appear to agree that once this barrier is removed (or at least reduced), price competition would become more intense.

8.79 Morgan Stanley for example highlights that:

> "High mobile termination rates are in our view probably the single most anti-competitive element of the European mobile landscape. They prevent deep price cutting by challenger or new entrant operators, as this leads to negative gross margins on outgoing calls (and indeed 3 in the UK has become a net payer of interconnection despite a very generous asymmetry in its favour)." [606]

8.80 Société Générale made a similar point though with a retail emphasis:

> "A fall in MTRs towards zero could destabilize voice pricing as it would: a) remove the regulatory rents enjoyed by Vodafone thanks to its high market share (which helps create a significant "club effect" due to heavily discounted on-net traffic), b) aggravate the pricing environment (as small operators are no longer restrained by the presence of high MTR levels)." [607]

8.81 Enders expressed a similar view:

> "The greater concern [of lower MTRs] is probably the indirect impact: in less stable markets, it may lead to more aggressive retail price competition. A continuation of the consolidation process that started

[605] In other words, a higher LRIC+ value than our estimate of 1.61 ppm in 2014/15 (but below current rates of 4.18ppm) would mean that the competition benefits of moving to lower MTRs would be reduced, as the reduction in MTRs relative to today's would be smaller. Therefore, if we accepted some of the arguments used by the MCPs to support higher LRIC+ estimates, this would strengthen the case for pure LRIC under the competition criterion.
[606] Morgan Stanley, Telecommunications Services, Continuing Regulatory Pressure, 3 October 2007.
[607] Société General, Cross Asset Research, "Vodafone: Mind the Pricing", 20 July 2010.

> with Orange and T-Mobile merging in the UK would be helpful in countering this threat, as it is low market share operators that usually instigate aggressive pricing."[608]

8.82 Nomura Research also considered the implications of lower MTRs:

> "We remain nervous of four-player markets which typically have at least one sub-scale operator. Subscale operators will jostle for market share and can potentially be disruptive, especially as the termination rate floor disappears over the medium-term. […] The regulatory pressure on termination rates in Europe is unrelenting, lowering the floor for off-net pricing."[609]

8.83 We note that the brokers' and analysts' views on the competition effects of MTRs are consistent with our position of maximising competition by adopting pure LRIC.

Competition between MCPs and FCPs

8.84 The impact of the two cost standards was also raised in the context of potential competition between FCPs and MCPs. The respondents to the April 2010 consultation made a number of points.

8.85 First, given Ofcom had previously expressed a view that mobile and fixed calls were not in the same retail economic market some questioned how there could be a distortion to competition between MCPs and FCPs over the period of the charge control.

8.86 A number of respondents - including BT, Plusnet, Gamma, TalkTalk, FCS, Post Office, SSE and UKCTA - argued that high MTRs prevent FCPs from offering different retail price plans for F2M calls – e.g. packages that included F2M calls in tariff packages for a fixed price. In its response to the April 2010 consultation, BT submitted that while mobile and fixed services were considered to be in separate economic markets, there was a strong competitive link between the two. Hence, it argued there was a potential for competitive distortion between fixed and mobile services.610 Others – e.g. Vodafone611 – submitted that we have not provided any evidence of convergence in mobile and fixed services and that we have previously concluded that the two services were in separate retail economic markets. Hence, they submit, no distortion is possible.

8.87 In the 2009 EC Recommendation the EC also commented on the potential for competitive distortions where MTRs and FTRs are significantly different:

> "Significant divergences in the regulatory treatment of fixed and mobile termination rates create fundamental competitive distortions. Termination markets represent a situation of two-way access where both interconnecting operators are presumed to benefit from the arrangement but, as these operators are also in competition with each other for subscribers, termination rates can have important

[608] Enders Analysis, "UK mobile termination rates: terminated", 6 April 2010.
[609] Nomura, European Telecom Services, Vodafone note, 14 May 2010.
[610] Pages 8 to 11 of BT's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/BT.pdf.
[611] Annex 2 paragraph 2.13 of Vodafone's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone_annexes.pdf.

> strategic and competitive implications." (Recital 3 of its Recommendation)[612]

8.88 The Explanatory Note to the 2009 EC Recommendation reinforces this point.

> "Furthermore, with the evolution of fixed–mobile hybrid services and a move towards convergence, a different regulatory treatment of fixed and mobile termination rates raises a possible inconsistency issue." (paragraph 2.1)
>
> "In an environment of increasing convergence between fixed and mobile networks and with a view to promoting sustainable competition and investment within and across all telecoms markets, it is important that regulation is, as far as is practicable, technology neutral and ensures that there is no distortion or restriction of competition and that efficient investment and innovation is encouraged." (paragraph 4.1)[613]

8.89 Second, stakeholders noted the apparent asymmetry in the regulatory treatment of FCPs and MCPs. Some stakeholders noted that BT would continue to benefit from FTRs being regulated on a fully allocated costs (FAC) basis, which includes a common costs mark-up over incremental costs.

8.90 BT submitted that allowing MCPs to recover some of the mobile access costs from fixed callers creates a distortion as all fixed access costs are instead recovered through retail charges. By contrast, some MCPs argue that fixed callers benefit from being able to call mobile consumers wherever they are and, therefore, should contribute towards the cost of the mobile access network. This issue might be less material if the overall mark-ups implied by MTRs and FTRs were quite small. However, this is currently not the case as there are currently substantial differences in the level of mark-up for the two termination rates.614

8.91 The Explanatory Note to the 2009 EC Recommendation touched on this point.

> "….The regulatory model underlying the FTR regulation assumes that operators will recover the cost of the local loop via retail subscription charges, and that these costs are not included in the FTR paid by other operators, including mobile operators. This is not the case in mobile networks where the access network costs are largely recovered via the termination rate. This needs to be considered in order to ensure that competitive distortions do not

[612] Commission Recommendation of 7 May 2009 on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU (2009/396/EC) L 124/67 at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:124:0067:0074:EN:PDF

[613] Explanatory note accompanying the EC Recommendation on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU - SEC(2009) 600 at http://ec.europa.eu/information_society/policy/ecomm/doc/implementation_enforcement/eu_consultation_procedures/explanatory_note.pdf

[614] BT estimated that - based on an indicative pure LRIC value of 1ppm and MTRs at 6ppm in 2008/09 – each call by a fixed consumer to a mobile network contributed 5ppm to the recovery of a MCP's common costs, whereas each call from a mobile consumer to a fixed network contributed (at a maximum) only 0.3ppm to a fixed operator's common costs in 2008/09.

arise and that allocative-efficiency concerns … are addressed." (paragraph 2.1)[615]

Ofcom's view

8.92 We discuss this issue in detail in Annex 3. In summary our view is as follows. Given that (today) MTRs are significantly higher than FTRs, there is a larger (ppm) contribution to network costs for a F2M call than there is for M2F calls. A move to pure LRIC would reduce the asymmetry in absolute levels between MTRs and FTRs, although it would not necessarily eliminate it.616

8.93 However, the competitive impact of the difference depends on the extent to which the two services are offered in competition at the retail level. As noted by some respondents, in our Fixed Retail Narrowband Market Review in September 2009, we concluded that, both in terms of subscription and calls, fixed and mobile services were in separate retail markets, and were likely to remain so for the period of that review (i.e. to September 2013). We found that the competitive interaction between fixed and mobile calls was quite strong (and becoming more significant over time) for some call types (e.g. calls to mobiles).617

8.94 Finding that services are in different economic markets does not preclude there being a degree of competitive interaction between them. The available evidence discussed in our Fixed Retail Narrowband Market Review shows that there is some competitive interaction between MCPs and FCPs.

8.95 The adoption of pure LRIC for MTRs would also reduce concerns related to the different treatment of recovery of common costs between the two services. This arises from the fact that MCPs recover the common cost of the access network as a mark-up on MTRs (under LRIC+) not only from mobile but also fixed subscribers. FTRs, on the other hand, have not included a common cost mark-up for the access network. As a shift to pure LRIC for MTRs is likely to substantially reduce the absolute (i.e. ppm) difference between FTRs and MTRs, concerns about differences in common cost recovery between FCPs and MCPs would be reduced.

Conclusion on competition impacts

8.96 Based on the analysis in Annex 3 that is summarised above, and having considered stakeholder's responses to both the April 2010 consultation and to the November 2010 competition consultation, we consider that pure LRIC would lead to a better

[615] Explanatory note accompanying the EC Recommendation on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU - SEC(2009) 600 http://ec.europa.eu/information_society/policy/ecomm/doc/implementation_enforcement/eu_consultation_procedures/explanatory_note.pdf

[616] This is it in part because of the different timing of the fixed and mobile termination market reviews. BT's current network charge control runs until 2013. Under the network charge control, BT's FTRs were set on a fully allocated basis (FAC basis), which allows a small mark-up for common costs, whereas MCPs would have no mark up for common costs on the basis of pure LRIC. Some asymmetry would still exist at least until September 2013 as BT's FTRs will expire then. However, as the level of FTRs is much lower (under 0.2ppm) any remaining asymmetry will be much smaller if pure LRIC was adopted in the meantime for MTRs. Furthermore, the glide-path is such that MTRs move gradually from their current levels to pure LRIC by 1 April 2014.

[617] See paragraphs 4.46 and 4.51 and 4.52 of the Fixed Retail Narrowband Market Review, 15 September 2009 at http://stakeholders.ofcom.org.uk/binaries/consultations/retail_markets/statement/statement.pdf.

outcome for consumers with regard to its impact on competition amongst MCPs and between FCPs and MCPs.

8.97 There are many factors that affect competition among MCPs, including the availability of spectrum, incumbency advantages, and advertising sunk costs that create brand value. Relatively high symmetric MTRs, as those that arise under LRIC+, are also one of the factors affecting competition among MCP. We have focused on this factor because it is central to this element (competition) in our consideration of the cost standard for the charge control remedy.

8.98 Higher MTRs under LRIC+ (i.e. the current MTRs in 2010/11) appear to dampen competition among MCPs to some degree. These competition effects are a combination of:

8.98.1 the presence of on- and off-net retail price differentials (which seems to remain at least in part because MTRs are above the incremental cost of termination), which makes MCPs with more subscribers relatively more attractive than those with fewer subscribers;

8.98.2 the market-wide effects of high MTRs resulting in a retail price floor for voice calls that is higher than it would be under pure LRIC. This has a market-wide competition-dampening effect;

8.98.3 the impact that high MTRs may have on the incentives of MCPs with different shares of subscribers to compete for particular consumer segments, particularly for the post-pay high-end as these consumers usually have high outbound/inbound calling ratios and hence lead to large net out-payments for a MCP with fewer subscribers.

8.99 A move to set MTRs to LRIC+ (that is, 1.61ppm) would reduce the materiality of, but not eliminate, these effects. They would be eliminated (or very substantially reduced) if MTRs were set to pure LRIC. If LRIC+ rates were higher as argued by some stakeholders, this competition effect would become correspondingly more significant.

8.100 It is notable that H3G supports the adoption of pure LRIC even if it stands to lose significant revenues from F2M calls; this suggests that it considers that any private benefits in terms of greater M2M competition under pure LRIC would outweigh the loss in F2M revenues. External brokers and analysts seem to agree that lower MTRs will increase competitive pressure in the retail mobile market.

8.101 In terms of competition between FCPs and MCPs, in the retail market, we conclude that there is some competitive interaction between FCPs and MCPs, despite the conclusion that the services are not in the same economic market. Adoption of pure LRIC would reduce the competitive impact of the difference between MTRs and FTRs.

How do lower MTRs impact on different consumers?

Broad impact on consumers of moving to pure LRIC

8.102 In section 7 we set out our conclusions on the impact of a move to pure LRIC. We noted that lower MTRs may lead to an increase in the retail price for mobile services as MCPs seek to rebalance their retail tariffs and, in the case of pure LRIC, recover a larger proportion of their common costs from the retail side of the market. The size of this effect though is difficult to predict.

8.103 Although not all consumers would be affected in the same way, we believe this rebalancing could result in changes in the retail structure of mobile prices and, in particular, in:

8.103.1 Lower M2M off-net charges and F2M prices (as MTRs are a significant variable cost for these calls); and

8.103.2 Potentially, higher fixed fees for mobile subscribers (as fixed and common costs are more efficiently recovered through fixed rather than variable charges).

8.104 However, we noted in section 7 that these impacts will occur regardless of the cost standard used to set the MTRs for the next control period since even under a LRIC+ based control, MTRs would be substantially below current levels (for example, reflecting falling costs). Mobile retail prices have been on a general downward trend for a long time, reflecting falling technology costs, increased traffic and the fact that some of the assets are sunk costs.

8.105 Similarly, we expect costs to fall over the charge control period. While there will be a difference between the MTRs set using LRIC+ or pure LRIC, this will not be as significant as the difference between current MTRs and the underlying costs (and even the projected level of LRIC+ unit costs).

8.106 Section 7 also considered how different groups of consumers might be affected. We believe this will depend on the expected price sensitivity of the different groups. Where customer segments are likely to be highly sensitive to fixed and usage-related charges, MCPs may have a limited ability and incentives to raise prices. If a MCP were to do this, consumers would be likely to reduce their use, or possibly switch MCP. Several MCPs, including Vodafone, EE and O2, submit that many consumers would exit the market altogether if MTRs were to be significantly reduced and retail prices increased by all MCPs.

8.107 The available evidence suggests that almost all existing consumers (including those on pre-pay tariffs) are marginally profitable when considering on-going per-subscriber costs (i.e. excluding the cost of acquisition and/or retention).[618] This also seems to be supported by evidence on the distribution of customers by revenue earned, as MCPs currently provide services to, in aggregate, millions of consumers from whom they earn little or no revenue (see the evidence in Annex 4). This suggests that the bulk of any retail price increases will fall on those consumers whose demand for subscription is less elastic. However, in practice as consumers are heterogeneous, the MCPs will not be able to perfectly discriminate, i.e., there are limits to how precisely they can identify which groups are likely to be more price sensitive, or how far they are sensitive to different types of charges (e.g. fixed fees compared to call charges).

[618] Data obtained from the four national MCPs and [✂] using our statutory section 135 information gathering powers has indicated the (average) cost to maintain a subscriber on a network may range between [✂] (more if customer service costs etc are included), although an element of judgement is required in such cost allocations which we would not necessarily agree with. In addition, even where a subscriber is, on their own, unprofitable, this does not take into account that their presence brings benefits to other subscribers of the same MCP (in addition to those of other MCPs). In other words, if a MCP were to price these subscribers off its network this would reduce some of the on-net call profits from its other subscribers and, depending on the strength of tariff mediated network externalities (i.e. operator rather than market-level network externalities), losing such subscribers could induce some of its other more profitable subscribers to be less willing to be part of its network.

8.108 In the long run, all consumers will need to replace their handsets, and most are likely to change their package or MCP at some point as their needs change. At this point MCPs will re-evaluate customer lifetime values and, in order to ensure they are profitable when factoring in the costs of acquisition, will alter the offers they make.[619]

8.109 Price increases to those (mostly pre-pay) consumers who would otherwise be unattractive to MCPs may, therefore, be more likely to come about through reductions in handset subsidies and/or additional fixed charges, for example through charging for service setup by charging for a SIM or requiring a positive balance to be maintained on a pre-pay account. A reduction in handset subsidies is likely to be hidden from consumers to some extent as the wholesale price of handsets is falling (see Figure 7.6 in Section 7). Therefore, declining handset subsidies may not necessarily lead to an increase in retail handset prices; retail handset prices may simply not fall as quickly as they might have.

8.110 As discussed above and in Section 7, we consider that MCPs are likely to reduce call charges and increase fixed charges for some post pay packages, for example by increasing bundle size while, perhaps, increasing fixed monthly charges (or not offering large handset subsidies). Evidence suggests that that pre-pay consumers may be less affected by changes in MTRs than post pay consumers.[620] We also continue to see evidence that consumers, on average, are moving towards post pay (which tend to have these features) and away from pre-pay tariffs (see Figure 8.2 below), while ownership and subscription overall continues to grow.

8.111 Where particular groups of consumers have a strong preference against a particular tariff structure, we consider that MCPs will have incentives to continue to offer alternatives. MCPs appear to recognise this, and offer a range of different calling and phone packages in the UK today (see the Bill Monitor website for an example of the range of tariffs available).[621]

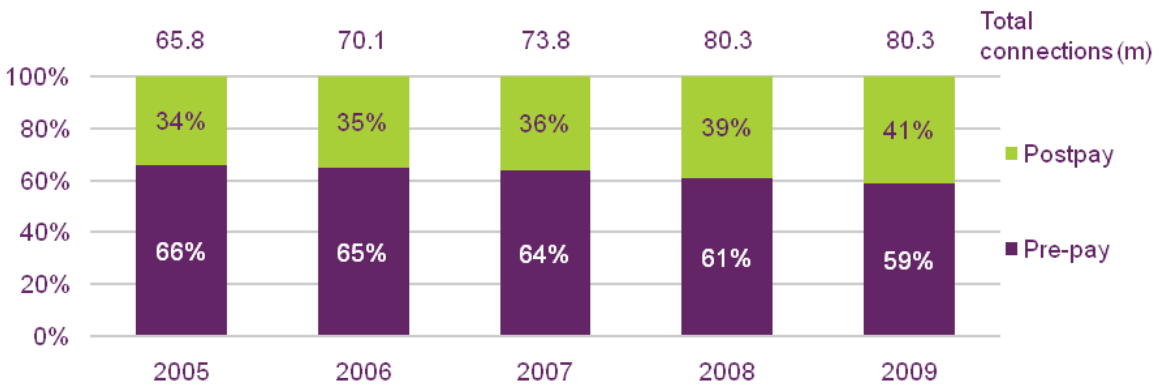
8.112 As MTRs continue to decline, we expect MCPs to continue to engage in extensive price discrimination. Nevertheless, due to the reduction of net inflows of MTRs from F2M calls we would expect the overall price of retail mobile services to fall less quickly than otherwise via an (incomplete) waterbed effect. A more detailed discussion of this point is set out in section 7 (paragraphs 7.44 to 7.54).

[619] [✂]

[620] Genakos, C. and Valletti, T. *Seesaw in the Air: Interconnection Regulation and the Structure of Mobile Tariffs,* Information Economics and Policy (forthcoming), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1687814.

[621] Bill Monitor is an Ofcom-accredited price comparison website whose methodology has been audited and approved by Ofcom. See http://www.billmonitor.com/.

Figure 8.2 - Market share of post-pay and pre-pay subscriptions



Source: End-year data provided to Ofcom by MCPs.

8.113 However, if overall retail prices were to increase, some consumers could decide to no longer subscribe to a mobile service.[622] If call prices fall, this could encourage mobile consumers to make more calls. In section 7 we examined the evidence and we concluded that this suggests that the overall effect on either usage or ownership may be limited.

8.114 As noted above, pure LRIC-based MTRs are also likely to reduce the net outflow of revenue from F2M calls. It follows from the evidence set out in our Fixed Narrowband Market Review about the degree of competition in fixed retail service markets that this additional revenue will be 'competed away' over time and returned to fixed consumers (as opposed to being retained as profits by fixed operators).

8.115 It is less clear whether lower MTRs would directly lead to a decline in F2M call charges (which have until now remained high compared to F2F prices and well above the wholesale MTR charge and cost of fixed origination). Fixed consumers may benefit from lower MTRs in other ways; cost savings may be passed on to consumers through reducing the price of focal services in the packages (for which competition is stronger) rather than reducing the charges for out-of-bundle call types (such as F2M calls).

8.116 That said, we also expect the price of F2M calls to be responsive to consumer pressure, given falling MTRs and the intensity of fixed competition. High MTRs seem likely to act as a price floor for F2M calls preventing them from being included in current FCPs' bundles. Perhaps anticipating falling MTRs, BT is reported to start including calls to mobiles in its inclusive price plans.[623] This trend seems likely to continue as MTRs decrease. But the price of F2M calls, considered in isolation, is not the best indicator of the impact of falling MTRs on competition in the fixed retail market.

[622] If, instead, prices decrease more slowly, the effect on ownership and subscription could be that those who would have subscribed at the lower price (which would have prevailed without the reduction in MTRs to pure LRIC) choose not to subscribe at the price which occurs with pure LRIC. However, as 90% of consumers already own a mobile, it seems likely that most new subscriptions are secondary subscriptions or replacements for existing subscriptions. Reductions in subscriptions have less of a welfare impact than reductions in ownership.

[623] See Mail on Sunday article *BT to include mobile calls in its price plans* at http://www.dailymail.co.uk/money/article-1356327/BT-include-mobile-calls-price-plans.html)

Potential effects on vulnerable consumers[624]

8.117 As previously noted, the overall impact of moving to pure LRIC on consumers' decisions to subscribe is likely to be small. Even if some retail prices increase somewhat (or, more likely, fall less quickly), the evidence of previous falls in MTRs suggests that the vast majority of consumers will continue to subscribe to mobile services.

8.118 Our primary duty under the Act is to further the interests of citizens and consumers.625 In performing this duty, we are required to have regard to the needs of particular vulnerable groups such as those on low incomes, the elderly and the disabled (insofar as we consider them to be relevant in the circumstances).626 As well as looking at the interests of consumers in aggregate, we have therefore also considered whether the effect of moving to a pure LRIC cost standard would be felt disproportionately by vulnerable consumers. There would also be an equity concern if these consumers end up paying more (as they can least afford to do so), however, the greater concern has to be those who may drop their mobile as a result of our decision. Therefore, greater weight (and greater focus) is placed upon the likely extent of loss of access to mobile services (mobile ownership) among these groups.

8.119 We consider that those on low incomes and/or in lower socio-economic groups are the most vulnerable, as they can least afford an increase in prices; we have looked specifically at the impact on those whose income is below £11,500 per year and those who belong to socio-economic groups D and E. We have also considered the impact on those who are mobile-only because:

8.119.1 they receive no countervailing benefit as a purchaser or user of fixed services; and

8.119.2 their only access to telecommunications services is through a mobile phone and, hence, loss of this would have a more significant impact on their welfare.

8.120 The relationship between these two groups is not one of simple correlation; a greater proportion of low income/DE consumers are mobile-only than the population in general, but there is still a significant proportion that is not.

8.121 As discussed in detail in Annex 3 we believe that for these vulnerable consumers the demand for subscription will be more elastic than for the average consumer (due to their low income status). Hence, price increases to this group are likely to be relatively smaller (if any) than those to other less price sensitive groups of consumers (such as post-pay users). On the other hand, the degree of price sensitivity may be different between mobile-only and non-mobile-only households, as telecoms is a highly valuable service and where a consumer is mobile-only, their demand for subscription is likely to be relatively inelastic. This would suggest that these consumers would be unlikely to drop out, but would have to pay more – which could have an equity effect (albeit a smaller one).

8.122 Even where MCPs would have some incentives to increase prices to vulnerable consumers, MTRs are a highly imperfect tool for targeting subsidies to encourage

[624] Our view on this impact in the April 2010 consultation and stakeholders' responses on this subject are set out in Annex 3.
[625] Section 3(1) of the Act.
[626] Section 3(4) of the Act.

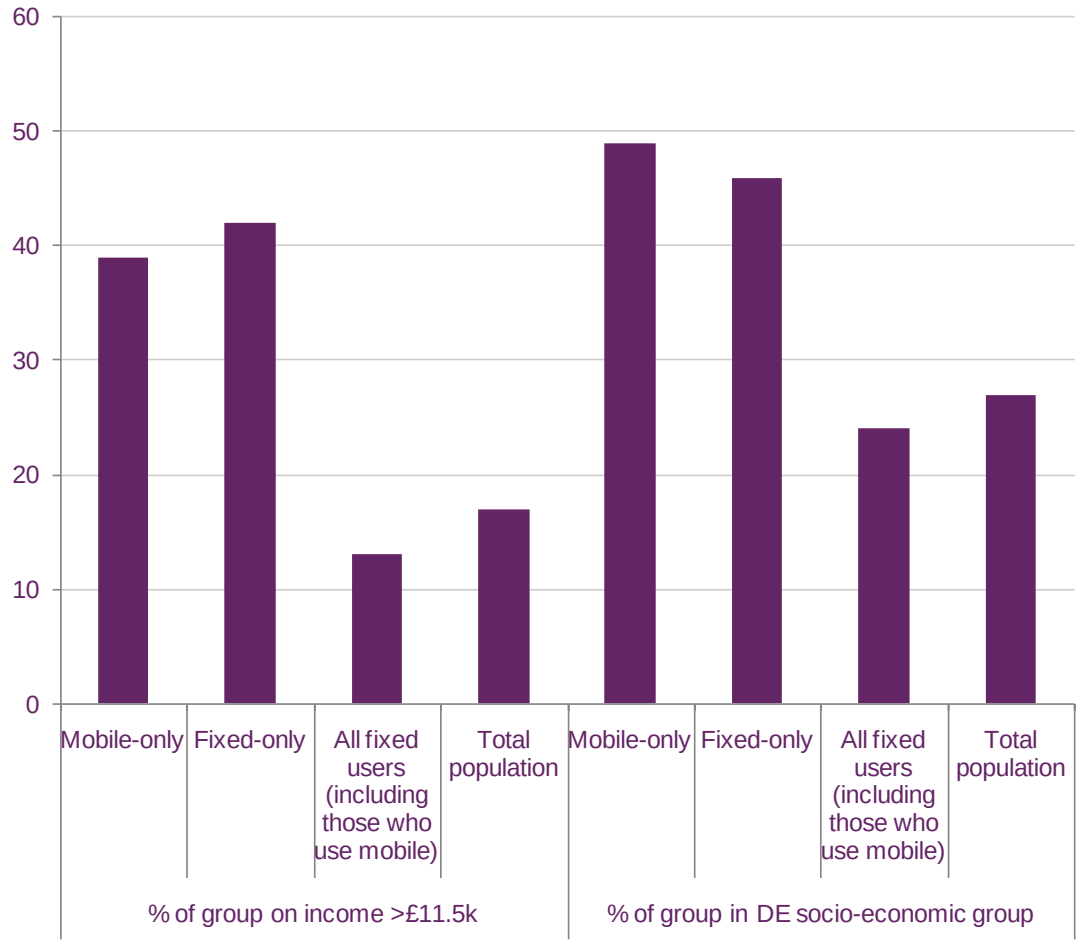
inclusion and ownership by the vulnerable (as argued by the CC in 2007 when it rejected the case for a network externality surcharge on top of cost based MTRs).[627] If it is needed a more targeted 'social' tariff for mobile would be a better targeted and, hence more efficient, tool to achieve this policy objective. On the basis of the available evidence we do not currently consider that this is the case.

8.123 Other groups of vulnerable consumers (e.g. low income/DE consumers who are fixed-only and other groups whose needs we must have regard to628 such as the elderly and disabled)629 may benefit if prices for fixed telephony fell.

8.124 Figure 8.3 below shows that fixed-only consumers are significantly more likely to belong to vulnerable groups than the total population who use any type of phone. In addition, 13% of all fixed consumers (including those who also have a mobile) are on low incomes, compared to 42% of fixed-only consumers. Fixed-only consumers are also more likely than fixed consumers in general to be in the DE socio-economic group (46% compared to 24% respectively). This suggests that those fixed consumers who will be 'unambiguous gainers' are more likely to be vulnerable consumers than those who will face a more mixed outcome due to using both fixed and mobile services.

[627] See paragraphs 4.96-4.151 of the Mobile phone wholesale voice termination charges Determination, available at http://www.competition-commission.org.uk/appeals/communications_act/mobile_phones_determination.pdf
[628] Section 3(4) of the Act.
[629] See Annex 11.

Figure 8.3 - Proportion of total population, fixed-only and mobile-only consumers that are "vulnerable"



Source: Technology Tracker data, Q1 2009

Note: the proportion of people who choose not to provide information about their income fluctuates each year, possibly distorting the results. In addition, people often understate which salary bracket they belong to. Therefore, results should be treated with caution

8.125 We therefore consider that the equity effects related to reduced mobile ownership (and to a lesser extent higher mobile prices) among (mobile-only) vulnerable consumers are not likely to be significant, particularly when benefits to other (fixed-only) vulnerable groups are taken into account. Therefore, we do not consider equity effects to be a significant factor in the choice between LRIC+ and pure LRIC.

Commercial and regulatory consequences

8.126 In both our May 2009 and April 2010 consultations we considered the commercial and regulatory consequences of adopting a particular regulatory approach.

8.127 Our May 2009 consultation set out six options for the future regulation of MCT. We considered the commercial and regulatory consequences of these six approaches in order to identify the practical implications of each option and to look at other impacts on industry such as the risk of regulatory failure and the burden of regulation for each approach. This was particularly relevant when considering broader approaches – for

example in considering the possible impacts of removing regulation from MCT[630] or of mandating a Bill and Keep regime.[631]

8.128 In our April 2010 consultation, following further analysis and having taken account of stakeholder's responses to our May 2009 consultation, we provisionally concluded that four of the six options set out in our May 2009 consultation were not viable over the period considered by this review.[632] We went on to conclude that a specific remedy to regulate MCT charges for the four national MCPs was required,[633] in the form of a charge control based either on pure LRIC or LRIC+, and set out our preferred option for regulating MCT charges.634

8.129 Given this provisional conclusion, we gave less prominence to commercial and regulatory considerations in our assessment of the choice between LRIC+ and pure LRIC in the April 2010 consultation. However, we did express our view that we did not think the commercial and regulatory consequences would be significantly different between the LRIC+ and pure LRIC approaches.635

8.130 Below we consider the points relevant to this criterion raised by stakeholders in response to the April 2010 consultation.

General stakeholder comments

8.131 In its response O2 argued that measured against this criterion the preferable option is LRIC+.[636] According to O2, this is because Ofcom has, in the past, accepted that the risks of setting termination rates too low outweigh the risks of setting them too high. O2 submitted that we had not presented any evidence to merit a change in that approach.

8.132 Virgin Media637 also noted the possibility of regulatory error and the consequences of setting rates too high being less severe than setting them too low. Virgin Media considered that the risk of understating the appropriate rate thereby affecting MCP's ability to invest was crucial. Virgin Media also noted that greater regulatory and commercial uncertainty was likely if pure LRIC was adopted, as MCPs were more likely to bring legal challenges.

Ofcom's view

8.133 We recognise that all regulation carries the risk of error; in the case of setting MTRs, the risk of setting the cost-based termination rate either too high or too low.

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[630] See paragraphs 6.70 to 6.83 of our May 2009 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/summary/mobile_call_term.pdf
[631] See paragraphs 6.143 to 6.156 of our May 2009 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/summary/mobile_call_term.pdf
[632] See paragraph 7.58 of our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf
[633] See paragraph 7.91 to 7.94 of our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf
[634] See paragraphs 7.135 to 7.140 of our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf
[635] See paragraph 7.130 of our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf
[636] See section C, paragraphs 141 of O2's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf
[637] See pages 7 and 8 of Virgin Media's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Virgin.pdf

8.134 We set out in Annex 12[638] of the April 2010 consultation our view of these risks and in particular that the potentially more severe risk of getting pure LRIC wrong needs to be tempered by the fact that this is a two-way access situation, and therefore any under recovery of costs is moderated, at least partly, by the ability of MCPs to recover some of those costs from the retail side of the market. This situation is discussed further in section 3 at paragraphs 3.24 to 3.28 and above at paragraph 8.55.

Compliance with legal duties

8.135 Three respondents, EE,[639] Vodafone[640] and O2,[641] argued that Ofcom has not complied with its legal duties in proposing a move from LRIC+ to pure LRIC.

8.136 In its response EE also argued that Ofcom had not completed a proper impact assessment on its proposals.[642] In particular EE argued that the dramatic shift proposed amplifies the need for evidence to demonstrate the need for the change and requires a robust examination of the impacts of that change. EE notes Ofcom's comments in response to the European Commission's consultation on its draft Recommendation[643] (the draft 2009 EC Recommendation) which made similar points in respect of the need for a compete assessment of the impact of a move from LRIC+ to pure LRIC.

Ofcom's view

8.137 We have addressed the arguments in relation to compliance with our legal duties at paragraphs 8.25 to 8.32 above. We assess the charge control condition which we are applying to the four national MCPs (including the adoption of a pure LRIC cost standard) against the relevant legal tests and our wider statutory duties in section 10 (at paragraphs 10.139 to 10.150).

8.138 This section (as well as section 7 and Annexes 3, 4 and 5) read together with the rest of this statement represent a full and detailed impact assessment of our proposals.

8.139 In paragraphs 8.151 to 8.156 below we consider our previous comments on the draft 2009 EC Recommendation.

Consistency with other charge controls (previous MTR and FTR decisions)

8.140 Several respondents, including O2, Virgin Media, H3G, EE, and Cable and Wireless, commented on the apparent departure from our previous approach to setting charge

[638] See paragraphs A12.107 to A12.111 of our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf.
[639] See section 1.4, paragraphs 25 to 32 of EE's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.
[640] See section 1, and Annex 1 (paragraphs 2.1 to 2.14), of Vodafone's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf (main response) and http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone_annexes.pdf (Annexes).
[641] See section B, in particular paragraphs 35 to 43, of O2's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf
[642] See section 6.5, paragraphs 220 to 223 of EE's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.
[643] See http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:124:0067:0074:EN:PDF.

controls, and the apparent inconsistency in applying a pure LRIC control for the MTRs of the four national MCPs, and a FAC control on BT's FTRs.

8.141 In particular, in its response O2 commented that:

> "In this case Ofcom (and Oftel before it) and the Competition Commission have always set charge controls based on LRIC+ (or analogous) principles. Indeed as recently as September 2009, Ofcom set a charge control for call termination on BT's network in this way, not withstanding that the European Commission had adopted its Recommendation [...]. Barely six months later, Ofcom suddenly proposes to switch horses, adopting pure LRIC for mobile"[644]

8.142 In its response Virgin Media[645] raised concerns that adopting pure LRIC for MCT would hasten calls for FTRs to be set on the same cost standard. Virgin Media considered that application of pure LRIC to fixed call termination would be wholly inappropriate, would not be justified and result in significantly damaging consequences for competition.

8.143 On the other hand, H3G argued in its response[646] that Ofcom is entitled (and required) to take a fresh view of the appropriate cost standards when setting ex ante remedies for a new charge control period and is in no way bound by its previous assessments.

8.144 In its response Cable and Wireless,[647] in noting its support of Ofcom's proposals commented that "reducing the difference between fixed termination rates and mobile termination *rates will help drive efficient competition between fixed and mobile networks".*

Ofcom's view

8.145 Whilst one of the factors to which we must have regard is the consistency of our regulatory activities,[648] having undertaken this review in the light of the evidence and analysis, and taking into account developments in the regulatory framework and applying all our relevant statutory duties, the appropriate remedy to adopt is pure LRIC.

8.146 We have set out in full the evidence and analysis on which we have based this decision and have taken into account, in reaching this decision, all responses to our various consultations.

8.147 In particular, fixed and mobile wholesale call termination markets are still considered to be separate economic markets, and therefore the regulatory approach adopted in one may not necessarily be appropriate in the other. Whilst we are mindful of the

[644] Executive summary, paragraphs 7 and 8 of O2's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf
[645] See page 2 of Virgin Media's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Virgin.pdf
[646] See section 3, paragraphs 147 to 149 of H3G's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf
[647] See page 2 of Cable and Wireless' response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Cable_Wireless_Worldwide.pdf
[648] Section 3(3) of the Act.

potential for competitive distortions to arise because of different regulatory treatment, the remedy applied in each market must be an appropriate remedy for addressing the detriments arising in that market, and therefore may be different between the two markets.

8.148 As set out above, on the basis of the analysis undertaken and for the reasons set out in this document, we have decided that pure LRIC is the appropriate remedy to adopt in the MCT market for the period of this review. On the basis of our analysis in the most recent fixed wholesale market review[649], we concluded that a LRIC+ approach was still the appropriate remedy to adopt given the characteristics of that market at that time.

8.149 The nature of the charge control for FTRs will need to be assessed in the circumstances of the fixed telephony market and the regulatory regime at the time of the next market review (concluding before September 2013). That market review will need to consider the regulatory regime for MTRs at that time, as set by this market review.

8.150 It should be noted that our glide path only sets MTRs at pure LRIC from 1 April 2014 onwards, so there will continue to be a significant interim period until that date when MTRs are above the pure LRIC estimates.

Consistency with the previous Ofcom position

8.151 Several respondents, including EE, O2 and Vodafone, highlighted the submission made jointly by Ofcom and the Department for Business Enterprise & Regulatory Reform (BERR) in 2008 to the European Commission on its draft 2009 EC Recommendation on mobile termination.[650] These respondents argue that our decision to adopt a pure LRIC price control is inconsistent with the position set out in that joint submission.

8.152 For example, EE stated that we had made some very robust criticisms of the draft 2009 EC Recommendation and had not substantiated the basis on which we had now moved away from our earlier position.[651] O2 made a similar point, in particular noting that the joint submission suggested that a decision which took account of the then draft 2009 EC Recommendation could be subject to legal challenge, and that such a challenge would have a good chance of success.[652] Vodafone noted Ofcom's "serious reservations" about the adoption of pure LRIC at the time the EC proposed introducing its recommendation.[653]

8.153 In that joint submission, Ofcom/BERR criticised some aspects of the draft form of the 2009 EC Recommendation and urged the European Commission to undertake a proper evidence-based impact assessment of the proposed approach. In summary,

[649] See http://stakeholders.ofcom.org.uk/binaries/consultations/wnmr_statement_consultation/statement/statement.pdf
[650] The submission has been published and is available at http://stakeholders.ofcom.org.uk/binaries/telecoms/inter/response1.pdf .
[651] Paragraphs 26 and 226 of EE's response to our April 2010 consultation, at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf.
[652] Paragraph 23 (page 5) of O2 response to our April 2010 consultation, at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf.
[653] Page 10 of Vodafone's response to our April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf.

the points Ofcom/BERR made to the EC that are most relevant to our assessment of the two cost standards were:

8.153.1 the need to assess the potential distributional impacts of adopting pure LRIC;

8.153.2 the need for adequate justification of the departure from established practice to regulate MTRs based on LRIC+ cost standards; and

8.153.3 there was insufficient reasoning as to why it was important to apply pure LRIC for termination services differently to the approach followed for one-way access services.

Ofcom's view

8.154 The Ofcom/BERR submission to the EC was made in 2008 in response to its consultation on a draft EC Recommendation. The EC made its final Recommendation in 2009, having taken account of consultation responses, including in a detailed Explanatory Note and impact assessment, and we are required to take account of it.

8.155 We are required to take decisions based on the best evidence available and analysis conducted at the time of taking the relevant decision, in order to satisfy our statutory duties. We have reviewed a full range of options (following two rounds of consultation, in May 2009 and April 2010), including more radical approaches such as 'bill and keep' and capacity based charging. In that context, we have received and reviewed a significant amount of information from stakeholders and interested parties, including both large and small MCPs, industry groups, FCPs, the EC and consumer organisations. We have also undertaken a more detailed analysis of the most viable options and published three additional supplemental consultations.

8.156 Having now considered, in detail, the impact of adopting pure LRIC by examining a significant amount of evidence, data and analysis, we:

8.156.1 have considered a broad range of possible options for regulation of MCT over this review period;

8.156.2 considered the impact of adopting pure LRIC in detail, including the impact of removing common cost recovery from MTRs, the effect on retail prices, on competition and any distributional impacts on vulnerable consumer groups;

8.156.3 considered whether moving away from the historical position of setting MTRs based on LRIC+ standard to a pure LRIC standard delivers benefits to consumers.

Timing of implementation (glide path)

8.157 Some stakeholders raised potential concerns over the possible speed for implementing a move to pure LRIC, were it adopted. The issue of the appropriate glide path for a move to pure LRIC is discussed further, alongside stakeholder's comments, and our response to those comments in Section 10.

Conclusions

8.158 On the basis of our overall assessment in this section and in Annex 3, we believe that pure LRIC is the appropriate cost standard for the regulation of four national operator's MTRs in the UK for the next charge control period. We believe that it confers the greatest possible benefits on consumers, as it better promotes sustainable competition, is economically efficient, and is unlikely to raise material equity concerns.

8.159 In particular, we consider that the arguments in this section and the detailed economic analysis in Annex 3 show that pure LRIC best promotes sustainable competition, as it will intensify retail price competition, eliminate the barriers to expansion that exist when MTRs are above pure LRIC, and reduce the competitive distortions between MCPs and FCPs.

8.160 Reducing MTRs from their current level to reflect our updated estimate of LRIC+ costs would have significant benefits for consumers. We believe that reducing MTRs to the pure LRIC level will deliver further additional benefits, although we recognise that the incremental consumer benefit of choosing pure LRIC over LRIC+ will be less material than the larger step from today's MTRs to our revised LRIC+ level. Nevertheless, we consider that pure LRIC confers the greater benefits on consumers.

8.161 We also specifically considered the likely effect on vulnerable mobile-only consumers. Our economic analysis in Annex 3 (summarised in this section) shows that such vulnerable consumers are unlikely to be significantly adversely affected, and that fixed-only consumers (some of whom are also likely to be vulnerable consumers), will benefit from a move to pure LRIC.

8.162 Adopting a pure LRIC cost standard is also consistent with the 2009 EC Recommendation which recommends a pure LRIC approach to setting (symmetric) charge controls for termination services for all MCPs. In light of our reasoning for adopting pure LRIC in this review, we do not consider there are sufficient reasons to depart from the 2009 EC Recommendation.

8.163 In section 9 we consider the costs of an efficient operator under a pure LRIC cost standard, and in section 10 we consider the detailed design of the charge control. At the end of section 10 (paragraphs 10.139 to 10.150) we assess the charge control condition in light of the specific legal tests for the imposition of remedies and our wider statutory duties.

Section 9

The level of efficient charges for MCT

Section Summary

9.1 Section 6 set out our decision to impose a charge control on the four national MCPs. Section 8 explained why pure LRIC was the preferred cost standard to use as the benchmark for charge controls on MCT. This section considers in more detail the cost modelling supporting the appropriate benchmark for the setting of efficient MCT charges.

9.2 Drawing on information obtained from all four national MCPs using our section 135 information gathering powers, the April 2010 consultation included a single MCT cost model based on a hypothetical efficient national operator (the April 2010 cost model).

9.3 We have revised the April 2010 cost model, where appropriate, to take into account the responses received to our April 2010 consultation as well as further evidence, including information gathered using our statutory information gathering powers. In this section, we summarise the revised MCT cost model (the 2011 cost model) and the assumptions underpinning it. A more detailed description of the 2011 cost model can be found in Annex 6 and the model is published on our website.[654]

9.4 This section concludes by summarising the efficient unit costs of MCT under our base case assumptions as well as the potential variability around that based on the combined effect of high and low values for key model parameters.

Part 1: Background to the charge control

9.5 In the April 2010 consultation we proposed that this charge control would be similar to the current MCT charge control, in that we proposed:

- a yearly cap on MCT charges in pence per minute (ppm);
- that cap to follow a glide-path from the regulated charges at the end of the current control period (i.e. 31 March 2011) to the efficient unit cost level in 2014/15; and
- the glide-path to be specified in RPI-X form, where RPI is the percentage change in yearly inflation and X is the yearly percentage change required to equalise unit costs and unit charges at the end of the glide-path (i.e. 2014/15).

9.6 We have received a number of submissions regarding the length and form of the glide-path.[655] We discuss the glide path in detail in Section 10. We discuss below the duration of the control period.

[654] http://stakeholders.ofcom.org.uk/consultations/wmctr/statement/

[655] The glide path is the period over which charges are brought into line with costs. Typically, in UK telecoms regulation, charges are brought into line with forecast efficient costs in the final year of the control period (the control period being the length for which the ex-ante cap on charges prevails – e.g. four years). However, this need not necessarily be the case – in principle charges could be aligned with costs at the start or mid-point of the control period.

Duration of the charge control

9.7 The next charge control will begin on 1 April 2011, immediately after the expiry of the current charge control. In the April 2010 consultation we proposed to set a four-year charge control.

9.8 Following established principles of incentive based regulation, charge controls are set for a fixed duration so the regulated firm can be certain that, if it reduces its costs faster than expected when the control is set, it will keep any resulting profits (at least) for the period of the charge control. In markets involving one-way access (such as wholesale narrowband access or wholesale broadband access), setting the charge control in this way provides dynamic efficiency benefits by providing an incentive to innovate and make efficient investments (specifically, investments that reduce costs over time).

9.9 In this case, since MCT is part of a two-sided market where there is retail competition between networks offering call termination to each other, we are less concerned about dynamic incentives than we would be regulating a one-sided access market. Because the retail side of the mobile market (i.e. subscription and call-origination) is competitive, MCPs will have an incentive to be cost-efficient, regardless of the regulated charges set for call termination.

9.10 Changes to Article 16(6) of the Framework Directive will in future require NRAs to carry out an analysis of markets and notify proposed SMP conditions every three years. The amendments to the Framework Directive will not be transposed into UK law until after the start of the next charge control period. [656] Due to the large decline in MTRs and possible industry disruption, we set out in the April 2010 consultation our proposal to retain a four-year charge control.

9.11 One factor weighing against a four-year control is in relation to possible forecast errors. Mobile technology changes quickly; the type of network technology that is in use at the end of a four-year control period may look quite different to the type of network in operation at the start. A shorter charge control would enable us to rebase the model more often, using the most recently available information. If a new technology is rolled out, or volumes of a particular service increase rapidly, a short charge control enables us to adjust the model as appropriate. For example, submissions by C&W and H3G during the 2007 market review both argued that, in the presence of material levels of uncertainty about future traffic volumes and unit costs, there was a risk that MCPs would either over- or under-recover their costs. Their recommendations were either a shorter duration for the charge control, or that we should commit to reviewing the appropriateness of prevailing charge controls before they expire. [657]

9.12 As set out in more detail below, we have taken into account the risk of forecasting errors in this control period by considering a range of scenarios for traffic (and other model parameters). We have also used relatively conservative traffic assumptions in our base case to reduce the risk that MCPs might under-recover their efficiently

[656] The amendments to the Framework Directive have to be transposed into national legislation by 25 May 2011. http://ec.europa.eu/information_society/policy/ecomm/tomorrow/index_en.htm

[657] Paragraph 9.7 of the 2007 MCT Statement. http://www.ofcom.org.uk/consult/condocs/mobile_call_term/statement/statement.pdf

incurred costs. Moreover, as shown in Figure A10.7, Annex 10 the pure LRIC of MCT is not very sensitive to our traffic projections.[658]

9.13 In addition, the MCT cost model is based on economic depreciation for the economic lifetime of the network, which tends to smooth network costs based on longer-term forecasts of network utilisation. Another source of modelling uncertainty is in relation to the choice of technology used to deliver MCT services and the migration between different technologies. However, as discussed below, we have focussed on modelling proven technologies, taking the view that new technologies will be deployed only if they are at least as efficient as the existing technologies (i.e. they allow delivery of existing services at the same or lower costs).

9.14 In keeping with the structure of a RPI-X charge control applied over successive years, we proposed that the charge control should be split in four annual periods:

- 1 April 2011 to 31 March 2012 (2011/12)
- 1 April 2012 to 31 March 2013 (2012/13)
- 1 April 2013 to 31 March 2014 (2013/14)
- 1 April 2014 to 31 March 2015 (2014/15)

9.15 In the April 2010 consultation, we indicated[659] that we intended to continue to keep market conditions under review, and that we would consider revisiting the remedies if necessary. In keeping with normal regulatory practice, and linked to the need for regulatory certainty, as noted above, we indicated that we would expect to do this only in exceptional circumstances.

Overview of stakeholder responses and Ofcom's analysis

9.16 Although some responses to the April 2010 consultation discussed the timing and duration of the charge control, these typically related to the glide path, rather than the duration of the control per se. Those views are therefore considered in Section 10 of this statement which deals with the glide path.

9.17 Having considered the responses from stakeholders, our view remains that a four-year charge control is appropriate, for the reasons set out above.

9.18 Therefore, on the narrow issue of the duration of the charge control (as opposed to the glide path that prices should follow during that period), we have concluded in favour of a four year control.

Scope of the charge control

9.19 In addition to the form and duration of the charge control, we need to consider the precise scope. We identified the scope of the Defined Markets in Section 3. The charge controls for the four national MCPs will cover all call types that fall within our market definition for those MCPs. For an overview of these call types see Table 3.2.

[658] The insensitivity of pure LRIC to traffic variation was also true in the April 2010 cost model – see Figure 41 of Annex 11 http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/annexes/wmvct_annexes.pdf

[659] Paragraph 9.28 of the April 2010 consultation. http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf

We proposed setting the same charge control for the four national MCPs

9.20 In our April 2010 consultation we identified that MCT can be provided using different technologies and each MCP's technology mix will vary. We therefore identified two specific options in regard to technology and operator cost modelling:

- ***First, separate controls for each call termination technology or platform:*** This would involve charge controls for each mobile voice call termination service by technology or platform (e.g. a separate charge control basket for services provided on 2G, another separate basket for termination provided using 3G and so on); or

- ***Second, technology and operator neutrality:*** This would involve the same charge control for MCT provided by each of the four national MCPs.

Separate controls for each call termination technology or platform

9.21 This approach would set separate controls for 2G, 3G and other forms of MCT delivered over different platforms.

9.22 The main and most significant objection to this approach is that it fails to achieve an important policy objective, which is that regulation should be, where possible, technology-neutral. Technology-specific regulation carries a number of risks, including being rendered obsolete or ineffective in the face of changes in the market or, worse still, creating distorted incentives on the technology choice or speed of migration. For this reason, technology neutrality is recognised as having value as a regulatory principle in the Common Regulatory Framework and in the Act.[660]

9.23 While more recently we have used the term "anchor pricing" in place of the term "technology neutrality" (for example in the wholesale broadband access consultation[661]), the regulatory principle remains unchanged. We wish to see customers no worse off as a result of the introduction of new technology and we want the regulated firm(s) to have appropriate incentives to introduce new technology where it is efficient to do so. In the context of MCT anchor pricing involves setting charges by reference to the costs of using the established 2G and 3G technologies, but not setting separate caps for each, and where new technology is introduced (e.g. LTE), voice call termination thus provided is subject to the same cap as if it were delivered using 2G or 3G technology.

9.24 Another practical drawback in setting separate controls on each of 2G and 3G networks is that MCPs levy a single charge for termination no matter which technology it passes over. Currently, these providers cannot identify, on a call-by-call basis, whether a call is terminating using their 2G or 3G networks (indeed, a call may transfer between these technologies during a call). Therefore, charges for calls terminated on 2G and 3G networks are blended and charged at a single rate to all purchasers of MCT.

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[660] The technology neutral principle is set out in section 4(6) of the Act http://www.opsi.gov.uk/acts/acts2003/ukpga_20030021_en_2#pt1-pb2-l1g4 and Article 8(1) of the Framework Directive http://ec.europa.eu/information_society/topics/telecoms/regulatory/new_rf/documents/l_10820020424en00330050.pdf

[661] See Proposal for WBA charge control, paragraph 3.39 et seq. of http://stakeholders.ofcom.org.uk/binaries/consultations/823069/summary/condoc.pdf

Technology neutrality and operator neutrality

9.25 In the April 2010 consultation, we considered whether there were operator-specific differences that might warrant differences in the charge controls applied to different MCPs. For example, in the previous market review (concluded by our 2007 Statement), we decided to apply the same charge control to both 2G and 3G termination for the 2G/3G MCPs[662] but we imposed a different charge control on H3G.

9.26 In the April 2010 consultation we proposed to adopt an operator-neutral charge control. Operator neutrality means that we set the same cap for all charge-controlled MCPs (i.e. the four national MCPs) – an outcome termed in this document and in the 2009 EC Recommendation as 'symmetry'.

9.27 We believe that a single cap on MTRs benefits consumers. In general, consumers are unaware of, and are likely to be indifferent to, the type of network their calls terminate on and the technology used.[663] With a single cap, the end-user is more likely to face the same charge for what is, from his or her perspective, the same service. Simplified wholesale pricing may also translate into simplified retail prices for calls to different mobile networks.

9.28 Removing limits on the use of spectrum (spectrum liberalisation) also strengthens the case for a single cap for MTRs. A single cap helps ensure that MCPs and other potential traders of spectrum have efficient incentives to trade spectrum, based on undistorted relative valuations of different types, frequencies and quantities of spectrum. In addition to the benefits of spectrum liberalisation, a single cap has advantages as new and alternative technologies are developed and deployed. By using a single technology-neutral cap, we avoid the ever-increasing and ever-challenging burden of detailed cost analyses in the face of new and uncertain technologies.

9.29 In addition to the above arguments, using a single cap is consistent with the 2009 EC Recommendation which states that (Recital 16[664]):

In setting termination rates, any deviation from a single efficient cost level should be based on objective cost differences outside the control of operators.

9.30 An example of an exogenous factor that could cause such a cost difference is uneven spectrum assignments.[665] But where spectrum assignments have been carried out using a market mechanism, where there is a secondary market in place or in prospect (i.e. trading), and where frequency bands suitable for mobile services are liberalised, spectrum assignments should no longer be treated as exogenous and hence a potential driver of differences in efficient unit costs.

9.31 MCPs that operate below the efficient scale could also be a reason for setting different caps, at least for a limited period of time. The 2009 EC Recommendation envisages different MTRs to allow time for an entrant to reach the efficient scale but

[662] More precisely, the 2G/3G MCPs were on a glide path to the same final year (2010/11) target for charges.
[663] See our May 2009 Consultation paragraph 9.63 to 9.68 for a discussion of the adverse impacts of differentiated charge controls. http://www.ofcom.org.uk/consult/condocs/mobile_call_term/
[664] The same point is also made at paragraph 9 of the 2009 EC Recommendation. http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:124:0067:0074:EN:PDF
[665] See Recital 16 and paragraph 9 of the EC Recommendation. Ibid

recommends that this should be limited to four years after market entry.[666] Indeed, in so far as it affected network costs, allowing time to reach the efficient scale was one of the reasons that H3G was granted a higher cap during the current charge control period.[667] However, all four national MCPs (including H3G) have now been present in the market long enough such that we believe no further allowance for differences in scale is required in the level of the charge control with immediate effect.

9.32 In the April 2010 consultation, we therefore proposed that the MTR cap for all four national MCPs be set at the same level.

Overview of stakeholder responses and Ofcom's analysis

9.33 EE was the only respondent to engage significantly with the issue of setting technology and operator neutral regulation of MTRs.[668] However, EE's comments were in reference to MCPs with fewer subscribers, not to the appropriate caps for the charge control applied to the four national MCPs which we address in this section. The issues raised by EE relate to how we should interpret SMP Condition M1 (which obliges MCPs – including MCPs with fewer subscribers – to set fair and reasonable charges) in any future dispute which might arise. We issued a separate consultation on this issue on 7 January 2011[669] and touch on the issue briefly in section 6 and section 10 of this statement.

9.34 Vodafone estimated that the unit costs for a 3G-only operator were significantly below those for a 2G/3G operator (under LRIC+ or pure LRIC). On cost grounds Vodafone noted the view that H3G's MTR should be set at a discount to that of the other MCPs. Nevertheless, Vodafone supported the view that a single MTR for all MCPs was appropriate.[670]

9.35 Having considered the comments made by the stakeholders, we remain of the view set out in the April 2010 consultation.

9.36 We conclude that it is appropriate to adopt a symmetric charge control applied to the four national MCPs, irrespective of the technology or scale of those individual MCPs.

Part 2: Overview of the MCT cost model

9.37 We received a number of responses in relation to the April 2010 cost model. Annexes 6 to 10 of this statement set out in more detail the points raised by stakeholders and our response to these points. In some cases we have amended the April 2010 cost model in light of responses received and/or following further analysis conducted since the April 2010 consultation. The most significant changes to the April 2010 cost model can be split into the following categories:

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[666] See paragraph 10 of the 2009 EC Recommendation. http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:124:0067:0074:EN:PDF

[667] See Competition Commission discussion of 3G-only operator market share: 2009 Competition Commission Determination, Section 15. http://www.competition-commission.org.uk/appeals/communications_act/mobile_phones_determination.pdf

[668] EE response to the April 2010 consultation, Section 6.4. http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf

[669] Entitled *Mobile call termination: Consultation on proposed guidance on dispute resolution*. Available at http://stakeholders.ofcom.org.uk/binaries/consultations/mct-fair-reasonable/summary/mct-fair-reasonable.pdf

[670] Vodaone response to the April 2010 consultation, Annex 4, page 112. http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone_annexes.pdf

- factual corrections of formulaic and spreadsheet linking errors that have emerged since the April 2010 consultation;
- amendments to our demand forecasts (i.e. traffic profiles);
- amendments to the network dimensioning parameters based on updated information received from the national MCPs using our section 135 information gathering powers and responses to the April 2010 consultation; and
- amendments to the cost of capital and model calibration.

9.38 The corrections to the computational mechanics of the model are not summarised below but are covered in Annex 6. We discuss below the responses on demand forecasts, network dimensioning, cost of capital and model calibration.

Demand Forecasts

9.39 With growing use of smartphones and 3G access devices (such as datacards or dongles), data traffic on mobile networks has grown significantly over the past four years. This growth outstripped many observers' expectations; for example, the forecasts made in 2007 about data traffic levels and the unit costs of MCT in 2010/2011 were wrong (that is, forecasts based on Ofcom's 2007 cost model – as amended by the CC); specifically, those estimates under-forecast the actual volumes that were carried over the MCPs' networks and the resulting (LRIC+) MCT unit costs.

9.40 Under pure LRIC, an under-forecast of data traffic is less important, because common costs (in this case between voice and data services) are not allocated to call termination.

9.41 For data volumes, the April 2010 cost model introduced separate forecasts for datacards and handsets. In that model we calculated the total (expected) number of subscribers using handsets and datacards, and the expected usage per subscriber type. Given the market share of a hypothetical efficient national MCP we then calculated the total data traffic expected to pass over the 2G and 3G networks.[671]

9.42 In the April 2010 consultation we also made assumptions about the number of 3G subscribers, 3G coverage and the proportion of 3G subscriber voice traffic that was deliberately routed onto the 2G network. These combined parameters determined the amount of traffic modelled as passing over the 2G and 3G parts of the network.

9.43 The MCT cost model calculates the volume of traffic that passes over the network during its lifetime, assuming that the operator reaches efficient scale in 2020/21. In the April 2010 consultation we viewed 'efficient scale' as being a 25% market share. We adopted a 25% market share assumption because, following the Orange/T-Mobile merger, this value represented an even split of the mobile market between the 4 national MCPs.

[671] For 3G subscribers it was also necessary to forecast the proportion of data carried over the HSPA network. These forecasts were based on HSPA deployment of the national MCPs. Datacards and newer 3G handsets are generally enabled with HSPA functionality, but there is still a base of 3G handsets that cannot utilise the HSPA network. To account for this we used separate assumptions for the proportion of traffic carried over the HSPA network for handsets and dongles.

Overview of Stakeholder Responses and Ofcom's analysis

9.44 We received a number of responses regarding the assumptions and inputs to the demand forecasts in the April 2010 cost model. Those responses and changes we have made to the MCT cost model are discussed in detail in Annex 6. In summary, the issues covered in the responses related to:

i) our forecast of voice and data traffic at an industry level;

ii) the intentional routing of 3G subscriber traffic onto the 2G network;

iii) the rate of subscriber migration from 2G to 3G handsets;

iv) the correct assumption for a hypothetical average efficient operator's market share; and

v) whether the hypothetical average efficient operator should have a different market share for data and voice services.

9.45 We have updated our demand forecasts based on the latest available traffic data and the responses from stakeholders to the April 2010 consultation. Our conclusions in relation to stakeholder comments on the demand forecasts can be summarised as follows:

i) We have considered, but do not agree with, stakeholder criticisms of our approach to forecasting voice and data traffic at the industry level.[672] Therefore, apart from updating our traffic forecasts using the most recent data available from the MCPs (i.e. Q2 2010/11), we have not made any significant change to our traffic forecasting approach;

ii) In the 2011 cost model, we have changed the way the model assumes 3G traffic is routed over the 2G part of the network. The proportion of a 3G subscriber's traffic that is routed onto the 2G network falls over time;

iii) We have not changed the rate of migration of subscribers from 2G to 3G handsets apart from in response to the most recently available data;

iv) We have not changed our view on the market share of a hypothetical average efficient operator (and have retained the 25% assumption from the April 2010 cost model). However, we have smoothed the path by which the modelled operator reaches the 25% level. This path better fits the MCP data we have used for calibration of the 2011 cost model;

v) We have continued to make the assumption that the hypothetical average efficient operator has the same market share for both voice and data services. We acknowledge that the two market shares need not necessarily be the same for individual operators, however, because we have sought to build a hypothetical average efficient operator, we believe that the same market share assumption for voice and data is reasonable.

9.46 Our reasons for reaching these conclusions on demand forecasts and an explanation of how we have implemented these in the 2011 cost model can be found in Annex 6.

[672] That said, we have made some changes to the implementation of the traffic forecasts where computational errors have been identified.

Network dimensioning

9.47 On the basis of the comments received to our April 2010 consultation we have made a number of changes to model parameters and network dimensioning.[673] We summarise the changes here and discuss them in detail in Annex 6 together with other comments made by stakeholders in their responses.

9.48 In the April 2010 consultation, we proposed that the preferred scenario for estimating an efficient cost benchmark for MCT was a national network deploying 2G and 3G/HSPA.

Overview of stakeholder responses and Ofcom's analysis

9.49 Stakeholders generally agreed with the introduction of HSPA into the MCT cost model, but Vodafone suggested a slightly higher value for the HSPA efficiency parameter to reflect the likelihood of further efficiency gains through HSPA+ enhancements.[674] As far as we are aware, HSPA+ is not yet deployed in any UK mobile network and there is no clear indication of planned deployments. On the basis of this evidence, excluding future HSPA+ enhancements appears to be an appropriate reflection of the choices that would be made by a hypothetical efficient national MCP today and is consistent with our approach to charge controls in other market reviews (e.g. BT network charge control[675], BT leased lines charge control[676] and the BT wholesale broadband access control[677]) where nascent technologies at low levels of deployment have been excluded from the cost modelling.

9.50 In its response to the April 2010 consultation, H3G[678] commented that we should exclude traffic in weekends when calculating the traffic proportion in the busy hour to reflect a similar adjustment included in our cost-benefit model used in the 2009-10 review of the routing of calls to ported numbers.[679] In light of this submission, we think that the proportion of traffic in the busy hour used in the April 2010 cost model

[673] Network dimensioning calculates the deployment of each type of network asset required to meet the projected levels of service demand and coverage

[674] HSPA+ refers to later versions of HSPA technology that increase the efficiency of data delivery. Annex 3 page 61 of Vodafone's response to the April 2010 consultation suggests adjusting the HSPA data downlift parameter to 7 from 6. Adjusting the HSPA efficiency to account for HSPA+ improvements would not have a material impact on the pure LRIC unit cost of termination. http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone_annexes.pdf

[675] In our review of BT's network charge controls (http://stakeholders.ofcom.org.uk/binaries/consultations/review_bt_ncc/statement/nccstatement.pdf), we calculated the charge controls based on prevailing PSTN technologies and excluded future NGN technologies.

[676] In our review of BT's leased lines charge control (http://stakeholders.ofcom.org.uk/binaries/consultations/llcc/statement/llccstatement.pdf) we calculated the charge controls based on currently deployed technology platforms.

[677] In the consultation on wholesale broadband access http://stakeholders.ofcom.org.uk/binaries/consultations/823069/summary/condoc.pdf we assumed that all traffic was carried on 20CN technology throughout the control period. Related to this the traffic forecast was limited to what was possible over 20CN technology (see for example paragraph 3.58).

[678] See H3G's response to the April 2010 consultation, page 58. http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf

[679] The proportion of traffic in the busy hour is an important parameter which directly impacts the network capacity needed to meet projected traffic levels. For the treatment of this issue in the review of routing of calls to ported numbers, see the Routing calls to ported telephone numbers statement, available at: http://stakeholders.ofcom.org.uk/consultations/gc18_routing/.

is likely to be an overestimate of the actual peak traffic level and have reduced the voice busy hour proportion and the data busy hour proportion.[680]

9.51 In the April 2010 cost model, we used a lower proportion of traffic in the data busy hour than the voice busy hour. This lower proportion for data traffic in the busy hour recognises that we expect data traffic to have a flatter profile over the day than voice. The use of different busy hour proportions for voice and data results in a mismatch between cost causation and cost allocation and recovery because cost is recovered over annual volumes.[681] In its response to the April 2010 consultation, Vodafone pointed out this mismatch and suggested a data dilution factor to correct for it.[682] We have accepted this suggestion, and introduced a time-varying *data dilution factor* in the 2011 cost model to restore the link between cost causation and cost allocation and recovery.

9.52 A number of technical parameters are required to translate the busy hour traffic proportions into network asset requirements. In their responses to the April 2010 consultation, stakeholders commented on our assumptions behind certain parameter values. As a result of these comments, we have made a number of changes to parameter values in the 2011 cost model, including the following:

- uplift of billed voice minutes by ring time in calculating the voice demand for network dimensioning;
- adjustments to 2G and 3G cell radii;
- inclusion of a non-homogeneity factor when dimensioning 3G macrocells;[683]
- reduction in the extent of site sharing to 90% of sites (down from 100%) and the degree of opex saving for shared sites to 42.5% (down from 50%);
- increased 3G area coverage to 90% of 2G coverage as a result of site sharing;
- migration of 2G traffic processing from 2G monolithic MSCs to combined 2G/3G MSCs/MGWs; and[684]
- floor space based dimensioning of switch sites.

9.53 The full list of changes to network dimensioning is described in Annex 6. These changes to network parameter values, together with adjustments to the busy hour

[680] The proportion of traffic in the busy hour was assumed, for example, as 8% for voice and 7.5% for data during 2009/10 in the April 2010 cost model. These proportions have been reduced to 6.4% and 6% respectively in the 2011 cost model.
[681] In the MCT cost model, the traffic in the busy hour is used to dimension the network. Unadjusted annual traffic volumes were used in the April 2010 cost model for the allocation of network costs to different services. The volumes are adjusted for differences in voice and data busy hour proportions in the 2011 cost model.
[682] Vodafone response to the April 2010 consultation Annex 3 page 77-79. http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone_annexes.pdf
[683] The non-homogeneity factor accounts for the fact that demand for mobile services is not constant across all sites within a geotype.
[684] A monolithic MSC refers to a MSC architecture that does not differentiate between the user data and the signalling information.

traffic proportions, have resulted in a better alignment between modelled cell site counts and historic average cell site numbers deployed by the national MCPs.[685]

9.54 The MCT cost model uses cost drivers to allocate the costs of the dimensioned network assets to different mobile services. We have introduced a floor space based cost driver for allocating the costs of switch sites between voice and data services in the 2011 cost model. The floor space ratios for different asset types, relative to a MSC-Server (as suggested by Vodafone in its response to the April 2010 consultation) have been used to estimate these cost drivers.[686] Vodafone, in its response to the April 2010 consultation, also suggested that cost allocation of some assets, for example backhaul, should be modified to reflect the over-provisioning of capacity for circuit-switched services. We have modified the cost drivers associated with the relevant assets to reflect the over-provisioning of capacity for voice services.[687]

9.55 We modelled voice minutes terminating on voicemail as a new traffic service in the April 2010 cost model. This was to recognise that calls to voicemail fall within the Defined Markets while acknowledging that this traffic does not utilise the radio access network. This traffic was not included in dimensioning the radio access network, but was included in the voice minutes used for cost recovery in calculating the unit cost of termination. Vodafone pointed out that the April 2010 cost model did not include the voicemail termination platform associated with calls terminating on voicemail.[688] A new asset type, voicemail server, has therefore been added to the 2011 cost model to capture the costs associated with terminating voicemail traffic.

Updated WACC

9.56 In the April 2010 cost model we used a pre-tax real weighted average cost of capital (WACC) of 7.6%. In the 2007 cost model the WACC was set at 11.5% (pre-tax real).

Overview of stakeholder responses and Ofcom's analysis

9.57 All the national MCPs commented on the WACC assumption. H3G[689] agreed with our WACC assumption, while EE[690], and Vodafone[691] argued that it should be higher and O2[692] questioned Ofcom's analysis, but without suggesting an alternative value for the WACC.

[685] See Annex 7 for the results of the calibration exercise.
[686] Vodafone response to the April 2010 consultation, Annex 3 page 48-49.
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone_annexes.pdf
[687] The cost allocation of voice capacity driven assets such as cell site equipment, backhaul, BSC, and RNC have therefore been modified in the 2011 cost model.
[688] Op. cit, Annex 3 page 79-81.
[689] H3G response Annex F page 138-146.
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf
[690] EE response to the April 2010 consultation Section 4.1 and ✂.
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf

[691] Vodafone response to the April 2010 consultation Section 5, page 54-61.
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf
[692] O2 response to the April 2010 consultation, Section E page 52-56.
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf

9.58 Responses were also received (from EE[693], Vodafone[694] and O2[695]) criticising the impact that the reduction in the WACC (from the 2007 cost model) had on the path of unit costs – which is the result of the inter-play between the WACC and the economic depreciation algorithm.

9.59 Our assessment of the responses on the value for the WACC is set out at Annex 8 and our assessment of the inter-play between the WACC, economic depreciation and hence unit costs, is summarised later in this section and more fully at Annex 6.

9.60 In summary, we have revised our estimate of the WACC due to exogenous changes in the WACC parameters since the April 2010 consultation. In particular, the risk-free rate and the corporate tax rate are now lower. From further analysis of the asset beta for an efficient national MCP, we consider that it is appropriate to reduce this parameter from the one we used in the April 2010 consultation.

9.61 The net result of the changes above is to reduce our base case estimate of the WACC from 7.6% (pre-tax real) in the April 2010 cost model to 6.2% (pre-tax real).

Model calibration

9.62 The MCT cost model is a bottom-up model of network costs. This means that cost components are identified at a granular level and cost causation relationships are defined to link the quantity of each of these cost components with outputs and other cost drivers. Once this bottom-up model is built, we calibrate parts of the model against financial and network parameter data from the national MCPs. This is done to ensure that our model of a hypothetical efficient operator reasonably matches the infrastructure deployment of the national MCPs (at an average level).

Overview of stakeholder responses and Ofcom's analysis

9.63 In the responses from Vodafone[696] and O2[697], we were criticised for not performing a sufficiently granular calibration. In the April 2010 cost model we performed a granular calibration and stated that we had done so,[698] however, only the key metrics were provided in the April 2010 consultation itself. We have performed a similar calibration exercise for the 2011 cost model and provided the details in Annex 7 to this statement. We remain of the view that the granularity of the calibration is appropriate and proportionate to the task of ensuring that the high-level financial and technical model outputs are compatible with the observed financial and technical metrics for the national MCPs.

[693] EE response to the April 2010 consultation Section 4.1 and ✂.
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf
[694] Vofdafone response to the April 2010 consultation, Annex 3, page101-103.
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone_annexes.pdf
[695] O2 response to the April 2010 consultation, Section E page 57 and 59-61.
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf
[696] Vodafone response to the April 2010 consultation, page 50-51 and Annex 3, pages 30-38.
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf and
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone_annexes.pdf
[697] O2 response to the April 2010 consultation, page 58.
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf
[698] See April 2010 consultation, pargraph A10.12.
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf

9.64 We have provided a full list of calibration metrics in an Excel workbook.[699]

9.65 The number of cell sites was used as a primary metric for asset count calibration of the April 2010 cost model. In response, Vodafone,[700] commented that the calibration of cell sites could be improved by adjusting the network design assumptions such as reverting to using the 2G cell radii values from the 2007 cost model and changing the 3G coverage profile. O2 submitted that the gradient of cell site counts was not consistent with actual network deployments. [701]

9.66 We have made a number of changes including adjustments to cell radii, traffic proportions in the busy hour and carrier utilization factors. We consider that this has resulted in a better calibration of cell sites for the 2011 cost model. This calibration exercise is described in more detail in Annex 7.

Calibration against retail data prices: overview of stakeholder responses and Ofcom's analysis

9.67 In responses to the April 2010 cost model, Vodafone[702] and EE[703] commented on the LRIC+ per megabyte cost of data produced by the model. Both MCPs believed that the model produced high unit costs for a megabyte of data when compared with observed retail prices. The implication of this would be that little, if any, common cost contribution is being made from data services in the retail market. As such, a greater contribution would be required from voice services (including the regulated voice termination rates).

9.68 As pure LRIC is our preferred cost standard for the charge control, in principle, this would imply not investigating such common cost allocation issues further. However, for the purpose of assessing the impact of moving to pure LRIC in this statement, we require a reasonable estimate of unit costs under the LRIC+ alternative. To that end, we have considered the arguments advanced by those claiming that the data unit costs produced by the MCT cost model are not realistic.

9.69 That analysis is set out in Annex 9 to this statement. A key feature of the criticisms of the April 2010 cost model in this regard relied on comparisons of prices with costs based on full utilisation of the retail offering (e.g. £10 for 1GB). However, evidence from MCPs suggests that many customers do not use their full data allowance and ✂.[704]

9.70 The 2011 cost model assigns costs to the actual (and, later, projected) data traffic that passes over the hypothetical average efficient operator's network. Any comparison with the retail revenue from data should therefore only consider the actual data that passes over the network. For example, if an average subscriber only uses 512MB of their 1GB allowance, then the revenue per gigabyte used is £20 not

[699] http://stakeholders.ofcom.org.uk/consultations/wmctr/statement/
[700] Vodafone response April 2010 consultation, Annex 3, page 34, page 70, page 73. http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone_annexes.pdf
[701] O2 response to the April 2010 consultation, page 57-58. http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf
[702] Vodafone response to the April 2010 consultation, page 46 and Annex 3 pages 36-38. http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf and http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone_annexes.pdf
[703] EE response to the April 2010 consultation, Section 4.1.2 and ✂. http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf
[704] See ✂ response to section 135 information request dated 17 September 2010 and 'Mobile data economics: the limit of unlimited', Enders, 7 September 2010.

£10. When we adjusted the observed retail prices for data actually used by subscribers (so as to be consistent with the 2011 cost model outputs for that level of usage), we did not find the unit costs for data produced by the 2011 cost model to be too far out of line with the utilisation-adjusted retail prices.[705]

9.71 We have also identified external estimates of retail revenue per megabyte of data and the network cost of data. We have compared a report on average data revenues produced by Analysys Mason[706] on behalf of the European Commission, with the outputs from the 2011 cost model. This report calculated the average revenue per megabyte for data across the EU. We have also reviewed a recent report produced by Enders Analysis[707] which has estimates for both the retail price of data and the network cost of data.

9.72 The Enders Analysis work appears to produce slightly lower unit cost estimates to our own (although we understand that the Enders Analysis work excludes spectrum costs in its network cost calculations) and also reveals a wide variation in average revenues from data depending on the retail offering in question. The Analysys Mason report appears to show slightly lower average retail revenue for data services, but this report does not include roaming revenue and is not accompanied by any cost analysis.

9.73 Making generalisations or drawing firm conclusions from the above analyses is difficult. In any case, even if it were necessary (or appropriate) to calibrate the MCT cost model to observed retail data prices, doing this for a single service in isolation (whether dongles, handset data services or both) would lead to an incomplete analysis. Indeed, we consider that the calibration of a cost model to retail prices which are varied, often complex (due to bundling and/or utilisation issues) and subject to changes over time (e.g. because data services are not yet mature) is likely to be much less reliable than the calibration exercise we have preferred to undertake for the MCT cost model (see Annex 7). That calibration exercise, while clearly subject to a degree of interpretation and judgment, uses more readily available and audited information (such as the four years of accounting data from MCPs) or the more easily observed metrics on technical parameters (such as site counts).

Administration and HLR costs

9.74 We received a number of responses on the calculation of administration costs. As in the April 2010 consultation, we remain of the view that these costs should be treated as common costs and should thus be excluded from the pure LRIC of MCT. [708] In so far as a reasonable estimate of the LRIC+ of MCT is required for our impact assessment, views on the calculation of administration costs and our final estimate are set out and evaluated in Annex 9.

9.75 The HLR (Home Location Register) updates identify the location of the subscribers on the network in order to efficiently route mobile services, including incoming voice

[705] As shown in Table 9.7 of Annex 9, depending on the data service (dongle or handset) and the MCP in question, some average revenue figures are above the MCT cost model estimate for the LRIC+ of data, whereas for others it is below. Because operator information was not compatible, it has not been possible to produce a weighted average comparison of prices against costs.
[706] Unpublished report commissioned from Analysis Mason by the European Commission on behalf of BEREC.
[707] 'Mobile data economics: the limit of unlimited', Enders, 7 September 2010.
[708] The view that administration costs should be treated as common costs is supported by the 2009 Competition Commission Determination, in particular, paragraphs 3.84-3.87. http://www.competition-commission.org.uk/appeals/communications_act/mobile_phones_determination.pdf

calls, to them. In the April 2010 consultation we did not include these costs in the pure LRIC calculation. We received two responses (from EE[709] and H3G[710]) on the calculation of HLR update costs. Having considered these, we remain of the view that they should be excluded from the pure LRIC of MCT. As discussed in Annex 9, we consider that off-net termination increment would not cause any additional HLR update costs.

Part 3 Pure LRIC MCT cost estimation

9.76 In the April 2010 cost model we calculated both the LRIC+ and pure LRIC values for MCT. The pure LRIC calculation was consistent with the 2009 EC Recommendation which seeks to calculate pure LRIC as the long-run cost avoided from not offering off-net termination.[711]

Overview of stakeholder responses and Ofcom's analysis

Vodafone

9.77 Vodafone objected to our adaptation of the existing LRIC+ model to calculate the pure LRIC unit cost of termination. Vodafone[712] argued that our conceptual approach to calculating pure LRIC was incorrect for a number of reasons. In particular:

ii) The MCT cost model directly allocates costs to services based on routing factors and so is not capable of separating fixed and common costs, which Vodafone argued was crucial for calculating pure LRIC.

iii) We had not attempted to calibrate the April 2010 cost model based on what costs could be considered incremental and those considered fixed and common. Vodafone believed that performing this calibration was essential for the pure LRIC calculation to be correct.

iv) We should not have used the same network build parameters for a network with and without termination. For instance, Vodafone argued that we should have considered that 3G cell sites have a greater coverage when the cell is under a lower load (so-called cell breathing).

v) Linked to the above, some costs which are explicitly expressed as common costs in the model should be calculated based on the incremental impact that removing termination would have on them. Vodafone demonstrated this using a pico and micro cell example.

O2

9.78 O2's primary concern with our calculation of pure LRIC was the interaction between unit costs and the WACC.[713]

[709] EE response to the April 2010 consultation, page 32. http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf
[710] H3G additional response to the April 2010 consultation, page 17-18. http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/three.pdf
[711] See EC Recommendation recital (14) and paragraph (6). http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:124:0067:0074:EN:PDF
[712] Vodafone response to the April 2010 consultation, pages 51-52 and Annex 3 pages 38-42. http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf and http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone_annexes.pdf

Everything Everywhere

9.79 EE believed that our approach to calculating pure LRIC was oversimplified.[714] It argued that more detailed modelling was required of rural and remote areas that more heavily rely on voice services. EE argued that if voice revenues decreased, these rural sites would no longer be profitable. It argued that the implication of lowering termination rates would be fewer rural cell sites and so a reduction in coverage. EE did not believe that coverage should be an exogenous parameter in the model.

H3G

9.80 H3G believed that our approach was both conceptually correct and adhered to the 2009 EC Recommendation.[715] In addition, in its response to other operators' responses, H3G[716] argued that Vodafone was mistaken in believing that the MCT cost model needed to be able to split incremental and coverage costs. H3G believed that all the model needed to know was how the network design varied in response to aggregate cost drivers. H3G believed that it was irrelevant whether the change in traffic was due to changes over time, or to the removal of a service such as termination. As such, H3G believed that if the LRIC+ model was fit for purpose then so was the pure LRIC model. H3G did not believe that there was any conceptual difference between what it characterised as the "network minus" approach used in the MCT cost model and the bespoke "network plus" approach suggested by Vodafone above.[717]

9.81 H3G[718] also disagreed with EE's assertion that the model underestimated the pure LRIC of MCT. It argued that the model did not make any assumptions about the common, fixed or incremental costs. It also argued that EE's concern about the coverage implication of moving to pure LRIC was unjustified. H3G believed that EE had not understood that the pure LRIC of a service was equal to the costs avoided by no longer providing that service, while continuing to provide all other services in their present form. As such, any concern over the optimal configuration for services without termination was not only impossible to calculate, but irrelevant.

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[713] O2's response to the April 2010 consultation, paragraph 258 and 267-271
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf
[714] EE response to the April 2010 consultation, pages 30-31
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf
[715] H3G response to the April 2010 consultation, pages 66-68.
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf
[716] H3G additional response to the April 2010 consultation, pages 4-14.
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/three.pdf
[717] A bespoke network plus approach would involve building a separate model for a network that carries all traffic apart from termination and then overlaying termination traffic on top of this. In principle, this approach would not be different from a network minus approach. However, in the bespoke approach the networks with and without termination would have different network build parameters and cost drivers. H3G argued that there was no difference between the volume of termination changing in LRIC+ modelling (due to changing volumes over time) and adding the off-net termination increment in pure LRIC modelling. If the network build parameters were accepted for the LRIC+ modelling then they must also be accepted for the pure LRIC modelling.
[718] H3G response to the April 2010 consultation, pages 15-20.
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf

Ofcom's analysis

9.82 The April 2010 cost model used what might be called a "total network minus" approach to calculate the pure LRIC unit cost of MCT. This approach assumes that the network build parameters are the same for a network with all services and a network that has all services but termination.

9.83 Vodafone believed that the conceptually better approach is to build a model of all services excluding termination with its own set of parameter values (and then overlay MCT), rather than decrement the existing LRIC+ cost model for MCT traffic.[719]

9.84 H3G has argued that there is no difference between the network plus and network minus approaches. In H3G's view if the network build parameters are correct then there should be no difference between changing volumes over time and changing volumes due to the removal of a service. We consider that there may be some merit in this view, particularly if the increment in question is small. However, depending on the size of the increment, there is also an empirical question as to whether incremental and decremental approaches are equivalent – although the practical assessment of this is not straightforward.

9.85 We recognise that some parameters, such as cell radii, could vary with the level of traffic in a practical deployment as commented by Vodafone (for example, cell radii changing as result of cell breathing). However, the MCT cost model is an abstraction of a real-world network deployment and balances practicability and materiality in estimating the long-run incremental costs of MCT. Therefore, the model assumes, for example, that cell radii and the percentage of traffic on macrocell, microcells and picocells are parameters that neither change dynamically with the levels of traffic nor between (i) a full network and (ii) a full network minus termination traffic.[720]

9.86 In response to Vodfone's specific example involving micro- and pico-cell deployment, we observe that microcell deployment data gathered from the national MCPs using our statutory information gathering powers does not suggest a clear link between the percentage of microcells and the levels of termination traffic. While the number of cells will ultimately vary with traffic, the precise split between macro-, micro and pico-cells as a function of termination traffic levels is not clear. Therefore, the removal of termination traffic could delay the deployment of additional macro-cell sites and/or micro-cell sites and this is captured in the model through the traffic demand used for network dimensioning. Provided the MCT cost model accurately captures the long-run average relationship between traffic and different cell site deployments we consider this to be satisfactory. Through the calibration exercise we are sufficiently confident that the model dimensioning rules reasonably capture the relationship between network assets such as cell sites and network traffic.

[719] A decremental approach involves running the LRIC+ model with all volumes and then running the model without the offnet termination increment. The cost of offnet termination is then calculated from the difference in total cost between the two versions of the model.

[720] The 2G cell radii are reduced by 1% between 2007/08 and 2010/11 to aid the calibration of the model. But 2G and 3G cell radii are not changed dynamically in response to traffic levels in the MCT cost model as traffic increases over time. We undertook a simple assessment of the impact of changing the cell radii in response to the removal of termination traffic (i.e. the cell breathing effect) to assess the materiality of this effect. The changes in cell radii for the "full network minus termination traffic model" resulted in a 4% increase in the pure LRIC unit cost of termination. This was based on traffic levels in a single year and a fuller analysis based on a more dynamic and complex model could give different results.

9.87 We do not accept EE's argument that we should account for the coverage implications of moving to pure LRIC in our modelling. The pure LRIC of MCT is calculated as the cost avoided by not providing off-net termination whilst still providing all other services. Network coverage in rural areas is determined by a number of competitive and commercial factors and we do not believe that it would be appropriate or practicable to calculate optimal network coverage for a network without off-net termination.

9.88 Finally, we consider our approach to be consistent with the 2009 EC Recommendation which specifies the estimation of the pure LRIC of termination as the avoidable costs associated with termination traffic, with MCT being the final service to be taken into account.[721]

Profile of cost recovery when using pure LRIC

9.89 In the April 2010 consultation, our preferred approach to depreciation was a form of economic depreciation referred to as "Original ED". This form of economic depreciation was used by both Oftel and Ofcom in previous MCT market reviews. In its 2009 determination, the CC upheld our decision to base our modelling of costs on Original ED.[722] This method matches cost-recovery to actual and forecast usage and asset price trends over the long term. Consequently, there is relatively little depreciation in years when utilisation or asset prices are low and relatively high depreciation in years of high equipment utilisation or asset prices.

Overview of stakeholder responses and Ofcom's analysis

9.90 Some respondents to the April 2010 consultation identified issues with the Original ED algorithm. Due to the complex nature of the Original ED algorithm these responses have been discussed in some detail in Annex 6. Broadly the issues can be split into the following categories:

- Errors in the Original ED algorithm;
- The relationship between the pure LRIC unit cost of MCT and the WACC; and
- The decline in the unit costs of MCT for both the LRIC+ and pure LRIC calculations after the point when the model parameter updates are implemented.

9.91 Although these three issues are handled separately in Annex 6, they are related. We have adjusted the Original ED algorithm to correct for identified errors and improve the stability of the algorithm. These changes have moderated some of the other issues above as identified by stakeholders. We have also altered the model to stop the unit cost contribution of some elements turning negative.[723] This change has also moderated the reduction in unit costs after the point when the model parameters have been updated. Although unit costs do still change, in the year after the input costs and the WACC are updated, as discussed in Annex 6, this is a normal part of the Original ED algorithm and was present in previous versions of the MCT cost model. We consider such updating of the path of unit costs to be desirable, since the

[721] See paragraph 6 of the 2009 EC Recommendation and recital 14. http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:124:0067:0074:EN:PDF
[722] Competition Commission Determination 2009 paragraph 7.103. http://www.competition-commission.org.uk/appeals/communications_act/mobile_phones_determination.pdf
[723] See discussion of Original ED in Annex 6.

objective of ED is to mimic the path of unit cost recovery arising from (hypothetical) competitive entry into MCT.

9.92 We consider that the WACC should be an exogenously determined model parameter. In so far as entrants face a lower cost of capital (or other lower input prices) this would allow them to undercut incumbents. We would, however, emphasise that in so far as our measurement of the WACC or other parameters might result in higher input costs at a new market review, our approach would be consistent. If updated parameter values implied a higher path of unit costs than previously our approach would be to set charges to align with that higher cost path. In other words our approach on updating unit cost estimates and applying glide paths up or down to the revised cost estimate is designed to give MCPs at least a "fair bet".[724]

Spectrum

9.93 In the April 2010 cost model we did not include spectrum costs in the pure LRIC calculation. In principle, pure LRIC could include some contribution to spectrum costs. However, given the implementation of pure LRIC in our model we considered that it was not conceptually appropriate to include an explicit estimate of those spectrum costs.

9.94 Nevertheless, we included an explicit value of spectrum in the LRIC+ calculation of unit costs, reflecting the contribution to common costs made under this cost standard. We based our estimate of spectrum value for LRIC+ primarily on an analysis of the results from international spectrum awards.

9.95 H3G[725] considered that it was correct to exclude spectrum from pure LRIC calculations. By contrast, Vodafone[726] and Virgin Media[727] considered that any pure LRIC calculation should include an explicit contribution to spectrum costs.

9.96 H3G[728], Vodafone[729], and EE were critical of our estimate of the value of spectrum, in particular our use of international benchmarks.

9.97 Annex 9 sets out in further detail the responses received and our assessment of them. In summary, we remain of the view that a separate or additional estimate of the value of spectrum for the calculation of the pure LRIC of MCT is not required. This is because there is a trade-off between spectrum carriers and network equipment and we consider that a rational MCP would not be prepared to pay more for a spectrum carrier to meet a given increment of traffic than the network costs associated with the traffic increment. The pure LRIC version of the MCT cost model already estimates

[724] In some cases our parameter estimates may err on the cautious side – for example we consider our traffic forecasts to be relatively conservative – to which end MCPs would be given a more than fair bet.
[725] H3G response to the April 2010 consultation, page 69 and Annex D page 116-118.
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf
[726] Vodafone response to the April 2010 consultation, Annex 3 page 97.
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone_annexes.pdf
[727] Virgin response to the April 2010 consultation, page 9.
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Virgin.pdf
[728] Op cit, Annex D page 116-123.
[729] Vodafone response to the April 2010 consultation, Annex 3, page 97.
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone_annexes.pdf

those network equipment costs, so adding any traffic-driven spectrum costs would effectively involve double counting.[730]

Summary of results

9.98 As pure LRIC is our preferred cost standard, the MCT cost model outputs under pure LRIC have been used as the benchmark for efficient MCT charges. In addition to our base case estimate of the pure LRIC of MCT, we have constructed two scenarios (high and low) around that base case to produce a range of values for the unit costs of termination.

9.99 In addition to calculating the pure LRIC of MCT, we have also calculated the LRIC+ for 2014/15. Although our chosen cost standard for setting the MCT charge control is pure LRIC, the LRIC+ outputs from the MCT cost model are used to inform the quantitative reasoning (such as aspects of the competition analysis and distributional impacts) that supports our decision on the choice between pure LRIC and LRIC+ (see section 7, section 8 and Annex 3 of this statement for that analysis). For the LRIC+ cost standard we have also generated high and low cost scenarios.

9.100 The base case results for each cost standard, along with the high and low scenarios, are outlined in Table 9.1 below. A fuller description of these scenarios, in addition to a sensitivity analysis of the effect that each variable has on the unit costs of termination, can be found in Annex 10 (and Annex 9 for spectrum). All scenarios assume a hypothetical efficient national 2G/3G operator using both 1800 MHz and 2.1 GHz spectrum.

9.101 As in the April 2010 consultation we have not varied the base case approach to the treatment of spectrum in either our pure LRIC or LRIC+ versions of the MCT cost model. The reasons are as follows:

9.101.1 The cost standard we have adopted is pure LRIC which in our view should be unaffected by the value assigned to spectrum as third-party incoming voice traffic does not require our hypothetical efficient operator to deploy extra spectrum carriers (or if it did would be willing to pay no more than the avoided network costs thereof); and

9.101.2 Under LRIC+ (and under pure LRIC if an explicit contribution to spectrum costs were deemed appropriate), we might in principle have a high value of spectrum in the high-cost scenario and a low value of spectrum in the low-cost scenario. However, since the high cost scenario also has low traffic and the low cost scenario high-traffic, we consider that high spectrum values in a low traffic scenario and low spectrum values in a high traffic scenario to be essentially incompatible (other things equal).[731]

9.102 In the high and low cost scenarios below we assume that all the technological parameters remain the same as in the base case. The only non-price parameters we have changed are those associated with traffic on the network (i.e. volumes and market share).

[730] See Annex 9 for a detailed discussion of the trade-off between spectrum and network equipment.
[731] Assuming factors such as preferences for mobile services, incomes and retail prices to be unchanged, if traffic were significantly higher than the base case forecast, then we would expect willingness to pay for spectrum for mobile services to be higher than our base case. Conversely, if traffic were significantly less than the base case forecast, but other things were equal, we would expect the willingness to pay for spectrum to be correspondingly less than in the base case.

Table 9.1: Base case and sensitivity scenarios from the 2011 cost model

	Base Case (ppm, in 2008/09 prices)	Higher Cost Scenario (ppm, in 2008/09 prices))	Lower Cost Scenario (ppm, in 2008/09 prices)
2014/15 Pure LRIC	0.69	0.73	0.65
2014/15 LRIC+	1.61	2.05	1.35

9.103 Our pure LRIC efficient cost benchmark (as shown by the base case value in the first row of Table 9.1 above) is 0.19ppm greater than the base case value reported in the April 2010 consultation.[732] A breakdown of the model changes that account for this increase in the efficient cost benchmark can be seen in Table A10.1 of Annex 10.

9.104 The glide-path to the efficient cost benchmark in 2014/15 – which gives the maximum yearly charges that the four national MCPs will be allowed to set each year under the charge control – is explained and set out in section 10 of this statement.

[732] Note that the 0.19ppm reported here also reflects the difference in the rounding convention between the April 2010 consultation (0.1 ppm) and in this statement (0.01 ppm).

Section 10

Charge control design

Section summary

10.1 Stakeholders made a number of comments related to the charge control outside those dealt with in section 8 (which established pure LRIC as the appropriate cost standard) and section 9 (which summarised how we calculated the 2014/15 pure LRIC for a hypothetical efficient national MCP).

10.2 In this section we summarise the views received in respect of the mechanics and implementation of the charge control, specifically:

- the shape and duration of the glide path;
- the method for setting the value of X in our "RPI-X" formula;
- pricing flexibility within the cap – in particular, addressing the previous exploitation of MTR charge controls by so-called 'flip-flopping' of rates; and
- more detailed aspects of charge control design and compliance, including transition to the new charge control and other issues such as the rounding convention for compliance against the cap.

Proposals from the April 2010 consultation

10.3 In the April 2010 consultation we proposed a four-year glide path, by which we meant that the maximum average charge in 2014/15 would be aligned with the pure LRIC benchmark in that year.[733] The glide path reduces charges in a series of steps during the charge control period to reach the benchmark in the final period.

10.4 We also proposed a glide path based on a constant percentage change (rather than a constant price change, i.e. in pence per minute), consistent with the approach followed in other recent charge controls[734] and previous MCT charge controls.

10.5 Given the size of the proposed reductions in MTRs, we considered that a four-year glide path was appropriate in order to balance, on the one hand, delivering sufficiently quickly the benefits to consumers and competition from lower MTRs, and on the other, minimising the risk of disruption to industry and consumers from the move to low MTRs.

10.6 We also proposed that we should have a single cap for all four national MCPs. This meant implementing a steeper glide path (i.e. a percentage reduction in charges) for H3G in the first year of the control because its charges under the previous control were slightly higher than those of the other national MCPs.

[733] See paragraph 9.97 of the April 2010 consultation. We are now setting the cap in form of a maximum charge, i.e. not based on capping average charges over the year. http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf

[734] See the Review of BT network charge control at http://www.ofcom.org.uk/consult/condocs/review_bt_ncc/ ; and the Leased Lines Charge Control at http://www.ofcom.org.uk/consult/condocs/llcc/

The charge control glide path

Responses on glide path duration

H3G

10.7 H3G disagreed with the need for a glide path above cost.[735] In so far as a glide path was proposed, H3G submitted that it should be no longer than 21 months, following the 2009 EC Recommendation (i.e. it argued that MTRs should be set at pure LRIC no later than the end of 2012, as indicated in the 2009 EC's Recommendation).[736]

10.8 H3G submitted that the chief benefit of Ofcom's proposal to move to pure LRIC was greater competition in the supply of UK mobile voice services. The shallower the glide path, the longer it would take for greater competition to benefit consumers. H3G submitted that because the waterbed effect was widely discredited, Ofcom's concerns over the risk of inefficient rebalancing of pricing between customer segments were not valid.[737]

10.9 H3G argued that Ofcom's proposal had been long anticipated – stating that it will have been almost three years between the EC's first proposal for pure LRIC MTRs (i.e. in its draft 2009 EC Recommendation) and the start of the new charge controls in the UK.[738] H3G estimated that the direct financial impact of reducing MTRs from current levels to pure LRIC was fairly modest, at £440m for the industry, representing just 2% of industry revenue or 10% of EBITDA – with the drop from LRIC+ to pure LRIC representing only a quarter of the reduction.[739]

10.10 H3G submitted that an immediate reduction to pure LRIC would not be out of line with regulatory precedent.[740] H3G cited examples from a previous MCT review[741], the 2008 leased lines charge control review, the 2004 review of BT's product management, policy and planning (PPP) charge, Oftel's move from annually determined historic cost accounting (HCA) fully allocated cost (FAC) charges, to current cost accounting (CCA) and LRIC based charges[742], and Ofgem's 1995 and 2000 electricity distribution price reviews.

EE

10.11 EE was concerned that we were proposing a "*severe*" reduction in termination charges with a glide path of only four years.[743]

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[735] H3G June 2010 response, paragraph 4 and paragraph 122
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf
[736] Idem. paragraph 4, paragraph 29 and paragraph 123
[737] Idem. paragraph 125
[738] Idem. paragraph 127
[739] Idem. paragraph 128
[740] Idem. paragraph 131
[741] Ofcom "Wholesale mobile voice call termination", 1 June 2004.
http://stakeholders.ofcom.org.uk/binaries/consultations/mobile_call_termination/statement/Statement_on_Wholesale_Mobi1.pdf
[742] Oftel "Network charge control statement", 1997. We note that strictly while the cost modelling was based on a LRIC model, charges nevertheless reflected a contribution to common costs, i.e. were LRIC+ charges.
[743] EE June 2010 response, paragraph 247
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf

10.12 EE submitted that the yearly percentage reduction in prices of 42.7% was in excess of a reduction of 35%, which Ofcom had previously acknowledged could pose a risk to future investment (in the 2007 MCT statement[744]).[745]

10.13 EE argued that our proposals were not an incremental change on current arrangements but required a fundamental review of operators' retail pricing models. Such change requires careful testing of consumer sensitivity and takes time to undertake and review.[746]

10.14 EE also argued that a more gradual glide path would allow Ofcom the opportunity to evaluate the effects of its proposals, and in the event that call prices did not fall or subscriber numbers started to decrease, Ofcom could modify its regulation before more severe harm was caused.[747]

Vodafone and O2

10.15 Vodafone and O2 argued that a four-year period for the SMP remedies was appropriate.[748,749] O2 also considered that Ofcom should consult on the basis of capacity based charging (CBC) from 30 September 2013 (when BT's current network charge control expires) and that in the meantime a LRIC+ glide path would deliver a consistent position between fixed and mobile operators.[750] [751] Vodafone considered that if we set rates below 3.7ppm[752], MTRs should be based on LRIC+ and a straight-line glide path.[753]

BT

10.16 BT submitted that under the new approach it would take much too long for customers to see the benefits of reduced MTRs.[754] BT argued that exceptionally, in this case, there should be a three-year rather than a four-year control period (which would imply imposing a three-year glide path rather than a four-year one).[755] BT made the following points in its submission in favour of a three-year control (i.e. ending 2013/14):[756]

10.16.1 It would allow implementation of the 2009 EC Recommendation by April 2013, much closer to the EC's target date of 31 December 2012.

[744] See paragraph 9.191 of the March 2007 statement.
http://www.ofcom.org.uk/consult/condocs/mobile_call_term/statement/statement.pdf
[745] EE June 2010 response, paragraph 248
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf
[746] Idem. paragraph 248
[747] Idem. paragraph 249
[748] Vodafone June 2010 response, page 72
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf
[749] O2 June 2010 response, page 66
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/O2.pdf
[750] Idem., paragraph 120
[751] We discuss more fully the issues around CBC in Annex 3.
[752] The 3.7ppm MTR in 2014/15 (in 2008/09 prices) is what Vodafone estimates to be the "profit neutral" MTR – the calculation of which is also summarised on page 9 of Vodafone's June 2010 response. http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone.pdf
[753] Idem., page 9. We discuss the issue of straight line (constant ppm) and constant percentage glide paths later in this section.
[754] BT June 2010 response page 2
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/BT.pdf
[755] Idem. page 2 and page 26
[756] Idem. page 26-28

10.16.2 A four-year control period would fail to satisfy the principle of the 2009 EC Recommendation in that on average, over the control period, MTRs would be above the LRIC+ estimate of costs – the very cost standard rejected by the 2009 EC Recommendation.

10.16.3 Charges of around 1ppm were needed in order to see the introduction of genuinely converged fixed and mobile services and tariff packages including generous or unlimited 'mobile minutes'. Under a three-year control, charges at around 1ppm would be achieved in 2012/13 and thus a three-year control would mean that the new approach would have a bigger impact sooner.

10.16.4 A three-year control would better align the regulation of fixed and mobile termination, as both would end in 2013/14 (the fixed controls by September 2013 and the mobile controls by March 2014).

10.16.5 The fundamentals of the 2009 EC Recommendation will have been known for at least two years by the time the new control is implemented and so concern over existing customer contracts of 18 or 24 months is not legitimate. Even under a three-year control, MTRs would on average be above 1.5ppm for the first two years, three times higher than Ofcom's estimate of the pure incremental cost of termination.

10.16.6 The need for upfront capex does not justify dragging out the implementation of the 2009 EC Recommendation. The current regime is distortionary and postponing remedial action is likely to be more detrimental to purchasers of call termination than any of the disadvantages that a quicker implementation might impose on the MCPs.

10.16.7 Even under a three-year control the MCPs would be net beneficiaries of the transfer of funds from fixed customers. BT estimated that under a three-year control, the contribution to the common costs of mobile networks from fixed customers would be around £270m. Assuming the same volume of M2F and F2M minutes, the total 'cost' of fixed termination would be around £75m. In other words, the contribution to common costs made by fixed customers to the MCPs would exceed the total costs for termination by the MCPs to fixed operators by a factor of nearly four.

Virgin Media

10.17 Virgin Media argued in favour of at least a four-year period for SMP remedies and argued that if Ofcom proceeded with the reductions in MTRs proposed, the effect would be so dramatic that an even longer control period would be required to soften the impact.[757]

C&W

10.18 C&W supported a glide path down to pure LRIC over the period to 2014/15.[758] C&W submitted that, with changes of the magnitude proposed by Ofcom, it was important

[757] Virgin Mobile June 2010 response, page 8
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Virgin.pdf
[758] C&W June 2010 response, page 3
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Cable_Wireless_Worldwide.pdf

that not only the MCPs but also other affected entities had time to adjust to the changes. C&W's perspective was shaped by the fact that it provides both fixed and mobile services and the impacts on its business were both positive and negative.[759]

Other responses

10.19 We also received a number of responses from smaller MCPs, FCPs and consumer and industry bodies, which commented on the proposed glide path and the proposed four-year period for SMP remedies.

10.20 The FCPs that commented did not object, in general, to a four-year period for the SMP remedies. ✂ noted that while compared to a steeper glide path, a reduction over four years would reduce revenues for FCPs and resellers (due to the disproportionate effect of MTRs on overall pricing); this stakeholder felt that a four-year control would allow for adjustment without major disruption.[760] TalkTalk welcomed the proposal to reduce MTRs to pure LRIC by 2014/15.[761] Talk Talk agreed that a four-year period for remedies was appropriate, and that this period of time would provide commercial certainty, as well as being consistent with previous charge control periods.[762]

10.21 The Post Office expressed a wish to see the glide path reduced to three years to allow for further innovation by FCPs on inclusive mobile packages, and to address the imbalance between fixed and mobile termination rates. From the Post Office's viewpoint, a glide path to April 2013 would be most closely in line with the EC Recommendation and allow enough time for the MCPs to adjust.[763]

10.22 By comparison, some of the smaller MCPs and industry bodies which commented had mixed views on the proposed glide path, with some arguing that there should be an extended glide path for smaller MCPs. ✂ for example, argued that MVNOs should have a pre-set 'glide path plus' rate, which would apply to new-entrant MVNOs until they had secured a minimum market share, to allow them to recoup up-front network set-up costs.[764] The Federation of Communications Services (FCS) submitted that the four-year charge control timescale was "very generous" for the MCPs. It also considered that there was a distinct asymmetry between the 'vertically integrated' incumbent MCPs and the smaller and new entrant MCPs, and that for smaller MCPs there should be an additional two-year glide path.[765]

10.23 Several industry bodies and consumer groups which favoured implementing a pure LRIC approach to setting MTRs argued for MTRs to be reduced in line with pure LRIC more quickly. UKCTA felt that Ofcom should provide justification for using a glide path to implement MTR reductions, citing the conclusion of the 2009 EC Recommendation working paper: that the waterbed effect – whereby a decline in MTRs leads to increased mobile retail prices – is not supported empirically.[766] The

[759] Idem. page 4
[760] ✂ June 2010 response, page 3
[761] Talk Talk June 2010 response, page 1
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/TalkTalk_Group.pdf
[762] Idem., page 5
[763] Post Office response, page 2
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Post_Office_Limited.pdf
[764] ✂ June 2010 response, page 2
[765] FCS June 2010 response, page 2
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/fcs.pdf
[766] UKCTA June 2010 response, page 5
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/UKCTA.pdf

Communications Management Association (CMA) posited that the financial impact of a four-year timescale on British industry, not including the four national MCPs, would be considerable and argued for the charge control to be set with a maximum duration of three years.[767]

European Commission

10.24 On 23 June 2010, the EC issued its decision under Article 7 of the Framework Directive in response to the notification of our proposed decision. The EC recognised Ofcom's efforts to minimise business and regulatory uncertainty arising from a large reduction in MTRs, but asked us to consider whether, in having regard to the 2009 EC Recommendation, we should decide to chance our proposed glidepath such that MTRs would be at pure LRIC by 31 December 2012. We have taken utmost account of the EC's comments, but consider, in light of our statutory duties, that a four year glidepath is appropriate and proportionate. This is considered in more detail as part of our assessment below.[768]

10.25 The EC also invited us to revise the timeframe for the market review so as to comply with Article 16(6) of the Framework Directive, as amended by Directive 2009/140/EC which states that NRAs must undertake a review and notify the corresponding draft measures within three years from the adoption of a previous measure relating to the relevant market.[769] This is considered in our assessment below.

Ofcom's assessment on glide path duration for the four national MCPs

10.26 We have considered the responses which favour a glide path to pure LRIC by 31 December 2012 – the date for implementation set out in the 2009 EC Recommendation. H3G submitted that no glide path was appropriate, but in so far as one was proposed, the glide path should not go beyond the date set out in the2009 EC Recommendation. BT identified a number of arguments in favour of a three-year glide path and also referred to the 2009 EC Recommendation in support of its position.[770] (For completeness, some other respondents which supported pure LRIC favoured a four year glide path).[771]

10.27 Stakeholders who are opposed to pure LRIC (EE, O2, Vodafone, Virgin Media) typically favoured at least a four year glide path.

10.28 Having considered the overall benefits of setting MTRs to pure LRIC, our starting point is that we should implement pure LRIC prices as quickly as we reasonably can, so that consumers gain as a result. Balancing this principle is the need to allow sufficient time for industry (and consumers) to adjust as prices change.

10.29 We have considered the statutory framework and the need (described in Article 13 of the Access Directive and section 88 of the Act) to ensure that the setting of each SMP condition is appropriate for the purposes of promoting efficiency, promoting sustainable competition and conferring the greatest possible benefits on end users. We must also take account of the extent of investment by the dominant provider.

[767] CMA June 2010 response, page 3
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/CMA.pdf
[768] Commission June 2010 letter to Ofcom, page 5
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/European_Commission.pdf
[769] Idem. page 6
[770] It should be noted that BT argued for pure LRIC by April 2013, close to, but not precisely at, the date for implementation of the EC Recommendation.
[771] This includes C&W, ✂, Talk Talk

The potential impact on investment by MCPs, as well as the likely rebalancing of retail mobile pricing, are therefore factors weighing into our assessment. Under section 47 of the Act, SMP conditions need to be objectively justifiable in relation to the networks and services to which they relate, must not be unduly discriminatory, and must also be proportionate and transparent.

10.30 To ensure that we meet the objective justification and proportionality obligations set out above, the benefits from the move to pure LRIC should not be outweighed by the costs of making that change. In principle, if the expected costs of a shorter glide path during the control period were in excess of the expected benefits, then a longer glide path would seem more appropriate. Since the costs and benefits in question are far-reaching and many are difficult to quantify, we have undertaken a qualitative assessment of whether a glide path to pure LRIC by 31 December 2012 would be appropriate – in particular whether it would be disproportionately costly or otherwise disruptive to the benefits that adopting pure LRIC would achieve. That assessment has also considered the potential for unintended consequences and risk of regulatory error.

10.31 In weighing up options for a glide path to pure LRIC, within the the statutory framework set out above, we consider (as we did in the April 2010 consultation[772] and in the March 2007 statement before it)[773] that the practical regulatory objectives to balance are as follows:

10.31.1 reductions should be achieved sufficiently quickly in order to deliver substantial benefits to consumers, including benefits to be derived by addressing the competitive distortions we have identified in section 8 above; and

10.31.2 reductions should allow sufficient time for operators and customers to adjust to new levels and structures of mobile charges and take these charges into account in their business plans and planned capital expenditure.

10.32 The implementation date in the 2009 EC Recommendation is 31 December 2012, and falls 9 months into a charge control year. We therefore consider that the relevant assessment in practice is between a charge control at pure LRIC by 1 April 2013 (a "three year" glide path), or a charge control at pure LRIC by 1 April 2014 (a "four year" glide path).[774]

10.33 The arguments in favour of a shorter glide path are set out below:

10.33.1 **The economic objectives for intervention in termination markets:** where the charge control intervention is designed primarily to prevent harm

[772] April 2010 consultation http://stakeholders.ofcom.org.uk/consultations/wmctr/
[773] 2007 MCT statement, paragraph 9.172 http://www.ofcom.org.uk/consult/condocs/mobile_call_term/statement/statement.pdf
[774] We have used the short-hand "three year" and "four year" glide paths. Strictly, however, the "three year" glide path would result in MTRs above pure LRIC for two years and the "four year" glide path would result in MTRs above pure LRIC for three years. This is because the cap is applicable from 1 April – i.e. the start of the charge control year. We have retained the "three year" and "four year" short-hand since the charge control period is four years and a "four year" glide path would be consistent with the maximum length of glide path possible. Previously, MTR caps were based on average charges so the concept of a "four year" glide path mapped more closely to a four year charge control period. The reason for moving to a maximum charge cap applicable from the start of the charge control year is set out later in this section.

to competition from the exercise of SMP (or allocative inefficiency from above-cost pricing), this suggests aligning charges as quickly as possible to costs (other things being equal). Termination is a situation of two-way access where the charges set by competing networks also affect competition between them.

10.33.2 Because there is competition in retail mobile access and origination between individual mobile networks, and because termination assets are also used to provide other services (such as origination), we presume that investments are cost-efficient. This contrasts with situations of one-way access regulation where there is no, or at most limited, competitive pressure on the investments in the bottleneck of interest (e.g. customer access lines (in fixed telecoms), energy transmission and distribution networks, and other network utilities).

10.33.3 In-one way access settings, incentivising cost-reducing investment is a critical part of the regulatory trade-off (as well as delivering allocative efficiency and, when regulating wholesale activities, facilitating downstream competition). In general, the longer prices are not reset to an estimate of contemporaneous cost, the more high-power the regulatory incentive scheme – that is, the longer the pay-off from investing in cost-reducing investments. It is for this reason that economic regulators typically favour control periods of four years or longer.[775]

10.33.4 In the context of termination markets, incentivising investment in cost-reducing activity is a less important consideration than in situations of one-way access. We therefore consider that the competition and allocative efficiency reasons for intervening in termination markets should be accorded higher weight relative to the cost-efficiency rationale that would also be important in one-way access regulation.

10.33.5 Cost recovery in two-sided markets: In the context of termination there is another side to the market – i.e. retail subscribers to the network. When regulated MTRs are reduced, cost recovery can still be achieved since prices on the retail side (access and origination) can be raised.

10.33.6 This two-sided feature of termination markets also has implications for the speed of reduction in regulated MTRs. That is, reductions in MTRs that are quicker than the rate of cost reduction in MCT should not compromise cost recovery – provided the waterbed effect is sufficiently strong and provided that tariffs on the other side of the market can adjust sufficiently quickly.

10.34 The arguments in favour of a longer glide path depend on the following factors:

[775] Except in exceptional circumstances (such as a mis-match between the market review and expiry of a charge control – e.g. MCT in 2005/06 and LLU/WLR 2009-2011) UK telecoms charge controls have typically been for four years – although the first BT retail price control (1984) was for longer, i.e. 5 years. Current practice in other areas of economic regulation is 5 years – i.e. the water sector, electricity transmission and distribution, gas transportation and distribution, postal services, rail and airports. For a summary of price control duration by sector see Ofwat discussion paper on future price limits at http://www.ofwat.gov.uk/future/monopolies/fpl. For the review by Ofgem on why longer than 5 years is appropriate to improve the economic regulation of eletrcity and gas network operators see section 5 of *RIIO: A new way to regulate energy networks, Final decision,* http://www.ofgem.gov.uk/Networks/rpix20/ConsultDocs/Documents1/Decision%20doc.pdf

10.34.1 **Strength of the waterbed effect:** As noted in section 7, the waterbed effect is unlikely to be complete, so there will probably be some profit reduction for MCPs when MTRs are reduced.[776] The greater that effect, other things being equal, the more cautious a regulator should be in the speed with which MTRs are reduced by regulation. In so far as the effect is weaker than we expect, the potential size of the reduction in MCPs' profitability becomes more material.

10.34.2 **Potential size of the reduction in MTRs and the impact on profitability:** The reduction in MTRs is large, compared to the MTR itself – i.e. a fall of around 3.5ppm (in 2008/09 prices) over the control period.[777] Implemented over a four-year glide path, the real reduction p.a. is around 36%.[778] A three-year glide path would involve real reductions p.a. of around 44%.

10.34.3 While even larger MTR reductions have been implemented in a single year, it is difficult to extrapolate easily from one period to another to gauge the ability of the market to absorb further reductions. In the 2004 MCT statement, Ofcom reduced the MTRs for Vodafone, O2, T-Mobile and Orange by between 2.9ppm and 3.8ppm (in 2008/09 prices).[779] This resulted in a roughly comparable annual percentage reduction as under a four-year glide path for this review and somewhat less compared to a three-year glide path for this review.[780] The changes in the 2004 MCT statement (of 34-37%) were imposed to compensate for delay, but only after the MCPs had been aware of the approximate target levels for a number of years.[781]

10.34.4 If volumes were to remain static, costs were not to reduce and the waterbed effect were non-existent, the profit loss would be equal to the revenue reduction in MCT (although for the reasons set out below we consider this likely to be a significant overstatement of the true profit effect).

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[776] We also note that EE has claimed (at paragraph 6) of its response, that Orange and T-Mobile have earned a return on capital employed (ROCE) below the cost of capital (as measured by the WACC) and that Ofcom's proposals will have adverse impacts on these returns and push them further below the WACC. While we are cautious about reading too much into historic ROCE based analysis – not least since this is contingent on robust valuation of significant assets such as 3G licences – we recognise that UK MCP EBITDA margins have been typically lower than in other major European countries.
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Everything_Everywhere.pdf

[777] Nearer 3.8ppm for H3G – as can be seen from Table 10.1 in this section.

[778] Note that the real percentage reduction is not quite the same as the X in the "RPI-X" formula. For an explanation, see footnote 798 and footnote 799 of this Section 10.

[779] Calculated by comparing the 2003/04 charges shown in Table 4 of the 2004 MCT statement with the charge control level for 2004/05 (which adopted the 2005/06 efficient charge targets of 5.63ppm and 6.31ppm for the 900/1800MHz MCPs and 1800MHz MCPs respectively, in nominal prices). Adjusting for inflation between 2003/04 and 2008/09 gives a 3.80ppm reduction for the 900/1800MHz MCPs and 2.92ppm for the 1800MHz MCPs in 2008/09 prices.
http://stakeholders.ofcom.org.uk/binaries/consultations/mobile_call_termination/statement/Statement_on_Wholesale_Mobi1.pdf

[780] The percentage change in the first year for the 900/1800MHz MCPs was 34% and for the 1800MHz MCPs was 37% (source: Table 4 and paragraphs 6.81 and 6.84 of the 2004 statement.
http://stakeholders.ofcom.org.uk/binaries/consultations/mobile_call_termination/statement/Statement_on_Wholesale_Mobi1.pdf

[781] See paragraph 6.82 of the 2004 statement and paragraph 9.191 of the 2007 statement.
http://stakeholders.ofcom.org.uk/binaries/consultations/mobile_call_termination/statement/Statement_on_Wholesale_Mobi1.pdf;
http://www.ofcom.org.uk/consult/condocs/mobile_call_term/statement/statement.pdf

We estimate that the revenue loss for MCPs from terminating mobile minutes might be around £0.6bn (in 2008/09 prices) when comparing 2014/15 revenues with those in 2010/11. This represents around 4% of 2009 revenues.[782]

10.34.5 The difference between a four-year and a three-year glide path is around £60m in year 1 (in 2008/09 prices).[783] The difference between the two glide paths would decline each year thereafter over the control period.[784]

10.34.6 Nevertheless, the total reduction is large and the difference between a four-year and a three-year glide path is non-negligible (at least in year 1). While the waterbed effect will dampen such financial effects, as noted above, we do not know precisely how strong it is in the UK mobile market.

10.34.7 Since EBITDA margins in the UK are typically lower than for other large EU Member States (see Figure 2.1), we believe it is appropriate to allow more time for adjustment in the UK than might be appropriate in other Member States.

10.34.8 **Speed of adjustment of tariffs and capex plans:** The average post-pay contract length in the UK mobile market is less than two years[785] and average handset life is around 2-3 years.[786] On this basis, we would expect that most retail prices could reasonably be adjusted within a two-year time frame (which would be consistent with a three-year glide path to cost by 1 April 2013). Over a three-year time frame nearly all tariff and handset pricing combinations could be adjusted (which would be consistent with a four-year glide path).

[782] In total for all 4 national MCPs, assuming static termination volumes and no discounting. The revenue impact is estimated by multiplying the reduction in MTRs (from the current level of around 4.18ppm (expressed in 2008/09 prices) to the pure LRIC level of 0.69ppm (in 2008/09 prices) by estimated net termination volumes of around 18bn minutes. This volume figure is an estimated amount based on data received from the 4 (previously 5) national MCPs using information gathered under section 135 of the Communications Act. Note that the financial effect of MTRs at LRIC+ compared to pure LRIC in 2014/15 will be considerably less (since the LRIC+ in 2014/15 is considerably less than the level of current MTRs). 2009 mobile industry revenue is taken from the Communications Market Report 2010, which reports mobile industry retail revenues to be £14.9bn in 2009. (http://www.ofcom.org.uk/static/cmr-10/UKCM-5.2.html) Taking account of wholesale revenue earned by MCPs (e.g. MTR revenue from non-MCPs), the relative impact would be somewhat reduced.

[783] Again assuming around 18bn minutes of net minutes that are impacted by mobile termination rates.

[784] Over the charge control period, we estimate the difference in NPV of revenues between the two glide-paths could be up to £0.16bn.

[785] See for example Figure 5.24 of the Ofcom Communications Market Report (2010) at http://stakeholders.ofcom.org.uk/binaries/research/cmr/753567/UK-telecoms.pdf . Despite the recent growth in longer-term contracts, in Q2 2010, 37% of contracts for new connections were still of shorter duration than 24 months, and in previous quarters a greater proportion of new connections were for less than 24 months. On average the stock of contract lengths is therefore less than 24 months. For Q2 2010, the average length of contract for new connections was around 18 months.

[786] Page 13 of Enders Analysis, *European mobile market analysis, Revenue and market trends to September 2010* reports the handset cycle as 2-3 years, which is consistent with Ofcom commissioned research in 2006 – see paragraph 4.3 of http://stakeholders.ofcom.org.uk/binaries/consultations/mobile_call_term/annexes/report.pdf , where the reported average length of handset ownership was 27 months.

10.34.9 While it may take time for MCPs to adjust pricing optimally in response to changes in MTRs, and that this might take more than one iteration, it seems likely that pricing adjustments can be made immediately for pre-pay tariffs. For post-pay customers there will be a steady stream each month coming out of contract (and new contract customers signing up). MCPs could therefore implement price adjustments for some of these customers relatively quickly – subject to the necessary internal research in designing and testing new pricing policies.

10.34.10 However, even if retail pricing adjustments are entirely feasible within a shorter glide-path period, the shorter the glide path, the greater the potential impact on mobile prices. We are wary of any rapid change which might lead to undesirable structures or levels of retail prices which a more gradual decline in MTRs would avoid.

10.35 In respect of network capex, different operators will clearly implement different replacement investment programmes. Each network will be at different phases in building, testing and installing technology upgrades. Investment in mobile networks remains (and is expected to remain) significant, although the wave of heavy investment in 3G assets is now at a level of maturity (all MCPs have comfortably exceeded the minimum roll-out obligations) and HSPA upgrades largely have been made. Nevertheless forthcoming spectrum awards (800MHz and 2.6GHZ) and associated network re-organisation as well as technology developments (e.g. UMTS at frequencies previously used for GSM and ultimately LTE deployments) will require significant capex.

Conclusion on glide path duration for the four national MCPs

10.36 In respect of the charge control for the four national MCPs, our conclusion is that we should set a four-year charge control glide path.

10.37 The waterbed effect is unlikely to be complete and while the difference in the revenue impact between a three-year and a four-year glide path is more limited than the decision to adopt pure LRIC, we do consider that we should take this effect into account. Insofar as changes in MTRs require changes to retail prices, we consider such changes should proceed at a pace that does not risk generating unintended consequences or disruption, ultimately harming consumers.

10.38 In the 2007 market review, we were reluctant to reduce charges, in a single year, by more than about 35%. Given our final estimate of the pure LRIC of MCT, a four year glide path yields an annual real reduction in MTRs of comparable magnitude (i.e. around 36%) but a three-year glide path would yield annual real reductions of greater magnitude (i.e. reductions around 44% p.a.).[787]

10.39 In deciding to apply a four year glide path we have taken account of our duties under section 3, section 4, section 47 and section 88 of the Act. In balancing our duties under the Act, we consider that a glide path to 1 April 2014 is proportionate and objectively justified. It seeks to achieve the efficiency and competition benefits of lower MTRs, but takes full account of the extent of the investments made in mobile networks and seeks to minimise the risk of disruption to pricing and investment decisions which ultimately are not to the benefit of end-users.

[787] The annual reductions are for the 2G/3G national MCPs. For H3G the year 1 changes would be somewhat larger given its higher cap from the current charge control (ending 31 March 2011).

10.40 We have also taken account of the fact that a four-year glide path to pure LRIC (i.e. by 1 April 2014) will mean a departure from the 2009 EC Recommendation which recommends MTRs at pure LRIC by the end of December 2012. We have decided to apply a four year glidepath in the UK because, in considering the facts in light of our statutory duties, we consider that this is the appropriate and proportionate approach. We consider a three-year glidepath consistent with the 2009 EC Recommendation would entail costs which would put at risk the efficiency and competition benefits of lower MTRs over the charge control period including the risk of an adverse impact on investment. We therefore consider that a glide path to pure LRIC by 1 April 2014 represents a proportionate approach to, on the one hand, consumer and competition benefits from early reductions and, on the other, the desire to allow industry sufficient time to adjust and to minimise the risk of unintended consequences in UK mobile markets.

10.41 We do not consider that this decision is inconsistent with the amendments to the Framework Directive, since those amendments take effect after publication of this statement.

Ofcom's assessment on the 'glide path' for MCPs with fewer subscribers

10.42 The glide path is a construct of the charge control for the four national MCPs, so the assessment in the preceding paragraphs relates to the 4 national MCPs, not to the other MCPs. Some responses argued for a longer (or additional) glide path for MCPs with fewer subscribers. These MCPs are not subject to a charge control.

10.43 MCPs with fewer subscribers are subject to a 'fair and reasonable' obligation (as proposed in the April 2010 consultation and confirmed in section 6 of this statement).

10.44 Some respondents to the April 2010 consultation have argued in favour of essentially higher MTRs for MCPs with fewer subscribers– either by means of a longer glide path or a higher benchmark rate. We understand these submissions to be seeking a shift in the view we signalled in the April 2010 consultation that reciprocal rates would be likely to be fair and reasonable. Those proposals have been the subject of a subsequent consultation about possible guidance about how Ofcom may resolve disputes referred to us concerning mobile call termination (the January 2010 consultation).[788]

10.45 The 2009 EC Recommendation contemplates that NRAs may wish, in some cases, to permit higher MTRs for entrant MCPs, provided that it can be shown that those MCPs incur higher per-unit costs, for a period of up to four years following entry.[789]

10.46 While it will take time for entrants to achieve the scale of the four national MCPs – and in most cases may never do so – entrants are also able to provide mobile voice services using a variety of technologies and business models.[790] Entry is possible without deploying national coverage, as it is possible for entrants to deploy infrastructure in more targeted areas, or to provide large-area coverage by renting

[788] Mobile call termination: Consultation on proposed guidance on dispute resolution - 7 January 2011 http://stakeholders.ofcom.org.uk/binaries/consultations/mct-fair-reasonable/summary/mct-fair-reasonable.pdf

[789] See Commission Recommendation of 7 May 2009 on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU (2009/396/EC) paragraph 10 L 124/67 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:124:0067:0074:EN:PDF

[790] See Annex 4 of the January 2011 consultation. http://stakeholders.ofcom.org.uk/binaries/consultations/mct-fair-reasonable/summary/mct-fair-reasonable.pdf

radio access infrastructure from national MCPs – i.e. via domestic wholesale roaming. Where it is possible to provide targeted entry (without also building infrastructure in areas of low population density), entrants will incur much lower coverage costs. Where infrastructure entry is scaled to areas of greatest traffic, the minimum efficient scale for entrants may be lower than for national MCPs.

10.47 In so far as large infrastructure deployment is perceived as risky, entrants can combine their own infrastructure with wholesale roaming from national MCPs – indeed, entry is possible using exclusively wholesale roaming (such that the entrant would be a pure MVNO). Since there are at least four potential providers of wholesale national roaming, and in so far as the national MCPs have low unit costs, the wholesale charges faced by entrants are likely to reflect the economies of scale achieved by the national MCPs. This would reduce the minimum efficient scale of entry.

Conclusion on the glide path for MCPs with fewer subscribers

10.48 As noted above, there is no relevant 'glide path' applicable to MCPs with fewer subscribers, since the requirement for fair and reasonable rates applies throughout the period when the relevant SMP condition is set.

10.49 We therefore do not need to make any decision about whether to adopt some higher rate (or longer glide path) for MCPs with fewer subscribers.

10.50 We do not consider that the submissions made in favour of a more favourable treatment of MCPs with fewer subscribers cause us to revisit the position set out in the April 2010 consultation.

Responses on the form of the glide path – i.e. constant pence-per-minute reduction in the cap or constant percentage reduction in the cap

Vodafone

10.51 Vodafone submitted that: *"Ofcom's proposed reduction of 42% per year must be one of the largest Xs proposed by any regulator in any industry, in any country in the history of price regulation."*[791] Vodafone submitted that this represented a more than four-fold increase in the rate of reductions previously applied to MTR regulation.

10.52 In the light of the above, Vodafone submitted that the 'least worst' method of achieving a very low target in 2014/15 would be done in a way that allowed the maximum possible time for rebalancing of prices by MCPs and the maximum time for customers to adjust to the changes. Vodafone therefore preferred a constant absolute reduction in ppm charges.

C&W

10.53 C&W saw no reason to depart from the usual approach of a constant percentage reduction in charges. C&W noted two factors which set this charge apart from others:

[791] Vodafone June 2010 response, Annex 4, page 114
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone_annexes.pdf

in particular, the adoption of pure LRIC and the extent of reduction in charges required – but neither factor justified a change in approach on the glide path.[792]

Ofcom's assessment on the form of the glide path

10.54 We note Vodafone's view in respect of the size of reduction in charges envisaged and agree that the change per annum is significant. We have not conducted a widespread benchmarking study to determine whether Vodafone's claims about the comparison of the 'X' in this charge control is as extraordinary as Vodafone claims.

10.55 We do not think Vodafone's statement is relevant to the question of how to set the glide-path; the right question is whether the statutory tests are best met by our decision, including an impact assessment that considers the effects of the decision appropriately. That said, as noted above, the reductions are broadly similar to significant changes in MTRs that have been imposed by Ofcom in previous charge controls. Indeed, the percentage reduction in MTRs p.a. is comparable to that imposed by Ofcom for the first year reduction in MTRs following the 2004 statement. Also as illustrated by H3G, there are regulatory precedents of significant reductions in prices following price control reviews.[793]

10.56 In considering C&W's submission, we have taken into account its position both as a fixed CP and as a MCP. C&W notes the significant changes proposed but would not favour a departure from glide paths based on a constant percentage reduction in charges.

10.57 We do not believe that a slower decline in charges than implied by a constant percentage glide path is appropriate. Our conclusion on glide-path duration, above, already accommodates the desire to allow sufficient time for industry to adjust to the move to pure LRIC MTRs (i.e. by marginally concluding in favour of a four-year glide path rather than a three-year glide path). Allowing a further relaxation of the transition to prices that reflect the pure LRIC of call termination by specifying it in terms of a constant ppm reduction in MTRs rather than a percentage reduction would go beyond what is necessary to allow industry to adjust, and would come at the expense of competition and consumers.

Conclusion on the form of the glide path

10.58 We are therefore implementing a constant percentage reduction in charges each year rather than a constant per minute reduction.

Glide path for H3G

Vodafone

10.59 As noted in section 9 to this statement, Vodafone estimated that the unit costs for a 3G-only operator were significantly below those for a 2G/3G operator (under LRIC+

[792] C&W June 2010 response, page 4
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Cable_Wireless_Worldwide.pdf
[793] H3G June 2010 response, paragraph 131
http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf

or pure LRIC). Nevertheless, Vodafone supported the view that a single MTR for all MCPs was appropriate.[794]

European Commission

10.60 The Commission submitted that the glide path for H3G implied that H3G's MTRs would not be aligned with those of other MCPs until the end of the first year of the charge control.[795] The Commission emphasised that asymmetry in termination rates should be adequately justified by objective cost differences and limited to a four-year transitory period, noting that H3G had entered in 2003. It therefore urged Ofcom to reduce H3G's charges via a one-off cut and adopt the same glide path as for the 2G/3G MCPs.

Ofcom's assessment of the glide path for H3G

10.61 As shown in Table 10.1 below H3G's charges at the end of the current charge control are above those of the other MCPs by 0.30ppm (in 2008/09 prices).

10.62 The Commission's point has been overtaken by our decision to simplify the pricing rule. While the glide path on which we consulted for H3G indicated a higher *starting* charge than the 2G/3G MCPs, the maximum average charge for H3G in year 1 (i.e. 2011/12) was proposed to be the same as for the other MCPs (as can be seen from Table 1 in section 1 of the April 2010 consultation). In other words, we proposed that on average H3G could charge no more during the first year than its rivals, but recognised its higher charges *today* as a result of the 2007 charge control (set in 2007 and revised by the CAT/CC in 2009). To align all prices to a symmetric rate, if we were imposing an average price rule, the percentage reduction in charges required in year 1 for H3G was therefore higher (i.e. the year 1 value of X in the RPI-X formula needed to be more negative).

10.63 In this decision, we are imposing a maximum charge, not capping average charges, so this concern falls away.[796] That cap will apply for all four national MCPs, including H3G.

Conclusion on the glide path for H3G

10.64 We should set the maximum call termination charge to the same level for all national MCPs, including H3G.

RPI indexation of the glide path

10.65 In the April 2010 consultation we favoured a charge control in the form "RPI-X".[797] While that consultation and the November 2010 consultation considered options for addressing so-called "flip-flopping" of MTRs (which is considered more fully under the heading "A simpler pricing rule" below), the mechanism to determine the cap each charge control year remained a RPI-X formula applied to the cap from the previous year.

[794] Vodafone June 2010 response, Annex 4, page 112 at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone_annexes.pdf
[795] Commission June 2010 letter to Ofcom, page 6 at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/European_Commission.pdf
[796] We are setting an average charge rule for a 2 month transitional period, but the average during is set directly not by a formula, so this concern does not apply. See paragraphs 10.115 to 10.118
[797] April 2010 consultation, paragraph 9.10-9.12

10.66 Under the RPI-X formula applicable for the current charge control, and the charge control formulae, consulted on in the April 2010 and November 2010 consultations, the cap for each year is determined by multiplying the prior year cap by the following expression:

1 + RPI + X

where RPI is the percentage change in the Retail Prices Index and X is the percentage reduction in charges (i.e. for a reduction in charges X will be negative).

10.67 The term X in the above formula contains a so-called geometric conversion factor to ensure that the real unit cost target is hit.[798] When we set a charge control, the value of X is fixed for the control period. As such, RPI in the geometric conversion factor above must be based on a forecast for inflation, but not for the first year. [799]

O2

10.68 In its response to the April 2010 consultation, O2 raised concerns over the use of forecast inflation for the geometric conversion. Although the geometric conversion factor ensures a mathematically correct formula to achieve the target level of real charges (at least in forecast terms) when the geometric conversion factor is specified at the start of the control and fixed thereafter (as it has been to date), it is vulnerable to inflation forecast error.

10.69 O2 proposed that we specify the charge control formula using the calculated real decline in charges and the actual observed inflation. Therefore, the cap applicable for a relevant charge control year would be determined by the prior year cap multiplied by

(1 + RPI) * (1 + Y)

where Y is the real reduction required.

10.70 In this form, the charge control formula would not need a geometric conversion factor and so would not suffer the same forecast risk that exists when we fix the conversion factor over the life of the control. Under O2's proposal, the charge control formula would only have a single inflation term and thus only require the lagged value of RPI (that lagged value of RPI featuring in the more familiar "RPI-X" controls via the controlling percentage which updates the cap for each new charge control year).

✂

10.71 Separately, in its response to the November 2010 consultation on flip-flopping[800], one respondent ✂ raised an issue regarding the appropriateness of RPI in setting charge controls, given recent changes to VAT that have contributed to increases in RPI.

[798] This is to avoid a mathematical error from the difference between a cap expressed in additive terms (i.e. RPI+X) and the fact that inflation and the required real reduction combine in a multiplicative way. The geometric (i.e. multiplicative) conversion factor is given by the real reduction, Y, multiplied by (1+RPI). That is, the value of X in the 1 + RPI + X formula, is given by X = Y*(1+RPI).

[799] We have used the actual value of RPI for the year to December 2010 of 4.8% and have assumed a constant RPI of 2.5% for the years thereafter.

[800] The scope of the November 2010 consultation is explained further below

Ofcom assessment on indexation of the glide path

10.72 We accept that O2's suggested change would remove the risk of inflation forecast error from the current "RPI-X" formula. However, we must consider whether in practical terms O2's suggestion is an improvement over the formula we use currently.

10.73 We have consistently used the RPI-X formulation when setting charge controls. RPI-X has the advantage of providing a familiar and simple way of expressing how charges will change during a charge control. Given the mathematical error from combining variables which are defined multiplicatively (i.e. inflation and real changes in MTRs) within an arithmetic formula (i.e. RPI-X), we have previously applied a geometric conversion factor. There are three reasons why we believe that O2's suggested change does not provide an improvement over the current formula given other factors affecting the accuracy of the indexation of RPI-X charge controls.

10.73.1 First, RPI is an imperfect measure of the inflation faced by MCPs.

10.73.2 Second, the period used to calculate RPI is different from the charge control year to which it is applied.

10.73.3 Third, the forecast error is near symmetric and is considerably outweighed by other possible forecast errors.

10.74 **The relevant measure of inflation for MCPs:** O2's suggested change would remove the risk of forecast error, but it would not replace it with an error-free formula. To produce a completely accurate charge control we would want to calculate the specific input price inflation that MCPs face over each charge-control year. This is difficult and will vary from MCP to MCP, so as a simplifying assumption, the general increase in prices is proxied via annual changes in RPI. However, in some years RPI will be a poor proxy for the inflation faced by MCPs at the wholesale level (for example, when changes in VAT significantly affect the index – as indicated by ✂ in its response to the November 2010 consultation).

10.75 **The lag in applying the inflation adjustment to MTRs:** The value of the change in RPI that is used in the RPI-X formula is not the actual inflation for the charge control year in question but rather the RPI change for the December to December period before the charge control year. If charges are to be set for a year ahead without ex-post change, a lagged value of RPI must be used.

10.76 **Materiality of the error identified by O2:** Due to the way we calculate the geometric conversion, the current RPI-X formula has the risk of inflation forecast error. However, we have no reason to believe that our inflation forecast used in calculating the geometric conversion factor represents a systematic over- or under-estimate of inflation over the control period. We therefore expect the potential forecast errors to largely cancel out.

Ofcom assessment of the appropriateness of RPI as a measure of inflation

10.77 RPI has been the inflation index favoured both in telecoms and in other areas of economic regulation.

10.78 While in some years factors affecting RPI might not affect the regulated firm (e.g. VAT), in other years inflationary factors facing the firm might be greater than those captured by RPI (e.g. changes in commercial property costs or cell site rental charges). Provided that changes in RPI are a reasonable proxy for the inflationary

pressures facing MCPs on average over the medium to long-term, because we have a four year control period and glide paths from one charge control to the next, the errors from using RPI as the inflation index are unlikely to be problematic.

Overall conclusion on indexation of the glide path

10.79 In respect of the concern raised by O2, we believe that moving away from a RPI-X specification, although mathematically correct, would introduce spurious accuracy to the charge control formula and we do not believe that the use of RPI-X creates a material asymmetric forecast error. Therefore, we prefer to maintain consistency with past MCT controls and other charge controls and continue using the RPI-X formulation for the MCT charge controls out to 31 March 2015.

10.80 In response to the concern raised by ✂ as to the suitability of RPI, we remain of the view that RPI is an appropriate index for the new MCT charge controls.

A simpler pricing rule

Proposals in the April 2010 consultation

10.81 In our April 2010 consultation we consulted on four options to prevent the practice whereby some MCPs impose regular and substantial changes in their MTRs – a practice referred to in industry as 'flip-flopping'. [801]

10.82 We explained in the April 2010 consultation that the current charge control (that is, the charge control set in 2007) permits flexibility in MTRs, provided that the average charge (calculated in accordance with a formula set in the relevant SMP condition) does not exceed a maximum average charge. We set out our understanding of the original rationale for that flexibility – to promote efficiency. [802]

10.83 We set out the way in which this flexibility had been used in practice – to vary rates to take advantage of a feature of the average charge formula. In that formula, the prior year's call volumes (and not the current year's call volumes) are used to calculate the average charge. Given that providers often have MTRs that vary between, for example, weekday and weekend periods, then there can be an opportunity to increase a provider's revenues without exceeding the average charge. For example, if the number of weekends increases in the charge control year in question from four to five compared to the previous year, a MCP can increase its MTR at the weekend and decrease MTRs in the day and evening for the year in question. In the current year, this gives the MCP an 'extra' weekend of revenue at the higher MTR. To extract this extra revenue, the provider needs to vary its rate sharply – hence 'flip-flopping'.[803]

10.84 We set out the basis for our concern that flip-flopping was harmful to the interests of consumers because:

10.84.1 First, flip-flopping allows MCPs to gain extra revenue beyond that envisaged by the regulator when the glide path to efficient unit costs was set. We estimated that MCPs could obtain up to an extra 5% of termination revenue per annum, i.e., in the tens of millions of pounds. This compares to

[801] April 2010 consultation, paragraph 9.110 et seq at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/summary/wmvct_consultation.pdf.
[802] Idem. April 2010 consultation, paragraph 9.112 to 9.115.
[803] Idem. April 2010 consultation, paragraph 9.116 to 9.119.

the baseline case where a single, flat rate is charged throughout the year i.e. no separate time of day rates.

10.84.2 Second, frequent and radical changes in time of day rates increase risk for originating providers and potentially raise their costs, in a way that is not susceptible to competitive pressure (that is, the source of the ability to flip-flop is related to the underlying SMP in call termination).[804]

10.85 We therefore considered that flip-flopping of MTRs was likely to operate counter to the efficiency objectives that might argue for freedom over individual MTRs (by time of day period) within the overall control of average charges. We invited respondents to comment on our analysis of the harm caused by flip-flopping.[805]

10.86 In the April 2010 consultation we set out four options to address the detriments identified in respect of flip-flopping:[806]

10.86.1 Option 1 – adopt a formula similar to the 2007 control;

10.86.2 Option 2 – restrict the frequency and size of rate changes;

10.86.3 Option 3 – impose a constant time of day ratio;

10.86.4 Impose a single, constant, flat rate for each whole year of the control (flat rate).

Submissions received

10.87 The majority of respondents to our April 2010 consultation, including MCPs, agreed that regulation should prevent frequent and significant changes in MTRs – and agreed with our assessment that flip-flopping harmed the interests of originating providers and, indirectly, consumers.

10.88 A number of fixed CPs and smaller MCPs (including BT, C&W, Mundio Mobile and TalkTalk) commented that constant and unpredictable MTR changes placed an administrative burden on them and made commercial planning more difficult. In particular, C&W stated explicitly that such frequent MTR changes "*place[s] an administrative burden on operators to keep changing prices*".[807]

10.89 In general, the national MCPs were less concerned about time-of-day pricing flexibility than we had anticipated (with the exception of Vodafone).

10.90 H3G submitted that setting different MTRs by charging period no longer sent out relevant pricing signals for mobile-to-mobile calls as retail packages rarely differentiated charges according to time of day.[808] Colt argued that the practice of flip-

[804] Idem. April 2010 consultation, paragraph 9.120 to 9.126.
[805] Idem. April 2010 consultation, paragraph 9.126, Question 9.3.
[806] Idem. April 2010 consultation, paragraph 9.128 et seq.
[807] See page 5 of Cable and Wireless' response to the April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Cable_Wireless_Worldwide.pdf .
[808] See paragraph 283 of H3G's response to the April 2010 consultation at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/H3G.pdf

flopping itself demonstrated the lack of any commercial value in providing this flexibility.[809]

10.91 H3G ✂ favoured options that did not allow any time-of-day flexibility. Under the current control O2 has consistently been charging a flat rate. Only one respondent, Vodafone, commented that it considered time-of-day flexibility to still be valuable to encourage efficient network use,

> "the need for flexibility is that it does allow the operators the possibility of optimising the use of their network through encouraging traffic at low usage times. However in order for wholesale rates to have any real impact on traffic mix, there must be some form of predictable continuity in order for originating operators to be able to react in a way that might encourage traffic at times of low usage."[810]

Revised proposals on a simpler pricing rule

10.92 Given feedback from stakeholders and further consideration of charge control design, we held an industry workshop on 12 October 2010 and issued a further consultation in November 2010. Our revised position, consistent with our objective in the April 2010 consultation, was to propose a rule that prevented (or severely restricted) the harmful effects of flip-flopping.

10.93 The additional options presented at the workshop and in the November 2010 consultation were:

10.93.1 Option 5 - to allow full time-of-day flexibility, but limit the number of changes to one during each year; and

10.93.2 Option 6 - to set an absolute ceiling on MTRs but allowing flexibility of charging below that ceiling.

Preferred option: set a maximum charge

10.94 Feedback from stakeholders to both the April 2010 consultation and the October 2010 workshop was that the majority preferred a simple pricing rule that allowed predictability of pricing, while preventing 'flip-flopping'.

10.95 In the November 2010 consultation, we set out Option 6 as our preferred option.[811] The only restriction under this option was that any MTR, at any time of day set by the 4 national MCPs, would not exceed the maximum charge set by the control. In our view, Option 6 provides certainty to purchasers of MCT over the maximum level of MTR allowed.

10.96 Because of its design, the compliance calculation under Option 6 is trivial. Therefore, MCPs would not need to provide volume information to Ofcom as is currently the case with the controls set in the 2007 statement and other options consulted on (with the exception of Option 4) in the April 2010 consultation. Compliance monitoring

[809] See section 3.4 (see-sawing) on page 6 of COLT's response at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Colt.pdf
[810] See Annex 4, Detailed Charge control compliance rules (page 115), and specifically under Option 3 (page 120) at http://stakeholders.ofcom.org.uk/binaries/consultations/wmctr/responses/Vodafone_annexes.pdf
[811] Mobile call termination supplemental consultation: A simpler pricing rule - 16 November 2010 http://stakeholders.ofcom.org.uk/binaries/consultations/mtr/summary/mtr.pdf

would only require evidence that the MTR had never exceeded the ceiling for any period over the charge control year. The cost of *ex-ante* compliance for the MCPs should also be negligible, as no calculation would be required when setting MTRs to check that they would be compliant with the cap for the period ahead.

10.97 Option 6 allows MCPs some flexibility in how they set their MTRs by removing restrictions on the frequency of rate changes and maintaining the ability to set different time-of-day MTRs if they wish to influence use of their networks in different periods (and where this flexibility more than compensates for the revenue loss associated with setting MTRs below the cap).

10.98 In the November 2010 consultation we set out a new SMP condition M3, reflecting the changes required to implement our preferred approach.

Stakeholder responses to the November 2010 consultation

10.99 We received 13 responses to the November 2010 consultation.[812] 10 responses supported the adoption of our preferred Option 6 outright, and two more expressed qualified or conditional support:

10.99.1 H3G preferred Option 4 (setting a constant flat rate cap)[813], but considered that Option 6 would have the same practical effect (as MCPs would otherwise be sacrificing revenue); and[814]

10.99.2 One respondent, Sky, while supporting a price ceiling (i.e. Option 6), considered that the number of MTR changes in the year should also be restricted.[815]

10.100 Vodafone considered that the detrimental effect of flip-flopping was exaggerated.[816] Of the two options in the November 2010 consultation, Vodafone considered that Option 5 was more practical and proportionate.[817]

Ofcom's assessment

10.101 We believe that Option 6 is the correct regulatory mechanism for the operation of the charge control. It meets the relevant legal tests set out in section 47 of the Act in that it is justifiable, non discriminatory, proportionate and transparent. It has the benefit of simplicity and removes the incentive to flip-flop, thereby removing concerns over the harm caused by flip-flopping (as discussed in paragraph 9.120 et seq. of our April 2010 consultation).

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[812] Responses were received from Sky, BT, C&W, H3G, Loho, Syntec, Talk Talk Group, UKCTA, Vodafone, ✂. Non-confidential responses are available at http://stakeholders.ofcom.org.uk/consultations/mtr/?showResponses=true

[813] H3G December 2010 response, paragraph 3 at http://stakeholders.ofcom.org.uk/binaries/consultations/mtr/responses/h3g.pdf

[814] Idem. H3G December 2010 response, paragraphs 4-5.

[815] Sky, considered that MCPs should only be permitted to make one change each year rather than have full flexibility – or at the very least a limited number of changes (e.g. once per quarter). Sky December 2010 response at http://stakeholders.ofcom.org.uk/binaries/consultations/mtr/responses/bskyb.pdf .

[816] Vodafone December 2010 response, page 2 at http://stakeholders.ofcom.org.uk/binaries/consultations/mtr/responses/vodafone.pdf

[817] Idem. Vodafone December 2010 response, page 6

10.102 The simplicity of the rule reduces compliance costs for the companies subject to it and for Ofcom. There is no need for the companies to incur costs over the year as is the case when analysing and predicting whether or not they are on course to meet a target average. There is no need for submissions to Ofcom in that regard, and there is no need for Ofcom to check these submissions during the year and at the end of the year to assess compliance. Ofcom's monitoring costs are therefore much reduced. The pricing rule should therefore lead to savings which, while perhaps moderate compared to the costs of the mobile sector as a whole, can be passed on ultimately to consumers.[818]

10.103 It is proportionate in that it allows MCPs some flexibility in how they set their MTRs by removing restrictions on the frequency of price changes and by maintaining the ability for MCPs to set different time-of-day MTRs if the revenue foregone is outweighed by the benefit of pricing flexibility.[819]

10.104 It is objectively justifiable because it is likely to remove the problematic effects of the previous rule. It is not discriminatory as it applies to each for the four national MCPs, and further reduces discriminatory effects for other companies which had to cope with fluctuations in charges to them. It is targeted to the problem and we consider that it will deliver benefits to consumers.

Specification of the maximum charge

10.105 In the November 2010 consultation, we identified the desire to avoid cost under-recovery in the final year of the charge control if charges were capped with effect from the start of the control period, but where costs might be interpreted as end of year costs.[820] Our proposed solution was for charges in the final year (2014/15) to be set by reference to the modelled costs from the previous year (2013/14).

Submissions

10.106 BT, C&W, UKCTA and Sky all commented on this proposed approach and were concerned to avoid cost over-recovery for the MCPs.

Ofcom's assessment

10.107 Having considered this issue further in the light of the responses received, we do not consider it necessary for the cap to lag costs in the final year of the charge control.

10.108 This is because the 2011 cost model is a discrete model of cash flows and volumes. The 2011 cost model outputs are the unit charges for termination (and other services) necessary to ensure recovery of the present value of network costs (capex and opex) given projected volumes over the lifetime of the network. Therefore, provided that actual cash flows (both outlays and receipts) match the timing modelled (i.e. each happening at the end of the year), charges set at the level projected by the 2011 cost model would precisely ensure cost recovery (in present value terms).[821]

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[818] ✂ stated in their response to the November 2010 consultation that regulatory compliance in previous years represented significant burden on business.

[819] This is consistent with the majority of stakeholder responses that this greater level of flexibility is no longer required for incentivising efficient use of the network.

[820] Mobile call termination supplemental consultation: A simpler pricing rule - 16 November 2010, footnote 15 http://stakeholders.ofcom.org.uk/binaries/consultations/mtr/summary/mtr.pdf

[821] This assumes charges being set at the level projected by the model for the lifetime of the network and assuming no forecast error.

10.109 However, as for all input variables in the model (volumes, MEA trends, etc.) there will be forecast error. That is, actual cash flow timings are unlikely to match those modelled but we do not have the information necessary to calculate whether this would systematically lead to a risk of cost under-recovery or cost over-recovery. For example, the model assumes that all revenue appears as a cash flow at the end of the year. In practice, revenue is received steadily by the MCPs throughout the year. The more revenues are received early, the greater the cash flow benefit compared to that modelled. Conversely, if actual cash outlays are made sooner in the year than modelled, this would imply a cash flow disadvantage.

10.110 That said, in so far as the model projects falling unit costs overall, the driver of this in the framework of economic depreciation is falling input costs in aggregate (i.e. the negative MEA trends for opex and capex used for MCT). The impact of a fall in the MEA does not register in the model as a reduction in unit costs until the year after the MEA reduction is measured. Therefore, even if in the real world a cash outlay was incurred sooner than modelled, the size of that actual cash outlay would be less than modelled, as the model is capturing the effect of falling input costs with up to a year's lag.

Compliance with the charge control and transition period

Ofcom to publish the nominal cap prior to the start of each control year

10.111 In SMP condition M3 (see Annex 1), we have set the nominal maximum charge (in pence per minute) for the first relevant year. For the remaining three years of the charge control, the maximum charge will be calculated using the RPI-X formula. The maximum charge for years 2, 3 and 4 (in pence per minute) can be calculated only once the relevant inflation data is published (i.e. the change in RPI for the year ending 31 December before the start of the relevant year in question).

10.112 In the interest of transparency and certainty, we will publish our assessment of the maximum charge applying during the second, third and fourth relevant years of the charge control when the inflation information becomes available.

Submissions received

10.113 Two respondents, ✂[822] and ✂[823], raised the issue of notification periods that apply to price changes. Both respondents observed that the notice period in BT's Standard Interconnect Agreement (SIA) requires 56 days' prior notification of price changes. To ensure that 56 days' notice is provided, MCPs would need to notify any change in MTRs before the charges take effect, that is by 3 February for new charges to take effect on 1 April 2011.

Ofcom's views

10.114 As this statement has been issued after 3 February 2011 we recognise that it is not possible for MCPs to provide 56 days' notice of changes to MTRs as required under the SIA. We note however, that as set out in section 6 the SMP obligation on price publication requires only 28 days prior notice, 56 days is industry convention (at least for interconnection with BT). Nevertheless, to allow sufficient notification of charge changes following publication of this statement we have set out a transition period to apply from 1 April to 31 May 2011.

822 ✂
823 ✂

Transition period

10.115 A transition period will apply between 1 April 2011 and 31 May 2011. During this period a maximum target average charge of 2.984ppm will apply to the four national MCPs. For the remaining 10 months of the first year of the control (1 June to 31 March 2011) a maximum charge of 2.984ppm will apply instead. The charge control applied for subsequent years remains unchanged.

10.116 During this two month transition period the weights used to monitor compliance with the maximum target average charge will be the historic traffic volumes for each national MCP for the period 1 April 2010 to 31 May 2010.

10.117 Applying this transition period allows MCPs to give more than 56 days notice of changes to MTRs that will apply from 1 June 2011 and more than 28 days notice of MTRs that will apply from 1 May 2011, whilst ensuring that on average MTRs do not exceed 2.984ppm over this period. SMP condition M3 details the requirements that apply to the four national MCPs in respect of the charge control.

10.118 For changes to MTRs after this transition period, the requirement for a 28 day notice period, as discussed in section 6 and set out in SMP condition M4, applies.

Rounding

10.119 In our November 2010 consultation we noted that MCPs currently set MTRs to either three or four decimal places. We believed that it was in the interests of all parties, and ultimately, consumers, that we specify a common practice to ensure consistency among different interconnecting operators and therefore proposed rounding the cap to 3 decimal places.

Stakeholder's responses

10.120 In its response Vodafone questioned the need to move to rounding to three decimal places, arguing that this was a new proposal (raised in the November 2010 consultation) and that all currently regulated MCPs were able to round to four decimal places.

10.121 Vodafone went on to state that the wording of the proposed SMP condition (condition M3.2) was ambiguous, in that it was not clear whether the cap that applied in year 3 of the control would be calculated using the rounded or unrounded cap for year 2. Another respondent, Loho Ltd, identified a mathematical anomaly in the wording of the proposed SMP condition M3.2.

Ofcom's analysis

10.122 Having reflected on the responses and the treatment of rounding, we think it useful to make the following distinctions in order to clarify our favoured approach:

i) The number of decimal places used for billing.

ii) The level of precision to which the maximum charge is set, and how this will be interpreted for assessing compliance.

10.123 First, regarding billing, we will not add any restriction to the number of decimal places to which an MCP can bill, over and above the Ofcom Metering and Billing Scheme.[824] So an operator could set and bill a pence per minute charge to three, four or any other number of decimal places (subject to the Ofcom Metering and Billing Scheme).

10.124 Second, as far as assessing compliance is concerned, in contrast to the current control, there will no longer be a need to calculate a weighted average charge (specifically, weighted by volumes). Assessing compliance will be a simple matter of checking whether any charge is below or equal to the maximum charge.

10.125 It is therefore helpful for us to clarify precisely how rounding will be treated with respect to judging a billed charge against the maximum charge set. This will allow for a consistent interpretation across MCPs. We also want to ensure that the treatment is practical for all MCPs, irrespective of how many decimal places they use when billing.

10.126 Our view is that the maximum charge, in pence per minute, should be set to three decimal places. This means an exact charge with effectively only zeros after the third decimal place.[825] To put this level of precision in the maximum charge into context we estimate that the difference between rounding to four decimal places and three could be up to £100k p.a. for a national MCP with 25% market share.[826] Given the potential forecast error in cost modelling alone, we consider that rounding to four decimal places would involve artificial accuracy. While the MCT cost model outputs have been rounded to 2 decimal places, we think that the potential value to MCPs between rounding to 3 decimal places and 2 decimal places is sufficiently large (potentially up to £1m per annum for a national MCP[827]) that we wish to be more precise than rounding to 2 decimal places. We consulted on rounding the maximum charge to three decimal places. Only Vodafone objected to this. On balance, we believe that the benefits of a clear rule, allowing a reasonable but not spurious level of precision, means that we should set the maximum charge to three decimal places.

10.127 We agree with Vodafone's observation that, as previously drafted, propsed SMP condition M3.2 gives scope for interpretation and we have clarified the rounding convention in the SMP condition accordingly. For example, the year 3 cap would be calculated by reference to the 'controlling percentage' (essentially the RPI-X part of the control), itself a value rounded to one decimal place, and the year 2 cap rounded to three decimal places (i.e. not the unrounded value from the calculation undertaken to calculate the year 2 cap). The value from this calculation would then be rounded to three decimal places and would thus determine the maximum nominal charge for year 3.

10.128 We also agree with Loho's comment regarding the mathematical anomaly in proposed SMP condition M3.2 and have amended the condition accordingly.

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[824] See http://stakeholders.ofcom.org.uk/binaries/consultations/metering_billing/statement/mbstatement.pdf

[825] For example, the maximum charge in year 1 is 2.984ppm (see Table 10.1 below). For an operator billing to four decimal places, a charge of 2.9841ppm or greater would be non-compliant, whereas a charge of 2.9840ppm or less would be compliant. For an operator billing to three decimal places, a charge of 2.985ppm would be non-complaint, whereas a charge of 2.984ppm or less would be compliant. For an operator billing to two decimal places, a charge of 2.99ppm would be non-compliant, whereas a charge of 2.98ppm or less would be compliant.

[826] Across all terminating minutes (F2M and M2M).

[827] Across all terminating minutes (F2M and M2M).

Minutes included within the charge control

10.129 In its response EE commented that guidance was required on the traffic to be included within the control, and requested that Ofcom clarified which traffic was to be included within the control and which was to be excluded.

Ofcom's views

10.130 In annexes 5 and 15 of the April 2010 consultation, we set out in detail the types of call that we considered were covered by the charge control. Consistent with our position in the April 2010 consultation, we believe that any call covered by the market definition (see Table 3.2 of section 3 above) should be covered by the charge control.

10.131 For the avoidance of doubt as to which calls are inside and outside the charge control, we clarify below the position for the charge controls commencing on 1 April 2011:

10.131.1 **Calls to ported numbers** –the relevant market for each MCP extends to calls made to mobile numbers that have been ported out, but not to calls to mobile numbers that have been ported in. Therefore, calls to ported-out numbers are in the control, and calls to ported-in numbers are not.

10.131.2 **Off-net calls which end on voicemail** – these calls fall within the relevant market and would therefore fall within the charge control.[828]

10.131.3 **National roaming calls –** calls to a MCP's number range which are received while the called party is roaming nationally on another MCP's network should be treated in the same way as any other call on the first MCP's number range (i.e. as if the user were not roaming).

10.131.4 **International roaming** – for these calls, the situation is dependent upon how the call is routed and is less straightforward. Our position remains as in Annex 5 of the April 2010 consultation.

10.132 In the April 2010 consultation we also identified three other call types that we believed required further clarification:.

10.132.1 **calls that terminate on a network announcement**;

10.132.2 **test calls**; and

10.132.3 **circuit-switched video traffic**.

10.133 These are not typical calls between end-users and so may not logically face the same competitive constraints or create the same incentives for MCPs. As these calls represent only a very small proportion of total volumes, we do not feel it proportionate to engage in a detailed analysis of these call types. But, for the avoidance of doubt, our position remains as set out in the April 2010 consultation. Where these calls are made to a mobile number and face the same common pricing constraint as other calls to mobile numbers, we consider that these calls fall within the relevant market and should therefore be covered by the charge controls.

[828] On-net calls to voicemail should be excluded because on-net calls are outside the relevant market.

Conclusion

10.134 Having considered stakeholder responses to both our April 2010 consultation and our November 2010 consultation, and based on further consideration of the issues in the round, the charge controls on the four national MCPs will comprise the following:

10.134.1 a four-year glide path (with the cap set at pure LRIC with effect from 1 April 2014);

10.134.2 a cap expressed as a maximum charge, with variations permitted below that cap (and no restriction on the frequency of changes)[829];

10.134.3 annual specification of the nominal cap for each year of the control consistent with the familiar RPI-X formula; and

10.134.4 compliance rules and monitoring (including rounding of the maximum charge to three decimal places) as described in this section.

10.135 The maximum charges to apply for each of the four national MCPs are shown in the table below. Only the nominal cap applicable for the first year (i.e. commencing 1 April 2011) can be specified, since the value of RPI in the RPI-X formula for each relevant year depends on reported RPI for the previous calendar year.

10.136 The value of X is different for H3G in year 1 so as to ensure that it faces the same cap (in ppm terms) as the other national MCPs. This is because H3G's maximum charge for the year to 31 March 2011 – previously known as the target average charge (TAC) under the current charge control – is higher than for the other national MCPs.

Table 10.1 Summary of the maximum charges under the charge control (ppm 2008/09 prices)[830]

		Year 1	Year2	Year 3	Year 4
	1 April 2010 to 31 March 2011 (TAC)	1 April 2011 to 31 March 2012	1 April 2012 to 31 March 2013	1 April 2013 to 31 March 2014	1 April 2014 to 31 March 2015
2G/3G Operators					
X Value	NA	-37.4%	-37.4%	-37.4%	-37.4%
Real Cap (08/09 Prices)	4.180	2.664	1.698	1.083	0.690
Nominal TAC/Cap	4.430	2.984	NA	NA	NA
H3G					
X Value	NA	-41.9%	-37.4%	-37.4%	-37.4%
Real Cap (08/09 Prices)	4.480	2.664	1.698	1.083	0.690
Nominal TAC/Cap	4.750	2.984	NA	NA	NA

10.137 In sections 6 and 8 (see paragraphs 6.5 to 6.14 and 8.4 to 8.10) we summarised the legal tests and statutory duties that are relevant to our decision to impose a charge control remedy in this market review. We now assess our charge control remedy for

[829] For the first two months of the first year, we are setting a cap based on average MTRs to allow MCPs sufficient time to notify and implement changes in rates following this statement.
[830] The X-value for H3G in the first year of the charge control is calculated as the value that would equate H3G's charges with the charges of the 2G/3G MCPs.

the four national MCPs (SMP Condition M3), including our choice of a pure LRIC cost standard, in light of these tests and duties.

10.138 Section 87(9)(a) of the Act authorises the setting of a SMP services condition imposing charge controls in relation to matters connected with the provision of network access. Section 88(1) of the Act authorises the setting of a SMP condition falling within section 87(9) where it appears to us that there is a relevant risk of adverse effects arising from price distortion and it also appears to us that the setting of the condition is appropriate for the purposes of:

- promoting efficiency,
- promoting sustainable competition, and
- conferring the greatest possible benefits on the end-users of public electronic communications services (PECS).

10.139 As discussed in section 5 (in particular paragraphs 5.19 to 5.31), it appears to us from our market analysis that there is a relevant risk of adverse effects arising from price distortion as, absent regulation, MCPs would have the ability and the incentive to set excessive MTRs. We consider that the excess profits that would result would not be fully competed away (i.e. we believe the waterbed effect will not be complete). In any event, even if the waterbed effect were complete, excessive MTRs would result in significant consumer harm because of economic inefficiency, competitive distortion and distributional impacts.

10.140 We consider that SMP Condition M3 is appropriate for the purpose of promoting efficiency as it addresses the inefficient structure of prices that results from excessive MTRs. Setting MTRs at pure LRIC encourages efficient consumption of services, as prices more closely reflect true resource costs.

10.141 We consider that SMP Condition M3 is appropriate for the purpose of promoting sustainable competition as it seeks to address the distortions of competition which arise with excessive MTRs. In particular, we consider that a pure LRIC cost standard best promotes sustainable competition, as it will intensify retail price competition, eliminate the barriers to expansion that otherwise exist, and reduce the competitive impact of the difference between MTRs and FTRs.

10.142 Finally, we consider that SMP Condition M3 is appropriate for the purpose of conferring the greatest possible benefits on end-users of PECS. As explained in section 8, we believe that consumers will benefit from a reduction in MTRs from their current level to reflect our updated estimate of LRIC+ costs. However, we believe that reducing MTRs to the pure LRIC level will deliver further incremental benefits. We therefore consider that consumer benefit is maximised by our choice of a pure LRIC cost standard.

10.143 We have taken account of the extent of the investment by the four national MCPs, as required by section 88(2) of the Act. In designing the charge control, we have taken into account the costs and reasonable rates of return on investment required by the four national MCPs. We also believe that they will continue to have the ability and incentive to invest, following the imposition of this condition (see section 8).

10.144 SMP Condition M3 meets the relevant legal tests set out in section 47 of the Act in that it is objectively justifiable, non-discriminatory, proportionate and transparent. The condition is objectively justifiable, as it is aimed at ensuring that MCT services are

provided by the four national MCPs at a price level that will secure efficient and sustainable competition and maximise consumer benefits. We consider that SMP Condition M3 (and our choice of a pure LRIC cost standard) is proportionate in light of these objectives. The condition does not unduly discriminate, in that it applies equally to each of the four national MCPs. As explained in section 6 (see paragraph 6.92), we think it would be inappropriate to impose a charge control on the newer and smaller MCPs at this stage, given their size, scale and available resources.

10.145 In this statement, we have set out a transparent explanation of the intended operation and objectives of SMP Condition M3. Moreover, the form of charge control (a maximum charge ceiling) is itself transparent and is a simpler mechanism than the current charge control, set by our 2007 MCT Statement. The new charge control design allows the MCPs some flexibility in how they set their MTRs, by maintaining the ability of the MCPs to set different time-of-day MTRs should they so wish. The MCPs will also no longer need to provide volume information to Ofcom for compliance purposes. We consider that the simplification of the charge control design adds to the proportionality and transparency of the condition.

10.146 In imposing SMP Condition M3, we have carefully considered our duties under section 3 of the Act. We consider that the imposition of the condition is consistent with our primary duty to further the interests of citizens and to further the interests of consumers, where appropriate by promoting competition. We have had regard, in particular, to the interests of those consumers in respect of choice, price, quality of service and value for money. Of the prescribed statutory objectives in section 3(2) of the Act, we consider that securing the availability throughout the UK of a wide range of electronic communications services is particularly relevant to this review. As discussed in section 8, we have carried out a detailed assessment of the potential impact on consumers of basing the charge control on a pure LRIC cost standard, in terms of ownership, pricing and usage of communications services. We have concluded that the use of a pure LRIC cost standard maximises consumer benefits overall.

10.147 We have also considered our other section 3 duties, particularly the obligation to have regard to the needs of the disabled, the elderly and those on low incomes (section 3(4)(i) of the Act). We have given careful consideration to the potential distributional impacts of imposing a charge control based on a pure LRIC cost standard. We have concluded that this will not result in significant equity concerns, particularly as it will benefit fixed-only vulnerable consumers (including the elderly and disabled).

10.148 We have also taken into account such of our other section 3(4) duties as appeared to us to be relevant (in this case, the desirability of promoting competition, the desirability of encouraging investment and innovation and the desirability of encouraging the availability and use of high speed data transfer services throughout the UK).

10.149 We have also had regard to the principles under which regulatory activities should be transparent, accountable, proportionate, consistent, and targeted only at cases in which action is needed (section 3(4) of the Act). We have explained above that we consider our decision to impose SMP Condition M3 to be transparent and proportionate, and that regulatory action is necessary in order to control excessive MTRs and the consumer harm that would result. In section 8, we considered concerns raised by some of the four national MCPs about the consistency of our regulatory activities (see paragraphs 8.151 to 8.156). We concluded that the principle of regulatory consistency should not give rise to an expectation on the part

of these MCPs that regulation will remain fixed or static. We believe that it is legitimate for us to alter our regulatory approach (insofar as we have previously applied a LRIC+ cost standard to regulate MTRs), in the light of new evidence and analysis, and taking into account any developments in the regulatory and legal framework. We do not consider, therefore, that our decision to impose a pure LRIC charge control is at odds with the principle of regulatory consistency.

10.150 Finally, in imposing SMP Condition M3, we have acted in accordance with the six European Community requirements set out in section 4 of the Act. Of particular relevance to this decision are the requirements to promote competition in the provision of ECN and ECS, to take account of the desirability of acting in a technologically neutral manner, to promote the interests of all persons who are EU citizens, and to encourage the provision of network access for the purpose of securing efficient and sustainable competition and the maximum benefit for customers of communications providers. We have explained above that we consider SMP Condition M3 (and our choice of pure LRIC) to be appropriate and proportionate for the purpose of securing efficient and sustainable competition and the maximum benefit for end-users. In seeking to maximise consumer benefit, we also consider that we are promoting the interests of EU citizens. In this context we have considered the needs of specific social groups of consumers (see paragraph 10.147 above) and concluded that our decision does not result in significant equity concerns. In our design of the charge control, and by imposing the same charge ceiling on all four of the national MCP, we have also taken into account the desirability of acting in a technologically neutral manner.