Determination to resolve Disputes between H3G and each of Everything Everywhere, O2, Orange, T-Mobile and Vodafone about mobile termination rates for calls to ported numbers

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Non-confidential substitute text appears inside [square brackets]

Determination
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Section 1

Summary

Introduction

1.1 On 18 March 2008 Hutchison 3G UK Limited ("H3G") referred four separate disputes (together "the Disputes") with other Mobile Network Operators ("MNOs") to Ofcom for resolution under section 185(1)(a) of the Communications Act 2003 ("the Act"). H3G submitted that it was in dispute with each of Telefonica O2 UK Limited ("O2"), Orange Personal Communications Services Limited ("Orange"), T-Mobile (UK) Limited ("T-Mobile") and Vodafone Limited ("Vodafone") (together "the other MNOs") regarding the current method of charging mobile call termination rates where calls are routed to a ported number.[1]

1.2 In summary, H3G stated that the Disputes arise in respect of the termination rate charging principle that currently applies to all traffic to ported mobile numbers (i.e. that the recipient network operator ("RNO") receives the termination charge of the donor network operator ("DNO"), rather than its own). This situation is referred to in this document as the "current charging arrangements". The current charging arrangements reflect the "D/D regime" described at paragraph 4.34 below.

1.3 The applicable termination rates for calls to ported mobile numbers are not set by any regulatory obligation but rather via Interconnect Agreements negotiated between H3G and the other MNOs (together "the Parties"). Under the terms of these Interconnect Agreements, where a call is routed to a mobile number ported in to H3G, H3G receives the termination rate of the DNO (the network to which the consumer originally subscribed), rather than H3G's own termination rate. H3G refers to this as the "donor paid principle".[2] It is seeking a determination from Ofcom that the "recipient paid principle"[3] should apply to charging arrangements for calls to ported mobile numbers such that where a call is routed to a ported number via the DNO, the RNO can charge its own termination rate for that call.[4]

1.4 H3G amalgamated the Disputes on the basis that each involves similar issues.[5] Ofcom agrees that the Disputes raise substantially similar issues and, accordingly, we have considered them together.

1.5 H3G considers that the period of the Disputes commenced on 15 May 2003 and continues while current charging arrangements remain in place. We note that the Parties disagree as to when the Disputes commenced. Given the conclusions we have reached in respect of the Disputes, and the reasoning and analysis supporting these conclusions, we do not need to reach any conclusion on this point.

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[1] Dispute re. mobile call termination rates for calls routed to a number ported between H3G and each of O2, Orange, T-Mobile and Vodafone (18 March 2008) ("H3G's Disputes Submission").
[2] In this document, the term "donor paid principle" refers also to the terms "donor pays principle", "donor pays all principle" and "donor passes all principle".
[3] In this document, the term "recipient paid principle" refers also to the term "recipient pays principle".
[4] Letter from Jane Jellis (H3G) to Tanya Rofani (Ofcom) (14 August 2009).
[5] H3G Disputes Submission, paragraph 1.2.

1.6 On 14 April 2008, Ofcom accepted that the Disputes were disputes within the meaning of section 185 of the Act. However, Ofcom considered that on the facts, exceptional circumstances existed such that Ofcom could decide at that stage that it would not resolve the disputes within four months pursuant to section 188(5) of the Act pending the final ruling of the Competition Appeal Tribunal ("CAT") in the Mobile Call Termination appeals ("the MCT Appeals"), which concerned the charge controls imposed on all of the MNOs in the wholesale markets for termination of voice calls by Ofcom's *Mobile call termination* Statement of 27 March 2007 ("the MCT Statement").[6]

1.7 The CAT's judgments on the MCT Appeals were published on 20 May 2008,[7] 22 January 2009[8] and 2 April 2009[9] respectively. Consequently, after further correspondence with the Parties, on 5 October 2009 Ofcom set out the scope of the Disputes on Ofcom's website as follows:

> *"The scope of the disputes is to determine whether the method of charging [MCT] rates where calls are routed to a ported number under the respective Interconnect Agreements between H3G and each of O2, Orange, T-Mobile and Vodafone is fair as between the parties and reasonable from the point of view of Ofcom's regulatory objectives.*"[10]

1.8 From July 2010, the Orange and T-Mobile brands have operated under a single company, Everything Everywhere Limited ("Everything Everywhere").[11] We have not received submissions from Everything Everywhere in connection with the Disputes. Accordingly, we retain references Orange and T-Mobile in this document, but have also included Everything Everywhere within the scope of our Determination.

Ofcom's analytical approach to resolving the Disputes

1.9 The Disputes relate to a charging method provision in agreements negotiated commercially between H3G and the other MNOs, in relation to which no regulatory obligations apply. H3G proposed to the other MNOs that the provision should be changed and they each rejected that proposal, such that they are now in dispute. In resolving these Disputes, Ofcom is considering whether the other MNOs were justified in rejecting H3G's proposal.

1.10 We have considered the effects of the current charging arrangements on H3G and the other MNOs, in order to assess whether they appear to us to be fair as between them, and reasonable in light of our statutory duties.

1.11 Whilst the current charging arrangements which are in dispute have remained constant throughout the period which we are examining, the underlying facts have changed over

[6] http://www.ofcom.org.uk/consult/condocs/mobile_call_term/statement/statement.pdf.
[7] See *Hutchison 3G UK Limited v. Ofcom* [2008] CAT 11.
[8] See *BT Telecommunications plc v. Ofcom* [2009] CAT 1.
[9] See *Hutchison 3G UK Limited and British Telecommunications plc v. Ofcom* [2009] CAT 11.
[10] http://www.ofcom.org.uk/bulletins/comp_bull_index/comp_bull_ocases/open_all/cw_983/.
[11] We understand Everything Everywhere is a joint venture between T-Mobile and Orange. We understand that Orange is a subsidiary of Everything Everywhere (such that Everything Everywhere has assumed responsibility for all contractual agreements that Orange and T-Mobile entered into prior to the creation of the joint venture).

time. In particular, over the period there have been changes in the Parties' termination rates and the differences between those rates (i.e. the degree of asymmetry).

1.12 Our analysis falls into two broad areas: a period up to our current consideration of the Disputes, and a future period from the date of the determination of the Disputes until the end of the current charge control. For ease of reference, we have referred to these as the "retrospective period" and the "prospective period".[12] Our consideration of the prospective period runs until 31 March 2011.

1.13 We have considered whether the current charging arrangements are fair and reasonable in light of their impact on consumers, competition and the Parties. In doing so, we have had regard to our relevant statutory duties under sections 3 and 4 of the Act and the following economic considerations:

1.13.1 each party's opportunity to recover efficiently incurred costs under current charging arrangements;

1.13.2 the financial effect of the current charging arrangements as compared to the effect under alternative arrangements (i.e. arrangements that reflect the recipient paid principle);

1.13.3 whether current charging arrangements cause effects that might tend to distort competition and whether a shift to alternative arrangements would alter these effects; and

1.13.4 the impact of current charging arrangements on consumer interests compared to alternative arrangements (and, in particular, the prices paid by consumers).

1.14 The third and fourth factors listed at paragraphs 1.13.3-1.13.4 above reflect Ofcom's principal duties in carrying out functions under the Act. Accordingly, we have placed greater weight on these considerations than on the previous two.

Draft Determination

1.15 On 11 January 2010, we published our Draft Determination setting out our provisional conclusions in respect of the Disputes and the reasoning supporting these conclusions.

1.16 The Parties and interested parties were given until 25 January 2010 to provide comments on the Draft Determination. We received comments from Cable&Wireless UK ("C&W"), H3G, O2, T-Mobile, Vodafone. These comments are summarised at Section 9 below.

Final Conclusions

1.17 Our final conclusions in respect of the Disputes are summarised below. In essence, our final conclusions confirm the provisional conclusions set out in our Draft Determination. The analysis that we have applied in reaching our final conclusions is set out in Sections 5 to 7 below. In reaching these final conclusions, we have considered all comments

[12] Note that we have further divided the retrospective period into Period A and Period B (see paragraph 1.21 below).

received and, having done so, we consider it is appropriate to maintain the provisional conclusions set out in our Draft Determination.[13]

1.18 We have considered whether the other MNOs were justified in rejecting H3G's proposal that the current charging arrangements for calls to ported mobile numbers should change, whether alternatively we should require the Parties to enter into the alternative arrangements requested by H3G, and whether we should order any repayments to be made to give effect to our determinations.

1.19 Our conclusions on the factors listed at paragraphs 1.13.1-1.13.4 above are that going forward:

1.19.1 the current charging arrangements would not deny any of the Parties the opportunity to recover their efficiently incurred termination costs across all terminated calls (taking into account, for H3G, the fact that actual volumes are significantly higher than the volume forecasts used to determine unit costs underpinning the mobile call termination charge control set in March 2007);

1.19.2 in 2010/11, H3G would be financially slightly better off if there were a shift to alternative charging arrangements.[14] However, the other MNOs (or originating operators) would be worse off;

1.19.3 we do not believe that current charging arrangements would lead to distortions of competition in the prospective period such as would justify a shift to alternative charging arrangements; and

1.19.4 as regards effects on prices paid by consumers, we consider that continuation of the current changing arrangements in the prospective period would be at least as favourable for consumers as a shift to alternative charging arrangements.

1.20 Accordingly, we do not consider a shift to alternative charging arrangements would be appropriate on a prospective basis.

1.21 We have considered a past period from May 2003 to the present[15]. In considering this period we have looked at both the periods up to the point at which H3G issued Review Notices to each of the other MNOs and a period from the date(s) that H3G issued Review Notices to each of the other MNOs to the present.

1.22 In respect of the period before H3G issued Review Notices to each of the other MNOs we consider that the principles of legal certainty and legitimate expectation suggest that we should not make any regulatory intervention to require any repayments with respect to this period, given that:

[13] Our provisional conclusions and the reasons for them are retained, for ease of reference, in sections 6-8 of this document.

[14] Where we refer to "alternative charging arrangements" in this document, we mean the charging arrangements for calls to ported mobile numbers proposed by H3G, which reflect the recipient paid principle in the form of either a D/R regime or an R/R regime (described at paragraphs 4.35-4.36 below). Where it is appropriate to distinguish between the D/R and R/R regimes, or between these regimes and a further variant regime, we do so expressly.

[15] See *BT v Ofcom* [2010] CAT 15 (preliminary issues) for the CAT's judgment on Ofcom's jurisdiction in respect of past periods in disputes.

1.22.1 the charging methodology for calls to ported numbers is not set by any regulatory obligation;[16]

1.22.2 we have considered Ofcom's various statements in relation to charging arrangements for calls to ported mobile numbers, and do not consider that they create any expectation that Ofcom considered that a specific charging methodology should apply and/or would intervene in respect of any arrangements agreed between the Parties (absent a dispute); and

1.22.3 in our view, in the absence of any regulatory obligation which set the charging methodology for calls to ported numbers, or any expectations flowing from Ofcom's statements, the Parties were reasonably entitled to proceed on the basis that they could conclude agreements between themselves regarding those charging arrangements, and that those agreements would not subsequently be disturbed by Ofcom at least until a dispute was raised between them, and subsequently brought formally to Ofcom for resolution in accordance with its powers under section 190 of the Act.

1.23 Accordingly, we consider that we should not take any regulatory action in respect of this earlier period.

1.24 In respect of the period from when H3G issued Review Notices to each of the other MNOs, and the present, we have considered the impact of the current charging arrangements in that period and our analysis leads to conclusions that:

1.24.1 the application of current charging arrangements for calls to ported mobile numbers allowed H3G and the other MNOs to recover their efficiently incurred costs across all terminated calls (including calls to ported mobile numbers to which H3G is a party);

1.24.2 while H3G would have been financially better off under alternative charging arrangements reflecting the recipient paid principle (as proposed by H3G), the other MNOs would have been worse off. However, most of the favourable financial impact on H3G would represent a worsening of the asymmetric regulation effect, which distorts competition;

1.24.3 current charging arrangements were more likely to have promoted effective competition than the alternative charging arrangements (i.e. as proposed by H3G); and

1.24.4 current charging arrangements are likely, on balance, to have been at least as favourable for consumers as the alternative arrangements.

1.25 As a result, taking this period into account does not alter our conclusion that the current charging arrangements, which applied in this period, should remain unchanged.

[16] The only regulatory requirement relates to the charges for the cost of routing calls to ported numbers. These charges are covered by GC18, which requires charges for the provision of mobile portability to be reasonable, cost oriented, and based on the incremental costs of providing portability (unless the providers have agreed another basis for the charges). GC18 essentially covers the additional switching costs of routing calls to ported numbers. It does not require any particular charging methodology for termination rates.

1.26 On this basis, we have decided that the other MNOs were justified in rejecting H3G's proposal that the current charging arrangements in relation to calls to ported numbers should change. The Parties should therefore continue to do business on the basis of the charging provisions as currently set out in the Interconnect Agreements between the Parties, unless and until those arrangements are re-negotiated. We consider that this conclusion is fair as between the Parties and reasonable in light of our statutory duties.

Repayments

1.27 In light of our conclusions set out above, we will not require the payment of any sums by way of an adjustment of an underpayment or overpayment.

1.28 Our Determination to this effect is at Annex 1.

Structure of the remainder of this document

1.29 The following sections of this document follow the structure of our Draft Determination:

1.29.1 Section 2: Background information relevant to Ofcom's consideration of the Disputes;

1.29.2 Section 3: The history of the Disputes;

1.29.3 Section 4: A brief summary of the Parties' comments on the Disputes submitted in advance of the Draft Determination being published;

1.29.4 Section 5: An explanation of the framework within which we have analysed the Disputes

1.29.5 Section 6: An explanation of our reasoning and analysis in relation to the Disputes;

1.29.6 Section 7: A summary of the reasoning and analysis set out at Section 6 above;

1.30 As noted above, sections 5 to 7 below set out the analysis applied in reaching the provisional conclusions set out in our Draft Determination, which we have adopted as our final conclusions. The content of the sections 2 to 7 below is largely unaltered.

1.31 Section 8 of this document summarises the submissions received from C&W, H3G, O2, T-Mobile, Vodafone regarding the Draft Determination and sets out Ofcom's response to these submissions.

1.32 Section 9 of this document sets out our final conclusion and our determination for resolution of the Disputes, and confirms the provisional conclusions set out in our Draft Determination.

Section 2

Introduction and Background

Dispute resolution

Ofcom's duty to handle disputes

2.1 Section 185(1)(a) of the Act provides (in conjunction with section 185(3)) that in the case of a dispute relating to the provision of network access between different communications providers, any one or more of the Parties to such a dispute may refer it to Ofcom.

2.2 Section 185(8) notes that a dispute that relates to the provision of network access includes a dispute as to the terms or conditions on which it is or may be provided in a particular case.

2.3 Section 186 of the Act provides that where a dispute is referred to Ofcom in accordance with section 185, Ofcom must decide whether or not it is appropriate to handle it. Section 186(3) further provides that Ofcom must decide that it is appropriate for it to handle a dispute unless there are alternative means available for resolving a dispute, resolution of a dispute by those means would be consistent with the Community requirements set out in section 4 of the Act, and those alternative means would be likely to result in a prompt and satisfactory resolution of a dispute.

2.4 In summary therefore, where a dispute which falls within section 185(1)(a) of the Act is referred to Ofcom, and Ofcom cannot identify alternative means which meet the criteria set out above, it must decide that it is appropriate to handle that dispute.

2.5 Section 188 of the Act provides that where Ofcom has decided that it is appropriate for it to handle a dispute, Ofcom must make a determination resolving that dispute within four months (except in exceptional circumstances).

Ofcom's powers when determining a dispute

2.6 Ofcom's powers in relation to making a dispute determination are limited to those set out in section 190 of the Act. Except in relation to disputes relating to the management of the radio spectrum, Ofcom's main power is to do one or more of the following:

2.6.1 make a declaration setting out the rights and obligations of the Parties to a dispute;

2.6.2 give a direction fixing the terms or conditions of transactions between the Parties to a dispute;

2.6.3 give a direction imposing an obligation to enter into a transaction between themselves on the terms and conditions fixed by Ofcom; and

2.6.4 give a direction requiring the payment of sums by way of adjustment of an underpayment or overpayment, in respect of charges for which amounts have been paid by one party to a dispute, to the other.

2.7 A determination made by Ofcom to resolve a dispute binds all the parties to that dispute (section 190(8) of the Act). Whilst Ofcom's dispute resolution powers can therefore only bind the parties to a dispute on a bilateral basis, we would expect dispute determinations to be read across and followed in situations where other parties who were not a party to that dispute, are facing similar questions *vis-à-vis* one of the parties to the dispute that has been determined.

Ofcom's duties when determining a dispute

2.8 The dispute resolution provisions set out in sections 185-191 of the Act are functions of Ofcom. As a result, when Ofcom resolves disputes it must do so in a manner which is consistent with both Ofcom's general duties in section 3 of the Act, and (pursuant to section 4(1)(c) of the Act) the six Community requirements set out in section 4 of the Act, which give effect, amongst other things, to the requirements of Article 8 of the Framework Directive.[17]

Disputes referred to Ofcom by H3G

2.9 The Disputes relate to the current charging arrangements between H3G and each of the other MNOs in respect of calls to ported mobile numbers. Currently, H3G and the other MNOs charge according to the principle that the RNO receives the DNO's termination rate by way of payment, rather than its own. H3G has requested that instead, the RNO should receive its own termination rate from the DNO for calls to ported numbers. The other MNOs disagree that the current arrangements should change as H3G has proposed, and the Parties are therefore in dispute.

The requirement to provide portability

2.10 Mobile number portability ("MNP") is a facility that enables subscribers (on request) to switch from one communications provider to another while retaining their mobile telephone numbers. It enhances consumer choice and effective competition by making switching easier and more attractive by eliminating the inconvenience and expense that would arise if consumers were compelled to acquire new mobile telephone numbers when switching.

2.11 The UK recognised the benefits to competition of requiring number portability in the early 1990s and was one of the first countries to require its implementation.

2.12 The Director General of Telecommunications ("the Director"), using his powers under the Telecommunications Act 1984, directed BT to provide geographic number portability in 1996 following the modification of its operating licence in line with the recommendation made by the Monopolies and Mergers Commission's Report *Telephone number portability: A report on a reference under section 13 of the Telecommunications Act 1984*.[18] In 1997, the Director extended these requirements to provide portability on a

[17] Directive 2002/21/EC (7 March 2002).
[18] http://www.competition-commission.org.uk/rep_pub/reports/1995/374telephone.htm#summary.

reciprocal basis to other operators' licences and to the porting of non-geographic telephone numbers. On a similar basis, MNOs were required to provide mobile portability from 1999.

2.13 In 2000, the Director made further modifications to operator licences concurrent with the making of The Telecommunications (Interconnection) (Carrier Pre-selection) Regulations 1999[19] by the Department of Trade and Industry to implement the number portability requirements for fixed telephone numbers of Directive 98/61/EC amending Directive 97/33/EC ("the Interconnection Directive"). In July 2003, the licensing regime for telecoms companies was replaced with a general authorisation to offer electronic communications and services pursuant to an EC common regulatory framework based on five Directives. Under this framework, European Union Member States are required to ensure the provision of number portability to subscribers of publicly available telephone services, including mobile services, pursuant to Article 30 of the Universal Services Directive.[20] Sections 51 and 58 of the Act allow Ofcom to set general conditions requiring UK communications providers to provide number portability.

2.14 Obligations imposed on communications providers in the UK to provide number portability to their subscribers and to provide portability to other communications providers are set out in General Condition 18 ("GC18") of the General Conditions of Entitlement.[21] Ofcom has powers to enforce any breach of GC18 under sections 94 to 103 of the Act.

The current solution for routing calls to ported mobile numbers

2.15 The current technical solution for routing calls to ported mobile telephone numbers is commonly referred to as the onward routing technical solution. It was developed by a Network Interoperability Consultative Committee ("NICC") subgroup following a request by the Office of Telecommunications ("Oftel") in July 1996 to examine the technical feasibility of providing mobile portability.[22] An NICC sub-group recommended an approach known as Signalling Relay Functionality, whereby routing enquiries would be relayed between the exporting network that originally held the number (the DNO or mobile number range holder) and importing network to which the number has been ported (the RNO). This process provides for routing instructions to be returned to enable a voice call to a ported mobile number to be onward routed appropriately. This technical solution was subsequently set up by mobile providers for the introduction of mobile number portability in the UK in January 1999.[23]

Operation of onward routing for calls to ported mobile numbers

2.16 Under the onward routing technical solution, an originating network operator ("ONO") is not required to distinguish between ported and non-ported mobile numbers. When a

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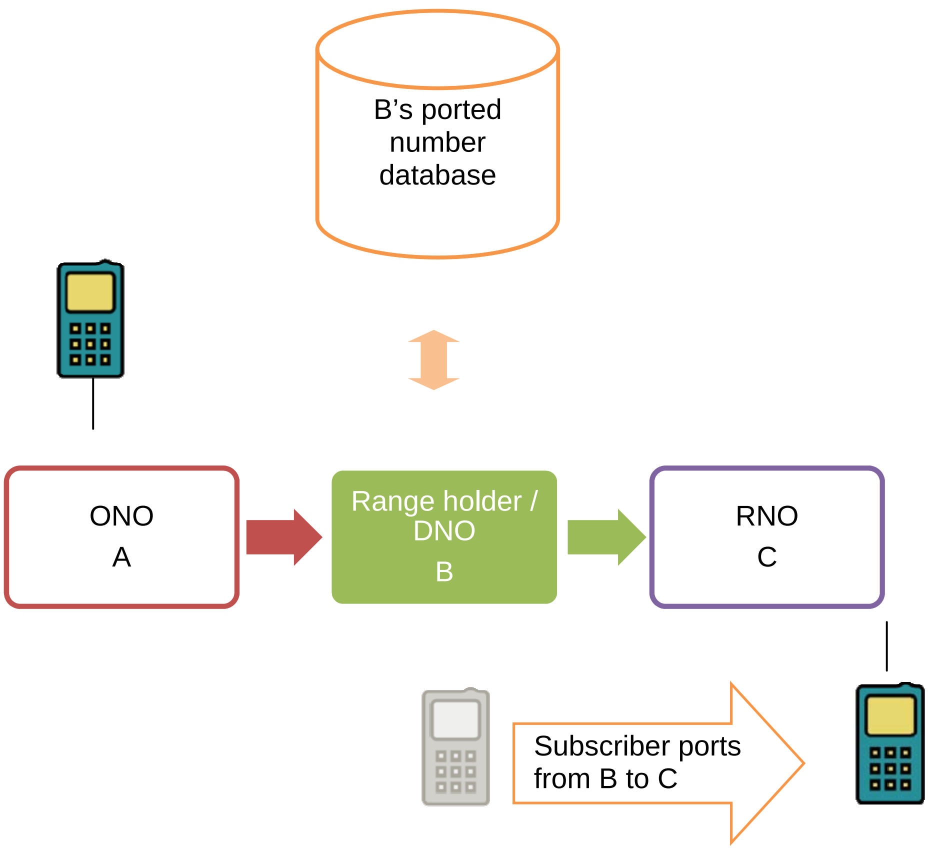
[19] http://www.opsi.gov.uk/si/si1999/uksi_19993448_en.pdf.
[20] Directive 2002/22/EC.
[21] http://www.ofcom.org.uk/telecoms/ioi/g_a_regime/gce/cvogc160909.pdf.
[22] NICC is technical forum for the UK communications sector that develops interoperability standards for public communications networks and services in the UK. For further information see http://www.niccstandards.org.uk/.
[23] Details of this technical solution and subsequent modifications to it are documented in NICC Service Description ND 1208, which can be found at http://www.niccstandards.org.uk/files/current/ND1208%20v1.4.2.pdf?type=pdf.

subscriber makes a voice call (from either fixed or mobile network) to a ported mobile telephone number, that call is first routed to the network that originally held the number being called (i.e. the number range holder or DNO). The ONO analyses the dialled digits to identify the number range holder and routes calls to that provider either over direct interconnect links or using a transit provider. The DNO must then identify whether the number that is called has been ported and, if so, onward route the call to the appropriate RNO. Given that the called mobile device could be anywhere in a mobile network or even roaming, the DNO relays a routing enquiry to the appropriate RNO which returns a routing number to enable the DNO to onward route the call to the recipient for termination or further treatment. This onward routing can be achieved either over direct interconnection between donor and recipient or using an appropriate transit product such as BT Ported Mobile Transit Calls.

2.17 Onward routing for mobile voice calls is illustrated in Figure 1.

Figure 1: Onward routing for calls to ported mobile numbers

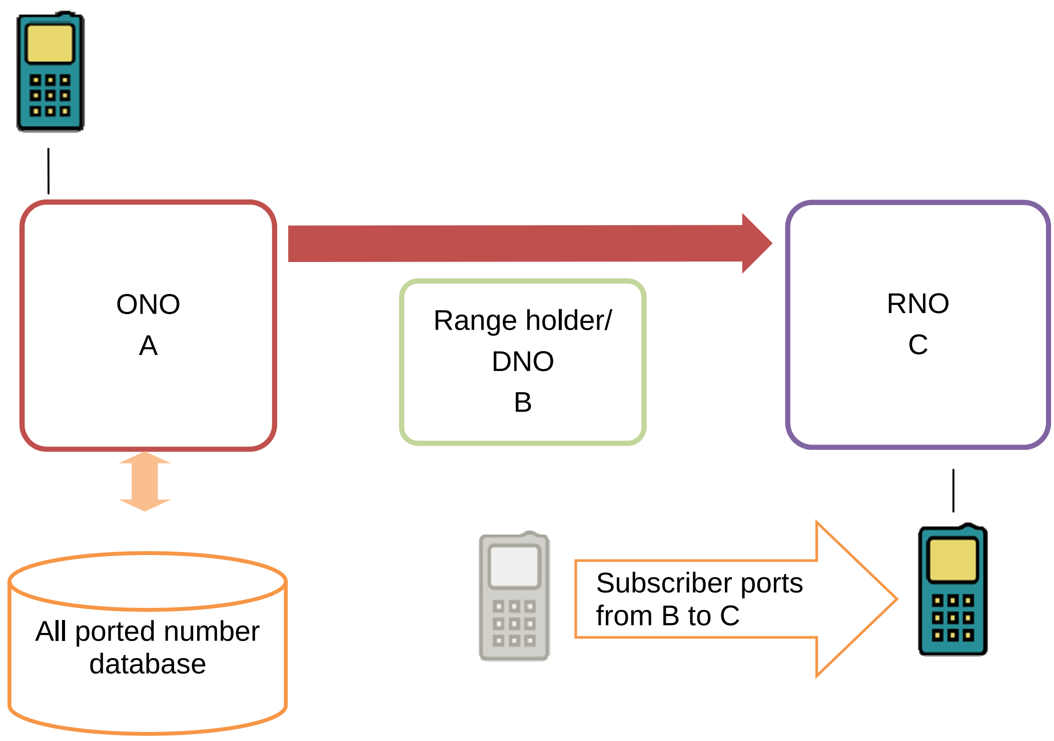


2.18 Onward routing can be contrasted with an alternative technical solution for direct routing of calls, which is illustrated in Figure 2 below. In simple terms, it comprises the following features:

2.18.1 the ONO identifies that the number dialled by the calling subscriber has been ported and to whom, and routes the call direct to the RNO as it would any other call to the RNO; and

2.18.2 to facilitate this type of porting solution, communications providers typically (but not necessarily) maintain a common database, holding up-to-date details of ported numbers and their current providers, which can be used as a source of routing information.

Figure 2: Direct routing for calls to ported mobile numbers



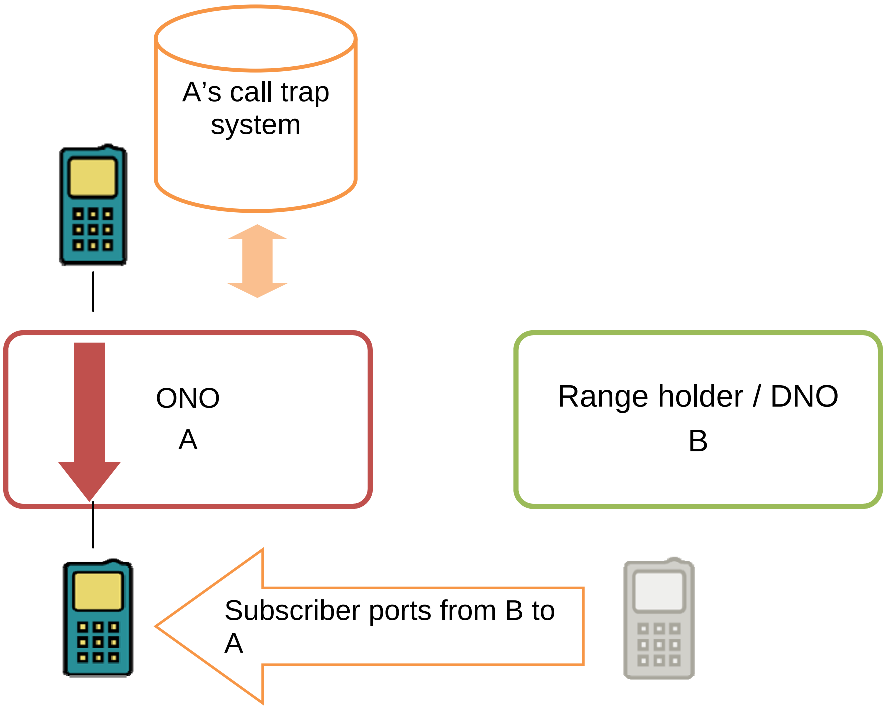
Source: Ofcom

Operation of onward routing for calls to ported mobile numbers where "call trap" exists

2.19 Calls to ported mobile numbers that originate with an RNO can be connected without routing via the DNO where the RNO has installed a "call trap" facility. This facility allows the RNO to "trap" calls that it originates to numbers that have been ported into its network. A call trap facility removes the requirement for a call to be inefficiently routed (sometimes described as "tromboned") to the DNO and then back to the RNO in circumstances where the call originates on the RNO's network.

2.20 We understand that some, but not all, MNOs have implemented call trap to date. The routing of calls, in circumstances where the RNO has installed a call trap facility, is illustrated in Figure 3.

Figure 3: Routing of calls to ported mobile numbers where a call trap facility is installed



Source: Ofcom

Current charging arrangements for calls to ported mobile numbers

2.21 In addition to not distinguishing between ported and non-ported mobile numbers when routing calls, an ONO similarly makes no distinction in its wholesale charging arrangements to take account of calls to ported mobile numbers. An ONO typically buys mobile termination from a mobile number range holder under its Standard Interconnect Agreement at the relevant rate for all calls to its mobile numbers (and irrespective of whether those calls are terminated on the number range holder's network or onward routed to the RNO for termination).

2.22 Briefly, this means that under the current arrangements between most DNOs and RNOs, when a call is terminated on a ported number:

2.22.1 the DNO is entitled to charge for the costs it incurs conveying traffic from the ONO to the recipient in accordance with the provisions of GC18.2.[24] This charge is known as the Donor Conveyance Charge ("DCC");[25]

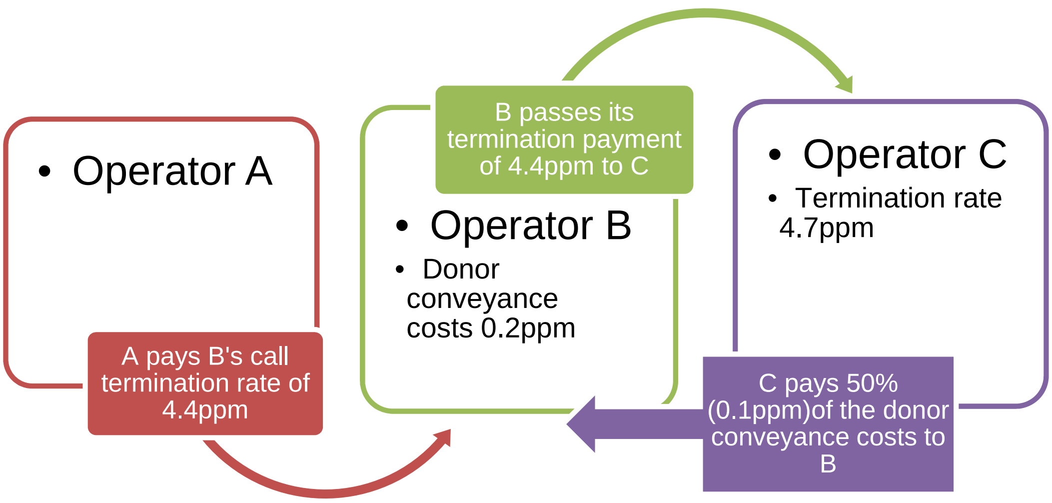
[24] GC18.2 provides that the donor may, subject always to the requirement of reasonableness, impose charges to recover the costs of providing portability subject to the requirement that these charges must be cost oriented and, unless otherwise agreed with the recipient provider or directed by Ofcom. The donor must not charge for, amongst other things, Additional Conveyance Costs, as defined in GC18.5. GC18.5 provides that "Additional Conveyance Costs" mean costs incurred by the Donor Provider associated with the resources used in: (i) effecting the switch-processing required to set up each ported call; and (ii) providing the switch and transmission capacity for any part of the duration of each ported call, additional

2.22.2 the ONO pays a termination rate set by the DNO. Where the ONO routes calls to the RNO using a transit provider it will pay a fee that funds both i) the conveyance charge for the relevant transit service and ii) the termination rate that the transit provider pays to the DNO; and

2.22.3 the RNO therefore receives the DNO's termination rate rather than its own termination rate (and also pays 50% of the DCC to the DNO).[26]

2.23 These current charging arrangements reflect what is known as the donor paid principle. If the DNO's termination rate is different from the RNO's termination rate then the amount paid under these agreements may be more or less than the RNO's termination rate. The flow of monies under these arrangements is illustrated in Figure 4.

Figure 4: Example flow of monies for an onward routed call from operator A to a mobile number ported from operator B to operator C



Source: Ofcom

to the costs of conveyance of non-ported calls from the Donor Provider's network to the Recipient Provider's network. Additional Conveyance Costs were previously defined by Oftel in its Number portability in the mobile telephony market *Explanatory Note (3 October 1997)* as "*… in the case of mobile portability, the costs incurred in relaying routing enquiries (signalling) between the exporting (donor) and importing (recipient) networks, and the application of the routing instructions to enable a call to be correctly routed."* (see paragraph 2.27 *et seq* below).

[25] Following a dispute brought by H3G (see Determination to resolve disputes between Hutchison 3G and each of O2, Orange and T-Mobile concerning donor conveyance charges (17 August 2009)), Ofcom determined on 17 August 2007 that DCCs should be set at 0.2 pence per minute (split equally between donor and RNOs). Therefore, the net amount received by the RNO for a call to a ported in mobile number is typically the DNO's termination rate less 0.1 pence per minute (i.e. half of the allowable DCC).

[26] The DCC relates to the switching, engineering and transmission costs incurred by the DNO in conveying the call to the RNO, as outlined in paragraph 2.22 above.

The development of charging arrangements for determining the rate payable to the recipient provider for terminating calls to ported telephone numbers

Number portability in the mobile telephony market Statement (July 1997)[27]

2.24 In its *Number portability in the mobile telephony market* Statement, Oftel described how it proposed to modify the then Telecommunications Act 1984 licences held by MNOs to require licensees to provide number portability to each other on a reciprocal basis.

2.25 Oftel noted that the costs of calls to fixed networks were broadly similar and so, if a customer ported their fixed telephone number from one fixed network to another, the cost of calling that same number after it was ported was not significantly different from the cost before it was ported. However, in the mobile sector, despite some convergence of charges, the price of calls from a fixed network to a mobile network varied significantly depending upon which mobile network was being called. Oftel considered that callers should not face unexpected charges for calls to ported mobile numbers and that anyone calling a ported number should not pay more than the call charge that applied before the number was ported. Recognising that the retail price for a call to a mobile network was based, primarily, on the level of the termination charge paid by the ONO to the terminating network operator ("TNO"), Oftel specified that in order to ensure that retail prices do not increase for calls to ported mobile numbers, "*any arrangements must also ensure that the termination rates for a call to a ported number should not be higher than those before the number was ported.*"[28]

2.26 Oftel further noted that, in some cases, customers will move to another MNO who has lower termination rates but that it was unlikely that any provision could be made to enable lower retail and termination rates for such instances. Thus the most practical arrangements would seem to be based on the principle that the retail and termination rates remain the same after portability.[29] Oftel concluded that "*is it up to operators to agree commercial arrangements within these requirements. Clearly further convergence of retail prices for calls to mobile would help. A single retail price (and a single termination rate) would remove any need for special arrangements for portability.*"[30]

Number portability in the mobile telephony market Explanatory Note (3 October 1997)[31]

2.27 In this Explanatory Note, Oftel repeated its position that callers should not face unexpected charges for calls to ported mobile numbers, and should not pay more than the call charge for the number before it was ported. It argued that:

> *"In order to differentiate between ported and non-ported calls, all operators - including fixed line operators - would have to conduct full digit analysis for all calls. Furthermore, the caller is not necessarily a party to the portability agreement and, therefore, is not in a position to determine whether the number has been ported. The most practicable*

[27] http://www.ofcom.org.uk/static/archive/oftel/publications/1995_98/numbering/noport.htm.
[28] See *Number portability in the mobile telephony market* Statement (July 1997), paragraph 4.54.
[29] See *Number portability in the mobile telephony market* Statement (July 1997), paragraph 4.55.
[30] See *Number portability in the mobile telephony market* Statement (July 1997), paragraph 4.56.
[31] http://www.ofcom.org.uk/static/archive/oftel/publications/1995_98/numbering/mobport.htm.

> *solution would appear to be that the cost of calls to ported mobile numbers remains the same, or at the normal tariff, this would reduce the administrative and technical burdens placed on operators and alleviate the potential for customer confusion."*[32]

2.28 Oftel maintained that it was the responsibility of the MNOs to negotiate on the general principles needed to resolve the problems which may arise due to differing call costs and agree these arrangements.

2.29 In relation to the legitimate recovery of donor conveyance costs, Oftel said that:

> *"Unless the operators come to Oftel for a determination, the amount payable for what might be termed "donor transit costs" is a matter for commercial negotiation between the operators. However, Oftel believes that it should take into consideration any net loss or gain on the part of the DNO resulting from differences between the termination rate charged to the ONO and that paid to the recipient operator."*[33]

2.30 Two MNOs did subsequently seek a determination and asked Oftel, amongst other things, to settle the issue of the termination rates to be paid to the RNO for terminating a ported call.[34] Oftel noted that two methods for settling applicable termination rates had been proposed: i) the donor paid principle (which it referred to as the "donor passes all" principle), which provides that the TNO receives the termination rate of the DNO for calls to ported mobile numbers; and ii) the recipient paid principle, which provides that the TNO receives its own termination rate for these calls.

2.31 Oftel regarded the termination rate differential between the rates of the DNO and RNO as a temporary issue caused by two factors: i) the price control on only two of the MNOs' termination charges; and ii) the current technical arrangements for number portability. As regards the first issue, Oftel noted that there may be less variation in MNOs' termination rates in the future. In respect of the second issue, it did not realistically foresee any change in the technical arrangements in the near future.

2.32 Oftel noted that both the donor paid principle and the recipient paid principle could result in gains or losses but, for the purposes of making a determination as sought by the MNOs, favoured the recipient paid approach in the longer term as it was more consistent with a direct routing technical solution for ported calls and the charging arrangements for fixed networks. However, due to concerns that those MNOs with higher termination rates would gain a competitive advantage from maintaining these rates (under the recipient paid principle), Oftel determined that: i) the donor paid principle should apply until 31 March 2000; and ii) after this date MNOs should agree the appropriate principle to apply. It also determined that if agreement could not be reached, the matter should be referred to Oftel.

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[32] *Number portability in the mobile telephony market* Explanatory Note (3 October 1997), Chapter 4.
[33] *Number portability in the mobile telephony market* Explanatory Note (3 October 1997), Chapter 3.
[34] An explanatory document prepared in connection with these requests for determination (*Mobile number portability determination requests – explanatory document*) can be found at http://www.ofcom.org.uk/static/archive/oftel/ind_info/numbering/mnpdetre.pdf.

Wholesale mobile voice call termination Statement (1 June 2004)[35]

2.33 By May 2003, the level of porting of mobile numbers became significant enough to warrant more extensive consideration of how such calls should be treated in charge controls on the termination rates of each MNO. Ofcom (to which Oftel's functions were transferred under section 2 of the Act) issued the *Wholesale mobile voice call termination* Statement (1 June 2004) proposing that controls should cover all calls terminated to an MNOs network, including calls to ported-in numbers. In the Statement, we recognised that the current arrangements favoured MNOs with lower termination charges than the DNO. Such MNOs received a higher charge on a share of their incoming traffic, with the reverse being true for those with higher termination charges. This generated gains or losses for the MNOs, depending on the relative levels of their termination charges. We noted that if industry were to move to a direct routing system, in which the DNO played no role in the transmission of the call and the RNO could levy its termination charge on these calls, these arbitrary gain and losses would be eliminated.[36]

2.34 We expressed a preference for a direct routing approach as this would not generate arbitrary gains and losses and would avoid the cost of an additional transmission leg (due to the routing via the DNO). However, due to the costs of moving to a direct routing system we suggested that industry should decide if, and when, to alter routing arrangements.[37] We also said that: "[w]*hilst call minutes to ported numbers are not going to be included in the charge controls, this does not prevent Ofcom including these minutes in the control if the MNOs are found to be manipulating the situation and setting excessive termination charges for calls to ported-in numbers*."[38]

Number portability and technology neutrality Statement (30 March 2006)[39]

2.35 Under the *Number portability and technology neutrality* Statement, we modified certain provisions of GC18 and the National Telephone Numbering Plan[40] to encourage switching between providers and to facilitate inter-platform voice competition. This modification was consistent with our previous proposal that inter-platform competition should be facilitated wherever possible due to its potential to deliver a competitive market in voice services. The modifications sought to ensure that the rights and obligations associated with geographic number portability were no longer restricted to situations where the Network Termination Point ("NTP") or the number is retained at a "specific location". In short, the modifications permitted portability of numbers between different types of network whilst retaining the existing provision that retention of telephone numbers must be in accordance with the National Telephone Numbering Plan.

[35] http://www.ofcom.org.uk/consult/condocs/mobile_call_termination/wmvct/wmvct.pdf.
[36] *Wholesale mobile voice call termination* Statement (1 June 2004), paragraph J.8.
[37] *Wholesale mobile voice call termination* Statement (1 June 2004), paragraph E6.
[38] *Wholesale mobile voice call termination* Statement (1 June 2004), paragraph 6.48.
[39] http://www.ofcom.org.uk/consult/condocs/numport/mod/mod_statement.pdf.
[40] http://www.ofcom.org.uk/telecoms/ioi/numbers/261701.pdf.

Review of General Condition 18 number portability Consultation (16 November 2006)[41]

2.36 In our *Review of General Condition 18 number portability* Consultation (16 November 2006), we proposed a transition from the "onward routing" system for calls to ported mobile numbers to an all-call query of a common database of numbers ("ACQ/CDB") solution for both fixed and mobile networks.[42] This proposal reflected our desire to protect consumers against network failure and ensuring the efficient use of networks, and our recognition that, in respect of the existing routing system for ported mobile numbers, incentives for operators to port numbers might be misaligned. In particular, we noted that although industry as a whole would benefit from direct routing, operators are likely to consider only the porting on their own networks and may be less inclined to invest on this basis. In addition, the manner in which costs and benefits of routing to ported mobile numbers in the mobile industry are currently distributed means that some MNOs would gain financially from an ACQ/CDB solution while others would lose, and this misalignment of incentives may mean that agreement on a common way forward will not be easily reached by commercial negotiations by the industry.[43]

2.37 We considered that an ACQ/CDB solution would be likely to achieve independence of the routing of calls to ported mobile numbers from DNOs and maximum efficiency gains from all forms of calls (however originated or terminated). We also considered that an ACQ/CDB solution would eliminate potential imbalances in the mobile industry's distribution of revenues. Our analysis of the costs and benefits regarding this proposal suggested that, while migrating to a common solution for both fixed and mobile networks should deliver the optimal outcome, this may be best achieved by mobile networks migrating to an ACQ/CDB solution before fixed networks (because switches employed in mobile networks are likely to already be capable of carrying out queries on their databases on every call).

2.38 We suggested that the completion of such a transition by mobile networks should be achievable by September 2009 (with full transition of fixed networks to an ACQ/CDB by the end of 2012). In addition, we suggested that (subject to further analysis of costs and benefits) it might be appropriate to require mobile networks to shift to a "direct routing" system for calls to ported mobile numbers. We proposed a modification to GC18 to give effect to these measures.

Amendment to charge control on mobile network operators Consultation (27 March 2007)[44]

2.39 In the MCT Statement, we determined that H3G and each of the other MNOs have significant market power ("SMP") in the market for termination of voice calls on their

[41] http://www.ofcom.org.uk/consult/condocs/gc18/gc18r.pdf.
[42] In this document, the term "onward routing" refers also to the term "indirect routing".
[43] *Review of General Condition 18 number portability* Consultation (16 November 2006), paragraph 3.61.
[44] http://www.ofcom.org.uk/consult/condocs/mno_charge_control/condoc.pdf.

respective networks. As a result, we imposed regulatory obligations, including wholesale charge controls, on H3G and each of the other MNOs ("the MCT Charge Controls").[45]

2.40 On 27 March 2007, we also published the *Amendment to charge control on mobile network operators* Consultation ("the Charge Control Amendment Consultation") proposing modification to the MCT Charge Controls. This followed the receipt of responses to the consultation exercise that had preceded the MCT Statement concerning the impact that onward routing of calls to ported mobile numbers had on MNOs' effective termination charges (i.e. the average termination charge of each MNO, taking into account revenue from applicable termination rates for calls to ported mobile numbers as well as from termination rates for directly routed calls).

2.41 We noted that:

"*…for ported-in minutes, the DNO's termination rate (i.e. the termination charge currently received on those minutes) is unlikely to reflect the RNO's cost of termination; and (iii) for some MNOs, particularly the 900/1800MHz operators, over-recovery relative to costs is actually further increased by the current charging arrangements for calls to ported-in numbers.*

In addition, in the case of MNOs with a relatively high [Target Average Charge ("TAC")], the appropriate average charge in any one year of the control period] (i.e. MNOs whose effective termination rate is likely to be below their TAC), there is also potential for under-recovery relative to costs. Such MNOs could fail to recoup their efficiently incurred costs for ported-in minutes, particularly where the TAC is close to cost (e.g. in later years of the charge control). This is of particular relevance to H3G who, as the margin between its termination charge and its costs falls, could potentially under-recover relative to its underlying costs for mobile termination, due to the current method for charging for calls to ported-in numbers."[46]

2.42 In summary, we considered that under onward routing arrangements MNOs would receive an average effective termination rate that differed from the ceiling for wholesale termination charges set by Ofcom in the MCT Statement (i.e. could be higher or lower than this ceiling). Direct routing of calls to ported mobile numbers would address this issue as each MNO would receive <u>its own</u> termination rate irrespective of whether a number called has been ported.

2.43 In addition, we suggested that the interaction of onward routing arrangements and MCT Charge Controls created potential for distortions to: i) the incentive to encourage subscribers to switch from one network to another; and ii) the incentive to encourage subscribers that do switch to port/change their number.[47] We identified the following four options for modifying the MCT Charge Controls in order to take account of these potential distortions:

2.43.1 <u>Option 1</u>: do nothing;

[45] The MCT Charge Controls only apply where the relevant MNO sets the applicable termination rate. For the purposes of assessing compliance with the MCT Charge Controls, the termination rate that an MNO receives for ported calls is not relevant.
[46] Charge Control Amendment Consultation, paragraphs 4.17 and 4.21.
[47] Charge Control Amendment Consultation, paragraphs 1.6-1.8.

2.43.2 Option 2: seek a self regulated inter-operator financial settlement system with respect to mobile termination revenues;

2.43.3 Option 3: change the level of the charge controls applicable to each of the five MNOs; or

2.43.4 Option 4: modify the mechanics of the charge control applicable to each of the five MNOs.

2.44 We noted that there were advantages and disadvantages in respect of each option. However, we suggested that the potential distortions resulting from onward routing arrangements may intensify as the number of ported-in numbers increases and therefore needed to be addressed.[48] We noted that aligning the average effective termination rate with the levels of the MCT Charge Controls improved their accuracy and effectiveness in this respect. Accordingly we identified Option 4 as our preference.[49] We suggested that the modification envisaged in Option 4 would contribute to the recovery of the efficient costs of the investment made by the terminating MNO.[50]

2.45 The Charge Control Amendment Consultation process was suspended pending the CAT's judgments in the MCT Appeals.[51] We subsequently advised interested parties that we had decided, on the basis of administrative priorities, not to restart that consultation process and that the most appropriate course of action was to leave the current arrangements for mobile call termination in place until the end of March 2011 and address the issue for the period after that through Ofcom's *Wholesale mobile voice call termination: preliminary consultation on future regulation* Consultation (20 May 2009). We wrote to the Parties in July 2009 advising that we intended to follow this approach.

Arrangements for porting phone numbers when customers switch supplier Consultation (17 July 2007)[52]

2.46 This Consultation offered a further opportunity for comment on deadlines for the introduction of an ACQ/CDB solution to deliver direct routing proposed in Ofcom's *Review of GC18 number portability* Consultation. We set out three options in relation to the introduction of this solution:

2.46.1 Option A: requiring i) industry to collaborate on design and construction of a common database, capable of supporting direct routing of calls to fixed and mobile ported numbers; ii) the common database to be implemented and populated by 31 December 2008; iii) mobile providers to implement ACQ/CDB to achieve direct routing of mobile to mobile calls by 1 September 2009; iv) mobile providers also to offer near-instant recipient led porting by 1 September 2009; and v) ACQ/CDB to be used to direct route all other calls to ported mobile numbers (including to and from fixed providers) by 31 December 2012.

[48] Charge Control Amendment Consultation, paragraph 4.12.
[49] Charge Control Amendment Consultation, paragraph 1.9.
[50] Charge Control Amendment Consultation, paragraph 4.58.
[51] See paragraphs 1.6-1.7 above.
[52] http://www.ofcom.org.uk/consult/condocs/gc18review/numberportability.pdf.

2.46.2 Option B: requiring fixed and mobile operators to implement and populate a common database as per Option A with deadlines to be set following further consultation in 2008 (taking account of further developments resulting from definition of the common database).

2.46.3 Option C: requiring i) industry to collaborate on design and construction of a common database, capable of supporting direct routing of calls to fixed and mobile ported numbers without requiring mobile providers to offer near-instant recipient-led porting; ii) implementation deadlines for ACQ/CDB to achieve direct routing to be set either as proposed in Option A or in Option B.

2.47 We identified Option A as our preferred option on the basis that it would deliver the most immediate benefits for consumers as well as delivering certainty about what Ofcom expected industry to do in the following year.

Telephone number portability for consumers switching suppliers Statement (29 November 2007)[53]

2.48 In this Statement, we set out our view that (mobile or fixed) subscribers who port their numbers to a new network should not have to rely indefinitely on their original network to forward incoming calls to them. We expressed concern that if a subscriber's original network failed (commercially or technically) they would not be able to receive calls. We suggested that as more suppliers enter the market using new technology and innovative business models, the risk of network failure would likely increase.

2.49 Accordingly, we said that calls to ported mobile numbers must be routed directly to the consumer's new provider. In order to achieve this, we said that we would require the UK industry to co-operate to develop a shared common database of all ported numbers (both mobile and fixed) that would enable calls to ported mobile numbers to be routed directly (without reliance on the customer's original network). We said that the costs of developing a common database and moving to direct routing would be outweighed by the benefits.

2.50 We said that GC18 should be modified to give us the power to make directions in respect of the nature of the common database in order to ensure that deadlock does not occur in negotiations over its establishment.

Potential future developments concerning number portability

2.51 We are currently reviewing the arrangements for routing calls to ported mobile numbers in light of the CAT's judgment in *Vodafone and others v. Ofcom*[54] *setting aside* Ofcom's *Telephone number portability for consumers switching supplier* Statement (the "November Statement").[55] The CAT remitted the matter back to Ofcom for reconsideration.

[53] http://www.ofcom.org.uk/consult/condocs/gc18review/statement/.
[54] [2008] CAT 22.
[55] See paragraphs 2.48 *et seq* above.

2.52 Accordingly, we published our *Routing calls to ported telephone numbers* consultation on 3 August 2009[56] (the "Routing Consultation"). In the Routing Consultation, we set out our analysis of the likely costs of adopting direct routing (through establishing a central database), and sought stakeholders' views on this. The Routing Consultation proposals reflect our recognition that the operation of the donor paid principle and the termination rate differential between the Parties, coupled with the varying volumes of ported in calls for different operators, means that commercial benefit may accrue to certain MNOs even though collectively the costs of routing calls to ported numbers may be lower if calls were routed directly.[57] Our analysis in the Routing Consultation suggested that the costs of implementing direct routing (in terms of operator-specific and industry-level capex and opex) were likely to be less than the forecast of avoided costs for onward routing over a 10 year timeframe.[58]

2.53 The analysis in the Routing Consultation was forward looking (i.e. did not consider whether direct routing was more efficient historically). We have now published our Routing Statement and concluded that no regulatory intervention (including direct routing) is appropriate at this time.

[56] http://www.ofcom.org.uk/consult/condocs/gc18_routing/routing.pdf.
[57] *Routing calls to ported telephone numbers* Consultation (3 August 2009), paragraph 1.17.
[58] Our preliminary cost-benefit analysis suggested a net present value (NPV) of around £26million over 10 years (in 2008 prices), with low and high NPV scenarios between -£15million and £90million.

Section 3

The Disputes

Introduction

3.1 This section summarises the basis of the Disputes brought by H3G and the history of negotiations between the Parties prior to submission of the Disputes to Ofcom for resolution.

H3G's request for resolution of the Disputes

3.2 H3G referred the Disputes to Ofcom for resolution under section 185(1)(a) of the Act on 18 March 2008. It argued that the Disputes arise in respect of the charging arrangements that currently apply to all calls to ported mobile numbers where either i) H3G is the RNO (and is therefore terminating a call to a ported number) and one of the other MNOs is the DNO (whom H3G would charge for terminating the call); or ii) one of the other MNOs is the RNO and H3G is the DNO. H3G considered that the period of the Disputes commenced on 15 May 2003 and continues while current charging arrangements remain in place.

3.3 The applicable termination rates for calls to ported mobile numbers are not set by any regulatory obligation but have been left to be negotiated as between the Parties through Interconnect Agreements. Under the terms of H3G's Interconnect Agreements with each of the other MNOs, where a call is routed to a ported number the RNO can only receive the DNO's termination rate (rather than its own termination rate). H3G referred to this as the donor paid principle.

3.4 Interconnect Agreements apply to all calls to ported mobile numbers equally without distinguishing whether they are conveyed between MNOs directly or via a transit operator. This lack of distinction is reflected, for example, in H3G's Interconnect Agreement with Vodafone, which provides that:

[✂].

3.5 H3G argued, accordingly, that the current charging arrangements (as reflected in the Interconnect Agreements) result in MNOs receiving, on average, a termination rate that is different to that regulated through the MCT Charge Controls for calls to non-ported numbers. As the MNO with the highest termination rate, H3G's average termination rate is reduced by the use of donor termination rates for numbers they import and so they receive less than their termination rate for these types of calls. H3G argued that the current charging arrangements for calls to ported mobile numbers, therefore, do not reflect the real costs incurred by the RNO. H3G argued that where it is the RNO it should be entitled to its own termination rate. Furthermore, it argued that the current charging arrangements discriminate disproportionately against it and are therefore both unjustified and harmful to competition. H3G suggested that Ofcom had previously acknowledged the problems with the existing arrangement for call routing in the *Review of General*

Condition 18 number portability Consultation and the Charge Control Amendment Consultation.[59]

3.6 H3G has sought a determination from Ofcom that the "recipient paid principle" should apply to charging arrangements in respect of all calls to ported numbers. It also sought the repayment of historic underpayments and overpayments that it considers to have resulted from current charging arrangements for calls to ported mobile numbers.

History of negotiations between the Parties prior to H3G bringing the Disputes

3.7 H3G has submitted a detailed chronology setting out its interaction with the other MNOs prior to referring the Disputes. It appears to Ofcom that H3G has made reasonable attempts to resolve the issues raised in the Disputes by negotiation with the other MNOs but has failed to do so. In summary, H3G argues that it is in dispute with each of the other MNOs in relation to the following periods:

3.7.1 O2: H3G argued that it first raised a dispute on 25 April 2007. It claimed that negotiations in respect of this dispute ceased on 12 March 2008.

3.7.2 Orange: H3G argued that it first raised a dispute on 25 April 2007. It claimed that negotiations in respect of this dispute ceased on 22 October 2007.

3.7.3 T-Mobile: H3G argued that it first raised a dispute on 12 October 2006. It claimed that negotiations in respect of this dispute ceased on 3 December 2007.

3.7.4 Vodafone: H3G argued that it first raised a dispute on 10 November 2006. It claimed that negotiations in respect of this dispute ceased on 17 October 2007.[60]

3.8 H3G's negotiations with each of the other MNOs are described briefly below. H3G submitted that, before starting negotiations with the other MNOs on changes to the current charging arrangements, it raised concerns on an industry wide basis.[61]

Summary of negotiations with O2

3.9 H3G first raised the issue of a change to current charging arrangements with O2 on 25 April 2007. It discussed this issue with O2 on several further occasions before advising on 12 March 2008 that it considered that deadlock had been reached and that it would be referring the issues in dispute to Ofcom.

Summary of negotiations with Orange

3.10 H3G raised the issue of a change to current charging arrangements with Orange on 25 April 2007. Negotiations on this issue continued until 22 October 2007.

[59] See paragraphs 2.39 *et seq* above.
[60] See letter from Stephen Lerner (H3G) to Neil Buckley (Ofcom) (9 November 2009).
[61] See letter from Stephen Lerner (H3G) to Neil Buckley (Ofcom) (9 November 2009).

Summary of negotiations with T-Mobile

3.11 H3G first discussed current charging arrangements with T-Mobile on 12 October 2006. Discussions continued until 3 December 2007, at which point T-Mobile suggested that the issue should be referred to Ofcom.

Summary of negotiations with Vodafone

3.12 H3G first raised current charging arrangements with Vodafone on 10 November 2006. Discussion between them continued until 13 March 2008, when H3G advised Vodafone that it would refer this issue to Ofcom.

The scope of the Disputes

3.13 Ofcom wrote to the Parties on 26 March 2008 seeking comments on the scope of the Disputes. The Parties raised a number of points which are further detailed in section 4 below.

3.14 We accepted that, on the face of the Disputes submission, H3G appeared to be in dispute with the other MNOs and that attempts to resolve the Disputes via negotiations had failed. Accordingly, we considered that the Disputes met the relevant statutory criteria and that it was appropriate to handle them in accordance with section 186 of the Act. We informed the Parties of our decision to accept the Disputes for resolution on 14 April 2008. We simultaneously announced that we considered that the Disputes were subject to exceptional circumstances within the meaning of section 188(5) of the Act having regard, in particular, to the fact that judgments in the MCT Appeals would be likely to have a significant bearing on them. Accordingly, Ofcom decided at that stage that it would not resolve the disputes within four months, pending the CAT's judgment in relation to the MCT Appeals.[62]

3.15 Following the publication of the CAT's judgments in the MCT Appeals Ofcom invited comments on the proposed scope of the Disputes, and published the following summary of the scope of the Disputes on 5 October 2009:

> *"The scope of [the Disputes] is to determine whether the method of charging mobile call termination ("MCT") rates where calls are routed to a ported number under the respective Interconnect Agreements between H3G and each of O2, Orange, T-Mobile and Vodafone is fair as between the parties and reasonable from the point of view of Ofcom's regulatory objectives. If Ofcom determines that the current method is not fair and reasonable, then Ofcom will determine what that method should be. The relevant period for the scope of this dispute is from 15 May 2003 up to the date of the final determination resolving these disputes."*

3.16 We now consider that there is some doubt as to whether the period of the Disputes did in fact commence on 15 May 2003. However, in light of our provisional conclusions we

[62] See paragraphs 1.6-1.7 above.

do not consider it necessary to reach a definitive conclusion on the period of the Disputes.

Interested parties

3.17 Two additional operators have asked to be recognised as interested parties. C&W made this request on the basis that it has direct interconnect relationships with each of the Parties and is a major purchaser of mobile call termination. Therefore, any change to current arrangements for calls to ported mobile numbers would have implications for C&W.[63] In addition, Virgin Media asked to be recognised as an interested party for the reason that i) Virgin Mobile sends calls to ported mobile numbers via T-Mobile and ii) if T-Mobile were required to make any retrospective payment as a result of the Disputes, T-Mobile might seek to recover this payment from Virgin Mobile or its parent Virgin Media.[64]

[63] Letter from Sian Evans (C&W) to Tanya Rofani (Ofcom) (12 October 2009).
[64] Email from Annemaree McDonough (Virgin Media) to Tanya Rofani (Ofcom) (12 October 2009).

Section 4

Summary of the Parties' comments on the Disputes

Introduction

4.1 This section summarises the Parties' comments on key issues raised by the Disputes. Broadly, these can be divided into comments on the following themes:

4.1.1 the basis, scope and handling of the Disputes;

4.1.2 the potential effects on competition and consumers under the current arrangements;

4.1.3 remedies and potential alternative charging regimes; and

4.1.4 Ofcom's regulatory duties under sections 3 and 4 of the Act.

4.2 These comments were submitted by the Parties in response to various correspondence sent by Ofcom.[65] We summarise comments on each of the themes in turn below. This summary does not attempt to repeat all of the comments made by the Parties and considered by us in reaching our provisional conclusions in respect of the Disputes.

Comments on the basis, scope and handling of the Disputes

H3G's comments[66]

4.3 H3G's core arguments regarding the Disputes are set out at paragraph 3.2 above. It noted that under the current charge control regime each MNO has a different regulated termination rate (with H3G having the highest regulated termination rate). In these circumstances, charging arrangements for calls to ported mobile numbers based on the donor pays principle create a significant and unreasonable commercial imbalance between the Parties. H3G argued that it has been underpaid and the other MNOs have been overpaid as a result of these arrangements. It explained that it was seeking a

[65] On 26 March 2008 Ofcom wrote to the other MNOs inviting comments on the scope of the Disputes and the issues that they raise. As explained at paragraph 1.6 above, it then suspended consideration of the Disputes. On 29 July 2009, Ofcom wrote to the Parties requesting comments on i) Ofcom's decision to suspend work on the Charge Control Amendment Consultation and ii) clarification as to the types of traffic that H3G intended to include within the Scope of the Disputes, and inviting H3G to review and update information that it had previously provided. On 30 September 2009, Ofcom wrote to the Parties advising that it would reopen its consideration of the Disputes on 5 October 2009 and publish the scope of the Disputes on its website. Lastly, on 15 October 2009 Ofcom sent the Parties a request for information pursuant to section 191 of the Act.
[66] Letter from Tim Lord (H3G) to Neil Buckley (Ofcom) (18 March 2009); Letter from Jane Jellis (H3G) to Tanya Rofani (Ofcom) (14 August 2009); Letter from Jane Jellis (H3G) to Tanya Rofani (Ofcom) (3 September 2009).

determination that would take effect immediately and address past overpayments/underpayments, which have increased considerably since 2007.

4.4 H3G said that it disputes the charging arrangements for calls to ported mobile numbers both going forward and from 15 May 2003. It clarified, however, that it is only disputing those elements of the current charging arrangements that impose the donor paid principle for charging of termination rates between DNO and RNO. It stressed that it is the charging method for calls to ported mobile numbers that is at issue in the Disputes (rather than the routing method for calls to ported mobile numbers, which it considered has no impact on the donor paid principle). H3G submitted, therefore, that the scope of the Disputes should include all calls where the donor paid principle is applied to transactions between the donor and RNOs. This would include circumstances where there is no direct voice interconnect between H3G and another network (such as between H3G and T-Mobile), where calls between H3G and another network are transited by another operator.

4.5 H3G submitted that the relationship between H3G as DNO and the ONO does not fall within the scope of the Disputes. It stressed that it had consistently advocated that the recipient paid principle should apply to charging arrangements for calls to ported mobile numbers and that it exhausted negotiations before raising the Disputes.

O2's comments[67]

4.6 O2 argued that Ofcom should limit any investigation to consideration of current charging arrangements under which the RNO charges its own termination rate to the DNO. It argued that no other charging method had been proposed by H3G or rejected by O2 and could not therefore be considered the subject of any determination by Ofcom.

4.7 [✂]. The MCT Statement did not materially change any relevant circumstance because it did not affect the costs that O2 and H3G either incurred in terminating calls to ported mobile numbers or were entitled to charge for terminating these calls.

4.8 O2 stated that no dispute between O2 and H3G could have existed prior to 25 April 2007 (the first date that H3G raised the matters in dispute with O2). [✂]. O2 suggested that the CAT's judgment in *T-Mobile and others v. Ofcom*[68] supported its view that H3G could not be regarded as being in dispute with O2 before 25 April 2007 (on the basis that it did not dispute these at the time and was only doing so retrospectively). It suggested, in any event, that if there is uncertainty as to when H3G raised a dispute, Ofcom must determine this as a preliminary issue.[69]

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[67] Letter from Lawrence Wardle (O2) to Lisle Alden (Ofcom) (2 April 2008); Email from Lawrence Wardle (O2) to Tanya Rofani (Ofcom) (10 July 2009); Letter from Lawrence Wardle (O2) to Neil Buckley (Ofcom) (2 October 2009); Letter from Lawrence Wardle (O2) to Tanya Rofani (Ofcom) (9 November 2009).
[68] [2008] CAT 19, paragraph 69.
[69] We note that these comments were made prior to the CAT's judgment in *BT v Ofcom* [2010] CAT 15 (preliminary issues).

Orange's comments[70]

4.9 Orange argued that logic and reasonableness dictate that a DNO cannot be required to pay a higher termination rate to an RNO than that which the DNO receives from an ONO.

4.10 It suggested that a number of difficulties could arise if Ofcom only made a determination that applied to the Parties when this would inevitably have industry wide implications. Unless Ofcom takes account of these implications, further disputes between MNOs appear inevitable. Orange noted that the Charge Control Amendment Consultation would have proposed an industry wide solution applicable to all MNOs had this project continued. It stressed that Ofcom must reflect on whether determination of the Disputes would impose an industry wide solution.

4.11 Orange suggested that H3G had not engaged in meaningful commercial negotiations before bringing a dispute. It argued that H3G had not explained the legal basis of its dispute. It also disputed H3G's argument that the period of dispute with H3G should commence on 15 May 2003.

4.12 As regards scope, Orange argued that H3G first raised the issues in dispute on 25 April 2007 (when H3G sent a notice requesting variation of its Interconnect Agreement with Orange). It considered that this did not amount to H3G raising a dispute. Orange stated that it was first informed that H3G had raised a dispute on 26 March 2008.[71]

T-Mobile's comments[72]

4.13 T-Mobile argued that H3G is seeking to circumvent the dispute resolution process. In particular, it suggested that the Disputes attempt to impose *ex ante* regulation via *ex post* procedure for dispute resolution.

4.14 T-Mobile noted that Ofcom is required both to ensure that pricing for interconnection between DNOs and RNOs is cost oriented and to promote competition without discriminating in favour of any MNO. Accordingly, it argued that any remedy that might be applied to resolve the Disputes should be applied to all operators on a purely *ex ante* and non-discriminatory basis. T-Mobile submitted that under an onward routing system, the DNO cannot discriminate in its charging between calls that terminate on its own network and those that must be onward routed to an RNO. Accordingly, under current charging arrangements, MNOs have agreed that the number range-holder must pass through its own termination rate only (since it is unable to charge more or less based on discrimination between call types). T-Mobile noted that this constraint affects all calls to ported mobile numbers (and was a relevant consideration for all of the Disputes).

[70] Letter from Simon Grossman (Orange) to Lisle Alden (Ofcom) (2 April 2008); Letter from Simon Grossman (Orange) to Neil Buckley (Ofcom) (9 July 2009); Letter from Simon Grossman (Orange) to Tanya Rofani (Ofcom) (5 August 2009); Letter from Simon Grossman (Orange) to Neil Buckley (Ofcom) (12 November 2009).
[71] We note that these comments were made prior to the CAT's judgment in *BT v Ofcom* [2010] CAT 15 (preliminary issues).
[72] Letter from Robyn Durie (T-Mobile) to Lisle Alden (Ofcom) (2 April 2008); Letter from Robyn Durie (T-Mobile) to Neil Buckley (Ofcom) (9 July 2009); Letter from Robyn Durie (T-Mobile) to Tanya Rofani (Ofcom) (4 August 2009); Letter from Robyn Durie (T-Mobile) to Tanya Rofani (Ofcom) (12 October 2009).

4.15 T-Mobile argued that a bilateral approach to resolving the Disputes would give rise to significant distortions by altering the playing field on which networks currently compete. It considered that Ofcom must adopt an approach to resolution of the Disputes that minimises these distortions to further the interests of consumers and competition consistent with its duties under the Act. Furthermore, T-Mobile suggested that failing to apply a non-discriminatory industry wide approach to H3G's dispute would result in the same distortions that Ofcom recognised as being problematic in *T-Mobile v. Ofcom*.[73] As regards scope, T-Mobile said that H3G first informed other parties of the matters in dispute on 12 October 2006 and there is no justification for concluding that a dispute commenced before this date.[74]

Vodafone's comments[75]

4.16 Vodafone argued that H3G was attempting to use dispute resolution to obtain a determination on an issue raising no consumer detriment and where any determination could be subject to considerable uncertainty.[76] It argued that various arguments made by Ofcom in connection with *Hutchison 3G UK Limited and BT Telecommunications plc v. Ofcom*[77] also applied in relation to H3G's dispute. It noted that it would be inappropriate to consider the subject matter of this dispute other than via an industry wide consultation and on a prospective basis.

4.17 Vodafone said that H3G raised a dispute on 13 March 2008 at the earliest and that no dispute with H3G could conceivably exist in the period from May 2003 to September 2006[78]. Furthermore, H3G first discussed alternative charging arrangements for calls to ported mobile numbers with Vodafone in November 2006. [✂]. Any "back dating" of amendment to charging arrangements for calls to ported numbers as requested by H3G would be unfounded and inappropriate.

Comments on the potential effects on competition and consumers under the current arrangements

H3G's comments[79]

4.18 H3G argued that it has been, and continues to be, adversely affected by a significant and unreasonable commercial imbalance between the Parties resulting from the current charging arrangements.[80] It estimated that since 2004 it has foregone £[✂] million in MCT charges as a result of this imbalance, and that this has effectively been retained by the other MNOs. H3G also argued that other MNOs are disproportionately incentivised

[73] [2007] CAT 32.
[74] We note that these comments were made prior to the CAT's judgment in *BT v Ofcom* [2010] CAT 15 (preliminary issues).
[75] Letter from Don Wilson (Vodafone) to Keith Loader (Ofcom) (2 April 2008); Letter from Matthew Braovac (Vodafone) to Neil Buckley (Ofcom) (8 July 2009); Letter from Raj Roy (Vodafone) to Neil Buckley (Ofcom) (9 November 2009).
[76] In addition it argued that the MCT Appeals (see paragraph 1.6 above), which were underway as at 2 April 2008, constituted alternative means of resolving the Disputes.
[77] [2009] CAT 17.
[78] We note that these comments were made prior to the CAT's judgment in *BT v Ofcom* [2010] CAT 15 (preliminary issues).
[79] Letter from Stephen Lerner (H3G) to Neil Buckley (Ofcom) (9 November 2009).
[80] Letter from Jane Jellis (H3G) to Tanya Rofani (Ofcom) (14 August 2009).

to persuade H3G subscribers to switch to their networks (because they will then receive H3G's higher termination rate).

4.19 H3G said that it is not able to provide information that would confirm or reject the operation of a switching effect. However, it noted that Vodafone had made comments that H3G considered relevant to these effects, which were considered by Ofcom at paragraph 4.26 of the Charge Control Amendment Consultation. [✂].

O2's comments[81]

4.20 O2 expressed surprise that Ofcom has asked for information in relation to switching and porting effects. It noted that in the Charge Control Amendment Consultation, Ofcom had suggested that these potential effects justified a change to the charge controls but that there was no evidence that they actually occur. It noted that divergent termination rates led to switching and porting effects whereas termination rates have actually tended to converge. O2 also suggested that the fact that H3G has the highest termination rate of all UK MNOs, and O2 the lowest, undermines any suggestion that H3G does not compete aggressively for the customers of MNOs with lower termination rates.

Orange's comments[82]

4.21 Orange submitted that both the porting effect and the switching effect are completely immaterial and entirely theoretical. It argued that these effects are diametrically opposed in the sense that one incentivises and one dis-incentivises an operator like Orange from promoting portability. It argued that it does not target the subscribers of any particular competitor and submitted that it is not possible to differentiate its marketing activities in this way. Rather, Orange argued that it seeks to acquire and retain as many customers as possible. Orange said that a fundamental principle of porting is that consumers are more likely to switch if they will not lose their number. This means that an operator seeking to acquire a customer has every incentive to promote porting as a means of promoting switching. [✂].

T-Mobile's comments[83]

4.22 T-Mobile did not comment specifically on potential effects on competition and consumers under the current arrangements. However, it noted that the extensive backdating of historic charges that H3G has sought would undermine the interests of consumers by reducing regulatory certainty, reducing investment in new consumer offerings and distorting competition between MNOs.

Vodafone's comments[84]

4.23 [✂]. However, its commercial strategy is not motivated by differentials in termination rates.

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[81] Letter from Lawrence Wardle (O2) to Tanya Rofani (Ofcom) (9 November 2009).
[82] Letter from Simon Grossman (Orange) to Neil Buckley (Ofcom) (12 November 2009).
[83] Letter from Robyn Durie (T-Mobile) to Neil Buckley (Ofcom) (9 November 2009).
[84] Letter from Raj Roy (Vodafone) to Neil Buckley (Ofcom) (9 November 2009).

Comments on remedies

H3G's comments[85]

4.24 H3G argued that Ofcom should determine that charging arrangements for calls to ported mobile numbers should reflect the recipient paid principle, set rates for calls to ported mobile numbers and require payment of any amounts due on the basis of this determination. It argued that the application of the recipient paid principle on both a retrospective and prospective basis would address the current unfair commercial imbalance between the Parties. This would allow for retrospective recovery of historic overpayments and underpayments that have result from current charging arrangements.

4.25 H3G argued that there are a number of means by which Ofcom may address the issues raised by the Disputes, including:

4.25.1 a (retrospective) determination that requires recovery and repayment of past overpayments or underpayments from either May 2003 (the date H3G first informed Ofcom that the current method of charging for calls to ported mobile numbers did not reflect the costs incurred by the RNO) or the date H3G first raised a dispute with each of the other MNOs, plus a (prospective) determination to require recovery and repayment up to the date that direct routing is introduced;

4.25.2 a (retrospective) determination that requires recovery and repayment of past overpayments or underpayments plus a (prospective) determination to require the introduction of the recipient pays principle either between the Parties to the Disputes or across the industry;

4.25.3 a (prospective) determination amending GC18 to set out how the recipient paid principle should apply to charging arrangements for calls to ported mobile numbers; or

4.25.4 any other determinations that Ofcom considers appropriate to address the imbalance that H3G argues currently exists between network operators.

4.26 H3G submitted that it is important for Ofcom to give retrospective effect to any determination of the Disputes. Unless it did so, this would reward parties that resist proposals made in the course of negotiations and undermine Ofcom's statutory duties. It acknowledged that information required to identify ONOs for calls to ported mobile numbers, which would be needed to recover historic overpayments and underpayments, would not be straightforward to produce. However, H3G noted that this should not be considered an obstacle to dispute resolution. In addition, it argued that it would not be disproportionate for the other MNOs to make repayments to H3G as they could protect their positions by, for example, raising disputes with ONOs (although ability to recover should not be a relevant consideration for dispute resolution).In addition, H3G argued that Ofcom should look beyond the solutions proposed by the Parties in considering how to resolve the Disputes. It suggested that Ofcom may propose a solution that has not

[85] Letter from Stephen Lerner (H3G) to Tanya Rofani (Ofcom) (8 July 2009); Letter from Jane Jellis (H3G) to Tanya Rofani (Ofcom) (14 August 2009); Letter from Jane Jellis (H3G) to Tanya Rofani (Ofcom) (3 September 2009); Letter from Stephen Lerner (H3G) to Neil Buckley (Ofcom) (9 November 2009); Letter from Stephen Lerner (H3G) to Neil Buckley (Ofcom) (4 December 2009).

been discussed between the Parties prior to bringing the Disputes and cited the CAT's judgments in support of this approach.[86]

4.27 H3G made (later) alternative submissions on 4 December 2009, which were stated to be without prejudice to its primary submissions dated 14 August and 9 November 2009, on potential alternative forms of determination that Ofcom should consider in respect of the Disputes. These included:

4.27.1 restricting any determination to the termination of calls to a ported number where both the DNO and the ONO are MNOs (but not necessarily the same MNO);

4.27.2 limiting the effect of any determination to the date that H3G first raised a dispute with each of the other MNOs;

4.27.3 providing that, where H3G is DNO, it can only retain any overpayment on termination rates where it is also the ONO; and

4.27.4 should Ofcom consider it more appropriate, H3G could be reimbursed in line with the termination rates set by the CAT for 2007/8 and 2008/9 (and not those actually charged by the MNOs in those years).

O2's comments[87]

4.28 O2 argued that it would be inappropriate to make any determination providing for repayment of underpayments or overpayments in the retrospective period, reaffirming that the period of H3G's dispute with O2 should therefore run from 25 April 2007.

Orange's comments[88]

4.29 Orange considered H3G's proposal for resolving the Disputes to be unreasonable. Orange would make a loss on each call to a number ported to H3G. It argued that any remedy to the Disputes must be imposed on a multilateral (i.e. industry wide basis) rather than on a bilateral basis between MNOs, but also noted the difficulty of imposing different solutions on a bilateral basis in respect of the Disputes (each of which may have commenced on different dates). It stated that logic and reasonableness dictate that a DNO cannot be required to pay a higher termination charge to an RNO than that received from an ONO. Ofcom should consider both the termination rate that the RNO should receive and termination rate the DNO should pay. It noted that some MNOs with higher termination rates may, under current arrangements, have been receiving lower termination rates than they are entitled to while, as DNOs, effectively overpaying other RNOs.

[86] [2008] CAT 12; [2008] CAT 19.
[87] Letter from Lawrence Wardle (O2) to Lisle Alden (Ofcom) (2 April 2008).
[88] Letter from Simon Grossman (Orange) to Lisle Alden (Ofcom) (2 April 2008); Letter from Simon Grossman (Orange) to Neil Buckley (Ofcom) (9 July 2009).

T-Mobile's comments[89]

4.30 T-Mobile argued that the CAT's judgment in *T-Mobile (UK) Limited and others v. Ofcom* ("the *TRD* judgment")[90] is relevant to resolution of the Disputes. According to the approach set out in this judgment, Ofcom must ensure that i) a fair balance is struck between the interests of the parties to a dispute and ii) that any remedy is reasonable for the purpose of ensuring that its regulatory duties are achieved.[91] This includes giving "*due respect to contractual arrangements properly entered into*" by the parties. The dispute resolution process should not be seen as allowing Ofcom to rewrite contractual arrangements properly entered into.

4.31 T-Mobile also suggested that we should rely on the six pricing and recovery principles established by Oftel and adoped by Ofcom in order to identify and assess the options for any potential remedy.

Vodafone's comments[92]

4.32 Vodafone submitted that any change to charging arrangements could only apply on a prospective basis. Moreover, Vodafone noted that H3G has failed to justify its proposed changes to current charging arrangements. It argued that any retrospective change to the current arrangements for charging for calls to ported mobile numbers would undermine the principle of legal certainty and have highly damaging policy consequences. H3G is seeking to introduce wide ranging industry changes via dispute resolution. Resolving the Disputes in H3G's favour would undermine the incentives of parties to conclude and abide by commercial agreements. The charging arrangements were known to H3G prior to its market entry and were contractually agreed between parties.

Comments on potential alternative charging regimes

Introduction

4.33 The Parties responded to Ofcom's specific questions regarding the implementation of a shift from the current charging arrangements to one that reflects the recipient paid principle. These questions related to the feasibility, practicality and cost of changing from current arrangements (which we referred to as the D/D regime) to two potential alternative charging regimes (which we referred to as a "D/R regime" or an "R/R regime") in both the retrospective period and prospective periods (see paragraph 1.9 above).

<u>D/D regime</u>

4.34 The D/D regime reflects current charging arrangements whereby the ONO pays the DNO's termination rate to the DNO. The RNO also receives the DNO's termination rate. This arrangement is depicted in Figure 5 below.

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[89] Letter from Robyn Durie (T-Mobile) to Neil Buckley (Ofcom) (9 November 2009).
[90] [2008] CAT 12.
[91] [2008] CAT 12, paragraphs 100-101.
[92] Letter from Matthew Braovac (Vodafone) to Neil Buckley (Ofcom) (8 July 2009); Letter from Raj Roy (Vodafone) to Neil Buckley (Ofcom) (9 November 2009).

Figure 5: D/D regime

Under current regime D/D

ONO → DNO → RNO

ONO pays termination rate of DNO

DNO pays termination rate of DNO

Source: Ofcom

D/R regime

4.35 Under a D/R regime, the DNO would receive the DNO's termination rate from the ONO and pay the RNO's termination rate to the RNO. This arrangement is depicted in Figure 6 below.

Figure 6: D/R regime

Under alternative regime D/R

ONO → DNO → RNO

ONO pays termination rate of DNO

DNO pays termination rate of RNO

Source: Ofcom

R/R regime

4.36 Under an R/R regime, the DNO would receive the RNO's termination rate from the ONO and pass it to the RNO. This arrangement is depicted in Figure 7 below.

Figure 7: R/R regime

Under alternative regime R/R

ONO → DNO → RNO

ONO pays termination rate of RNO

DNO pays termination rate of RNO

Source: Ofcom

H3G's comments[93]

Alternative charging arrangements in the retrospective period

4.37 H3G considered the impact of a shift from current charging arrangements to a D/R regime in its capacity as ONO, DNO and RNO. It submitted that, as ONO, changing to a D/R regime would not require any change. As a DNO, a shift to a D/R regime would not require H3G (or the relevant ONO) to change anything in respect of the incoming leg of the call. In terms of the outbound leg of the call, H3G would need to re-rate transactions with RNOs that had occurred in the retrospective period. It submitted that both H3G and RNOs could do this from data they already hold and without any implementation costs. As an RNO, H3G would again need to re-rate transactions with DNOs in the retrospective period. Again, it considered that this could be done readily and without any implementation costs for H3G.

4.38 In considering a change to an R/R regime, H3G also distinguished between its roles as ONO, DNO and RNO. As ONO, it noted that it would have to amend transactions with DNOs in the retrospective period. It noted that the information that would be required in order to do this is not available absent a central database of ported numbers or some other means of sharing information. Accordingly, it would need to rely on other operators to re-price invoices based on information it holds (and other operators would need to rely on H3G likewise). As DNO, changing to an R/R regime would require H3G and the relevant ONO to amend the incoming leg of a call. However, the information required to do this is not available to the ONO (who would rely on H3G for this data). H3G suggested that there were two methods of providing this information (both based on a reasonable estimation of the proportion of origination, which would not involve implementation costs). For the outbound leg of a call, a change to an R/R regime would require H3G to re-rate transactions under which it has paid the relevant RNO its own termination rate. H3G submitted that it could do this without any implementation costs. The relevant RNO could also do this using information it already has without any implementation costs. Lastly, where H3G is acting as RNO, it submitted that it would need to amend transactions under which it has charged the relevant DNO's termination rate. H3G said it could do this based on information it already holds and without any implementation costs.

4.39 H3G stressed that the technical steps required to implement the alternative charging arrangements in the retrospective period that it has proposed, either in its primary submissions or in the alternative, are not insurmountable.

Alternative charging arrangements in the prospective period

4.40 Again, H3G submitted arguments regarding the impact of a shift from current charging arrangements to D/R or R/R regimes that distinguished between its capacity as ONO, DNO and RNO.

[93] Letter from Stephen Lerner (H3G) to Neil Buckley (Ofcom) (9 November 2009); Letter from Stephen Lerner (H3G) to Neil Buckley (Ofcom) (4 December 2009).

4.41 As ONO, a shift to a D/R regime would involve no change. As DNO, a shift to a D/R regime would involve no change on the incoming leg of a call. However, on the outbound leg, H3G and the relevant RNO would need to amend the transaction. It argued that both H3G and the relevant RNO could do this based on information already held and without implementation costs for H3G or the RNO. As RNO, H3G would also need to amend transactions. However, it argued that this could be could be done without any implementation costs for H3G.

4.42 A shift to an R/R regime would require H3G, as ONO, to amend transactions under which it has paid the relevant DNO's termination rate. To do so, MNOs would need to share information on their ported numbers and changes to wholesale billing systems. H3G suggested three methods of doing this:

4.42.1 SRI lookup: this would allow the ONO to send queries to the DNO's database to determine whether a number has been ported;

4.42.2 FTP exchange: the existing method of porting bilateral files exchanges between donor and RNOs could be modified to allow for information about ported numbers to be made available to all operators. This information could be used by the ONO for billing reconciliation; or

4.42.3 settlements based on proportion of origination: the ONOs and DNOs would settle invoicing at regular intervals using a "proportional origination method" (applying a percentage split to its total ported out volumes of minutes to remove those volumes that originated on its own network).

4.43 H3G estimated the costs of introducing an FTP exchange method at £[✂] - £[✂] and said it could be implemented within three months. It did not provide specific estimates of cost or time for the other methods identified.

4.44 As DNO, a shift to an R/R regime would require H3G and the ONO to amend transactions relating to the incoming leg of the call (requiring information sharing and change to wholesale billing systems). It argued that this could be achieved via one of the methods summarised at paragraph 4.42 above. H3G and the RNO would also be required to amend transactions for the outbound leg of a call. H3G said that both it and RNOs could do this without any implementation costs.

4.45 As RNO, a shift to an R/R regime would require H3G to amend transactions whereby it charges the relevant DNO's termination rate. It said that H3G can achieve this without any implementation costs.

4.46 H3G also noted that the determination it was seeking could be achieved by amending the mechanics of the existing charge control so that all RNOs receive termination rate revenue based on their TACs.

O2's comments[94]

4.47 O2 submitted that it simply is not practicable to implement the R/R regime. Accordingly, its comments on Ofcom's duties under sections 3 and 4 of the Act relate only to the D/R regime.

<u>Alternative charging regimes for the retrospective period</u>

4.48 O2 suggested that a shift to an alternative D/R regime would be relatively simple for O2 (as a DNO) to implement retrospectively. It would need to credit H3G the difference between its termination rate and H3G's termination rate for calls to ported mobile numbers in that period. However, it noted that a shift to D/R would necessarily mean that, in its capacity as a DNO, O2 would provide to H3G an average rate greater than the rate that it receives itself. O2 would therefore make a loss when onward routing traffic to H3G. Conversely, H3G would make an unearned profit in respect of traffic it routes to numbers ported to O2. O2 suggested that a shift to D/R would, therefore, be neither reasonable nor fair as between parties.

4.49 It submitted that changing to an alternative R/R regime would not be possible to implement in the retrospective period. Doing this would require O2 (as a DNO) to: i) identify the destination of all calls that it received and ported out during the period; ii) calculate the appropriate termination rate according to that destination; and iii) bill ONOs, in retrospect, for the difference between this and the amount they have already paid under the D/D system (i.e. the current charging arrangements for calls to ported mobile numbers). O2 argued that taking these actions would be practically impossible.

<u>Alternative charging regimes for the prospective period</u>

4.50 O2 argued that a shift to a D/R regime would be relatively simple for it to implement (as a DNO). O2 would continue to receive its termination rate from ONOs. It would simply need to pay H3G's termination rate in respect of all traffic it sends to H3G. This would be straightforward to implement. However, O2 argues that a change to D/R would give rise to arbitrary gains and (in O2's case) losses that mean this solution would not be reasonable or fair as between parties.

4.51 It argued that change to an R/R regime would be extremely time consuming and expensive to implement. O2 simply cannot link an incoming call with a call that is subsequently ported out, which is what the R/R approach effectively requires. It suggested that the implementation of changing to an R/R regime would cost around £[✄] million and take between a year and two years to complete.

Orange's comments[95]

<u>Potential alternative charging regimes for the retrospective period</u>

4.52 Orange argued that there are no significant obstacles to changing to a D/R regime in the retrospective period. This would require an adjustment to be made between the DNO

[94] Letter from Lawrence Wardle (O2) to Tanya Rofani (Ofcom) (9 November 2009).
[95] Letter from Simon Grossman (Orange) to Neil Buckley (Ofcom) (12 November 2009).

and the RNO whereby the RNO would receive/pay back any underpayment/overpayment according to its termination rate.

4.53 It could not comment on how a shift to an R/R regime might be implemented. As an ONO, Orange cannot know the correct termination rate that should apply. In addition it has no means of verifying any underpayment/overpayment requested by/received from the DNO. As a DNO, Orange cannot reconcile an incoming call from the ONO with the onward routed call to the RNO. It has no means of ascribing those minutes to a specific ONO. In addition, the RNO itself has no means of knowing which network originated the call.

Potential alternative charging regimes for the prospective period

4.54 Orange argued that a shift to a D/R regime in the prospective period would be straightforward to implement. However, it could not implement an R/R regime (absent direct routing) for the same reasons given as for implementation in the retrospective period.

Other alternatives

4.55 Orange argued that in view of converging termination rates, any alternative solution should be applied in the retrospective period only. It suggested that Ofcom should proceed with implementing a version of proposals set out in the Charge Control Amendment Consultation.

T-Mobile's comments[96]

4.56 T-Mobile argued that current charging arrangements for call to ported numbers reflect the fact that MNOs cannot charge different termination rates for calls received on its network that are subsequently ported to another network absent a system for direct routing of calls. It noted that a shift from the donor paid principle to the recipient paid principle would be consistent with a move to direct routing of calls to ported mobile numbers, but not consistent with onward routing. It also suggested that the recipient paid principle would give some MNOs an incentive to charge higher termination rates at the expense of their competitors (thereby distorting competition). T-Mobile argued as a general principle, that a shift to a D/R regime would create significant risk and uncertainty in the market, and result in DNOs incurring ongoing charges for calls to ported mobile numbers. Moving to D/R regime would impose a net cost on all MNOs (since H3G's termination rate is higher than the average among other MNOs). Absent the ability to pass this cost back to the ONO, DNOs would ultimately have to pass on this cost to their customers. This would distort competition and involve discrimination between groups of consumers.

Potential alternative charging regimes for the retrospective period

4.57 T-Mobile said that a shift to a D/R regime in the retrospective period would be a simple matter of re-pricing applicable minutes at appropriate termination rates. However, it noted that MNOs do not make accounting provisions for unfunded liabilities over such an extended period. Any retrospective remedy would require repayments from other funds

[96] Letter from Robyn Durie (T-Mobile) to Neil Buckley (Ofcom) (9 November 2009).

and this would i) reduce investment; ii) undermine regulatory certainty; and iii) distort competition between MNOs.

4.58 It submitted that it would be impossible to retrospectively reconcile relevant calls with the ONO to pass on applicable charges at appropriate termination rates. Accordingly, a shift to an R/R regime cannot occur retrospectively.

Potential alternative charging regimes for the prospective period

4.59 T-Mobile said that a shift to a D/R regime in the prospective period would be straightforward.

4.60 It submitted that it is not possible to move to an R/R regime (again, because it could not reconcile different call legs or complete processing necessary to apply this regime). While some modification might make R/R possible, T-Mobile estimated that this would cost at least £[✂] million and have a lead time of 18 months. T-Mobile argued that there are strong commercial reasons for not making these modifications.

Other alternatives

4.61 T-Mobile suggested direct routing as an alternative to D/R or R/R regimes. It also suggested that it might be possible to make artificial termination rate adjustments to recognise the proportion of ported calls and pass any changes of value via this mechanism.

Vodafone's comments[97]

4.62 Vodafone submitted that the D/R and R/R regimes are not appropriate in a situation where i) there is onward routing of ported calls and ii) material asymmetries in termination rates persist.

Potential alternative charging regimes for the retrospective period

4.63 Vodafone submitted that, if shifting to a D/R charging regime, it would need to re-price all affected traffic. This would involve two separate cost elements. First, the costs of recalculation and reconciliation (an exercise which, Vodafone submitted, would also be contingent on data availability). Second, the costs of repayments which would be substantial. It argued that under a D/R regime, as both DNO and RNO, Vodafone would incur losses due to asymmetry between H3G's higher termination rate and Vodafone's termination rate over the period. If the arrangement was applied industry wide, Vodafone would expect this loss to be substantially more than under its bilateral arrangements with H3G.

4.64 Vodafone argued that an R/R regime could not be implemented on a retrospective basis. Vodafone would need to recover the difference between Vodafone's termination rate and H3G's higher termination rate from originating and transit operators for. There would be technical challenges matching ported traffic to ONOs. It noted that there is no commercial incentive for a third party originating or transit operator agreeing to bear a retrospective cost adjustment.

[97] Letter from Raj Roy (Vodafone) to Neil Buckley (Ofcom) (9 November 2009).

Potential alternative charging regimes for the prospective period

4.65 Vodafone noted that similar issues would arise if there was a shift to a D/R charging regime on a prospective basis. The impact of these issues on a prospective basis would depend on traffic volumes and the degree of asymmetry in termination rates. There would be two kinds of costs: i) (minor) costs associated with the revised billing and costs due to the increased termination rate out-payments on ported out calls in excess of the matching receipt; and ii) reduced termination rate receipts on ported in calls.

4.66 Similar issues also arise if there was a prospective shift to an R/R regime. Vodafone noted that this would require each interconnecting MNO to agree a range of different termination rates based on the unknowable destination of the call. Vodafone doubted that this range of rates would be easily agreed. Vodafone suggested that a shift to an R/R regime would increase the total industry level of mobile termination charges and an increase in inter-operator charging asymmetry.

Other alternatives

4.67 Vodafone suggested that there are a range of alternative charging regimes for calls to ported mobile numbers including: i) universal direct routing; ii) porting overlay adjustment; and iii) mobile direct routing and/or changed commercial arrangements. However, any shift to alternative arrangements should be on a prospective basis and subject to consumer interests and legal/procedural considerations.

Ofcom's regulatory duties under sections 3 and 4 of the Act

H3G's comments[98]

4.68 H3G argued that Ofcom's duties under sections 3(1), 3(3), 3(4) and section 4 of the Act are engaged in respect of the Disputes and that the current charging arrangements are not consistent with these duties. In addition, it suggested that requirements that apply to the setting of SMP conditions are also relevant (because it would be unreasonable, in light of Ofcom's regulatory duties, for it to select a solution that would frustrate or conflict with its duties in the setting of relevant conditions). H3G argued, in particular, that Ofcom should consider whether the maintenance of the *status quo* would be consistent with Ofcom's duties under section 4(7) of the Act and its duties to promote competition; or have regard to the desirability of promoting competition, under sections 3(1)(b), 3(4)(b) and 4(3)(a) of the Act. It also argued that a refusal to give retrospective effect to dispute determination risks incentivising parties to act unreasonably in negotiations. It suggested that Ofcom cannot perform its regulatory duties under sections 3 and 4 of the Act unless the dispute resolution process is effective. Past transfers of MCT revenue from H3G to the other MNOs continue to have an impact on competition and H3G would be in a much stronger position now if it had not been prevented from collecting the termination rate set by Ofcom and if other MNOs had been prevented from recovering average termination rates that exceed those set by Ofcom.

[98] Letter from Jane Jellis (H3G) to Tanya Rofani (Ofcom) (14 August 2009).

O2's comments[99]

4.69 O2 noted that Ofcom is required to further the interests of consumers in relevant markets, where appropriate by promoting competition (section 3(1)(b) of the Act). It also noted that Ofcom is required to promote competition under a Community requirement (section 4(3) of the Act). O2 argued that, under current charging arrangements, both it and H3G can recover efficiently incurred costs. To the extent that the donor paid principle reduces the differences between charges and costs, it can be thought of as promoting competition in terms of section 3(1)(b) of the Act. In contrast, a D/R regime would mean that O2 would suffer a loss on calls onward routed to H3G; and H3G an unearned profit in respect of traffic going the opposite way. The waterbed effect means that this loss would distort competition in the mobile retail market in conflict with sections 3(1)(b) and 4(3) of the Act.[100] It considered that this would also have a negative effect on consumers, contrary to section 3(5) of the Act. O2 also referred to the requirement to take account of the desirability of not favouring one form of electronic communications network over another (section 4(5) of the Act). It suggested that a shift to a D/R regime would result in operators being rewarded for using less efficient technology that attracts higher termination rates (i.e. H3G making unearned profit on calls routed to ported numbers), contrary to section 4(6) of the Act.

Orange's comments[101]

4.70 Orange commented that the obligation of reasonableness arguably applies only to charges levied by the DNOs for the provision of portability and not to termination charges levied or proposed by RNOs (which are regulated under normal rules governing call termination).

T-Mobile's comments[102]

4.71 In terms of any change to current charging arrangements, T-Mobile submitted that both the donor paid principle and recipient paid principle have advantages and disadvantages. It noted that Oftel initially favoured the donor paid principle and argued that any change to this position would be contrary to Ofcom's duty of consistency under section 3(3)(a) of the Act. Any such change of position would also be discriminatory. T-Mobile submitted that imposing any retrospective remedy would be inconsistent with Ofcom's duty to act proportionately (section 3(3)(a) of the Act), particularly where for much of this period the Parties had agreed to the charging arrangements (in the part of their Interconnect Agreements dealing with pass through of termination rates). T-Mobile noted Ofcom's duty under section 3(3)(b) of the Act to act proportionately and to target regulation only where it is needed. It suggested that dealing with the Disputes on a multilateral basis was consistent with Ofcom's duties not to discriminate in favour of H3G (section 4(6) of the Act) and to further the interests of consumers and promote competition by avoiding market distorting payments (sections 3(1)(b) and 3(4)(b) of the Act).

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[99] Letter from Lawrence Wardle (O2) to Tanya Rofani (Ofcom) (9 November 2009).
[100] The waterbed effect operates where reducing (increasing) prices in one part of a firm's operation would cause another set of prices to increase (fall).
[101] Letter from Simon Grossman (Orange) to Lisle Alden (Ofcom) (2 April 2008).
[102] Letter from Robyn Durie (T-Mobile) to Neil Buckley (Ofcom) (9 November 2009); Letter from Robyn Durie (T-Mobile) to Tanya Rofani (Ofcom) (4 August 2009).

Vodafone's comments[103]

4.72 Vodafone noted that a shift to the recipient paid principle would not serve the interests of consumers so long as onward routing and material asymmetries in termination rates persist. This would simply increase average termination rates across the industry and exacerbate the competitive distortion that already exists.

[103] Letter from Raj Roy (Vodafone) to Neil Buckley (Ofcom) (9 November 2009).

Section 5

Framework for analysis of the Disputes

Introduction

5.1 The Disputes relate to a charging method provision in agreements negotiated commercially between H3G and the other MNOs, in relation to which no regulatory obligations apply. H3G proposed to the other MNOs that the provision should be changed and they each rejected that proposal, such that they are now in dispute. In resolving these Disputes, Ofcom is considering whether the other MNOs were justified in rejecting H3G's proposal.

5.2 As set out in section 2 above, Ofcom's powers when resolving disputes are limited to those set out in section 190 of the Act. Of particular relevance to these Disputes are Ofcom's powers:

5.2.1 to give a direction fixing the terms or conditions of transactions between the parties to a dispute; and

5.2.2 to give a direction requiring the payment of sums by way of adjustment of an underpayment or overpayment, in respect of charges for which amounts have been paid by one party to a dispute, to the other.

5.3 We have considered the effects of the current charging arrangements on H3G and the other MNOs, in order to assess whether they appear to us to be fair as between them, and reasonable in light of our statutory duties.

5.4 Whilst the current charging arrangements which are in dispute have remained constant throughout the period which we are examining, the underlying facts have changed over time. In particular, over the period there have been changes in the Parties' termination rates and the differences between those rates, i.e. the degree of asymmetry. In addition, some considerable time has elapsed since the Parties first started discussing the matters in dispute, and the Disputes were first brought to Ofcom. As a result, we consider that an analysis based on a snapshot of the position now would not appropriately reflect the position as between the Parties over time. We have therefore set out our analysis of the whole period under consideration, before going on to draw our provisional conclusions based on that analysis.

5.5 Our analysis falls into two broad time periods: a period up to our current consideration of the Disputes, and a future period from the date of the determination of the Disputes onwards. For ease of reference, we have referred to these as the "retrospective period" and the "prospective period".

5.6 For these purposes, the "prospective period" is defined as from the date of determination of the Disputes until the end of the current charge control. Our economic analysis for the prospective period is therefore focused on the last year of the current charge control period for mobile termination rates.[104]

5.7 For this period, we consider the fact that charging arrangements for calls to ported numbers for the years beyond the current charge control is dealt with as part of Ofcom's *Wholesale mobile voice call termination* Market Review is a relevant consideration.[105] This means that, if Ofcom were to determine that current charging arrangements should change, any new regime might only last for less than 12 months. The potentially short duration of any new regime would need to be balanced against the time and costs of its implementation.

Ofcom's analytical approach

5.8 We have carefully considered the Parties' submissions and our statutory duties in deciding how best to assess the impact of the current charging arrangements on them. We have considered the effects of the current charging arrangements with reference to the following economic factors (which we note have also been raised in the Parties' comments as being relevant):

5.8.1 whether the Parties have the opportunity to recover their efficiently incurred MCT costs under the current arrangements;

5.8.2 the financial effect of the current arrangements on the Parties as compared to the effect of alternative arrangements under which they received their own termination rates for calls to ported mobile numbers (instead of that of the DNO's rate);

5.8.3 the effects that the current charging arrangements have on competition (e.g. whether the arrangements give rise to effects) through porting, switching effects or asymmetric regulation effects[106] on a scale that might tend to distort competition; and

5.8.4 whether the current charging arrangements lead to harm to consumers' interests, in particular through the effects on the prices paid by customers of ONOs, DNOs, and RNOs.

[104] Since the date of the final determination in the Disputes is expected to be February 2010, this means that our economic analysis for the prospective period covers about the last two months of this charge control year as well as entire last year of the charge control. For simplicity, the quantification work for this period will be focused on the last year of the charge control, but other parts of our analysis and our provisional conclusions apply to the whole of the prospective period.

[105] This consultation considers recovery of efficient costs for MNOs from 2011/12 to 2014/15.

[106] The "switching effect" refers to the incentive to target subscribers to switch (with a ported number) from a network with a higher termination rate to another network with a lower termination rate in order to receive the higher termination rate of the DNO. The "porting effect" refers to the disincentive of a network with a higher termination rate to encourage subscribers that do switch from porting their number or, alternatively, the incentive of a network with a lower termination rate to encourage subscribers that do switch to port their number. The "asymmetric regulation effect" refers to the situation that arises where different operators are subjected to different levels of regulated termination rates (relative to efficient costs).

5.9 We have considered the extent to which these effects actually exist and, where they do, whether they are material. In addition to these four factors, two of the Parties mentioned the effect on investment and innovation as relevant to Ofcom's assessment of the Disputes. We have addressed these points as well.

5.10 Ofcom's principal duties under section 3(1) of the Act are to further the interests of citizens in relation to communications matters and to further the interests of consumers in relevant markets, where appropriate, by promoting competition (which mirrors the principal duties identified in Article 8 of the Framework Directive). The third and fourth economic considerations referred to above reflect in particular Ofcom's principal duties in carrying out functions under the Act. Accordingly, we have placed relatively greater weight on these considerations than on the previous two.

5.11 We are not under a specific duty to ensure that the Parties can recover their costs where they are not subject to regulatory obligations. The charging arrangements for calls to ported mobile numbers are not subject to regulation. Our assessment of cost recovery is consequently given relatively less weight in our analysis, although it remains a material and relevant consideration for the purposes of the Disputes which we have taken into account.

5.12 We consider that the financial impact analysis sets the context for the analysis of economic effects. But its primary significance is not the size of the financial effects *per se*. An effect on a competitor is not necessarily the same as an effect on competition. Instead the significance of the financial impact analysis is the extent that it reflects the assessment of the effects on competition or the consumer price analysis (or the opportunity to recover efficiently incurred cost).

5.13 Lastly, we have also considered whether there are any other grounds that would justify intervention in relation to those aspects of arrangements between the Parties that are not the subject of the Disputes.

Six principles of pricing and cost recovery

5.14 As noted at paragraph 4.31 above, T-Mobile made submissions on how the six principles of pricing and cost recovery which were developed by Oftel in the context of number portability might be applied to the present dispute, in particular to compare regimes reflecting the donor paid and recipient paid principles.

5.15 These six principles of pricing and cost recovery are:

5.15.1 Cost causation: costs should be recovered from those whose actions cause the costs to be incurred;

5.15.2 Cost minimisation: the mechanism for cost recovery should ensure that there are strong incentives to minimise costs;

5.15.3 Effective competition: the mechanism for cost recovery should not undermine or weaken the pressures for effective competition;

5.15.4 Reciprocity: where services are provided reciprocally, charges should also be reciprocal;

5.15.5 Distribution of benefits: costs should be recovered from the beneficiaries especially where there are externalities; and

5.15.6 Practicability: the mechanism for cost recovery needs to be practicable and relatively easy to implement.

5.16 T-Mobile argued that:

5.16.1 the principle of cost causation supports charging arrangements that reflect the donor paid principle because under a recipient paid principle the DNO incurs a cost which it does not cause; in stating this, T-Mobile implicitly refers to the D/R alternative because the R/R alternative is financially neutral for the DNO;

5.16.2 the principle of cost minimisation supports a donor paid regime because it does not encourage higher termination rate MNOs to maintain their high termination rates whereas a recipient paid regime might encourage an MNO to keep termination rates high;

5.16.3 the principle of promoting effective competition supports a donor paid regime;

5.16.4 the principle of reciprocity and symmetry is unable to distinguish between donor paid and recipient paid regimes, but points towards not imposing a new system on a bilateral basis but on an industry-wide basis;

5.16.5 the principle of distribution of benefit is "essentially a fairness criterion". Under a recipient paid regime, other MNOs would be incurring a cost by subsidizing the difference in termination rates; a fairer approach would be to modify the charge control; and

5.16.6 the principle of practicability favours a donor paid regime because it enables MNOs to charge a single termination rate on calls at a given time of day or week.

5.17 The six principles often provide a useful framework for assessing options relating to pricing and cost recovery. However, we do not consider that this is the only approach available to us. In our view, considering the four factors listed at paragraph 5.8 above (cost recovery, financial impact, effect on competition and effect on prices paid by consumers) provides an appropriate basis for our analysis in this case and a preferable way to decide how the Disputes ought to be resolved. This framework addresses the key economic issues in the Disputes. In addition, we consider any other grounds to justify intervention, including any further points raised by the Parties. In that context, we set out briefly below how these four factors, together with our review of other considerations, addresses in substance each of the six principles of pricing and cost recovery:

5.17.1 Cost causation: We have considered the extent to which the Parties are able to recover their efficiently incurred costs at paragraphs 6.3 *et seq* and 6.103 *et seq* below. In addition, we have considered that financial impact of a shift from current charging arrangements to alternative arrangements at paragraphs 6.30 *et seq* and 6.117 *et seq* below.

5.17.2 Cost minimisation: This principle is accounted for in our consideration of the effect on prices paid by consumers at paragraphs 6.79 *et seq* and 6.133 *et seq* below, since these prices are ultimately linked to the cost of the charging arrangements. We consider how different charging arrangements might affect various categories of consumer and hence acknowledge the effect of different arrangements. This principle is also covered to some extent in our consideration of the promotion of investment and innovation at paragraphs 6.86 *et seq* below.

5.17.3 Promoting effective competition: The principle of effective competition matches closely with our assessment of competition effects at paragraphs 6.57 *et seq* and 6.122 *et seq* below.

5.17.4 Reciprocity and symmetry: This principle, in particular reciprocity, is considered in our assessment of the implementation costs associated with any shift to alternative charging arrangements, which is set out at paragraphs 6.94 *et seq* and 6.136 *et seq* below. A change to alternative charging arrangements would require an industry-wide approach, which means that reciprocal arrangements between the Parties and other operators will be critical.Reciprocity and symmetry also relates to how differences in termination rates would affect competition (which we address in our competition analysis).

5.17.5 Distribution of benefits: This principle is also accounted for in our consideration of the effect on prices paid by consumers at paragraphs 6.79 *et seq* and 6.133 *et seq* below.

5.17.6 Practicability: This principle is also accounted for in our assessment of the implementation costs of any shift to alternative charging arrangements at paragraphs 6.94 *et seq* and 6.136 *et seq* below.

5.18 The above mapping of the six principles and the four factors listed at paragraph 5.8 above suggests that there is a reasonable alignment between these two approaches.

Section 6

Reasoning and analysis

Introduction

6.1 In this section we set out our analysis of the current charging arrangements and the changes which H3G has proposed, following the framework for analysis set out in the previous section.[107] This section broadly repeats the analysis set out in our Draft Determination (and retains references to our provisional reasoning and conclusions, which we rely on in reaching the final conclusions set out in section 9 below). We summarise the provisional conclusions reached in this section in section 7 below, before drawing on those provisional analytical conclusions to determine these Disputes.

6.2 As explained in section 5 above, our analysis falls into two broad time periods: a period up to our current consideration of the Disputes (the "retrospective period"), and a future period from the date of the determination of the Disputes onwards (the "prospective period"). In section 9 we draw on the analysis of the period as a whole in reaching our conclusions on how to determine the Disputes.

Retrospective Period

Cost recovery

6.3 In analysing each party's opportunity to recover efficiently incurred costs under current charging arrangements, we consider the specific activity brought into dispute, namely, the activity of terminating voice calls to ported numbers, when at least one of the parties to the call is H3G (i.e. either as recipient or donor), and the rates received for terminating voice calls. We also consider cost recovery in the context of all termination minutes of an MNO. This assessment requires us to compare the effective revenues and efficiently incurred costs from terminating calls to ported numbers of each party to the Disputes. We intend to carry out the analysis for ported calls as well as across all terminated calls, both on a pence per minute ("ppm") and on a £millions basis. For this cost recovery assessment, we first consider H3G and then the other MNOs.

H3G's opportunity to recover efficiently incurred costs as a terminating operator

Views of the Parties

6.4 H3G has not alleged in any of its submissions to the Disputes that it has not been able to recover its efficiently incurred MCT costs. Two of the Parties raised the point of cost recovery by H3G of its efficiently incurred costs. O2 submitted that both H3G and O2

[107] For both the retrospective and prospective periods our analysis takes as given the indirect routing system in place for mobile number portability. Direct routing might have some advantages but was not in place for a number of reasons, some going back to the circumstances prevailing at the introduction of MNP (and any change to implement direct routing by regulation is being considered in an ongoing policy consultation process).

could recover these costs.[108] T-Mobile referred to Ofcom's defence of the price control in relation to H3G's appeal on termination rates, in which Ofcom explained that by virtue of the glide path it had set for H3G there was no risk of under-recovering its costs.[109]

6.5 Vodafone noted that, although H3G argued that it cannot recover its reasonably incurred costs under current charging arrangements, both the CAT and the Competition Commission ("CC") have found that this argument has no basis in fact.[110] It said that current charging arrangements remain appropriate while i) calls to ported numbers are subject to onward routing; and ii) there is asymmetry in mobile termination rates.[111]

6.6 O2 argued that H3G benefits from its national roaming agreement with Orange. Under this agreement, Orange terminates calls for H3G and H3G pays Orange's termination rate. It argued that Ofcom should consider this when assessing the impact of current charging arrangements.[112]

Ofcom's assessment

6.7 We carried out the assessment of H3G's cost recovery over the retrospective period, distinguishing between the period before H3G was charge controlled and the period after the charge control was imposed.

6.8 Before 1 April 2007 H3G's termination rate was not charge-controlled, even though we found that it had SMP.[113] Therefore, since H3G had SMP and was unconstrained by charge control regulation, we presume that it could set the rate for voice calls to non-ported numbers in such a way as to compensate for any alleged loss on voice calls to ported numbers. We have nevertheless assessed H3G's efficiently incurred MCT costs to confirm that it was not denied the opportunity to recover these costs under current charging arrangements for calls to ported mobile numbers. The cost, revenue and volume data relied upon in conducting this assessment is described below.

Cost side

6.9 H3G terminates calls on its own network as well as on those of its national roaming partners. Since the cost of terminating calls is likely to differ among these networks, we built an effective efficient MCT cost estimate for H3G that reflects this reality. This is done by calculating a weighted average of H3G's efficiently incurred MCT cost and a proxy for the national roaming charges paid to its national roaming partners.

6.10 In the first instance, we used the existing cost model used in the 2007 MCT Statement ("the 2007 MCT cost model")[114] to derive an estimate of H3G's efficient MCT costs for

[108] Letter from Lawrence Wardle (O2) to Tanya Rofani (Ofcom)(9 November 2009).
[109] Letter from Robyn Durie (T-Mobile) to Neil Buckley (Ofcom) (9 November 2009).
[110] *Hutchison 3G UK Limited v. Ofcom* [2008] CAT 11, paragraph 260; Competition Commission *Mobile phone wholesale voice termination charges* Determination, paragraph 9.41.
[111] Letter from Raj Roy (Vodafone) to Neil Buckley (Ofcom) (9 November 2009).
[112] Letter from Lawrence Wardle (O2) to Tanya Rofani (Ofcom) (9 November 2009).
[113] See "*Assessment of whether H3G holds a position of SMP in the market for wholesale mobile voice call termination on its network* Statement" (27 March 2007). http://www.ofcom.org.uk/consult/condocs/h3gsmp/statement/statement.pdf.
[114] http://www.ofcom.org.uk/consult/condocs/mobile_call_term/statement/statement.pdf.

calls terminated on H3G's network. This is the model used to derive the present charge control, after adjustments (to 3G spectrum costs and network externality surcharge) to take into account the CC's *Mobile phone wholesale voice termination charges* Determination (16 January 2009)[115] and the CAT's judgments in relation to the MCT Appeals (see paragraph 1.7 above), which is referred to as the 'adjusted' 2007 MCT cost model. The description of the steps followed to derive an estimate of H3G's efficient MCT costs is in section A at Annex 2.

6.11 As regards the MCT costs incurred by H3G for calls terminated via national roaming partners, we used the national roaming partners' TACs for simplicity and because it is conservative. Details of the considerations involved in this choice are described in section A at Annex 2.

6.12 We derived (effective) efficient MCT cost estimates as a weighted average of the efficient MCT cost estimates of H3G, and the TACs of O2 and Orange, where the weights are the proportions of volume of H3G's terminated calls on each network. [116] Details of how the (effective) efficient MCT cost estimates are derived are set out in section A at Annex 2.

Revenue side

6.13 Our cost recovery assessment considers the revenues made on calls to ported numbers as well as revenues made across all terminated calls.

6.14 For calls terminated to non-ported numbers, each MNO gets its own termination rate, which varies by time of day ("ToD"). For calls terminated to ported numbers, we know that the Parties' revenues are set by Interconnect Agreements at the DNO's termination rate. For the purposes of our cost recovery assessment we decided to rely on the other MNOs' TACs as a proxy for the termination rates to ported numbers by ToD because it is simpler to implement. Section A at Annex 2 explains in detail the reasons behind this choice. Table 1 below shows the termination rates used in our analysis.

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115 http://www.competition-commission.org.uk/appeals/communications_act/mobile_phones_determination.pdf.

116 [✂].

Table 1: Termination rates and Target Average Charges in pence per minute (nominal terms)

Operator	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011
H3G	10.3	9.1	8.1	5.8	4.8
O2	5.6	5.7	5.7	4.7	4.4
Orange	[6.3]	6.2	6.1	4.8	4.4
T-Mobile	6.3	6.2	6.1	4.8	4.4
Vodafone	5.6	5.7	5.7	4.7	4.4

Source: Ofcom

Volume

6.15 We requested data on call volumes relevant for the cost recovery assessment in information requests issued to each party to the Disputes under section 191 of the Act. All MNOs provided the requested volumes of calls to ported-in minutes, with a split per donor MNO, as well as the total volumes of calls terminated on non-ported numbers. However, none of the MNOs could provide the latter with a split per ONO because that data is not available to them through any of their existing IS or billing systems.

6.16 The data on call volumes provided by the MNOs enabled us to derive £millions figures as well as to derive proportions of traffic when considering cost recovery across all calls.

6.17 We developed our own forecasts for volumes going forward for the periods for which MNOs could not provide actual data. Our approach is explained in section A at Annex 2.

Cost recovery assessment

6.18 As described in paragraph 6.3 above, the cost recovery assessment consists in comparing effective revenues and effective efficient costs first for terminating calls to ported numbers, and then across all terminated minutes. Details of this cost recovery analysis are set out in section B at Annex 2.

6.19 The outcome of the cost recovery analysis for calls to ported numbers and across all terminated calls, when expressed on a ppm basis and on £millions basis, is summarised in Tables 2 and 3 below.

Table 2: H3G excess of effective termination rate compared to effective efficient cost in pence per minute (nominal terms)

	2006/2007	2007/2008	2008/2009	2009/2010
Non-ported numbers	[4.0-5.0]	[3.0-4.0]	[3.0-4.0]	[1.0-2.0]
Ported-in numbers	[0-1.0]	[0-1.0]	[0-1.0]	[0-1.0]
All terminated calls	[3.0-4.0]	[3.0-4.0]	[2.0-3.0]	[0-1.0]

Source: Ofcom

Table 3: H3G excess of effective termination rate compared to effective efficient cost in £millions (nominal terms)

	2006/2007	2007/2008	2008/2009	2009/2010
Non-ported numbers	[100-150]	[100-150]	[50-100]	[0-50]
Ported-in numbers	[✂]	[✂]	[✂]	[✂]
All terminated calls	[✂]	[✂]	[✂]	[✂]

Source: Ofcom

6.20 Table 2 shows that, since the beginning of the charge control period, H3G has been able to recover its efficiently incurred costs for calls to ported numbers. Across all terminated calls, H3G has enjoyed a significant excess of its effective termination rates over its efficient costs throughout the four years, as shown in Table 3.

6.21 For the reasons set out above, we provisionally conclude that H3G was not denied the opportunity to recover its efficiently incurred MCT costs either for calls to ported numbers or for all terminated calls in the retrospective period.

Other MNOs' opportunity to recover efficiently incurred costs as terminating operators

<u>Views of the Parties</u>

6.22 None of the Parties submitted views on whether or not the other MNOs were denied the opportunity to recover their efficiently incurred costs.

Ofcom's assessment

6.23 In assessing the extent of efficient MCT cost recovery for the other MNOs party to the Disputes, we consider terminating calls to which H3G is party (i.e. where H3G is the DNO) and all terminated calls.[117]

6.24 For calls terminating on numbers ported from H3G, we expect that other MNOs made on average a higher margin when receiving H3G's termination rate compared to their margin when receiving their own termination rate on non-ported calls. This is because the charge control set H3G's TAC to be the highest among all MNOs for the period under consideration. Since their own termination rates were set to at least recover efficiently incurred cost within the constraints of the charge control, we infer that other MNOs were able to recover their efficiently incurred costs on calls terminated on numbers ported from H3G.

6.25 Similar reasoning applies when assessing the extent of cost recovery across all calls terminated for which H3G is the DNO. For calls terminating on non-ported numbers, each MNO gets its own termination rate and for calls terminating on numbers ported, it receives H3G's termination rate, which on average is higher than its own.[118] Hence across all terminated calls, each MNO receives on average at least its own termination rate, which was set (amongst other considerations) to enable the recovery of at least its efficiently incurred costs.

6.26 The tables below show the excess of effective termination rates over efficient costs for the other MNOs: first, in ppm for calls to numbers ported-in from H3G (see Table 4); second, in ppm for all terminated calls (see Table 5); and third and fourth, the corresponding figures in £millions (see Tables 6 and 7). In the analysis reported in these tables we used the costs of a 2G/3G MNO with 2.1GHz and 1800MHz spectrum for simplification and because this is conservative (see Annex 2 for more details on the derivation of these cost estimates).

[117] The Parties have been unable to provide us with data that would enable us to restrict our analysis to those terminating calls that H3G is party to.
[118] The charge control only sets an annual TAC for each MNO. It is up to the MNO to set its ToD termination rates in a manner that satisfies the charge control. We are aware that the mechanics of the present charge control allows enough flexibility that for some ToD periods in specific months H3G's termination rate is actually lower than that of other MNOs. However, even though this may be observed at a disaggregated level, the levels of the TACs means that it did not happen at an aggregate level over the charge control year.

Table 4: 2G/3G MNOs' excess of effective termination rate over efficient cost on numbers ported in from H3G in pence per minute

	2006/2007	2007/2008	2008/2009	2009/2010
O2	[5.0-6.0]	[4.0-5.0]	[3.0-4.0]	[1.0-2.0]
Orange	[5.0-6.0]	[4.0-5.0]	[3.0-4.0]	[1.0-2.0]
T-Mobile	[5.0-6.0]	[4.0-5.0]	[3.0-4.0]	[1.0-2.0]
Vodafone	[5.0-6.0]	[4.0-5.0]	[3.0-4.0]	[1.0-2.0]

**These figures are the ppm margin on voice call to numbers ported in from H3G, expressed in nominal terms.*

Source: Ofcom

Table 5: 2G/3G MNOs' excess of effective termination rate over efficient cost on all terminated calls in pence per minute

	2006/2007	2007/2008	2008/2009	2009/2010
O2	[1.0-2.0]	[1.0-2.0]	[1.0-2.0]	[0-1.0]
Orange	[1.0-2.0]	[1.0-2.0]	[1.0-2.0]	[0-1.0]
T-Mobile	[1.0-2.0]	[1.0-2.0]	[1.0-2.0]	[0-1.0]
Vodafone	[1.0-2.0]	[1.0-2.0]	[1.0-2.0]	[0-1.0]

**These figures are the ppm margin on voice calls to non-ported and ported-in numbers, expressed in nominal terms.*

Source: Ofcom

Table 6: 2G/3G MNOs' excess of effective termination rate over efficient cost on numbers ported in from H3G in £millions

	2006/2007	2007/2008	2008/2009	2009/2010
O2	[0-10]	[0-10]	[0-10]	[0-10]
Orange	[0-10]	[0-10]	[0-10]	[0-10]
T-Mobile	[0-10]	[0-10]	[0-10]	[0-10]
Vodafone	[0-10]	[0-10]	[0-10]	[0-10]

** These figures are our estimate in £millions of each of the MNOs' profits (revenues minus costs) made on voice calls received on numbers ported from H3G, expressed in nominal terms*

Source: Ofcom

Table 7: 2G/3G MNOs' excess of effective termination rate over efficient cost on all terminated calls in £millions

	2006/2007	2007/2008	2008/2009	2009/2010
O2	[110-120]	[130-140]	[150-160]	[30-40]
Orange	[150-160]	[140-150]	[150-160]	[40-50]
T-Mobile	[140-150]	[140-150]	[130-140]	[30-40]
Vodafone	[80-90]	[110-120]	[120-130]	[30-40]

**These figures are our estimate in £millions of each of the MNOs' profits (revenues minus costs) made on voice calls received on non-ported and ported-in numbers, expressed in nominal termsSource: Ofcom*

6.27 The cost recovery analysis for the other MNOs confirms that they were not denied the opportunity to recover their efficiently incurred costs on calls to numbers ported in from H3G or on all terminated calls.

The Parties' opportunity to recover efficiently incurred costs as DNOs

Views of the Parties

6.28 The Parties did not comment explicitly on the opportunity to recover efficiently incurred MCT cost as a DNO under the current regime. However, their comments on the impact of a change to alternative charging arrangements seem to suggest that, as DNOs, they were not denied the opportunity to recover their costs. T-Mobile added that in its view the current regime is consistent with the principle of cost causation because it does not require the DNO to bear a cost that it does not cause (see paragraph 5.15.1 above).

Ofcom's assessment

6.29 Under the current charging arrangements, the DNO receives its own termination rate from the ONO for each call minute to numbers ported out to another MNO and pays the RNO that same rate for each minute it onward-routes. Therefore, since the cost of providing termination is avoided as the call is onward routed, and the termination rate received is equal to that passed on to the DNO, the current charging arrangements do not impact on cost recovery for call termination. This is the case for all MNOs.

Financial effect of changing to alternative arrangements

6.30 We now turn to the financial effect of the current arrangements on the Parties as compared to the effect of alternative arrangements under which they receive their own termination rates for calls to ported numbers (instead of that of the DNO's rate).

6.31 In its Disputes Submission, H3G requested a change from the current charging arrangements to one in which the RNO would receive its own termination rate. H3G did not set out specifically how a shift to charging arrangements based on the recipient paid principle might be implemented. However, there are different methods of implementing the requested change, depending on whether or not the change in regime affects the ONO.

6.32 Ofcom sought information from the Parties in relation to these different methods in information requests issued under section 191 of the Act. In relation to alternative charging arrangements, we asked the Parties to comment on the feasibility, practicality and cost of changing the current charging arrangements (which we refer to as the D/D regime) to either a D/R or an R/R regime. The D/R and R/R regimes are described at paragraphs 4.35 and 4.36 above.

6.33 We considered the two alternative regimes, both reflecting the recipient paid principle, as they are both consistent with H3G's proposal (although they have can have a different impact on consumers and might involve different implementation procedures and costs).[119]

Views of the Parties

6.34 All MNOs expressed strong views about the financial impact of a change in regime.

6.35 As regards the general impact of a shift to alternative charging arrangements, O2 argued that, under a shift to alternative charging arrangements, it would be required to provide H3G with an average termination rate that is more than it receives itself, and that it would therefore make a loss when onward routing calls to H3G.[120]

6.36 T-Mobile argued that the principle of cost causation supports the current charging arrangements. The alternative arrangements proposed by H3G would involve the DNO bearing a cost that it does not cause.[121]

6.37 Orange argued that logic and reasonableness mean that a DNO cannot be required to pay a higher termination charge to a RNO than it gets from an ONO.[122]

<u>Financial impact of a shift to a D/R regime</u>

6.38 H3G stated that it had been at a disadvantage for years, earning less than it should have. It argued that since 2004 it has foregone revenue of £[✁] million as a result of receiving the DNO's termination charge rather than its own. In addition, it argued that other MNOs have collectively received £[✁] million in overpayments from H3G since 2004 under current charging arrangements.[123] It explained that most of the negative impact of the current regime was felt in the past when the differentials in termination rates were large. It provided estimates of the financial impact of this change of regime as part of its submission (and the detailed calculations behind them).[124]

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[119] There were no further alternatives to implementing recipient paid retrospectively suggested in any of the parties' submissions.
[120] Letter from Lawrence Wardle (O2) to Tanya Rofani (Ofcom) (9 November 2009).
[121] Letter from Robyn Durie (T-Mobile) to Neil Buckley (Ofcom) (9 November 2009).
[122] Letter from Simon Grossman (Orange) to Neil Buckley (Ofcom) (9 July 2009); Letter from Simon Grossman (Orange) to Lisle Alden (Ofcom) (2 April 2008).
[123] Letter from Jane Jellis (H3G) to Tanya Rofani (Ofcom) (14 August 2009).
[124] Letter from Stephen Lerner (H3G) to Neil Buckley (Ofcom) (9 November 2009).

6.39 H3G argued that the application of the donor paid principle as reflected in current charging arrangements, prevents the average effective revenues aligning with the efficiently incurred MCT costs thereby distorting the charge control (which in turn distorts competition). This allows the other MNOs to use the excess of their effective revenues (over the levels set by the charge controls) to compete more aggressively. It added that it was fair to require the MNOs to pay back as they should have hedged their risks having known for several years that the donor paid system was not fair.

6.40 In their submissions, the other MNOs expressed general concerns about the likely financial impact of a retrospective change to arrangements reflecting the recipient paid principle (without distinguishing between the D/R and R/R regimes). Other MNOs referred to the history of the debate on the issue of payment regimes for calls to ported numbers, citing Oftel[125] and Ofcom[126] publications, and argued that these publications note that both donor paid and recipient paid regimes create arbitrary losses and gains depending on termination rate levels.[127] These publications also discuss the link between the payment regimes and the routing regimes: donor paid is presented as more consistent with onward routing, which is the current regime, whereas recipient paid is seen as more consistent with direct routing. These MNOs also referred to the implicit steer given by Oftel in following requests in 1999 from both One2One and Orange for Oftel to resolve disputes concerning the DCC between One2One and Vodafone/BTCellnet, and Orange and Vodafone/BTCellnet (referred to at footnote 125 below) through imposing the donor paid regime for a period. They also noted that Oftel accepted that a caller should not have to pay more because the called party had ported their number.

6.41 In addition, some of the other MNOs argued that to implement a retrospective change of regime would undermine legal certainty and operate against Ofcom's duty of consistency.[128]

6.42 All of the other MNOs considered that a retrospective change to recipient paid would be unfair because it would force a loss on them and allow H3G to make unearned profits. For example, O2 argued that a shift to the D/R regime would mean that, as a DNO, it would be required to pay H3G a higher average termination rate than it receives itself and, therefore, would make a loss on each call.[129] Under the current donor paid regime H3G was able to recover its efficiently incurred costs, whereas under a recipient paid regime the other MNOs would be disadvantaged.

6.43 In addition the other MNOs argued that a change to a recipient paid regime would affect all other operators in the industry, including the fixed operators. Accordingly, any shift to alternative charging arrangements would need to be discussed industry wide. A number of MNOs claimed that a shift to charging arrangements based on the recipient paid principle would risk: i) destabilising fixed retail pricing;[130] and ii) distorting the industry as

[125] Dispute between One2One and each of Orange, Vodafone and BTCellnet regarding the Donor Conveyance Charge, Dispute between Orange and each of Vodafone and Cellnet.
[126] See the MCT Statement.
[127] See, for example, letter from Robyn Durie (T-Mobile) to Neil Buckley (Ofcom) (9 November 2009).
[128] See, for example, letter from Robyn Durie (T-Mobile) to Neil Buckley (Ofcom) (9 November 2009).
[129] Letter from Lawrence Wardle (O2) to Tanya Rofani (Ofcom) (9 November 2009).
[130] Letter from Lawrence Wardle (O2) to Tanya Rofani (Ofcom) (9 November 2009).

MNOs would be affected differently based on their traffic patterns, termination rates and propensity to port.[131]

6.44 To give an idea of the magnitude of the financial impact a change might have, [✂] attempted to quantify the likely loss it would make if there was a retrospective change to a D/R regime in 2008/09.[132] It estimated that it would lose £[✂] million as a DNO and £[✂] million as an RNO. [✂] added that, if the regime change was extended industry wide, it would make losses against many other operators because it has a low termination rate. These losses would be difficult to predict because they vary depending on several factors, including asymmetries in ToD termination rates, timing of termination rate changes, traffic mix to ported numbers, and implementation of call trap.

6.45 The point was also made that such a change would also be disproportionate because it would go back too many years.

Financial impact of a shift to an R/R regime

6.46 As noted above, H3G and the other MNOs did not materially distinguish between the financial impact of D/R and R/R alternative regimes when commenting on the change to a recipient paid regime. Hence at a high level, the views expressed in paragraphs 6.34-6.37 above apply to the financial impact of a shift to an R/R regime. However, comments from the other MNOs indicate that they find it difficult to forecast what would happen if there were a change to an R/R regime because of the lack of data.

Other alternatives and their impact

6.47 On 4 December 2009, H3G proposed alternative means by which Ofcom could intervene in respect of the Disputes, arguing that Ofcom has a duty to examine all suitable options and not only those submitted by the Parties. These submissions were made without prejudice to H3G's earlier submissions, which continue to advance its primary case.

6.48 The alternative means suggested by H3G amount to further variations to the D/R and R/R regimes described in the notice sent by Ofcom to the Parties pursuant to section 191 of the Act. They reflect H3G's own assessment of the likely objections that the other MNOs might have in respect of a shift to charging arrangements reflecting either of these regimes. In summary, H3G proposed the following variations:

6.48.1 restricting any determination to the termination of calls to ported numbers where both the DNO and the ONO are MNOs (but not necessarily the same MNO). H3G believed that this last variation would significantly reduce the data retrieval problem as it only requires aggregate data volumes which are likely to be available via MNOs' summarised level data, which H3G views as part of basic and standard storage practice;

6.48.2 limiting the effect of any repayments to the date that H3G first raised a dispute with each of the other MNOs;

[131] Letter from Robyn Durie (T-Mobile) to Neil Buckley (Ofcom) (9 November 2009).
[132] It was not able to do so for a retrospective change to R/R because of the absence of data.

6.48.3 providing that, where H3G is DNO, it can only retain any overpayment on termination rates where it is also the ONO;

6.48.4 should Ofcom consider it more appropriate, H3G could be reimbursed in line with the termination rates set by the CAT for 2007/8 and 2008/9 (and not those actually charged by the MNOs in those years).

Ofcom's assessment

6.49 We have assessed the difference in revenues between the D/R and R/R alternative regimes as compared to the present D/D regime. This analysis focuses on those calls that are under consideration in the Disputes, namely the calls terminated to ported numbers and to which H3G is a party. For both the D/R and R/R alternative regimes, we considered the financial impact on all MNOs in their role as ONO, DNO and RNO. Further details of our assessment of the financial impact of a shift to either of the D/R or R/R alternative regimes is set out in section C at Annex 2. We present the conclusions of our analysis below.

Financial impact of a shift to a D/R regime

6.50 As H3G's termination rate is the highest of all the Parties throughout the retrospective period, we anticipate that a change to a D/R regime would be beneficial to H3G and have a negative financial impact on the other MNOs. H3G would have to pay out less to the other MNOs as a DNO and would receive more as an RNO. Conversely, the other MNOs would, on average, have to pay more to H3G as a DNO and would receive less from H3G as an RNO.

6.51 As shown in Annex 2, our quantitative analysis confirms that H3G would benefit financially from a shift to a D/R regime whereas every other MNO would suffer a negative financial impact as a result. The size of the positive and negative effects reduces over time (as the differential in termination rates between H3G and the other MNOs narrows).

6.52 We carefully considered H3G's arguments and reviewed its calculations. We are of the view that H3G's estimates of its payments as DNO to other MNOs and of its payments from other MNOs when it is a TNO are reasonably in line with ours, even though there are differences of detail. The main source of difference appears to us to derive from H3G using ToD termination rates whereas we relied on TACs, which are an average of these ToD termination rates. The order of magnitude of the financial effects is similar between H3G's estimates and our own. More detail about our assessment of H3G estimates is set out in section D at Annex 2.[133]

6.53 We also assessed the likely impact of the variations proposed by H3G in its latest submission, which we note were made relatively late in our process. Overall we are of the view that each of these variations tends to reduce the financial impact on MNOs

[133] We note that H3G also estimated the amounts over-paid by ONOs. These amounts are not additional impacts; they simply represent an attempt to identify which ONOs would have to pay more if there was a change of regime to R/R. We did not undertake this exercise, because the necessary data were not available to us.

compared to the impacts of D/R or R/R, either in terms of magnitude, or in terms of practicability, or both. Whilst these variations would reduce the financial impact on MNOs, we do not consider that these variations are sufficient to alter our analysis, the provisional conclusions that we have reached in relation to the Disputes or the reasoning set out in this section that supports those conclusions.

6.54 A change from one regime to another for calls to ported-in numbers to another will cause a financial effect, that is, a change in revenues. H3G would financially benefit from a change from the current arrangements to a D/R regime and other MNOs would be correspondingly financially worse off. We do not, however, consider that such financial effects on competitors necessarily represent an effect on competition, or that they *per se* provide evidence that the current arrangements distorted competition against H3G. The mechanisms that can affect competition on the merits are discussed in more detail in the next section (see paragraphs 6.61 *et seq* below).

<u>Financial impact of a shift to an R/R regime</u>

6.55 Since the RNO would receive the same termination rate under both a D/R and an R/R regime, our estimates of the financial impact on the RNO of a change to an R/R regime are the same as for a D/R regime (given our assumption of unchanged volumes). H3G would benefit from such a change whereas the other MNOs would lose out. Again the magnitude of the financial impacts would reduce over the charge control period (see Annex 2 for details).

6.56 The impact on ONOs can only be calculated in aggregate as we do not have the data required to provide a split across ONOs. The magnitude of this impact is similar to the aggregate impact faced by DNOs under the D/R regime. The financial effect on RNOs will be the same as would arise under a change in regime to a D/R regime.

Competition effects

6.57 We have identified the following potential competition effects (explained in greater detail below): i) switching and porting effects; and ii) asymmetric regulation effect. Switching and porting effects relate to the charging regime for termination of calls to ported numbers. The asymmetric regulation effect relates to termination charges more generally and so might be affected if there were a change to charging arrangements for calls to ported numbers.

6.58 The switching and porting effects could arise from the current charging arrangements combined with prevailing termination rate differentials, implying:

6.58.1 an incentive to target subscribers to switch (with a ported number) from a network with a higher termination rate to another with a lower termination rate, in order to receive the higher termination rate of the DNO (the switching effect); and

6.58.2 a disincentive of a network with a higher termination rate to encourage subscribers that do switch from porting their number (the porting effect) or, equivalently, the incentive of a network with a lower termination rate to encourage subscribers that do switch to port their number.

6.59 We referred to these potential effects on competition in the Charge Control Amendment Consultation but did not establish the extent to which they were real or material. The potential for these two effects arises from the differentials in termination rates between MNOs. To the extent these effects are real, they are expected to operate to the disadvantage of H3G (because it had a higher termination rate than the other MNOs during this retrospective period).

6.60 The asymmetric regulation effect is defined here as allowing, through the manner in which regulation is imposed (or not imposed), different MNOs to earn different profit margins per minute of termination, compared to their efficient level of costs. The operation of this effect depends on the difference between an MNO's effective termination rate (i.e. after taking account of the impact of termination rates for calls to ported numbers) and its efficient cost, compared to other MNOs.[134]

Views of the Parties

6.61 To assist us in establishing the materiality of the switching and porting effects, we asked the Parties to submit evidence to support or reject their existence and/or significance.

6.62 None of the Parties provided clear evidence as to the existence of these effects. O2 referred to previous responses submitted as part of the Charge Control Amendment Consultation which noted that most operators denied the existence of these effects and could not provide evidence of their operation.[135]

6.63 Most of the Parties insisted that customer acquisition is crucial for their business and that this overrides any consideration relating to the level of termination rate received for calls to ported numbers. Several submissions provided evidence for not targeting customers of operators with higher termination rates and for not discouraging new customers from porting. Some referred to the customer acquisition script used by sales teams, which does not include any prompt regarding the range holder of the potential customer and always asks whether or not s/he wishes to port her/his number. As regards acquisition strategies, other submissions recognised that it would, in any case, be cumbersome to target customers from a specific MNO and that it would be undesirable to do so as the proportion of potential new subscribers coming from a specific range-holder is small. The absence of advertising campaigns targeting a particular network or the fact that loyalty and retention teams do not offer a greater incentive to retain customers from H3G were also mentioned.

6.64 The importance of allowing new subscribers to port their numbers when switching was elaborated in several submissions. H3G referred to an Ofcom study in which 71% of switchers view porting as (very) important.[136] One submission also explained that porting is attractive to the recipient MNO because users with ported numbers receive higher call volumes.

[134] Here, as for the cost recovery analysis, the assessment of H3G's efficient cost takes into account that a proportion of its termination minutes is on the 2G network of its national roaming partner, for which the cost incurred by H3G is the roaming rate it pays (not the cost of its own 3G network).
[135] Letter from Lawrence Wardle (O2) to Tanya Rofani (Ofcom) (9 November 2009).
[136] Letter from Stephen Lerner (H3G) to Neil Buckley (Ofcom) (9 November 2009).

6.65 Regarding the use of observable patterns of relative switching across MNOs as evidence of a switching effect in operation, one of the Parties warned that data showing more switching across some MNOs than across another might be more of a sign of network proximity in terms of offers, focus, deals than evidence of targeting a specific MNO's customers.

Ofcom's assessment

6.66 In the discussion below, we consider the operation and scale of each of the switching and porting effects and the asymmetric regulation effect in the retrospective period and how this might differ if alternative charging arrangements (reflecting either a D/R or R/R regime) had been in place during that period. Due to the limitations of the data provided to us by the Parties, we can only report quantified analysis in £millions basis from 2005/06 onwards.

<u>Switching and porting effects</u>

6.67 As set out above, none of the Parties provided clear evidence of the existence of the switching and porting effects in the retrospective period. Instead some evidence was provided why such effects would not be material (e.g. the nature of acquisition strategies and advertising campaigns).[137]

6.68 Even if the porting and switching effects had operated during the retrospective period, we would expect their materiality to have decreased over this period, because of the decline in the termination rate differential between the Parties, especially since H3G has been charge-controlled.[138]

6.69 To the extent the porting and switching effects were real, alternative charging arrangements might have reduced some, but not all, of their impact in the retrospective period. For example, the switching and porting effects could have been reduced by a shift to an R/R regime because the RNO would have received the same termination rate for calls to a subscriber with and without a ported number.

6.70 The switching effect might also have changed with a move to a D/R regime but it would not necessarily have been reduced in the sense that incentives to target particular subscribers are distorted from the situation in which termination rates are equal. For example, in theory, a network with a lower termination rate might have had an incentive to compete more vigorously to retain a subscriber and prevent her from switching to a network with a higher termination rate via a ported number. This is because, under a D/R regime, the losing network would face a lower revenue as the DNO on ported calls

[137] In the Charge Control Amendment Consultation (at paragraph 4.26) we referred to evidence from MNOs on the existence of the switching and porting effects and provided a quotation from Vodafone. However, we do not consider that this is substantiated by the evidence we received in these Disputes.
[138] [✂].

to the subscriber, through receiving its own lower donor termination rate, but paying out the higher termination rate of the RNO.[139]

6.71 In summary, the evidence currently available to Ofcom is not sufficient to support a finding of the existence of the switching and porting effects in the Disputes. We therefore consider that it would not be appropriate to give much weight to the switching and porting effects in our assessment of competition.

Asymmetric regulation effect

6.72 An MNO benefiting from asymmetric regulation is able to earn a larger profit margin on each minute of termination than other MNOs (therefore, even if no more efficient, it can undercut its competitors' retail prices and still be profitable). The relationship between higher termination prices and lower retail prices to the terminating operator's subscribers is referred to here as the *waterbed effect.* The competitive advantage in the retail mobile market arises from the MNOs' ability to exploit its market power in wholesale MCT, which the other MNOs are unable to match because of the regulation imposed on them. This constitutes a competitive distortion, because it is not competition on the merits. The competitive advantage does not arise from superior performance or greater efficiency, but rather from asymmetric regulation.

6.73 For the period under consideration this effect operated to distort competition in favour of H3G. The operation of the asymmetric regulation effect was confirmed by the CAT in *Hutchison 3G UK Limited v. Ofcom and others*:

"… the Tribunal agrees that [H3G's "We Pay" tariff] shows that there is a significant distortion in the retail market brought about by the disparity between H3G and the other MNOs' mobile call termination rates" .[140]

6.74 Even after 1 April 2007 (when H3G's termination rate became subject to a charge control), we still consider, based on the available evidence, that its effective termination rate exceeded its efficient cost (to a greater extent than for the other MNOs). Therefore the asymmetric regulation effect has remained in play throughout the retrospective period, although its significance has reduced substantially because the charge control on H3G has progressively brought its termination rate closer to its efficient cost.

6.75 If alternative charging arrangements had been in place in this period, the asymmetric regulation effect would have been exacerbated. This is because alternative charging arrangements would have increased the gap between H3G's effective termination rate and its efficient cost, and reduced the gap between the other MNOs' effective termination rates and their efficient costs.

6.76 Tables 8 and 9 below show the difference between each of the Parties' effective termination rates and (effective) efficient costs under both the current charging arrangements and alternative charging arrangements during the retrospective period.

[139] Oftel's Determination on Mobile Number Portability in 1999 described the competitive advantage that operators with a higher termination rate would gain on calls to ported numbers under a recipient paid regime.
[140] [2008] CAT 11, paragraph 212.

Table 8: Excess of effective termination rate over (effective) efficient cost under current regime in pence per minute (nominal)

	2006/2007	2007/2008	2008/2009	2009/2010
H3G	[3.0-4.0]	[3.0-4.0]	[2.0-3.0]	[0-1.0]
O2	[1.0-2.0]	[1.0-2.0]	[1.0-2.0]	[0-1.0]
Orange	[1.0-2.0]	[1.0-2.0]	[1.0-2.0]	[0-1.0]
T-Mobile	[1.0-2.0]	[1.0-2.0]	[1.0-2.0]	[0-1.0]
Vodafone	[1.0-2.0]	[1.0-2.0]	[1.0-2.0]	[0-1.0]
Amount by which H3G's excess is larger than next highest	[2.0-3.0]	[1.0-2.0]	[0-1.0]	[0-1.0]

Source: Ofcom

Table 9: Excess of effective termination rate and (effective) efficient cost under H3G's alternative regime in pence per minute (nominal)

	2006/2007	2007/2008	2008/2009	2009/2010
H3G	[4.0-5.0]	[3.0-4.0]	[3.0-4.0]	[1.0-2.0]
O2	[1.0-2.0]	[1.0-2.0]	[1.0-2.0]	[0-1.0]
Orange	[1.0-2.0]	[1.0-2.0]	[1.0-2.0]	[0-1.0]
T-Mobile	[1.0-2.0]	[1.0-2.0]	[1.0-2.0]	[0-1.0]
Vodafone	[1.0-2.0]	[1.0-2.0]	[1.0-2.0]	[0-1.0]
Amount by which H3G's excess is larger than next highest	[3.0-4.0]	[2.0-3.0]	[1.0-2.0]	[0-1.0]

Source: Ofcom

6.77 The figures in Tables 8 and 9 clearly show that a shift to alternative charging arrangements would increase the divergence between the effective termination rate and the (effective) efficient MCT costs for H3G. Even before this change, there was a significant asymmetric regulation effect (i.e. the amount by which H3G's effective termination rate exceeded its efficient cost was significantly larger than for the other MNOs). A change to alternative charging arrangements would exacerbate the competitive distortion: over the period considered the gap between H3G's margin and the other MNOs' margins would increase.

6.78 We note that this change in the asymmetric regulation effect in £millions is a sub-set of the financial impact analysis. Hence, from this perspective, most of the favourable financial impact on H3G of a change to alternative charging arrangements would in fact represent a worsening of the asymmetric regulation effect, which distorts competition.

Therefore, far from being positive for competition, this aspect of the financial impact would reflect a negative effect on competition.[141]

Effects on consumer prices

Views of the Parties

6.79 O2 noted that competitive distortion would impact consumer prices and argues that a change would destabilise fixed retail pricing.[142] T-Mobile argued that under alternative charging arrangements, operators would pass any burden of loss to their own customers or would introduce additional charges.[143] Other Parties did not comment on the effect on consumer prices.

Ofcom's assessment

6.80 In this section we consider how consumer prices would be affected if alternative charging arrangements for calls to ported mobile numbers had applied in the retrospective period. Before discussing the effect of alternative arrangements on prices paid by consumers, we describe the different roles of MNOs and how these roles affect the prices paid by consumers. The link between price setting and prices paid by consumers varies depending on whether the MNO acts as RNO, DNO or ONO (and whether the consumer is the caller or the call recipient, as described in Table 10).

[141] Another potential competition effect is the on-net, off-net price differential effect ("ONONDP effect"). None of the Parties refers to the ONONPD effect in their submissions. However, H3G has previously argued that termination rates contribute to a differential in the retail prices between off-net and on-net calls and that this has a detrimental effect on smaller operators, such as H3G, compared to larger operators. Although Ofcom has not previously investigated the ONONPD effect in sufficient detail to reach a definitive conclusion, in our *Wholesale Mobile Voice Call Termination* Consultation (20 May 2009 (http://www.ofcom.org.uk/consult/condocs/mobilecallterm/mobile_call_term.pdf) as part of the next MCT market review we noted that "*differences in on-net / off net prices are decreasing (off-net calls are increasingly included in monthly bundles) and the evidence for material [competition] problems is not clear cut in practice*" (see *Wholesale Mobile Voice Call Termination* Consultation, paragraph 6.54). An alternative charging arrangement for ported calls is only likely to have an impact on the ONONPD effect if it changes the termination rate paid by ONOs, i.e. the R/R regime, not the D/R regime. Otherwise there would not seem to be an incentive for the ONO to change the relative prices of on-net and off-net calls. In the R/R regime the termination rate paid by the ONO for ported calls to H3G is raised. This would provide an incentive for the ONO to increase the price differential between on-net and off-net calls. Hence, it might have aggravated, rather than alleviated the ONONPD effect.
[142] Letter from Lawrence Wardle (O2) to Tanya Rofani (Ofcom) (9 November 2009).
[143] Letter from Robyn Durie (T-Mobile) to Neil Buckley (Ofcom) (9 November 2009).

Table 10: Prices set by MNOs and prices paid by consumers

	ONO	DNO	RNO/TNO
Operator level	Sets retail prices to cover origination and termination costs	Onward routes calls; gets paid by ONO and pays RNO as per MNP regime	Sets wholesale termination rate and receives it on calls to its own numbers; if receives a termination rate higher (or lower) than its own termination rate, then through waterbed effect, it might a offer cheaper (more expensive) retail deal to its own subscribers (i.e. the call recipients)
Consumer level	Direct effect on the caller as she pays the retail price for calls	Potential indirect effect on DNOs' customers if MNP payment regime is not neutral for DNO	Indirect effect on the call recipient as she does not pay for the calls received but could benefit or lose depending on whether the waterbed effect works for or against her.

6.81 The rest of our analysis focuses on the calls to which H3G is a party either as a donor or as a recipient and on how a shift to alternative arrangements might affect prices paid by consumers for calls. Table 11 below sets out the likely impacts of a change of regime on consumer prices: the first row considers the impact of a change to a D/R regime and the second row, to an R/R regime.

Table 11: Impact of a regime change on prices paid by consumers

	ONO	DNO	RNO/TNO
If change from D/D to D/R	No financial impact on ONO (keeps paying donor termination rate) and hence no direct impact on its customers through retail prices	Impact on DNO because it faces a change in termination rate to be paid for calls to ported numbers: • For H3G: ➢ better position overall as it can keep the difference between its own termination rate and the rate it pays out to RNO; ➢ potential indirect effect on prices (reduction) • For other MNOs: ➢ worse position because they incur a loss on calls to numbers that have been ported out to H3G; ➢ potential indirect effect on prices (increase).	Impact on RNO: • H3G gets its own (higher) termination rate for all calls; through the waterbed effect its customers could get lower retail prices • Other MNOs get their own (lower) termination rates; through the waterbed effect their customers may have to pay higher retail prices • These potentially opposite price movements would aggravate the price differentials among MNOs and hence add to the competitive distortion of the asymmetric regulation effect
If change from D/D to R/R	Impact on ONO because it faces a change in termination rate to be paid for calls to ported numbers: • Price for calls to subscribers who have ported into H3G would increase[144] • Price for calls to subscribers who have ported out of H3G would decrease • In aggregate (with full pass-through), callers would pay higher prices on average, because the average termination rate would increase	Financially neutral on DNO because it receives the same termination rate from the ONO as it pays to the TNO and hence no impact on the retail prices paid by its consumers	Impact on RNO is same as above

[144] This increase in price will tend to reflect the differential between the DNO's termination rate and H3G's termination rate, which depends on the identity of the DNO. In 2007/08, this differential would amount to [✂]ppm for calls where the DNO is O2 or Vodafone and to [✂]ppm where the DNO is Orange or T-Mobile.

6.82 The above considerations suggest that a change to either a D/R or an R/R regime would generate price changes in opposite directions for different customers under each heading (i.e. whether customers of a beneficiary MNO or a losing MNO under each heading of ONO, DNO or RNO).

6.83 A change to alternative charging arrangements would involve an increase in the average industry-wide termination rate. This is because there is a larger volume of calls to numbers ported in to H3G than to numbers ported out from H3G. Therefore, under a change to an R/R regime, we would expect consumers to pay higher prices for calls to mobiles.

6.84 All the above effects on price paid by consumers are driven by the differential in termination rates between the Parties (the larger the differential, the stronger the effect). These termination rate differentials have decreased over the control period (reducing in size by about two thirds in 3 years), so their effects on prices paid by consumers have reduced correspondingly and will continue to do so.

6.85 In terms of the impacts reflected in Table 11 above, our provisional conclusion is that the current regime is likely to have been, on balance, at least as favourable for prices paid by consumers as alternative charging arrangements.

Other considerations

Effect on investment and innovation

<u>Views of the Parties</u>

6.86 Some of the Parties indicated in their submissions that Ofcom should consider additional regulatory duties, such as encouraging investment and innovation under section 3(4)(d) of the Act and its duties towards not favouring one electronic network over another under section 3(6) of the Act, when determining the Disputes.

6.87 H3G referred to Ofcom’s ongoing work and consultation on direct routing and argued that promoting investment in direct routing falls within Ofcom’s duty to have regard to the desirability of promoting investment and innovation. It indicated that, under current charging arrangements, incumbent MNOs have a financial incentive to resist a move to direct routing. It added that if Ofcom did not apply a change to current charging arrangements retrospectively this would send a signal that it is possible to obstruct with impunity investments that benefit consumers.

6.88 O2 argued that a shift to the alternative charging arrangements proposed by H3G would reward MNOs with higher termination rates caused by their lesser efficiency. This would be inconsistent with the fourth Community requirement of technological neutrality in section 4(6) of the Act.

Ofcom's assessment

6.89 We have considered our duties to encourage investment and innovation and the requirement of technological neutrality in resolving the Disputes in light of the core of our economic analysis.

6.90 As regards H3G's argument, we are engaged in wider work on mobile porting issues and have recently published two consultation documents.[145] In paragraph 2.34 *et seq* of the Routing Consultation we expressed the aim of eliminating the productive inefficiency associated with onward routing where it is cost justified and in circumstances where the market might face co-ordination problems, and explained how this linked with our statutory duties.

6.91 In any case, in the Routing Consultation we noted that a move towards direct routing does not require a recipient paid regime to be adopted. Indeed, we identified other ways of moving in that direction, for example by mandating direct routing or facilitating industry agreement on reaching direct routing through commercial arrangements. We have since published our Routing Statement and concluded that no regulatory intervention (including direct routing) is appropriate at this time.

6.92 We do not consider that our duty to encourage investment and innovation necessarily requires a recipient paid system to be imposed retrospectively (which in any case would have no effect on past or current investment behaviour even if direct routing were more efficient). Although the effect on incentives is one of the factors we generally take into account in assessing whether to require repayments, there are other matters to consider.

6.93 As to O2's argument about technological neutrality, our analysis avoids the risk of rewarding less efficient operators because we consider the efficient costs of termination in our assessment of the economic considerations, set out above.

Implementation costs

6.94 In considering whether a shift to alternative charging arrangements would be appropriate in the retrospective period, it is necessary also to consider the practical implications and mechanics of changing to these arrangements (i.e. the time and other resources required if these arrangements were imposed retrospectively). We asked the Parties for their views and any evidence they might have on implementation costs in our s191 information requests.

Views of the Parties

6.95 The Parties generally submitted that it would be a relatively easy process to implement a change to a D/R regime provided that the billing data has been retained. This would entail reviewing invoices and re-rating the applicable minutes. There was general agreement that this should be relatively inexpensive.

[145] The first being Ofcom's *Telephone number portability for consumers switching supplier* Statement (see paragraphs 2.48-2.50 above); the second being the Routing Consultation (see paragraphs 2.51 *et seq* above).

6.96 Conversely, most of the Parties submitted that it would be impossible to implement a change to an R/R regime retrospectively. This is because they do not have the data to re-rate the applicable minutes accurately to review the invoice. Indeed the billing systems currently in operation do not record the identity of the ONOs because this information is not required for invoicing at present. In the absence of accurate data, originating and transit operators cannot check the reviewed invoices and would have no incentive to agree them. In addition, there would be no means of enforcing these unilaterally.

6.97 H3G distinguished between its roles as ONO, DNO and RNO when commenting on the implementation costs of a shift to alternative charging arrangements in the retrospective period. In summary, it considered that a shift to alternative arrangements was possible without significant implementation costs, although it recognised that some technical changes would be required in order to put these arrangements in place (see paragraphs 4.37 *et seq* above). In addition to submissions made by the Parties on the timeframe and costs of implementing an R/R regime, we note that fixed operators would also face costs that could potentially be significant. We have not received views from fixed operators on the likely time and costs associated with implementation, but consider that these views would have to be sought and carefully considered to fully assess the costs of any shift to alternative arrangements based on an R/R regime.

Ofcom's assessment

6.98 We are not in a position to judge the precise timeframe and costs for introducing alternative arrangements in the retrospective period. We note that there is a significant divergence between the Parties as regards these issues.

The Charge Control Amendment Consultation

6.99 The issue of charging arrangements for calls to ported numbers has been discussed in previous years, in particular in the Charge Control Amendment Consultation. In the Charge Control Amendment Consultation, we suggested three disadvantages of the current arrangements: i) the potential for distortion of incentives in retail markets through the switching and porting effects; ii) the potential for under-recovery relative to costs, especially for H3G; and iii) the difference between average effective termination rate received by MNOs and their TACs. However, we note that the Charge Control Amendment Consultation considered the issue only going forward, whereas this dispute has both ongoing and historic elements.

6.100 The Charge Control Amendment Consultation postulated the potential for switching and porting effects, which would play against operators with higher termination rates. However, our consideration of the Disputes reveals a lack of sufficient evidence to support either the existence or materiality of these effects. In addition, in the Charge Control Amendment Consultation we did not discuss the asymmetric regulation effect.[146] As set out above we consider that this effect is found to distort competition in favour of H3G and the magnitude of the effect is reduced by the prevailing donor paid regime

[146] The existence and significance of which was recognised by the CAT in the MCT Appeals (see paragraph 6.73).

(compared to a recipient paid regime) as well as by the diminishing termination rate differential.

6.101 Our analysis of cost recovery above shows that none of the MNOs (including H3G) failed to recover their efficiently incurred costs.

6.102 In the Dispute we have not attached great weight to the deviation between effective termination rates and the TACs. The removal of the deviation through the imposition of alternative charging arrangements would have a differential financial impact on the MNOs (positive for H3G and negative for the other MNOs). However, as explained above, the primary significance of the financial impact analysis is not the size of the financial effects *per se* but the extent that it reflects the assessment of the effects on competition or the consumer price analysis. As discussed above, our provisional conclusions are that the current regime is likely to have promoted competition and been at least as favourable for consumer prices as the alternative charging arrangements.

Prospective Period

Cost recovery

6.103 As for the retrospective period, we have assessed whether the Parties could be expected to have the opportunity to recover their efficiently incurred MCT costs in the prospective period. We have followed a similar approach as for the retrospective period. As explained above, this quantification exercise covers only one year, 2010/11 (i.e. the last year of the current charge control period which affects all five MNOs).[147]

H3G's opportunity to recover efficiently incurred costs as a terminating operator

6.104 As described above, our cost recovery assessment involves comparing effective revenues and (forecast) effective efficient costs for terminating calls to ported numbers and across all terminated calls. Details of how we conducted this cost recovery analysis are in Annex 2. The outcome of the cost recovery analysis for calls to ported numbers received by H3G is a shortfall in 2010/11 of [0 - 0.5]ppm(or about £[0-10]million. Across all terminating calls, H3G is expected to be losing about [0-0.5]ppm (or about £[0-10]million) in 2010/2011 (i.e. facing a small but negative margin between its effective termination rate and its efficiently incurred MCT costs).

6.105 We do not consider that the apparent shortfall of H3G's effective termination rate in 2010/11 and its (forecast) efficient cost represents a serious concern in terms of its ability to recover efficient costs. First, the size of the effect is small (i.e. a difference of less than [0-0.5]ppm or less than [10]% of its termination rate). Second, there is the

[147] For the quantified analysis of 2010/11 we use the same sources for MCT costs and termination rate revenues as for the retrospective period, namely the adjusted 2007 MCT cost model and the MNOs' TACs as set by the current price control. For volumes, we built basic volume forecasts through extrapolating from the actual volume data received from the MNOs. Given the limited number of volume data points that need to be forecast, we consider that our forecasting method is unlikely to generate forecasts which materially alter the outcome of our quantification work. The details of this forecasting exercise are presented in Annex 2.

divergence between volume forecasts and actual volumes and the implication for unit cost levels, which we discuss below.

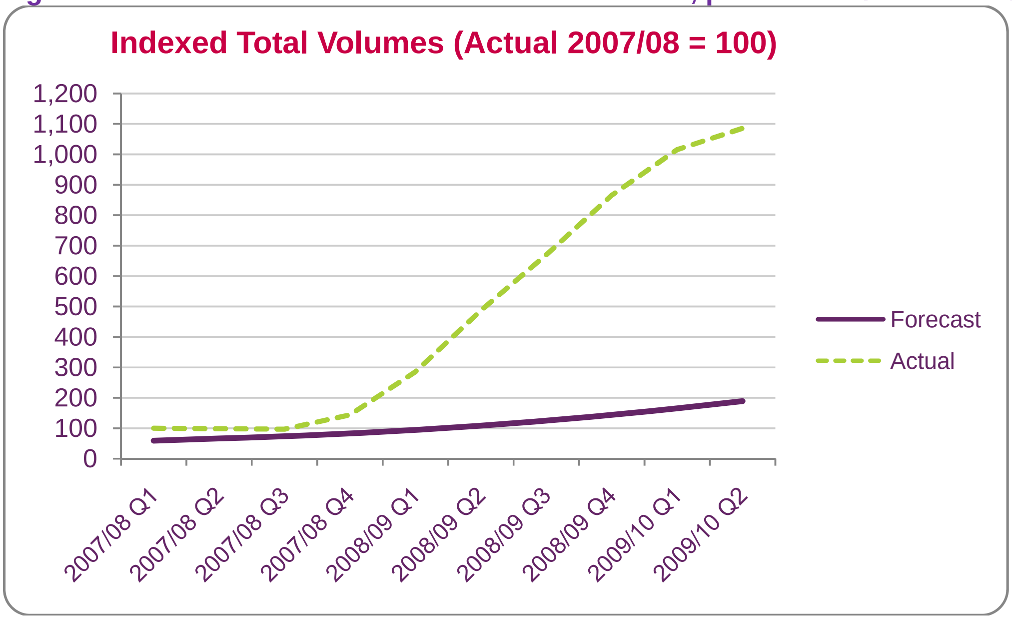
6.106 There are grounds to believe that, in practice, H3G's apparent small shortfall in 2010/11 on calls to ported numbers may not occur in practice. This is because the above quantification analysis relies on cost estimates derived from the adjusted 2007 MCT cost model, which used forecasts (as at 2007). Since the actual volumes significantly exceeded the forecasts, H3G's efficient cost in practice is likely to be materially lower than the forecast ppm figure.

6.107 Actual traffic for H3G substantially exceeded the forecast. This was already apparent in 2008 as set out in Ofcom's letter to the CC of 9 October 2008.[148] [✂]. An increase in data traffic is the main driver for this, although on-net voice has also played a material role.

6.108 The chart below, gives an indication of how this divergence between H3G's forecasts and actual volumes has evolved over the period since the beginning of the charge control. It is based on H3G's volume submission originally received as part of an information request made in the context of Ofcom's current mobile call termination market review, and entails a conversion to a single volume unit.

[148] In this letter, we argued (paragraph 28) that "*Figure 1 demonstrates that recent growth in data services has placed H3G well in advance of the traffic growth predicted by Ofcom. To put this performance into context, H3G is already carrying approximately the level of traffic that it was expected to reach by the end of the current charge control period (under the medium traffic scenario).*"

Figure 8: H3G's traffic volume forecasts and actual, period 2007/08 to 2009/2010



Source: Ofcom

6.109 Actual traffic at a level substantially higher than the forecast would imply that H3G's efficient unit costs of termination in practice are lower than forecast. The source of traffic increase will influence the manner by which costs are reduced: larger voice traffic would contribute to reducing unit costs via economies of scale, and greater data traffic via economies of scope. The amount and type of cost reduction generated by each type of traffic are expected to differ, because they do not use the network with the same intensity.

6.110 We note that actual traffic volumes substantially exceed the forecasts made in 2007, by more than a factor of nearly six when all volumes (actual and forecast) are similarly expressed in a common measure. Therefore, we consider that H3G's efficient costs in practice are likely to be lower to some extent than forecast. To remove H3G's slight apparent shortfall on all terminated calls in 2010/11 of less than [0-0.5]ppm would require that H3G's effective efficient costs in practice were only [0-10]% lower than the forecast. Given the extent to which actual volumes have exceeded forecast volumes, we consider it likely that the reduction in costs would have at least been sufficient to remove the apparent shortfall.[149]

Other MNOs' opportunity to recover efficiently incurred costs as terminating operators

6.111 As for the retrospective period, we can infer that the other MNOs will not be denied the recovery of their efficiently incurred costs on ported calls received from H3G because they will be earning on average a higher termination rate than their own. Similarly, we

[149] In any case, we note that H3G has not submitted that it would be denied the opportunity to recover its efficiently incurred costs.

anticipate that the other MNOs will be able to recover their efficient MCT costs across all terminated calls because each will get at least its own termination rate, which is designed to enable the recovery of its forecast efficient costs.

6.112 Again, it is helpful to review the other MNOs' cost recovery figures on both a ppm and a £millions basis. The outcome of this analysis is summarised in Tables 12 and 13.

Table 12: Excess (or shortfall) of 2G/3G MNOs' effective termination rate compared to efficient cost in 2010/2011 in ppm

	Calls received on numbers ported from H3G*	**Across all terminated calls****
O2	0.3	[-0.5 to 0]
Orange	0.3	[-0.5 to 0]
T-Mobile	0.3	[-0.5 to 0]
Vodafone	0.3	[-0.5 to 0]

[✂]

Source: Ofcom

Table 13: Excess (or shortfall) of 2G/3G MNOs' effective termination rate compared to efficient cost in 2010/2011 in £millions

	Calls received on numbers ported from H3G*	**Across all terminated calls ****
O2	[0-10]	[-10 to 0]
Orange	[0-10]	[-10 to 0]
T-Mobile	[0-10]	[-10 to 0]
Vodafone	[0-10]	[-10 to 0]

[✂]

Source: Ofcom

6.113 Tables 12 and 13 above show that the other MNOs are expected to more than recover their costs on calls to numbers ported-in from H3G. Table 13 shows a small apparent shortfall in £millions across all terminated calls. However, this does not derive from the charging arrangements for calls to ported numbers and so is not relevant to the analysis of the matters in the Disputes. It arises from the detail of the derivation of efficient costs in nominal terms.[150] In any case, as for H3G, the other MNOs have experienced a larger increase in their traffic volumes than forecast, which we consider is likely to mean that their unit costs in practice are sufficiently below forecast efficient costs to remove the apparent shortfall.

150 In particular, the conversion into nominal terms of the figures from the adjusted MCT cost model in real terms, 2006/07 prices (see Annex 2).

The Parties' opportunity to recover efficiently incurred costs as DNOs

Views of the Parties

6.114 The Parties' comments do not tend to focus specifically on their ability to recover costs when operating as DNOs. H3G made the general point that it is an arbitrary loser under current charging arrangements and is disadvantaged by a commercial imbalance that currently exists between the Parties as a result of these arrangements.

6.115 O2 does not comment on cost recovery as a DNO under current charging arrangements, but notes that under alternative charging arrangements proposed by H3G it would, as DNO, be required to pay H3G an average termination rate that exceeds the rate it receives.[151]

Ofcom's assessment

6.116 Under the current charging arrangements, the DNO receives its own termination rate from the ONO for each call minute to numbers ported out to another MNO and pays the RNO that same rate for each minute it onward-routes. Therefore, since the cost of providing termination is avoided as the call is onward routed, and the termination rate received is equal to that passed on to the DNO, the current charging arrangements do not impact on cost recovery for call termination. This is true for H3G as well as for the other MNOs.

Financial effect of changing to alternative arrangements

Views of the Parties

6.117 H3G did not provide estimates of the financial impact of this change of regime for the prospective period as part of its submission. However it indicated that it would be at a disadvantage as long as a differential in termination rates existed between it and the other MNOs or until direct routing is in operation.

6.118 H3G proposed several ways in which it considers Ofcom could intervene. One of them would be a commitment to apply further retrospective payments until direct routing is implemented. As part of this option, H3G is open to consider different sets of volumes on which to base the repayments with a view to making them as practical as possible when it comes to calculations and implementations. Another option would be to introduce the recipient paid principle going forward. A third possibility put forward by H3G is Ofcom's method of amending the mechanics of the charge control (proposed as the preferred option by Ofcom in the Charge Control Amendment Consultation) as a reasonable alternative to changing to a recipient paid regime.

6.119 The other MNOs repeated in their submissions that a change to arrangements reflecting a recipient paid principle would lead to arbitrary losses and gains. They are all of the view that a switch to a recipient paid regime is not the best way to solve to the problem

[151] Letter from Lawrence Wardle (O2) to Tanya Rofani (Ofcom) (9 November 2009).

associated with the donor paid principle. Most prefer to remove the termination rate asymmetry while some are open to direct routing. One MNO expressed a strong preference for termination rate symmetry and rejected all other options identified by Ofcom in the Charge Control Amendment Consultation.

Ofcom's assessment

6.120 As for the financial impact analysis covering the retrospective period, we have compared the two alternative recipient paid regimes to the present D/D regime. Our assessment focuses on the changes in revenues from calls terminated to ported numbers and to which H3G is a party, which would result from a change in the termination rate regime for 2010/2011. The quantitative results of our financial impact analysis are set out in section C at Annex 2.

6.121 This shows that the financial impact of a change to a recipient paid regime in 2010/2011 is relatively small and much smaller than at the beginning of the charge control, four years earlier. If we express these financial impacts in terms of the MNOs' total termination revenues forecasted for 2010/2011, we observe that it rounds to zero percent.

Competition effects

6.122 As for the retrospective period, we have considered the same potential competition effects: i) the switching and porting effects; and ii) the asymmetric regulation effect. We have considered the existence of each effect and its likely scale in 2010/2011. We have also considered how these effects might operate if alternative charging arrangements were in place in the prospective period.

6.123 The Parties did not distinguish in their comments on competition effects between the retrospective and the prospective periods. Therefore, we consider that the Parties' comments reported above in relation to the retrospective period are also relevant here.

Switching and porting effects

6.124 The Parties have provided no strong evidence that the switching and porting effects are likely to distort competition in the prospective period. First, as noted in relation to the retrospective period, customer acquisition is a key strategy for MNOs and porting is a valued aspect for consumers. Secondly, the potential for these effects arises from termination rate differentials, which are limited during the last year of the charge control (amounting to 0.3ppm in nominal terms, which represents less than 10% of H3G's TAC). This means that, even if present, they are unlikely to have a significant impact.

6.125 Taking these considerations into account, we consider that switching and porting effects should be given little weight in our assessment of competition effects.

Asymmetric regulation effect

6.126 For the year 2010/11, the TAC of each MNO is set at its respective efficient cost on a forecast basis as derived from the adjusted 2007 MCT cost model. This means that, as regards non-ported minutes, there is expected to be no asymmetric regulation in 2010/11, provided that there are no forecast errors in the efficient MCT cost estimates.

6.127 If we take account of termination rates for calls to ported numbers, the termination rate enjoyed by H3G will be (slightly) smaller than its TAC, because it receives a lower rate for calls to ported numbers. Equally, the effective termination rates enjoyed by the other MNOs will be (slightly) larger than their TACs, because they receive H3G's higher rate for calls to numbers ported in from H3G. When compared to their corresponding efficiently incurred costs as derived from the adjusted 2007 MCT cost model, we estimate the MNOs' profit margin across all terminated calls, as reported in Table 14 below.

Table 14: Excess (or shortfall) of effective termination rate compared to efficient cost under current regime in 2010/2011 in ppm and in £millions

	H3G	O2	Orange	T-Mobile	Vodafone
Ppm	[-0.5 to 0]	[-0.5 to 0]	[-0.5 to 0]	[-0.5 to 0]	[-0.5 to 0]
£millions	[-10 to 0]	[-10 to 0]	[-10 to 0]	[-10 to 0]	[-10 to 0]

Source: Ofcom

6.128 These figures suggest that in 2010/2011 the asymmetric regulation effect would play against H3G because it would have a slightly larger shortfall than other MNOs in pence per minute terms. However the magnitude of the difference in shortfall is very small ([0-0.5]ppm) and this would imply that the asymmetric regulation effect would be correspondingly minimal.

6.129 In the case of no forecast error in the efficient unit costs, a move to alternative charging arrangements in 2010/2011 would reduce the asymmetric regulation effect. This is because it would bring H3G's effective termination rate in line with its efficient unit costs.

6.130 As commented at paragraphs 6.106 *et seq* above, there is evidence that H3G's efficient unit cost in practice is lower than the forecast. If the forecast error applies equally to the efficient costs of the other MNOs, there is no change in the analysis (i.e. the asymmetric regulation effect works to the (small) disadvantage of H3G).

6.131 In order to inform whether or not the volume forecast error applies equally to all of the Parties, we asked them for actual traffic volume data since the beginning of the current charge control. The comparison of the actual traffic volumes with the forecasts for each MNO reveals that the forecast error is significantly bigger for H3G than for the other MNOs. This could then be taken to imply that the asymmetric regulation effect could favour H3G and a change to alternative charging arrangements would exacerbate the asymmetric regulation effect.

6.132 However, we recognise that the difference between forecast and actual volumes will in part reflect the operation of the competitive process, e.g. the progress that H3G has made in increasing its sales of mobile broadband services. We do not, therefore, consider that there is a clear conclusion that an asymmetric regulation effect now exists or operates to the benefit of H3G in the prospective period.

Effects on consumer prices

6.133 Alternative charging arrangements would affect the prices paid by consumers in 2010/2011. We consider that similar types of effects will operate in the prospective period as in the retrospective period. However, the size of such effects would be small, because of the much smaller differential in termination rates in 2010/11 compared to the retrospective period.

6.134 A switch to alternative charging arrangements in 2010/11 would have the following impacts:

6.134.1 as call recipients, customers of H3G could potentially receive lower prices whereas customers of other MNOs might face higher prices, due to the waterbed effect;

6.134.2 customers of a DNO would not notice any price change with a switch to an R/R regime but would possibly face a price variation with a switch to a D/R regime: a decrease if they are H3G customers and an increase if they are customers of the other MNOs; and

6.134.3 conversely, customers of an ONO would not notice any price change with a switch to a D/R regime (from the D/D regime), but could face a price variation with a switch to an R/R regime. Whilst there could be effects in both directions, a move to an R/R regime would lead to an overall increase in average termination rates because more calls were ported in to H3G than were ported out from H3G. Hence, callers to mobiles are likely to suffer overall from a change in regime.

6.135 Overall, we consider that the current regime is likely to be, on balance, at least as favourable for consumers as H3G's proposed recipient paid regime. But the termination rate differential in 2010/11 of only 0.3ppm means that any effects on prices paid by consumers would be expected to be small.

Other considerations

Implementation costs

6.136 As for the retrospective period, we have considered the practical implications of a shift to alternative charging arrangements in the prospective period (that is, the time and cost of implementing these arrangements prospectively). We asked MNOs for their views and any evidence they might have on implementation costs as part of requests for information pursuant to section 191 of the Act.

6.137 All MNOs agreed that it should be relatively easy to implement a change to a D/R regime as it would only entail reviewing invoices.

6.138 H3G suggested that an R/R regime could be implemented via three options (see paragraphs 4.42 above). It estimated that a shift to an R/R regime relying on the option described at paragraph 4.42.2 above would cost approximately £[✂]to £[✂] and take three months to implement.

6.139 The other MNOs considered that it would be impossible to implement an R/R regime without significant IS system changes or without direct routing. One estimated that the necessary IS system change would cost £10m and take between 12 and 24 months. Another explained that "limited" IS system changes would cost £1m and take 18 months, but would not be satisfactory because they would not provide enough commercial certainty for ONOs to develop their retail pricing. As a result much more significant changes would be required, including the creation of a database and significant changes to billing systems. As noted above, the costs of implementation of alternative arrangements would also accrue to fixed operators and the scale of costs to these operators would require further investigation.

6.140 As for the retrospective period, we note the difference of views between the Parties. Given our provisional conclusions, it is not necessary for us to reach a conclusion on these implementation issues.

Section 7

Summary of analysis

7.1 In this section we have set out a summary of the analysis in section 6 above. This section repeats the analysis set out in our Draft Determination (and retains references to our provisional reasoning and conclusions, which we rely on in reaching the final conclusions set out in section 9 below).

Executive summary – the retrospective period

7.2 Our provisional conclusions in respect of each of the four economic factors we have examined, and other relevant considerations, are summarised below.

Cost recovery

7.3 The Parties are not subject (and, from April 2000, were not previously subject) to any regulatory requirement that the DNO's termination rate rather than the RNO's termination rate should apply to calls to ported mobile numbers.[152] The Parties could, at least in theory, have negotiated a different payment mechanism.

7.4 Our provisional conclusion is that H3G was able to recover its efficiently incurred MCT costs either for calls to ported mobile numbers or for all terminated calls in the retrospective period. Before April 2007 H3G's termination rate was not price-controlled. After April 2007, based on the evidence available, we consider that its effective termination rate exceeded its efficient cost.

7.5 For calls terminating on numbers ported from H3G, our provisional conclusion is that other MNOs made on average a higher margin when receiving H3G's termination rate compared to their own. This is because H3G's TAC is the highest of all the MNOs for the period under consideration. Since the other MNOs' own termination rates were set to at least recover efficiently incurred cost within the constraints of the charge control, we provisionally conclude that they were able to recover their efficiently incurred costs.

Financial effect of changing to alternative arrangements

7.6 The Parties responded to Ofcom's specific questions regarding the implementation of a shift from current charging arrangements that reflect the recipient paid principle. These questions related to the feasibility, practicality and cost of changing from current arrangements to two potential alternative charging regimes (a D/R regime (see paragraph 4.35 above) or an R/R regime (see paragraph 4.36 above) in both the retrospective period and prospective period).

7.7 Our analysis indicates that a change from current charging arrangements based on the donor paid principle to alternative arrangements based on the recipient paid principle

[152] Oftel's *Mobile Number Portability* Determinations (1999) provided that for the period from 1 January 1999 to 31 March 2000, the donor paid principle should apply to the termination rate payable to the RNO (see *Explanatory Document on Mobile Number Portability Determination Requests*, paragraph 6.1).

(irrespective of whether these alternative arrangements apply the D/R regime or the R/R regime) would create losses and gains, with H3G benefiting from the change and the other MNOs losing out. On aggregate, these financial gains and losses cancel out across donor and recipient MNOs (under a D/R regime) and across originating and recipient MNOs (under an R/R regime). The size of these losses and gains will reduce over time as the differential between H3G's termination rate and the termination rates of the other MNOs narrows.

7.8 Information provided by the Parties regarding the feasibility, practicality and costs of changing to either D/R or R/R regimes vary significantly. Implementing a D/R regime would be feasible and reasonably cheap. In contrast, it appears that there are significant difficulties in the implementation of an R/R regime. We have taken these considerations into account when assessing whether a shift to alternative charging arrangements would be fair as between the Parties and reasonable in light of Ofcom's regulatory duties.

Competition effects

7.9 In summary, for the retrospective period, our provisional conclusions on the effects on competition are that:

7.9.1 Switching and porting effects could have potentially operated to the disadvantage of H3G in the retrospective period. These effects arose because of the significant differential between termination rates (e.g. 9.1ppm for H3G compared to 5.7ppm for Vodafone and O2 in 2007/8). However, we do not have sufficient evidence to suggest that the switching and porting effects were either real or material in the retrospective period.

7.9.2 The asymmetric regulation effect operated to distort competition in favour of H3G and was both real and significant in the retrospective period. The impact of this effect remained throughout the retrospective period, but reduced significantly over time (as the charge control from April 2007 reduced H3G's termination rate much closer to its efficient costs).

7.9.3 If an R/R regime had been in place in the retrospective period, it could have alleviated the switching and porting effects, if these effects had in fact existed. The implication of the D/R regime is less clear as it might have changed, but not necessarily reduced, the switching effect.

7.9.4 However, a shift to alternative charging arrangements (reflecting either D/R or R/R regimes) would have significantly increased the gap between H3G's effective termination rate and its efficient cost, which would have exacerbated the asymmetric regulation effect. A large part of the positive financial impact from a change to alternative arrangements would have been this distortionary increase in the asymmetric regulation effect.

7.10 On the evidence available, we provisionally conclude that a shift to alternative charging arrangements in the retrospective period would have been more likely to have exacerbated competitive distortions than to have promoted effective competition.

Effects on consumers

7.11 We have considered whether alternative charging arrangements for calls to ported mobile numbers (reflecting the recipient paid principle) would have resulted in consumers paying different prices for such calls than were paid under current arrangements (reflecting the donor paid principle).

7.12 The effect on prices to the customers of ONOs and DNOs would have depended on i) the termination rate paid by ONOs to the DNOs, and ii) what DNOs paid to the RNOs. Effects on prices paid by consumers are driven by the differential in termination rates between the Parties (the larger the differential, the stronger these effects). Termination rate differentials have decreased over the control period (reducing in size by about two thirds in 3 years) and are continuing to do so, so the effects on prices paid by consumers would accordingly continue to reduce in importance.

7.13 If there had been a shift to alternative charging arrangements applying either D/R or R/R regimes in the retrospective period, H3G's customers (as call recipients) would potentially have received lower prices (via the waterbed effect) whereas other MNOs' customers (as call recipients) might have potentially faced higher prices (via the waterbed effect). These changes would have reflected the increase in the distortionary asymmetric regulation effect.

7.14 Under a D/R regime, the termination rate paid by the ONO would still have been the DNO's termination rate. Hence, the ONO would not have had to revise its retail prices in response to alternative arrangements and the prices for callers would have been unaffected. DNOs would have faced a change: H3G would have to pay less on calls to numbers that ported out to other MNOs whereas other MNOs would have to pay more on calls to numbers that have ported to H3G. These DNOs might have reflected this change in payments to the prices paid by their customers: a decrease for H3G's customer prices and an increase for other MNOs' customer prices.

7.15 Under an R/R regime, the DNO would pass on to the RNO the termination rate it would have received from the ONO, namely the RNO's termination rate. This would be financially neutral for the DNO and would not lead to the revision of prices for customers. The ONOs would have faced a change: they would have to pay more for calls to subscribers who have ported into H3G and less for calls to subscribers who have ported out of H3G. In aggregate, the change in retail prices would depend on termination rate differentials and on traffic patterns. Since there were more call minutes to numbers ported-in to H3G than ported-out (and assuming pass-through of termination rates into retail call prices), overall callers paid lower prices under the current regime than under an R/R regime.

7.16 The above considerations suggest that a change to either D/R or R/R alternative regimes would generate price changes going in opposite directions. Across all customers, these two price changes would tend to off-set each other to some extent. Overall, our provisional conclusion is that prices to consumers were at least as favourable under the current regime as under a change to alternative charging arrangements in the retrospective period.

Executive summary – the prospective period

7.17 Our provisional conclusions in respect of each of the four factors we have examined are set out below.

Cost recovery

7.18 We do not consider that H3G or other MNOs will be denied the opportunity to recover their efficiently incurred costs if current charging arrangements continue prospectively.

7.19 For H3G, we recognise the potential for a small under-recovery in 2010/2011. However, we do not consider that the apparent shortfall of H3G's effective termination rate in 2010/11 and its (forecast) efficient cost represents a serious concern in terms of H3G's opportunity to recover efficient costs for the following reasons. First, the size of the effect is small (a difference of only about [0-0.5]ppm between H3G's effective termination rate and forecast efficient costs, amounting to [<10]% of H3G's termination rate). Secondly, the most recent volume data submitted by H3G (to September 2009) shows that since early 2008 H3G's actual traffic volumes have substantially exceeded the forecasts used to derive the estimates of efficient costs, which suggests that, in practice, H3G's cost is likely to be materially lower than the forecast cost.

7.20 As for the retrospective period, we infer that the other MNOs involved in the Disputes would not be denied the recovery of their efficiently incurred costs on calls to ported numbers received from H3G, because they would earn on average a higher termination rate than their own. Similarly, we anticipate that the other MNOs would be able to recover their efficient costs across all terminated calls because they each would get at least their own termination rate, which is designed to enable the recovery of their expected efficient costs.

Financial effect of changing to alternative arrangements

7.21 In 2010/11, H3G would be financially slightly better off under alternative charging arrangements (whether applying a D/R regime or an R/R regime).[153] In contrast, the other MNOs would be slightly worse-off.

7.22 Moreover the introduction of alternative charging arrangements would involve time and cost. Based on evidence received from the Parties, these expenditures may, depending on whether a D/R or an R/R regime is implemented, override any gain that a change in regime might bring.

Competition effects

7.23 The potential for the switching and porting effects, which could operate to the disadvantage of H3G, is limited in 2010/2011. This is because the termination rate differential, which creates the potential for these effects,will be reduced to 0.3ppm (which is less than 10% of H3G's TAC). In any case, as for the retrospective period, the Parties

[153] We estimate the benefit to H3G of a change to a D/R regime would be around £[0-10]million in 2010/2011 (in nominal terms).

have not provided sufficient evidence of these effects operating in the prospective period. Therefore, we are of the view that switching and porting effects should be given little weight in our assessment of competition effects in the prospective period.

7.24 The asymmetric regulation effect is likely to be small and the direction in which this effect may operate is uncertain. Since H3G's effective termination rate will be slightly lower than its forecast efficient cost, the asymmetric regulation effect could operate *against* H3G (not in its favour, as in earlier years).[154] However, in practice it may continue to operate in H3G's favour because of the nature of forecast errors (given that H3G's actual volumes exceed the forecasts used to derive our 2007 MCT cost estimates to a greater extent than for the other MNOs).

7.25 Overall, we consider that there is insufficient evidence to conclude that competition effects in the prospective period would be material.

Effects on consumer prices

7.26 We consider that prices for consumers in the current regime are likely to be at least as favourable as H3G's proposed charging arrangements, although we recognise that the magnitude of any effects may not be material in the prospective period because the termination rate differentials driving these effects are small.

[154] However the magnitude of the difference in the effective profit margin on termination for H3G is very small ([-0.5 to 0]ppm).

Section 8

Submissions on the Draft Determination and Ofcom's response

8.1 In response to the Draft Determination, we received submissions from C&W, H3G, O2, T-Mobile and Vodafone ("the Respondents"). Orange elected not to make a submission on the Draft Determination.

8.2 In this section we summarise the key submissions made by each of the Respondents and set out Ofcom's response to these submissions. We then set out our final conclusions in respect of the Disputes in section 9 and our Determination resolving the Disputes at Annex 1.

8.3 Our summary of the Respondents' key submissions is grouped under the following broad headings and our responses to each of these submissions are set out in turn under these headings:

8.3.1 Ofcom's policy on current charging arrangements for calls to ported mobile numbers;

8.3.2 Ofcom's assessment of costs;

8.3.3 Ofcom's assessment of competition effects;

8.3.4 Ofcom's assessment of consumer effects; and

8.3.5 Other considerations.

8.4 In general terms, the Respondents concur that the analytical framework applied by Ofcom in deciding how the Disputes ought to be resolved is appropriate. However, H3G does not agree with Ofcom's application of this framework, its provisional conclusions, how we have analysed costs, effects on competition and effects on consumers, and our assessment of whether there are additional reasons for intervening in relation to the Disputes.

8.5 In contrast, C&W, O2, T-Mobile and Vodafone all broadly support Ofcom's Draft Determination and the methodology and analysis that it contains. These Respondents do, however, have a number of comments in relation to our approach which we respond to below.

Ofcom's policy on current charging arrangements for calls to ported mobile numbers

The Respondents' submissions

H3G

8.6 H3G argued that Ofcom has changed its position since the Charge Control Amendment Consultation.[155] It argued that both Ofcom and CC had previously accepted that there is a "potential problem" in how current charging arrangements for calls to ported numbers affect the MCT Charge Controls.

8.7 H3G also argued that there was no legal or regulatory justification for Ofcom's decision to suspend and then abandon the Charge Control Amendment Consultation, noting that this had started significantly before the CC's determination in relation to the MCT Charge Control.[156] H3G suggested that Ofcom's decisions on timing have ultimately determined the decisions rather than the merits of the issues in dispute.

8.8 H3G suggested that Ofcom's inaction allowed the other MNOs to recover more than their regulated termination charges while H3G has been prevented from doing so. It suggested that this inaction amounts to effective discrimination against H3G, because there is no objective justification for applying different principles to the same situation.

Ofcom's response

8.9 As noted in section 2 above, Ofcom has published various documents regarding current charging arrangements for calls to ported mobile numbers but has not made any final conclusion regarding the benefits or detriments associated with these arrangements, and whether, having regard to these benefits or detriments, there should be a shift to alternative charging arrangements. In the Charge Control Amendment Consultation, specifically, Ofcom suggested that the interaction of onward routing arrangements and MCT Charge Controls[157] created potential for distortions but noted that there were advantages and disadvantages in respect of each option for resolving these distortions.

8.10 In light of the significant overlap between the subject matter of the MCT Appeals and the Charge Control Amendment Consultation, Ofcom remains of the view that it was appropriate to suspend the Charge Control Amendment Consultation process pending the CAT's judgments in the MCT Appeals.[158] In reaching our conclusions, we have taken full account of the merits of the issues in dispute (e.g. in analysing cost recovery, financial impacts, and effects on competiton and consumers, as well as relevant timing issues).

[155] See paragraph 2.40 above.
[156] CC *Mobile phone wholesale voice termination charges* Determination.
[157] See paragraphs 2.39 above.
[158] See paragraph 1.6 above.

Ofcom's assessment of costs

The Respondents' submissions

H3G

8.11 H3G argued that Ofcom's cost analysis is too narrow in that it does not give appropriate consideration to the over-recovery of costs by the other MNO's. H3G argued that the relevant question is whether the other MNOs are recovering too much revenue by reference to their costs.

8.12 H3G also argued that we need to address this issue, because it says Ofcom has itself previously accepted that the current charging arrangements for ported numbers reduce the effectiveness of the charge controls and may create adverse effects on incentives and because the issue was not addressed by the CC.

8.13 H3G considered that GC18.2 applies to all charging arrangements for calls to ported numbers. H3G stated that Ofcom must consider whether the other MNOs have made "*unjustified recoveries above and beyond their costs.*"

8.14 In section (B) of its submission in response to the Draft Determination, H3G made the following arguments:

8.14.1 first, it argued that it had been discriminated against, in the sense that it has been prevented from recovering its regulated termination charges whereas the other MNOs have been able to recover more than theirs; and

8.14.2 second, it argued that Ofcom's cost recovery analysis discriminated against H3G because, for the other MNOs (but not for H3G) this analysis did not take any account of the divergence between their actual traffic volumes and their forecast traffic volumes, despite the fact that actual traffic volumes are likely to have exceeded the forecast traffic volumes considerably.

8.15 In addition, H3G argued that the cost analysis that Ofcom has undertaken for the purposes of considering the Disputes is inconsistent with the approach that we adopted in the MCT Charge Controls. It alleged that this inconsistency arises because Ofcom has:

8.15.1 re-opened its assessment of volumes for H3G; and

8.15.2 adopted a different position on national roaming costs.

8.16 H3G considered that if Ofcom were to adopt the same approach to cost analysis that it applied to other MNOs, this would ensure that H3G could recover its efficiently incurred costs on the basis of previous forecasts. It argued that there is no basis for Ofcom re-opening its forecast of volumes for H3G, which is likely to blunt incentives in the future. Also, it argued that Ofcom assumed, but did not actually look at, whether the volume increase will have reduced costs by the necessary amount.

8.17 As regards national roaming costs, H3G suggested that Ofcom is wrong to place any weight on this in determining the Disputes (noting that national roaming costs were not considered to be significant in the MCT Charge Control).

O2

8.18 O2 said that it does not generally support the use of updated traffic information as a means of securing, through Ofcom's dispute resolution powers, lower rates than the charge controls permit. However, it is prepared to tolerate this in the context of resolving the Disputes because the operation of charge controls and the current charging arrangements for calls to ported numbers would imply that at least one entity would fail to secure its anticipated costs in 2010/2011. O2 accepted that, in considering the Disputes, it is helpful to consider whether actual costs have diverged from anticipated costs. O2 also noted that H3G has not refuted Ofcom's finding that it has not made a loss during the last year of charge control.

T-Mobile

8.19 T-Mobile argued that a determination by Ofcom cannot be inconsistent with the current charge control if i) an operator has recovered its efficient costs; and ii) the charge control sets a glide-path above the level of these costs and sets a charge ceiling. In addition, it said that H3G's argument in respect of how Ofcom should apply its statutory duties relies on the false premise that the price control precludes the recovery of rates beneath the glide-path.

8.20 T-Mobile also suggested that it would be prudent for Ofcom to calculate the implied costs for H3G in 2010/2011 using the indicative results in its cost modelling for the current market review (as well as with reference to the MCT Charge Control), even if the model is not yet complete. It said that this would assist Ofcom in rejecting any arguments regarding under-recovery by H3G.

8.21 Lastly, T-Mobile observed that any over-recovery of monies is small as compared to the huge customer acquisition and retention budget spent each year by each MNO.

Ofcom's response

8.22 We have considered three types of comparison of charges and/or costs:

8.22.1 Cost recovery: whether each MNO's effective termination rate is below its efficient cost on ported termination minutes and all termination minutes.

8.22.2 Financial effect: in essence, the difference for each MNO between its effective termination rate and the Target Average Charge in the MCT Charge Controls (applied to the relevant termination volumes).

8.22.3 Asymmetric regulation effect (in the assessment of competition effects): the difference between an MNO's effective termination rate and efficient cost, compared to other MNOs.

8.23 H3G is therefore incorrect to suggest that we have failed to give appropriate consideration to the "over-recovery"[159] of costs by the other MNOs. We assessed such "over-recovery", relative to H3G's own "over-recovery" of costs, in our analysis of competition effects (see paragraphs 6.72 to 6.78 above for the retrospective period and paragraphs 6.126 to 6.132 above for the prospective period).

8.24 In the context of the Disputes, such analysis of competition effects should be at the level of all termination minutes (and hence the comparison between each MNO's *effective* termination rate and cost) and not considering the termination rate, relative to cost, on ported calls alone. This is because the relevant question is whether the current regime generates, exacerbates or reduces any competitive distortion in the retail mobile market as a whole. Our analysis for the retrospective period shows that even though H3G makes less profit per minute on calls to ported numbers compared to other MNOs, it makes more profit per minute across all terminated minutes than its competitors for all years. Any impact on competition via the waterbed effect would, overall, work to H3G's advantage, since it is the MNO making higher profit on a per minute basis even after taking into account the lessening of H3G's profit margin due to the current charging arrangements for terminating calls to ported numbers. For the prospective period, the situation is reversed with H3G having a slightly larger shortfall on the basis of forecast costs (see paragraph 6.128 above). But, for the reasons set out above, given the evolution in traffic since the charge controls were set, it seems that H3G is unlikely to be making a shortfall and may be making at least as much margin in MCT as the 2G/3G MNOs.

8.25 As noted above, we have set out our reasons for taking a different view in the Disputes compared to the Charge Control Amendment Consultation, including the potential issue of the reduced effectiveness of the charge controls. In particular, we explain at paragraph 6.102 above that we have not attached great weight in the Disputes to the deviation between effective termination rates and the TACs, because the primary significance of the resulting financial impact is to the extent that it reflects the assessment of effects on competition or consumer prices. We have concluded that the current regime is likely to have promoted competition and been at least as favourable for consumer prices. In reaching our conclusions, we consider that we have taken proper account of all relevant factors (including those that are relevant in the light of the fact that the CC did not address the porting regime in the MCT Appeals). H3G also refers to a possible adverse effect on incentives. We consider incentives for competition at paragraphs 8.23-9.25 above, incentives for cost reduction at paragraph 8.33 below and incentives to move to direct routing at paragraphs 8.73-8.74 below.

8.26 For the same reasons, we disagree with H3G's suggestion that it has been discriminated against because of the different deviations between effective termination rates and TACs as between H3G (i.e. effective termination rate below TAC) and the other MNOs (i.e. the opposite). In particular, we have concluded that, assessed in its proper context, these deviations were likely to have promoted competition (by reducing the asymmetric regulation effect).

8.27 We note H3G's argument that GC18.2 applies to all charging arrangements for calls to ported numbers and that, under these charging arrangements, the other MNOs should

[159] H3G's terminology is "over-recovery", whereas we used the terminology of "excess" or "profit" (or "shortfall"/"loss") of effective termination compared to efficient cost.

be limited to the recovery of their efficiently incurred costs (including a reasonable rate of return). As we set out in our Draft Determination (and at footnotes 16 and 24 above), GC18 essentially covers the additional switching costs of routing calls to ported numbers. It does not require any particular charging methodology for termination rates. We therefore disagree with H3G's arguments in this regard and its interpretation of GC18.

8.28 We also disagree with H3G's argument that our cost recovery analysis discriminates against H3G by taking a different approach to the divergence between actual and forecast traffic volumes. We applied the same approach in our cost recovery analysis to both H3G and the other MNOs and hence did not discriminate against H3G, as explained below:

8.28.1 For H3G and the other MNOs, first, we compared their effective termination rates to their efficient costs on a forecast basis.

8.28.2 We found that, for all years in the retrospective period, H3G and the other MNOs at least recovered their costs (e.g. see Tables 2 and 3 above for H3G and Tables 4 to 7 above for the other MNOs) and so no further analysis of cost recovery was needed.

8.28.3 In the prospective period, on this forecast cost basis, we found that H3G would face a small shortfall (see paragraph 6.104 above). Similarly, we also found a small shortfall for the other MNOs across all terminated calls (see Table 13 and paragraph 6.113 above).

8.28.4 Therefore, in the prospective period for both H3G and the other MNOs we took the further step of considering the implications for cost recovery of the divergence between actual volumes and forecasts. For H3G this is set out at paragraphs 6.106 to 6.110 above; for the other MNOs at paragraph 6.113 above. For both H3G and the other MNOs we reached the same conclusion that the extent to which actual volumes have exceeded forecast volumes was likely to mean the apparent shortfall in cost recovery would be removed.

8.29 We disagree with H3G's arguments that Ofcom's cost analysis in the Disputes is inconsistent with the MCT Charge Controls in the sense that it reopens the assessment of volumes for H3G, for the following reasons.

8.30 First, as set out above, and contrary to the suggestion made by H3G, we adopted the same approach to assessing cost recovery for H3G as for the other MNOs, including consideration of the divergence between actual and forecast volumes.

8.31 Second, we consider that there is a distinction between:

8.31.1 whether an MNO is denied the opportunity to recover its efficiently incurred costs; and

8.31.2 implications for regulated charges, taking account of relevant considerations, such as incentives for cost reduction.

8.32 The former issue of cost recovery is a question of fact. The forecast used to set the MCT Charge Controls was made in 2007 and was underpinned by volume forecasts, which have been shown to be inaccurate. We consider that we might reach a false conclusion in the context of the Disputes of a lack of cost recovery by H3G in 2010/11, if we were to rely on a volume and cost forecast that we knew to be inaccurate.

8.33 As to the potential concern that our approach blunts incentives, we do not consider that this is a serious concern in the specific circumstances of the Disputes. In particular, the shortfall in cost recovery on the basis of the forecast used in 2007 to set the MCT Charge Controls (adjusted to reflect the CC's Determinations) was small (see paragraphs 6.104 to 6.105 above). Furthermore, (as H3G recognises) we took account of the incentive effect in our analysis of another economic consideration, i.e. the competition effects. H3G experienced a larger divergence between actual and forecast volumes than the other MNOs, which might imply a larger reduction in H3G's costs compared to the forecast at the time the prevailing charge control was set, and hence an asymmetric regulation effect operating to the benefit of H3G in the prospective period. However, we recognised that this difference will in part reflect the operation of the competitive process, such as H3G's growth in mobile broadband sales. Hence, it would risk penalising H3G's success by relying for our conclusions on a presumed distortion of competition in favour of H3G in the prospective period. As a consequence, we concluded that there was no clear asymmetric regulation effect operating to the benefit of H3G in the prospective period (see paragraphs 6.130-6.132 above).

8.34 Third, and as mentioned at paragraph 5.11 above, the cost recovery analysis is only one element of the reasoning that supported our provisional conclusions and we give less weight to this element than to other factors (such as the effect on competition and on consumers).

8.35 Finally, we consider it likely that the relatively large divergence between actual and forecasts will be more than sufficient to remove the relatively small apparent shortfall in cost-recovery (see paragraphs 6.107 to 6.110 above). We also note, and some Respondents have also observed, that H3G does not present any alternative analysis to refute this view.

8.36 T-Mobile suggested that the cost recovery analysis conducted for the purposes of the Draft Determination should be supplemented by also considering the indicative costs for H3G in 2010/2011 using the cost modelling in Ofcom's *Wholesale Mobile Voice Call Termination Market Review* Consultation (1 April 2010) ("the 2010 MCT Consultation").[160] The current result of this cost modelling from the 2010 model for 3G unit costs for 2010/11 is significantly lower than the corresponding unit cost for 2010/11 from the 2007 model which we used in the Draft Determination. This reflects, amongst other things, the extent to which actual traffic has exceeded the levels forecast in the 2007 model. Therefore, to the extent it can be relied on in the context of this Dispute, this further evidence supports our conclusion. However, for a number of reasons we do not place significant weight on this evidence. First, the 2010 cost model has been developed for the current market review, for which the results of most importance are in the proposed new price control period of 2011/12-2014/15. The modelling analysis has not therefore focused on the prior years, which are relevant to this Dispute. Second, the 2010 cost model is the subject of consultation and not finalised. Third, the 3G-only

[160] http://www.ofcom.org.uk/consult/condocs/wmctr/wmvct_consultation.pdf

version of the 2010 model is playing a much less important role in the current market review, compared to the 2007 model. Consequently, unlike the 2007 model, it may not provide as good an estimate of H3G's costs.[161]

8.37 As regards O2's suggestion that Ofcom is using updated traffic volume information to secure lower rates than the charge control permits, we do not accept this concern. As explained above, our intention in relying on updated traffic volume information is to inform our assessment of whether the current charging arrangements for calls to ported mobile numbers deny the opportunity for cost recovery, and not to revisit the rates set for the last year of the current charge control.

8.38 With respect to H3G's comments in relation to national roaming costs, for the following reasons we consider that it is appropriate to consider the effect of national roaming on H3G's efficient effective costs in the years before the end of the current charge control (2010/11):

8.38.1 First, by definition the effective efficient unit costs incurred by H3G in the period of the Disputes included the effect of traffic terminating on its 2G roaming partner. In conducting a cost recovery analysis, it would be an omission to ignore these relevant costs of termination in circumstances where they could reasonably be estimated or proxied.

8.38.2 Second, the circumstances of the Disputes, and the purpose and framework of dispute resolution, are very different from those of the MCT Charge Control. The MCT Charge Control had the purpose of determining efficient unit costs and setting acceptable levels of charges with respect to those costs in a future period (up to 2010/11). In that context, paragraph 9.30 of the MCT Statement[162] noted that:

"*By 2010/11 the volume of traffic that is terminated on… [H3G's] 2G roaming partner's network is expected to be very small, therefore the effect of O2's suggested adjustment to the termination charge is negligible. For this reason, Ofcom has concluded that altering the model to account for national roaming would not impact its final conclusions on charge levels.*"

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[161] Our approach to derive H3G's unit cost in the Disputes has been to start from the CC's 2G cap methodology, with an additional allowance for: (1) the difference in network costs between the 3G-only operator and the 3G component of the 2G/3G operator (see Technical Annex paragraph A2.22 *et seq);* and (2) the allowance for non-network costs determined by the CC for a 3G-only operator. Of these additional allowances, the former is the more significant driver of the difference in unit costs between the 2G/3G MNO and the 3G-only MNO. There are difficulties in repeating this exercise using the 2010 cost model. For example, the 2010 MCT Consultation proposes that the charge controls for all MNOs, including H3G, would be based on the unit costs of a hypothetical efficient 2G/3G MNO with 25% market share. The 2010 MCT cost model is therefore only calibrated (on accounting and technical data) to the 2G/3G MNOs. The new 3G-only version of the 2010 model has only been built as a cross-check on the outputs of the 2G/3G cost model and consequently it is not calibrated to H3G (unlike the 3G-only version of the 2007 model). Other differences from the 3G-only version of the 2007 model include the assumption of 99% coverage rather than H3G's actual coverage; the growth in market share, which is based on a generic view of 3G traffic growth from when 3G was first deployed rather than the actual evolution of H3G's market share to date; and other important modelling changes (such as cost of capital and asset prices) which yield reliable results for the years of interest for the market review, but due to modelling artefacts may not be reliable for the historical years relevant to the Disputes.
[162] See paragraph 1.6 above.

In reaching its conclusions in the MCT Statement, Ofcom only considered the effect of national roaming on H3G's efficiently incurred MCT costs in the last year of the charge control, i.e. 2010/2011. However, what matters for the purposes of considering the Disputes is the effect national roaming has had on H3G efficiently incurred termination costs and on cost recovery during the period of the dispute and not only in 2010/2011.[163] Tables 15 and 16 below show H3G's excess (shortfall) of effective termination rates compared to forecast effective efficient costs when the effect of national roaming on the effective efficient cost is included and when it is excluded.[164]

Table 15: H3G excess (shortfall) of effective termination rate compared to effective efficient cost in pence per minute (nominal terms)

	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011
National roaming excluded	[3.0-4.0]	[3.0-4.0]	[2.0-3.0]	[0.0-1.0]	[-1.0-0.0]
National roaming included	[3.0-4.0]	[3.0-4.0]	[2.0-3.0]	[0.0-1.0]	[-1.0-0.0]

Table 16: H3G excess (shortfall) of effective termination rate compared to effective efficient cost in £millions (nominal terms)

	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011
National roaming excluded	[100-150]	[100-150]	[100-150]	[50-100]	[-50-0]
National roaming included	[100-150]	[100-150]	[100-150]	[50-100]	[-50-0]

[163] When considering national roaming for the purposes of setting the current charge control, Ofcom's forecasts of call volume terminating on a national roaming partner's network in 2010/2011 amounted to [✂]% of total call volume. For the purpose of the cost recovery analysis, we relied on the call volume data submitted by H3G from 2004/05 until Q2 2009. We then we used our own forecasts. Over the period of the Disputes, the percentage of calls terminated on a roaming partner's network has on this basis decreased since H3G started using national roaming partners from about [✂]% in 2004/05 to about [✂]% as estimated by Ofcom for 2010/2011.

[164] When the effect of national roaming is included the effective efficient cost is the weighted average of the 3G-only operator efficient cost and the roaming partners' TACs, whereas when the effect of national roaming is excluded the effective efficient cost is simply equal to the 3G-only operator efficient cost.

The differences between H3G's forecast excess (shortfall) under the two approaches to national roaming are small. For example, they are not significant enough to warrant different confidentiality ranges.[165]

8.38.3 Third, we have used the TAC of a 2G/3G MNO as a proxy for the costs of terminating minutes on the networks of national roaming providers. We believe that this proxy is likely to be conservative since i) TACs follow an above cost glide-path; and ii) roaming services are offered in a more competitive environment than termination generally with potentially four networks bidding for providing the services. We recognise that there may be costs in establishing and maintaining a roaming agreement, but points i) and ii) above point the other way so we consider that the 2G/3G TAC is not an unreasonable proxy for the costs of roaming.[166]

8.38.4 Finally, we note that our sensitivity analysis with respect to national roaming, as summarised by the Tables 15 and 16 above, shows that the provisional conclusions, as set out in our Draft Determination, do not depend critically on our consideration of its effects (see paragraph A2.34 below). Under both approaches to national roaming, H3G recovered its efficiently incurred MCT costs during the retrospective period to a similar extent and faced a small shortfall of effective termination rate compared to forecast effective efficient cost during the prospective period. H3G would have earned slightly more each year of the retrospective period and would have lost more during in 2010/2011. However, our judgement that, taking account of H3G's increased traffic volumes compared to those forecast, its actual unit cost in 2010/2011 is likely to be lower than forecast by more than sufficient to recover this apparent shortfall, also applies to the analysis excluding national roaming (even if such exclusion were appropriate, which we do not accept, as explained above).

8.39 We note T-Mobile's argument that a determination by Ofcom cannot be inconsistent with the current charge control if i) an operator has recovered its efficient costs; and ii) the charge control sets a glide-path above the level of these costs and sets a charge ceiling. In this respect, we re-iterate that our consideration of the Disputes is focussed on determining whether the current charging arrangements for calls to ported mobile numbers are fair and reasonable. This is a very different exercise from determining the appropriate level of a charge control.

8.40 We also note T-Mobile's observation that the amounts of over-recovery and under-recovery alleged in relation to the Disputes are small as compared to a typical MNOs' customer acquisition and retention budgets. In our view, the relevant considerations are the nature and magnitude of the effects on cost recovery, financial impact, competition and consumers, which we have analysed.

[165] We are aware that the effect of including national roaming varies in size and direction (higher or lower) over the years. This is because the variation from one year to another does not only reflect the change in calls volumes that are terminated in a national roaming partner's network (which were relatively stable over the period reported in Tables 15 and 16 above), but also the relationship between H3G's efficiently incurred costs and national roaming partners' TACs (which we use as a proxy for H3G's costs of terminating calls on national roaming partners' networks). This relationship varies across years: H3G's efficient termination cost is lower than the roaming partner's TAC prior to 2010/2011, and higher in 2010/2011.

[166] See paragraphs A2.29 to A2.34.

8.41 Based on the above considerations, our view is that our cost recovery analysis and the conclusions we derive from it remain valid, namely that:

8.41.1 during the retrospective period neither H3G nor the MNOs were denied the recovery of their efficiently incurred costs for calls to ported numbers as well as for all calls, and

8.41.2 during the prospective period the shortfalls that H3G and the MNOs appear to be incurring based on the adjusted 2007 MCT cost model are small, and in practice are not likely to occur, when the evolution of actual traffic and the impact on the unit costs of termination is considered.

Ofcom's assessment of competition effects

The Respondents' submissions

H3G

8.42 H3G argued that Ofcom has previously accepted that there is "*some evidence*" of switching and porting effects, which it has disregarded in its analysis in the Disputes, and that these effects operate so as to disadvantage H3G.

8.43 In addition, H3G disagreed with Ofcom's provisional view that any asymmetric regulation effect that is present operates in favour of H3G in the retrospective period of the Disputes and considers that Ofcom's approach to assessing this effect is unduly simplistic. H3G said that there is no case for allowing the other MNOs to recover in excess of their costs, even if this would reduce a regulatory asymmetry between them and H3G. It said that asymmetry in favour of H3G is not harmful to competition. H3G said that if the recipient paid principle had been applied in arrangements for calls to ported mobile numbers from its entry in 2003, H3G would have obtained additional revenue and achieved a minimum efficient scale more quickly, which would have enabled it to compete more effectively, benefiting competition in the long run. H3G referred to economic evidence and evidence of other NRA practices, which it submitted to the Competition Commission.

8.44 H3G said that Ofcom appears to be saying that the glide-path, which it considered appropriate for calls to non-ported numbers in its MCT Statement and which was not appealed by any party, would now negatively affect competition if it were to be applied to calls to ported numbers. H3G argued, therefore, that Ofcom is making a collateral challenge to its own previous decision.

8.45 H3G also argued that Ofcom has said that the asymmetric regulation effect operated to H3G's disadvantage in the final year of the charge control, and that this situation was not envisaged in or justified by the MCT Statement.

8.46 Lastly, H3G referred to the European Commission's *Recommendation of 7 May 2009 on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU* (2009/396/EC) ("the EC's Mobile Termination Recommendation")[167] and suggested that this supports new market entrants' recovery of higher unit termination costs for a

[167] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:124:0067:0074:EN:PDF.

transitional period. While noting that the EC's Mobile Termination Recommendation refers to a four year transitional period, H3G argued that this is the assumed period of time that a new entrant would take to reach a minimum efficient scale.

Vodafone

8.47 Vodafone argued that current charging arrangements for calls to ported mobile numbers were previously determined by Oftel as being appropriate notwithstanding the issue of whether ported traffic is onward routed or whether there are material asymmetries in mobile termination rates. It also said that asymmetric regulation of termination rates may distort competition via the waterbed effect. The materiality of this effect may reduce prospectively, but this does not justify the alternative charging arrangements that H3G has proposed.

Ofcom's response

8.48 We note H3G's argument that, if switching and porting effects did exist, they would operate so as to disadvantage H3G. However, for the following reasons we disagree with H3G's view that we have simply disregarded evidence as to the presence and operation of these effects:

8.48.1 First, H3G refers to evidence of these effects as having been previously accepted by Ofcom in connection with the Charge Control Amendment Consultation. This argument is based on reference at paragraph 4.26 of the Charge Control Amendment Consultation to evidence submitted by Vodafone. However, in its submission on the Charge Control Amendment Consultation, Vodafone qualified this statement, and suggested that it had been quoted out of context and did not in fact support an argument for the existence of switching and porting effects.[168] We accept that the statement by Vodafone related to an incentive *in theory* and not evidence of the importance of the switching and porting effects in practice. On this basis alone, we do not accept that this statement can be relied on as proof of the existence or materiality of these effects.

8.48.2 Second, in investigating the Disputes we have sought additional evidence in relation to these effects via formal information requests. In response to these requests, we have received barely any evidence to support their existence and have received observations from several Respondents that tend to deny their existence.

8.48.3 Third, H3G did not offer further evidence to support the existence or materiality of switching and porting effects in its response.

8.49 Accordingly, we consider that there is some doubt as to the existence and operation of switching and porting effects, and, if they exist, their materiality.

[168] See footnote 51 on page 17 of Vodafone's response to the Charge Control Amendment Consultation in which Vodafone stated that it: "*believes that it is being quoted out of context, but more significantly the argument does not represent empirical evidence that the theoretical incentives exist in practice*."

8.50 We disagree with H3G on the question of whether asymmetry in favour of H3G is harmful to competition. We consider that, in the circumstances applicable in the Disputes, asymmetry in favour of H3G would represent a competitive distortion, because it would not be competition on the merits. Consequently, we consider that an increase in asymmetry, as would occur under H3G's proposed alternative arrangements, would be likely to increase such a competitive distortion.

8.51 As regards H3G's argument that European Commission policy supports its recovery of higher unit termination costs for a transitional period, we have carefully considered statements contained in the EC's Mobile Termination Recommendation. We have also considered the CC's *Mobile phone wholesale voice termination charges* Determination[169] and the CAT's judgment in *Hutchison 3G UK Limited v. Ofcom.*[170] In light of the views set out below, we consider that none of the European Commission, the CC or the CAT favour the operation of asymmetric regulation except in limited circumstances and, even then, only for a limited transitory period:

8.51.1 The Commission Staff Working Document *Explanatory Note: Accompanying document to the Commission Recommendation of … on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU* [171] stated that: "*As the relevant cost standard for setting termination rates should be [Bottom-up Long Run Incremental Costs ("BU LRIC")] which reflects the cost of an efficient operator, <u>there should in principle be no asymmetries between the rate of the established operator(s) and the rates of later entrants to the market</u>. This is broadly consistent with the ERG Common Position on symmetry which states that termination rates should normally be symmetric and that asymmetry requires adequate justification*" (emphasis added).[172]

8.51.2 In its *Mobile phone wholesale voice termination charges* Determination, the CC noted the European Commission's position on asymmetric termination rates, observing that: "*More specifically, the Commission considered that <u>termination rates should normally be symmetric and that asymmetry requires an adequate justification</u>. The Commission recognised that in certain exceptional cases asymmetry might be justified by objective cost differences outside the control of the operators concerned. Such possible justifications could be objective network cost differences, for instance owing to cost differences between the operation of a GSM900 network and a DCS1800 network, or substantial differences in the date of market entry. However, the Commission has also emphasised that <u>the fact that an operator entered the market later and that it therefore has a smaller market share can only justify higher termination rates for a limited transitory period. The persistence of a higher termination rate would not be justified after a period long enough for the operator to adapt to market conditions and become efficient over time</u>, and could even discourage smaller operators from seeking to expand their market share*" (emphasis added).[173]

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[169] See paragraph 6.10 above.
[170] [2008] CAT 11.
[171] http://ec.europa.eu/information_society/policy/ecomm/doc/library/public_consult/termination_rates/explanatory.pdf
[172] See page 16.
[173] Paragraph 5.4.45.

8.51.3 In one of its judgments on the MCT Appeals, the CAT adopted an approach that is consistent with that of the European Commission and the CC and noted that "... *[H3G's] argument is that it should be allowed to charge high mobile call termination rates in order to support its offering in the retail market so that it can compete more energetically with the other MNOs.* *<u>There is nothing in the material we have been shown which indicates any support for asymmetric regulation based on that justification</u>*" (emphasis added).[174]

8.52 For the prospective period, we remain of the view that the magnitude of the forecast asymmetric regulation effect during the last year of the current charge control was too small to lead to distortions of competition such as would justify a shift to alternative charging arrangements. Indeed, recent evidence on actual volumes suggests that the asymmetric regulation effect in the prospective period could even work to H3G's advantage – although for the reasons stated above we recognise that the difference between forecast and actual volumes will in part reflect the operation of the competitive process, e.g. the progress that H3G has made in increasing its sales of mobile broadband services. We do not, therefore, consider that there is a clear conclusion that an asymmetric regulation effect now exists or operates to the benefit of H3G in the prospective period. Accordingly, we do not intend to alter the conclusion on this point set out in our Draft Determination. Moreover, we note that the CAT has effectively said, albeit in a different context, that H3G's claim that it should benefit from asymmetric regulation of termination rates is not justified.[175] We consider that this statement remains relevant in the present circumstances.

8.53 We disagree with H3G's argument that we are challenging our own previous decision on H3G's glide-path. As explained below, we do not consider that H3G has characterised the glide-path issue correctly. First, the glide-path concerns the pace at which H3G's above-cost termination charge in the period before the charge control (i.e. 2006/7) should be brought down to the forecast of its efficient cost in 2010/11, taking account of both the short-term and long-term interests of consumers. That is, it was about the relativities of H3G's termination charges in these years (and the other years of the charge control). Second, our view in respect of the Disputes is consistent with the view in the MCT Statement that greater asymmetry (i.e. a larger gap between the level of the termination charge and the level of unit costs for H3G, compared to the other MNOs), would distort competition Third, we have addressed above (e.g. at paragraphs 8.22-8.26) the question of the difference between H3G's and other MNOs' effective termination rates and the TACs in the MCT Charge Controls.

8.54 As regards the question of the shape of the glide-path, taking account of the termination rate that H3G would receive on ported-in numbers, H3G's effective termination rate in each year would lie below its termination rate for non-ported calls. Figure 10 below shows a comparison between the glide-paths in terms of TACs for non-ported calls and in terms of effective termination rates.

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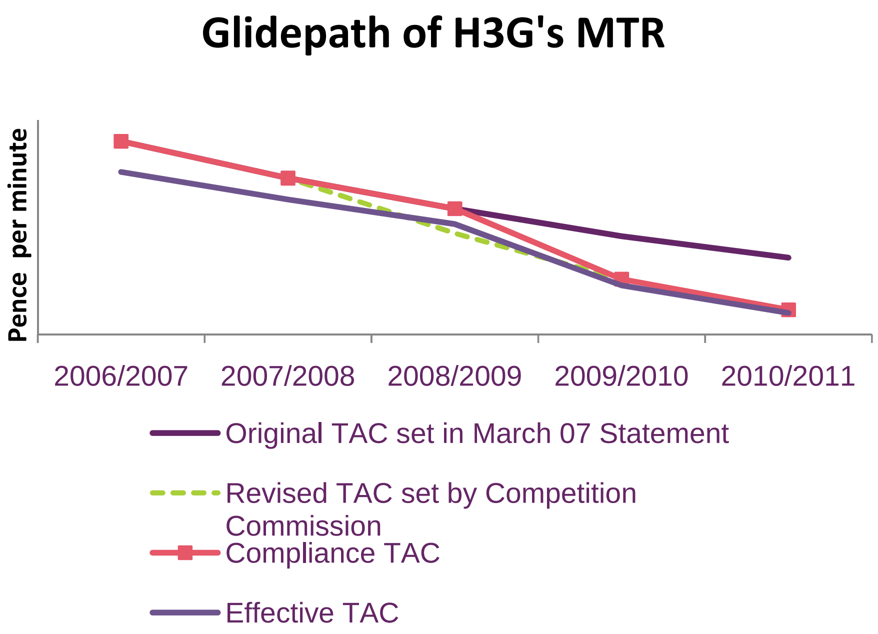
174 *Hutchison 3G UK Limited v. Ofcom* [2008] CAT 11, paragraph 279.
175 Ibid.

Figure 10: Comparison of different H3G's glide paths



8.55 In Figure 10 above, four different glide paths for H3G are represented:

8.55.1 the glide path generated by the Original TACs set originally in March 2007 as part of Ofcom's MCT Statement (for reference);

8.55.2 the glide path generated by the revised TACs set by the Competition Commission in 2009 (for reference);

8.55.3 the "Compliance TAC" glide path generated by combining the compliance TAC (that is, outcome of compliance monitoring work) for the first two years and the revised TAC as set by the Competition Commission for the last two years; and

8.55.4 the "Effective TAC" glide path generated by effective TACs, that is, the weighted average of own TAC for calls to non-ported numbers and of the other MNOs' TAC for calls to ported numbers.

8.56 This exercise reveals that the effective glide-path (i.e. taking account of both calls to ported and non-ported numbers) lies below the Compliance TAC glide-path for the initial years, whilst they almost overlap in later years. In other words, the glide-path in terms of H3G's effective termination rates is *shallower* than the Compliance TAC glide-path (and also shallower than the glide-path using the Revised TACs set by the CC). Shallower glide-paths are more generous to H3G than steeper glide-paths.

8.57 In our view the above comparisons do not suggest that our analysis in the Disputes is inconsistent with previous regulatory decisions on glide-paths to the disadvantage of H3G.

8.58 As regards the second question, we also consider that our analysis of asymmetry and competitive distortions in the Disputes is consistent with that in the MCT Statement. At the start of the MCT Charge Controls there was an asymmetry in favour of H3G (i.e. its termination charge was further above its cost than for the other MNOs). In the MCT Statement we recognised that removing the asymmetry by bringing H3G's charge down to cost immediately would be "*more effective in swiftly addressing competitive distortions*" and, conversely, that greater asymmetry through a smoother glide path for H3G would "*prolong competitive distortions*".[176]

8.59 We note Vodafone's reference to Oftel's previous consideration of charging arrangements for calls to ported mobile numbers, and its conclusion that an approach based on the donor paid principle was more appropriate in circumstances where ported traffic is onward routed and material asymmetries in mobile termination rates persist.[177] But Oftel's determination of the disputes favouring a donor paid principle, which Vodafone refers to, was time limited (less than one year) and commercial arrangements were expected to prevail following its expiry. We do, however, acknowledge Vodafone's point that termination rate convergence in the prospective period, leading to an immaterial asymmetric regulation effect, is not sufficient to justify changing the charging arrangements in the prospective period.

8.60 As regards, H3G's argument concerning the application of the EC's Mobile Termination Recommendation, we note that this does not take effect until 31 December 2012. The EC's Mobile Termination Recommendation provides that:

> "*In case it can be demonstrated that a new mobile entrant operating below the minimum efficient scale incurs higher per-unit incremental costs than the modelled operator, after having determined that there are impediments on the retail market to market entry and expansion, the NRAs may allow these higher costs to be recouped during a transitional period via regulated termination rates. Any such period should not exceed four years after market entry.*" [178]

8.61 If we proceed on the assumption that the EC's Mobile Termination Recommendation should apply by analogy to our consideration of the Disputes, as H3G argues, the following issues are relevant:

8.61.1 H3G commenced operation as an MNO in 2003 and has been operating for substantially in excess of the four year period referred to in the EC's Mobile Termination Recommendation. Accordingly, any asymmetric regulation operating in favour of H3G could only be supported until 2007.

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[176] MCT Statement, paragraph 9.191.

[177] See paragraph 6.40 above.

[178] See paragraph 10. Recital (17) of the Mobile Termination Recommendation also states that: "*New entrants in mobile markets may also be subject to higher unit costs for a transitional period before having reached the minimum efficient scale. In such situations, NRAs may allow them, after having determined that there are impediments on the retail market to market entry and expansion, to recoup their higher incremental costs compared to those of a modelled operator for a transitional period of up to four years after market entry. Drawing upon the ERG Common Position, it is reasonable to envisage a time frame of four years for phasing out asymmetries based on the estimation that in the mobile market it can be expected to take three to four years after entry to reach a market share of between 15 and 20 %, thereby approaching the level of the minimum efficient scale.*"

8.61.2 In any case, in both the prospective and retrospective periods of the Disputes, H3G's termination charge (including its effective charge, i.e. allowing for ported-in numbers) is higher than the other MNOs' rates.

8.61.3 These higher termination rates have been sufficient to allow H3G to recover its efficiently incurred costs (using the best available evidence, including in 2010/11).

8.61.4 Certain market conditions should be present to justify any asymmetry in termination rate, specifically the existence of impediments on the retail market to market entry and expansion. In its *Mobile phone wholesale voice termination charges* Determination, the CC explored whether H3G should benefit from asymmetric regulation (including an assessment of whether the requisite market conditions are present). It concluded that "*Based on the arguments that have been made and the evidence we have been given, however, H3G has not satisfied us that further non-cost-based asymmetry would be justified*." [179]

8.62 We are therefore satisfied that our conclusion on the asymmetric regulation effect remains valid, namely, that this effect existed in favour of H3G during the retrospective period and distorted competition in its favour and that, during the prospective period, it is likely to be insignificant and unlikely to distort competition in either direction.

Ofcom's assessment of consumer effects

The Respondents' submissions

C&W

8.63 C&W agreed with the Draft Determination that a move from a donor to a recipient led charging regime could be damaging to the interests of consumers, as MNOs applying the recipient rate would seek to pass on their losses to operators who buy call termination, leading to cost increases for those operators - including fixed operators. It argued that applying a recipient rate in the retrospective period would have resulted in significant losses for each onward routed call to a ported number.

H3G

8.64 H3G noted Ofcom's conclusion that its proposals would increase the industry wide average termination rate (because H3G has more ported-in traffic than ported out traffic), but indicated that it does not accept the implication that this conclusion will therefore increase consumer prices. It disputes the existence of the waterbed effect, because termination charge revenues have been decreasing, yet consumer prices have also decreased.

Ofcom's response

8.65 We note C&W's argument regarding the effect of applying a recipient pays principle to charging arrangements for calls to ported mobile numbers in any period of the Disputes. The reasons for our conclusion as to whether it is appropriate to require the Parties to

[179] See paragraph 5.4.61, *Mobile phone wholesale voice termination charges* Determination.

shift from current charging arrangements (reflecting the donor paid principle) to alternative arrangements reflecting the recipient paid principle are set out at paragraphs 9.6 *et seq* below. This conclusion is limited to the facts of the Disputes. We have reached no firm view, in considering an appropriate resolution of the Disputes, as to the general desirability or otherwise of charging arrangements that reflect a recipient paid principle.

8.66 As regards H3G's argument, first, we note that H3G does not appear to disagree with our conclusion that its proposals would increase the industry wide average termination rate because of H3G's heavier ported-in traffic (compared to ported-out traffic). Second, H3G appears to be mistaken in suggesting that the waterbed effect underpins our conclusion on the consumer price effect that the current regime is likely to have been, on balance, at least as favourable for prices paid by consumers as alternative charging arrangements (see paragraph 6.85 above).This conclusion is derived from considering the likely direct and indirect effects that a change to the alternative regimes proposed by H3G would generate. These effects are described in Table 11 above. As regards the indirect effects, including the waterbed effect, which are the only effects relevant to a change to D/R(i.e. there are no direct effects), we note that they are complex and that they would operate in different directions, depending on the MNO. Consideration of the indirect effects and the waterbed effect does not lead us, therefore, to a clear view on which charging arrangements are more favourable for consumer prices. But we expect the change to an R/R regime to lead to consumers paying higher prices for calls to mobiles due to the direct, pass-through effect at the origination stage (e.g. see paragraph 9.20 below). However, the direct effect does not depend on the waterbed effect.[180]

8.67 For the reasons given above, H3G's argument does not cause us to alter our assessment of consumer effects. We therefore retain our conclusion that the current regime is likely to have been on balance at least as favourable for prices paid by consumers as the alternative charging regimes.

Other considerations

The Respondents' submissions

H3G

8.68 H3G suggested that Ofcom does not dispute its argument that current charging arrangements for calls to ported mobile numbers give the other MNOs an incentive to resist any shift to direct routing. It also repeats the argument that if Ofcom fails to apply a retrospective adjustment this would indicate that they can also obstruct other developments intended to benefit consumers.

[180] In addition the observation put forward by H3G, namely retail prices have continued to fall as termination rates have fallen, is not sufficient in our view to show that the waterbed effect is not effective. The waterbed effect is defined as falling mobile termination rates (relative to cost) leading to increases in retail prices other things being equal.H3G does not show that the condition 'other things being equal' is met when it provides its evidence. For example, it is possible that network and retail costs are falling and/or retail competition is increasing enough to off-set any tendency for retail price to otherwise increase. We also note that the existence of a waterbed effect has been accepted in previous regulatory decisions by Ofcom, the CC and the CAT.

8.69 H3G also argued that Ofcom should consider stripping unjustified over-recoveries from other MNOs (even if Ofcom did not necessarily order that repayments be made to H3G).

O2

8.70 O2 expressed disappointment that Ofcom had not settled the issue of the period of the Disputes.

T-Mobile

8.71 T-Mobile argued that in determining the Disputes the principle of proportionality is relevant (in addition to principles of legal certainty and legitimate expectation). In this respect, it noted that any retrospective adjustment would directly conflict with regulatory certainty. T-Mobile also said that there are risks and costs associated with any change to the current charging arrangements and agreed with Ofcom's assessment of a shift to alternative charging arrangements.

8.72 T-Mobile also questioned the assertion that failure to impose retrospective remedies could operate to obstruct investments that would benefit consumers. It argued that Ofcom should be free to determine the appropriate remedies to each case. In addition it observed that it is for Ofcom to determine the appropriateness of investments and that Ofcom could mandate investments if the evidence, including any relevant cost/benefit analysis, suggested that doing so is consistent with its statutory duties.

Ofcom's response

8.73 We recognised in the Routing Consultation (see paragraph 2.52 above) the likelihood that the existing wholesale settlement regime for calls to ported mobile numbers may have acted as a disincentive on certain operators to move to direct routing. However, for the following reasons we consider that it would be disproportionate in the context of this Dispute resolution to apply retrospective payments only to encourage routing investments.[181] First, even if H3G were correct that current charging arrangements and asymmetric termination rates discourage investment in direct routing, a shift to charging arrangements that reflect the recipient paid principle is not the only solution. As noted by T-Mobile, there are other ways for Ofcom to achieve the same result of a shift to direct routing without changing an existing charging regime. For example, requiring symmetric termination rates within the current charging arrangements would achieve the same result.

8.74 Second, in accordance with our statutory duties to, amongst other things, encourage investments that benefit consumers, we have been investigating whether or not to require a move to direct routing for mobile calls to ported mobile numbers. Investment in a direct routing solution may be desirable insofar as this would deliver benefits for consumers. However, in circumstances where a shift to direct routing is not justified in terms of the relevant cost/benefit analysis, then it is unlikely to be appropriate for Ofcom to intervene.

8.75 As regards H3G's suggestion that Ofcom could strip unjustified over-recoveries from other MNOs without repaying these amounts to H3G, we do not believe that this is a

[181] See the Routing Consultation, paragraphs 3.10-3.18.

course of action that Ofcom could follow (even if our analysis of the issues suggested that such action was appropriate – which it does not). Ofcom's powers to resolve the Disputes are set out in section 190(2) of the Act.

8.76 We note O2's disappointment that Ofcom has not settled the period of the Disputes. As we noted at paragraph 3.16 above, we did not consider it necessary to reach a definitive conclusion on the period of the Disputes given our provisional conclusions. Following the CAT's recent *BT v. Ofcom* judgment relating to a preliminary issue in an appeal brought by BT in relation to partial private circuits[182], we note that the CAT held that Ofcom's jurisdiction to handle a dispute is not limited by the time at which parties have raised a dispute with each other.

8.77 We also note T-Mobile's argument that Ofcom should also take account of the principle of proportionality in determining the Disputes. Proportionality is a principle that we take account of in terms of our statutory duties. Section 3(3) of the Act requires us to have regard to the principles under which regulatory activities should be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed. Therefore the principle of proportionality has been taken into consideration in determining the Disputes (see paragraphs 9.16 *et seq* below).

[182] 2010 [CAT 15].

Section 9

Ofcom's final conclusions and resolution of the Disputes

Assessment of Ofcom's provisional conclusions in light of the Respondents' submissions and final conclusions

9.1 Ofcom's analysis in support of the provisional conclusions in the Draft Determination is set out in sections 6 and 7 above. Our provisional conclusions were that:

9.1.1 under the current arrangements the Parties would be able to recover their efficiently incurred termination costs across all terminated calls;

9.1.2 in 2010/11, H3G would be financially slightly better off if there were a shift to the alternative arrangements. However, the other MNOs (or originating operators) would be worse off;

9.1.3 current charging arrangements would not lead to distortions of competition in the prospective period such as would justify a shift to alternative charging arrangements; and

9.1.4 continuation of the current changing arrangements in the prospective period would be at least as favourable for consumers as a shift to the alternative arrangements proposed by H3G.

9.2 We have carefully considered whether we should alter our provisional conclusions in light of the Respondents' submissions. Having had regard to these submissions, we do not intend to alter the provisional conclusions set out in our Draft Determination and we therefore rely on the reasoning and conclusions as set out above in this document in reaching our final conclusions.

9.3 Accordingly, our final conclusions in respect of the Disputes are that:

9.3.1 it was reasonable for the other MNOs to reject H3G's proposal to each of them that the current charging arrangements should change;

9.3.2 the current charging arrangements should remain as currently set out in the Interconnect Agreements between the Parties, unless and until those arrangements are re-negotiated; and

9.3.3 as a result, we should not exercise our discretion to require the payment of sums by way of an adjustment to any underpayment or overpayment.

9.4 Our Determination, consistent with these final conclusions, is at Annex 1.

9.5 In reaching our final conclusions, Ofcom has considered whether the other MNOs were justified in rejecting H3G's proposal that the charging arrangements for calls to ported numbers should change. H3G contends that the current charging arrangements should change going forward, and that we should order repayments to be made to H3G in respect of sums it has paid to the other MNOs in the past, as a result of the current charging arrangements. We have therefore considered below:

9.5.1 whether we should require the current charging arrangements to change, as H3G has proposed, and if so, with effect from what date; and

9.5.2 whether in order to give effect to our determination, we should exercise our discretion to give a direction requiring the payment of sums by way of an adjustment of an underpayment or overpayment.

Should the current charging arrangements change?

9.6 As noted above, we have considered whether we should require the Parties to enter into the alternative arrangements requested by H3G. We have done so on the basis of the economic factors listed at paragraph 5.8 above, and also with reference to additional considerations (such as the time and costs of implementing alternative charging arrangements as proposed by H3G).

9.7 We do not consider a shift to alternative charging arrangements would be appropriate, because it would not be fair as between the Parties or reasonable in light of our duties. We therefore conclude that the current charging arrangements should remain as currently set out in the Interconnect Agreements between the Parties, unless and until those arrangements are re-negotiated.

9.8 Notwithstanding our conclusion that the charging arrangements should remain as they are now, and the fact that the current charging arrangements which are in dispute have remained constant throughout the period which we are examining, we note that the underlying facts, including in particular the Parties' termination rates, have changed over time. As a result, we believe that in this case it is appropriate for us to consider the period of time prior to this determination to assess whether on the facts our conclusion above would be different if past periods were also taken into account, and if so, whether it would be appropriate for us to exercise our discretion to require any repayments to be made between the Parties.

The past period

9.9 In our view, for the puposes of considering whether to exercise our discretion to require any repayments, the past period falls into two distinct periods (albeit that we note there appears to be some disagreement between the Parties about the precise dates covered by each):

9.9.1 a period before H3G issued Review Notices to each of the other MNOs; and

9.9.2 a period from the date(s) of the Review Notices to the present.

9.10 The following factors are in our view relevant to our assessment of how we should exercise our discretion.

9.11 In respect of the first period:

9.11.1 we note that H3G had not issued the other MNOs with a Review Notice in this period, and no regulatory obligation was in force which required the charging arrangements to operate in a particular way. We consider that this is a relevant consideration in relation to the exercise of our discretion to require any repayments with respect to this period; and

9.11.2 we consider that the principles of legal certainty and legitimate expectation are of particular relevance to this period, and suggest that we should not make any regulatory intervention to require any repayments with respect to this period:

- as H3G has noted, the charging methodology for calls to ported numbers is not set by any regulatory obligation;[183]

- we have considered Ofcom's various statements in relation to charging arrangements for calls to ported mobile numbers, and do not consider that they create any expectation that Ofcom considered that a specific charging methodology should apply and/or would intervene in respect of any arrangements agreed between the Parties (absent a dispute); and

- in our view, in the absence of any regulatory obligation which set the charging methodology for calls to ported numbers, or any expectations flowing from Ofcom's statements, the Parties were reasonably entitled to proceed on the basis that they could conclude agreements between themselves regarding those charging arrangements, and that those agreements would not subsequently be disturbed by Ofcom at least until a dispute was raised between them, and subsequently brought formally to Ofcom for resolution in accordance with its powers under section 190 of the Act.

9.12 Accordingly, for the reasons set out above we conclude that we should not take any regulatory action in respect of the period before H3G issued Review Notices to the other MNOs.

9.13 As regards the period from which H3G issued Review Notices to each of the other MNOs to the present, we have reached the following conclusions on the basis of our analysis of the effects of the current charging arrangements:

9.13.1 the charging arrangements allowed the Parties to recover their efficiently incurred costs across all terminated calls (including calls to ported mobile numbers to which H3G is a party);

[183] GC18 requires charges for the provision of mobile portability to be reasonable, cost oriented, and based on the incremental costs of providing portability (unless the providers have agreed another basis for the charges). It essentially covers the additional switching costs of routing calls to ported numbers. It does not require any particular charging methodology for termination rates.The absence of any particular requirements as to the charging methodology for calls to ported numbers also leads us to disagree with H3G's claim that the other MNOs should have hedged their risks. There were no explicit regulatory statements requiring the current charging arrangements to be replaced by arrangements reflecting the recipient paid principle or indicating that such alternative arrangements were superior to, or fairer than, the current charging arrangements (see *Number portability in the mobile telephony market* Explanatory Note (3 October 1997) at paragraph 2.27 above).

9.13.2 while H3G would have been financially better off under alternative charging arrangements (reflecting the recipient paid principle, as proposed by H3G), the other MNOs would have been worse off. However, most of the favourable financial impact on H3G would represent a worsening of the asymmetric regulation effect, which distorts competition in H3G's favour;

9.13.3 the current charging arrangements were more likely to have promoted effective competition than alternative arrangements (ie as proposed by H3G); and

9.13.4 the current charging arrangements are likely, on balance, to have been at least as favourable for consumers as the alternative charging arrangements.

9.14 On this basis, we conclude that the other MNOs were justified in rejecting H3G's proposal that the current charging arrangements in relation to calls to ported numbers should change. The Parties should therefore continue to do business on the basis of the charging provisions as currently set out in the Interconnect Agreements between the Parties, unless and until those arrangements are re-negotiated. We consider that this conclusion is fair as between the Parties and reasonable in light of our statutory duties (see further paragraphs 9.16 *et seq* below).

Repayments

9.15 In light of our conclusion that the other MNOs were justified in rejecting H3G's proposal that the current charging arrangements in relation to calls to ported numbers should change, we will not require the payment of any sums by way of an adjustment of an underpayment or overpayment.

Assessment of our Determination against Ofcom's statutory duties and Community requirements

9.16 We have carefully considered whether our final conclusions and Determination in respect of the Disputes are consistent with both Ofcom's general duties in section 3 of the Act, and (pursuant to section 4(1)(c) of the Act) the six Community requirements set out in section 4 of the Act, which give effect, among other things, to the requirements of Article 8 of the Framework Directive.[184]

9.17 As explained in detail above, we believe that the evidence shows that a move from the current charging arrangements for calls to ported numbers would not be appropriate and that the arrangements should remain as currently set out in the Interconnect Agreements between the Parties. In addition we do not believe that historic payments should be made between the Parties for the period before H3G raised the issue with each of the MNOs. In reaching this conclusion, we have kept in mind our duty under section 3(3)(a) of the Act to ensure that our regulatory activities are, among other things, transparent, accountable, proportionate and targeted only at cases where action is needed.

9.18 In particular, this document clearly sets out the Parties' arguments and the reasoning that underpins our conclusion. We consider that our decision is consistent with previous decisions. Our determination is targeted in that it resolves the Disputes as between the Parties to the Disputes. While the Disputes involve certain issues which apply to all the

[184] 2002/21/EC.

MNOs by virtue of the terms of the bilateral Interconnect Agreements which they have with each other, our determination is based on the specific facts of the Disputes and will only bind the Parties. Any future cases which raise such issues would need to be assessed on their own specific facts.

9.19 We believe that the further duties of particular relevance to this dispute are as follows:

9.19.1 the duty to further the interests of citizens in relation to communication matters (section 3(1)(a) of the Act);

9.19.2 the duty to further the interests of consumers in the relevant markets, where appropriate by promoting competition (section 3(1)(b) and section 4(3));

9.19.3 the duty to have regard to the desirability of promoting competition in relevant markets (section 3(4)(b));

9.19.4 the duty to have regard to the desirability of encouraging investment and innovation in relevant markets (section 3(4)(d));

9.19.5 the duty to have regard, in particular, to the interests of consumers in respect of choice, price, quality of service and value for money (section 3(5));

9.19.6 the duty to promote the interests of all persons who are citizens of the European Union (section 4(5)); and

9.19.7 the duty to encourage, to the extent Ofcom considers it appropriate, the provision of network access and service interoperability for the purposes of securing efficiency and sustainable competition in communications markets and the maximum benefit for the customers of communications network and services providers (sections 4(7) and 4(8)).

9.20 As regards the duty to further the interests of citizens and consumers (paragraphs 9.19.1, 9.19.2 and 9.19.5 above), in Ofcom's view, overall our conclusion is that prices to consumers were at least as favourable under the current regime than under a change to alternative charging arrangements in the retrospective period. Any such change would involve an increase in the average industry-wide termination rate and in fact under a change to an R/R regime we would expect consumers to pay higher prices for calls to mobiles. The size of any effects on the prices paid by consumers is unlikely to be material in the prospective period as the termination rate differential in 2010/11 would only be 0.3ppm.

9.21 In having regard to our duties listed in paragraphs 9.19.2, 9.19.3, 9.19.4 and 9.19.5 above, it is widely recognised that number portability is important in promoting competition between networks because it encourages switching by consumers. This is reflected in the obligation on communications providers (including the Parties) under GC18 to provide number portability to customers and portability to each other. In this determination, we propose to find that requiring repayments for the retrospective period would have been more likely to have exacerbated competitive distortions than to have promoted competition. Whilst there was no evidence to support the existence of switching and porting effects, if alternative arrangements had been in place in this period, the asymmetric regulation effect would have been exacerbated (because alternative charging arrangements would have increased the gap between H3G's effective termination rate and its efficient cost and reduced the gap between the other MNOs' effective termination rates and their efficient costs). We do not consider there to be sufficient evidence to conclude that the competition effects of the current charging arrangements are material and, therefore, there is no basis for intervention on a prospective basis.

9.22 As regards our duty set out in paragraph 9.19.4, Ofcom expressed the aim of assessing the potential productive inefficiency associated with onward routing in its Routing Consultation. If direct routing were mandated, the TNO would always receive its own termination rate irrespective of whether the called number had been ported or not. However, we have since published our Routing Statement and concluded that no regulatory intervention (including direct routing) is appropriate at this time.

9.23 In relation to paragraphs 9.19.6 and 9.19.7, Ofcom considers that this is relevant in this context because the routing of calls to ported numbers is important for encouraging access and interoperability so that customers from one network can make and receive calls to and from customers from another network, which facilitates the development of communication between customers of different networks. We consider that our proposed determination supports these aims.

9.24 We also consider that our duty set out in section 3(4)(m) of the Act (the duty to have regard to the extent to which, in the circumstances of the case, the furthering or securing of the matters mentioned in section 3(1) (and 3(2)) is reasonably practicable), is relevant to the resolution of this dispute. As the proposed outcome is that existing arrangements will continue, we consider that our determination is reasonably practicable.

Annex 1

The Determination

Disputes between H3G and each of Everything Everywhere, Orange, O2, T-Mobile and Vodafone

Determination under sections 188 and 190 of the Communications Act 2003 ("the Act") for resolving disputes about mobile call termination rates that apply where calls are routed to a ported number

WHEREAS—

(A) section 188(2) of the Act provides that, where Ofcom has decided pursuant to section 186(2) of the Act that it is appropriate for it to handle the dispute, Ofcom must consider the dispute and make a determination for resolving it. The determination that Ofcom makes for resolving the dispute must be notified to the parties in accordance with section 188(7) of the Act, together with a full statement of the reasons on which the determination is based, and publish so much of its determination as (having regard, in particular, to the need to preserve commercial confidentiality) they consider appropriate to publish for bringing it to the attention of the members of the public, including to the extent that Ofcom considers pursuant to section 393(2)(a) of the Act that any such disclosure is made for the purpose of facilitating the carrying out by Ofcom of any of its functions;

(B) section 190 of the Act sets out the scope of Ofcom's powers in resolving a dispute which may, in accordance with section 190(2) of the Act, include—

- making a declaration setting out the rights and obligations of the parties to the dispute;
- giving a direction fixing the terms or conditions of transactions between the parties to the dispute;
- giving a direction imposing an obligation, enforceable by the parties to the dispute, to enter into a transaction between themselves on the terms and conditions fixed by Ofcom; and
- for the purpose of giving effect to a determination by Ofcom of the proper amount of a charge in respect of which amounts have been paid by one of the parties to the dispute to the other, giving a direction, enforceable by the party to whom sums are to

be paid, requiring the payment of sums by way of adjustment of an underpayment or overpayment;

(C) on 18 March 2008 H3G submitted the Disputes regarding the current method of charging mobile call termination rates where calls are routed to a ported number;

(D) H3G has sought a determination from Ofcom-

"*that the terms of its Interconnect Agreements with each of the other Mobile Network Operators should be amended to incorporate a reasonable method of charging the recipient mobile call termination rate for calls routed to a ported number and that monies should be paid to H3G in line with this proposed amendment with effect from either May 2003 (the date H3G first informed Ofcom that the current method of charging MCT for calls to ported numbers did not reflect the costs incurred by the recipient network) or the date H3G first raised a dispute with an MNO*";

(E) on 14 April 2008, Ofcom accepted the Disputes for resolution. Ofcom subsequently announced that consideration of the Disputes would be suspended pending the outcome of the MCT Appeals to the CAT. Following publication of the CAT's judgments on the MCT appeals, Ofcom reopened consideration of the Disputes;

(F) after receiving the views of the Parties, Ofcom decided pursuant to section 186(2) of the Act that it was appropriate for it to handle the Disputes and informed the parties of this decision. Ofcom set the scope of the issues in dispute to be resolved as follows-

"…to determine whether the method of charging mobile call termination ('MCT') rates where calls are routed to a ported number under the respective Interconnect Agreements between H3G and each of O2, Orange, T-Mobile and Vodafone is fair as between the parties and reasonable from the point of view of Ofcom's regulatory objectives."

(G) in order to resolve the Disputes, Ofcom has considered (among other things) the information provided by the parties and Ofcom has further acted in accordance with its general duties set out in section 3 of, and the six Community requirements set out in section 4 of, the Act;

(H) A fuller explanation of the background to the Disputes and Ofcom's reasons for making this Determination is set out in the explanatory statement accompanying this Determination; and

NOW, therefore, Ofcom makes, for the reasons set out in the accompanying explanatory statement, this Determination for resolving these disputes—

I Declaration of rights and obligations, etc.

1 It is hereby declared that it was reasonable for each of Everything Everywhere, Orange, O2, T-Mobile and Vodafone to reject H3G's request that the charging arrangements for calls to ported numbers be changed, and so they should each continue to do business with H3G on the terms and conditions that have applied so far until they agree otherwise.

II Binding nature and effective date

2 This Determination is binding on H3G and each of Everything Everywhere, Orange, O2, T-Mobile and Vodafone in accordance with section 190(8) of the Act.

3 This Determination shall take effect on the day it is published.

III Interpretation

4 For the purpose of interpreting this Determination—

a) headings and titles shall be disregarded; and

b) the Interpretation Act 1978 shall apply as if this Determination were an Act of Parliament.

5 In this Determination—

a) **"the CAT"** means the Competition Appeal Tribunal;

b) **"the Act"** means the Communications Act 2003 (c.21);

c) **"Everything Everywhere"** means Everything Everywhere Limited, whose registered company number is 02382161 and registered company address is Hatfield Business Park, Hatfield, Hertfordshire, AL10 9BW , and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.

d) **"H3G"** means Hutchison 3G UK Limited, whose registered company number is 03885486 and registered company address is Star House, 20 Grenfell Road, Maidenhead, Berkshire SL6 1EH, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006;

e) **"the MCT appeals"** mean *Hutchison 3G UK Limited v. Ofcom* [2008] CAT 11; *BT Telecommunications plc v. Ofcom* [2009] CAT 1; and *Hutchison 3G UK Limited and British Telecommunications plc v. Ofcom* [2009] CAT 11;

f) **"O2"** means Telefonica O2 UK Limited, whose registered company number is 01743099 and registered company address is 260 Bath Road, Slough, Berkshire SL1 4DX, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006;

g) **"Orange"** means Orange Personal Communications Services Limited, whose registered company number is 02178917 and registered company address is St James Court, Great Park Road, Almondsbury Park, Bradley Stoke, Bristol BS32 4QJ, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006;

h) **"Ofcom"** means the Office of Communications;

i) **"the other Mobile Network Operators"** means all of O2, Orange, T-Mobile and Vodafone;

j) **"the parties"** means all of Everything Everywhere, H3G, O2, Orange, T-Mobile and Vodafone;

k) **"T-Mobile"** means T-Mobile (UK) Limited whose registered company number is 02382161 and registered company address is Hatfield Business Park, Hatfield, Hertfordshire, AL10 9BW, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006; and

l) **"Vodafone"** means Vodafone Limited, whose registered company number is 01471587 and registered company address is Vodafone Limited, Vodafone House, The Connection, Newbury, Berkshire RG14 2FN, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 1159 of the Companies Act 2006.

Neil Buckley, Director of Investigations
A person duly authorised in accordance with paragraph 18 of the Schedule to the Office of Communications Act 2003
24 September 2010

Annex 2

Technical Annex

A2.1 This Annex explains our quantitative analysis in detail. It presents the inputs to our analysis, the calculations involved to quantify each effect and presents results. Section A describes the inputs we have used. Section B explains how we have calculated each MNO's cost recovery across ported-in and non-ported termination calls. Section C explains how we have quantified the financial impact of a change in regime. Section D compares H3G's quantitative estimates of the financial impact of the "donor pays" regime with our own estimates of the same effects. Section E explains how we have quantified the asymmetric regulation effect.

Section A: Inputs

Volumes

A2.2 We requested quarterly call minute volume data for the period Q1 2003/2004 – Q2 2009/2010 from the Parties through formal information requests. We obtained data from the Parties on:

2.2.1 the volume of call minutes that H3G onward-routed to other MNOs, split per RNO; and

2.2.2 the volume of call minutes terminated on H3G's numbers, showing the split between those terminated on the H3G network and those on each national roaming partner.

A2.3 The volume of call minutes that were terminated on numbers for which the MNO is the range holder and the TNO i.e. call minutes which are directly routed to non-ported numbers, split by ONO.

A2.4 The Parties stated that due to the nature of their record systems they are unable to identify the ONO where the ONO does not have a direct interconnect with the TNO. The non-ported minutes from ONOs which are transited via a third party operator are included in the call minutes from fixed network operators so the non-ported minutes from fixed network operators are overstated and the non-ported minutes from MNOs are understated.

A2.5 In addition we obtained further volume data from H3G on:

2.5.1 the volume of call minutes that H3G onward-routed to other MNOs, split per RNO; and

2.5.2 the volume of call minutes terminated on H3G's numbers, showing the split between those terminated on the H3G network and those on each national roaming partner.

A2.6 For the prospective period, we forecast volumes for the period Q3 2009/2010 – Q4 2010/2011. We assume that the quarterly growth rate in volumes of minutes from Q3 2009/2010 onwards is equal to the quarterly growth rate in the corresponding quarter in the previous year e.g. the quarterly growth rate in volumes in Q3 2009/2010 is forecast equal to the quarterly growth rate in Q3 2008/2009.

Revenues

A2.7 Our cost recovery assessment looks at the revenues made on calls to ported numbers as well as revenues made across all terminated calls.

A2.8 For calls terminated to non-ported numbers, each MNO gets its own termination rate, which varies by ToD. For calls terminated on ported numbers we know that the MNOs' revenues are determined by Interconnect Agreements at the DNO's termination rate. For the purpose of our cost recovery assessment we considered the following potential estimates for the MNOs' termination rates:

2.8.1 the actual termination rates set by the MNOs, which are known to vary by ToD; and

2.8.2 the MNOs' TACs which are set by the charge control and represent a weighted average of the ToD termination rates if these vary by ToD.

A2.9 We are minded to rely on the other MNOs' TACs as a proxy for the termination rate to ported numbers because it is simpler and faster to implement and there seems to be no compelling reason to use a more disaggregated calculation of prices and volumes by ToD. We are aware however that this simpler approach could introduce some inaccuracies. This would depend on the extent to which the average calculations differ from the disaggregated, ToD analysis.

A2.10 One potential source of inaccuracy would be the difference between the actual ToD mix of the relevant traffic and the weights used in the derivation of the Average Interconnection Charge ("AIC") used to assess the compliance of each MNO with its TAC as set by the MCT Charge Controls. Another source of discrepancy would lie in the strategies used by some MNOs involving frequent and significant changes in their ToD termination rates to take advantages of the mechanics of the charge control to increase their revenues while still complying with it.[185] In the interests of simplicity, we have not investigated the materiality of these potential inaccuracies, but do not expect that they would be sufficiently large to alter our conclusions.

A2.11 The TACs for termination of calls on 2G networks only in 2005/2006 and 2006/2007 were specified in the 2005 Mobile Voice Call Termination Statement.[186] Charges for termination of calls terminating on 3G networks were not regulated prior to 2007. The termination rate for H3G for the period 2005/2006 – 2006/2007 Q2 is taken from the CAT's judgment in *T-Mobile and others v. Ofcom* [187] (and was 10.7ppm).

[185] [✂] refers to this phenomenon when discussing the financial impact of a change of regime and calls for ToD analysis to avoid the risks of not capturing the implications of these termination rates changes.
[186] http://www.ofcom.org.uk/consult/condocs/wholesale/wmvct_statement/statement.pdf
[187] [2008] CAT 19, paragraphs 87 and 88.

A2.12 The termination rate of 10.7ppm also applied in October 2006, the 1st month of 2006/2007 Q3. In its judgment in *T-Mobile and others v. Ofcom* , the CAT determined that "*in relation to the dispute between BT and H3G, OFCOM should resolve the dispute by setting the average MCT rate at 9.64ppm for the period 1 November 2006 and 31 March 2007*".[188] The rate we have used for 2006/2007 Q3 is a weighted average of the rate which applied in October 2006, and the rate which applied in November and December 2006. We have used the number of days in October divided by the number of days in Q3 as the weight for the rate which applied in October 2006 since volume data was not provided on a monthly basis.[189]

A2.13 TACs for the period 2007/2008 – 2010/2011 were specified in the 2007 Mobile Call Termination Statement.[190] However, following BT's successful appeal of the MCT Charge Controls, in particular the CC's *Mobile phone wholesale voice termination charges* Determination the TACs for the period from the date of the associated CAT judgments in the MCT Appeals (see paragraphs 1.6-1.7 above) until the end of the charge control were revised. Ofcom implemented the revised rates in the document "Mobile Call Termination: Adoption of Revised SMP Services Conditions following the CAT's Directions of 2 April 2009" (also published on 2 April 2009).[191] We have used the original TACs set in the March 2007 Statement for the period 2007/2008 – 2008/2009 and the amended TACs as set out in the Amendment to SMP Service Conditions for the period 2009/2010 – 2010/2011.

A2.14 The nominal TAC for 2009/2010 is specified in the Amendment to SMP Service Conditions and the method for calculating the nominal TAC for 2010/2011 is set out in paragraphs A2.25-A2.27. The calculation is below, where X is the controlling percentage in nominal terms (specified in the document), and retail price index ("RPI") is the actual RPI inflation rate in the year ending December 2009.

$$TAC^{2010/2011} = TAC^{2009/2010} * (1+RPI-X)$$

A2.15 Table 1 below reports the figures we derived as estimates of H3G's average revenues from terminating call minutes to non-ported numbers and to ported numbers as well as H3G's average revenues across all terminated call minutes.

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188 [2008] CAT 19, paragraph 93.

189 Weighting by number of days in the quarter for each month is a reasonable proxy if traffic did not vary significantly across the months in the quarter.

190 http://www.ofcom.org.uk/consult/condocs/mobile_call_term/statement/statement.pdf

191 http://www.ofcom.org.uk/consult/condocs/mobile_call_term/statement/CTMAmendment2009final.pdf

Table 1: H3G's average revenue per minute from call termination in pence per minute (nominal terms)

	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011
Ported-in numbers	[6.0-7.0]	[6.0-7.0]	[5.0-6.0]	[4.0-5.0]	4.4
Non-ported numbers	10.3	9.1	8.1	5.8	4.8
All terminated calls	[9.0-10.0]	[8.0-9.0]	[7.0-8.0]	[5.0-6.0]	[4.4-4.8]

Costs

A2.16 We have estimated the efficient unit costs of voice call termination by using the 2007 Mobile Call Termination (MCT) cost model, adjusted by the *Mobile phone wholesale voice termination charges* Determination in 2009. This is the cost model that was used in 2007 to set the charge controls for MCT.[192] While the cost modelling for the charge control was used to derive efficient charges for 2010/11, we have been able to derive termination costs on a consistent basis for the period 2004/05 to 2010/11. This is because the MCT cost model is a long run model that considers lifetime network costs.[193]

A2.17 The calculation of these costs needs to take account of BT's successful appeal of the MCT Charge Controls, in particular the *Mobile phone wholesale voice termination charges* Determination and the CAT's judgment. Amongst other things, the CC decided[194] that the cost of call termination using 3G technology should not be greater than the cost of termination using 2G technology, given that the two are near-perfect substitutes, and that 3G is the more efficient technology.

A2.18 The effect of the *Mobile phone wholesale voice termination charges* Determination is that the appropriate estimate of efficient termination costs for all operators – represented by their charge control level - is determined to a large extent by the *network* costs of call termination using *2G* technology. More precisely, H3G's efficient costs of MCT will be based on the efficient costs of MCT on the 2G networks of 2G/3G operators, even though H3G itself only uses 3G technology.

A2.19 This starting point – the efficient unit cost of MCT on the 2G network of a 2G/3G combined operator - is a direct output of the MCT cost model.[195] To reconcile the

[192] The charge controls applied to the five national mobile network operators (O2, Vodafone, Orange, T-Mobile and H3G) for a four year period to the end of March 2011. A full explanation of the MCT cost model can be found in the MCT Statement (see Annex 2 in particular): http://www.ofcom.org.uk/consult/condocs/mobile_call_term/statement/statement.pdf
[193] The model is built to consider costs and service volumes from 1990/91 through to 2039/40.
[194] http://www.catribunal.org.uk/files/CC_Determination_1083_H3G_1085_BT_220109.pdf
[195] For the avoidance of doubt, we use a medium traffic scenario, as per the CC Determination. For simplicity, in the calculation for the purpose of the Disputes we have assumed that O2 and Vodafone have the same efficient cost of termination throughout the retrospective period as Orange and T-Mobile. In earlier years the level of regulated termination rates reflected the view that the efficient costs of Orange and T-Mobile were higher because, unlike O2 and Vodafone, they did not have access to lower-frequency 900MHz spectrum. In the March 2007 MCT Statement we decided to remove this differential in

output of the network cost model with the revised charge control level (i.e. the level determined by the CC, and accepted by the CAT on appeal) for a 2G/3G combined operator in 2010/11, the only adjustment that is necessary is the addition of an allowance for non-network costs (in particular, a contribution to administration costs). As per the 2007 charge control for MCT (and the CC Determination), the mark-up for a 2G/3G combined operator in 2010/11 is 0.3ppm, compared with 0.4ppm for a 3G-only operator (in real terms, 2006/7 prices).[196] We assume that this figure is constant in real terms in earlier years.

Table 2: Derivation of a 2G/3G combined operator's efficient unit costs of call termination from the 2007 MCT cost model (in real terms, 2006/7 prices)

		2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Starting point for 2G Cap 2G/3G operator 1800MHz, Medium Demand, 2G component	A	5.5	5.0	4.7	4.3	4.1	3.9	3.8	3.7
Assumption for 2G/3G operator Non-network Costs	B	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
2G/3G operator Total Costs **(Rounded)** **= A+B**		**5.8**	**5.3**	**5.0**	**4.6**	**4.4**	**4.2**	**4.1**	**4.0**

A2.20 For the total cost estimates, we round results to one decimal place to avoid any implication of spurious degrees of accuracy. This approach is consistent with the 2007 MCT Charge Controls, where we set target average charges and 'controlling

termination rates over the course of the four-year charge control period. This means that, in the years of the retrospective period, our calculations here show an apparently larger excess over efficient costs for Orange and T-Mobile than for O2 and Vodafone, which reflects their higher TACs.

[196] See March 2007 MCT Statement, paragraph A15.109 (http://www.ofcom.org.uk/consult/condocs/mobile_call_term/statement/statement.pdf).

percentages' (i.e. the Xs in the annual RPI-X adjustments to the charge control) to one decimal place.[197]

A2.21 For H3G (the 3G-only operator), the process to derive efficient costs is slightly more complex. One effect of the Mobile phone wholesale voice termination charges Determination was to recognise that H3G, as a new entrant, would have higher network unit costs than other operators, and that an allowance for this was appropriate within its regulated termination charges.

A2.22 The starting point for calculating efficient MCT costs for the 3G-only operator is identical to that of the 2G/3G combined operator: i.e. the efficient cost of MCT on the 2G network of a 2G/3G combined operator. The additional allowance for network costs is then found by calculating the difference between:

2.22.1 efficient costs of MCT on the (3G) network of the 3G-only operator using a zero value for 3G spectrum[198]; and

2.22.2 efficient costs of MCT on the 3G network of a 2G/3G combined operator using a zero value for 3G spectrum.

A2.23 Both of these cost estimates are direct outputs of the MCT cost model. The difference between them is added to the starting point to establish the efficient network costs for a 3G-only operator.

A2.24 Once again, to reconcile this level with the charge control level, we must add an allowance for non-network costs. The mark-up for a 3G-only operator is 0.4ppm (in 2006/2007 prices).

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[197] See MCT Statement, Annex 20 and paragraph 10.50 (http://www.ofcom.org.uk/consult/condocs/mobile_call_term/statement/statement.pdf).
[198] We use a zero value for 3G spectrum in order to isolate physical network cost differences.

Table 3: Derivation of a 3G-only operator's efficient unit costs of call termination from the 2007 MCT cost model in real terms (2006/7 prices)

		2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Starting point for 2G Cap 2G/3G operator 1800MHz, Medium Demand, 2G component	A	5.5	5.0	4.7	4.3	4.1	4.0	3.8	3.7
Additional allowance for the 3G-only operator									
3G-only operator, Medium Demand, zero spectrum value	B	8.0	6.5	5.4	4.1	3.6	3.3	3.1	2.9
2G/3G operator 1800MHz, Medium Demand, zero spectrum value, 3G component	C	NA	4.3	3.9	3.4	3.2	3.0	2.9	2.7
Additional allowance for the 3G-only operator = B - C	D	NA	2.2	1.5	0.7	0.4	0.3	0.2	0.2
3G-only operator Total Network Costs = A+D	E		7.2	6.2	5.0	4.5	4.2	4.0	3.9
Assumption for 3G-only operator Non-network Costs	F		0.4	0.4	0.4	0.4	0.4	0.4	0.4
3G-only operator Total Costs **= E + F (Rounded)**			**7.6**	**6.6**	**5.4**	**4.9**	**4.6**	**4.4**	**4.3**

A2.25 The 2007 MCT cost model expresses the efficient unit cost estimates in real terms, in 2006/2007 prices. As the revenues from call termination (the TACs) are expressed in nominal terms and the cost estimates are in real terms we have converted the cost estimates into nominal terms so that the revenues and costs are comparable.

A2.26 We constructed a price index based on the RPI annual inflation rate.[199] For the prospective period where actual RPI inflation rates are not available we used the Treasury's consensus inflation forecast.[200] As the MCT cost model calculates the efficient cost estimates as average costs over the year we have used the average RPI index over the financial year[201] to represent the price index in any given year. We have normalised the index so that the value of the index for 2006/2007 is equal to 1.

A2.27 H3G terminates calls on its own network as well as on those of its national roaming partners. Since the cost of terminating calls is likely to differ among these networks, we built an effective efficient MCT cost estimate for H3G that reflects this reality. This is done by calculating a weighted average of H3G's efficient MCT cost and a proxy for the national roaming charges paid to its national roaming partners.

A2.28 The description of the steps followed to derive an estimate of H3G's efficient network costs in each year is above.

A2.29 As regards the MCT costs incurred by H3G for calls terminated via national roaming partners, we considered the following options for deriving an estimate of these costs:

2.29.1 the actual cost to H3G of national roaming usage on a ppm basis;

2.29.2 the efficient MCT cost of national roaming partners as proxied by the estimates for a 2G network derived from the 'adjusted' 2007 MCT cost model; and

2.29.3 the roaming partner network's TACs as a proxy for the cost to H3G of purchasing national roaming services.

A2.30 Although the first option would appear to be the most obvious one, we decided in the context of the Disputes not to rely on it for two reasons. First, this estimate would not capture the costs associated with the implementation of national roaming and hence might understate the true costs to H3G. Second, this cost data is not available in the public domain. We would, therefore, have had to gather it through formal powers. This would have increased the regulatory burden for the concerned parties and might have required additional time. We thought that this would be disproportionate in the context of the Disputes given our commitments to minimise the information burden on stakeholders and to resolve the Disputes in an expeditious manner.

A2.31 We did not adopt the second option because the national roaming partners' efficient MCT estimates as derived from the 'adjusted' 2007 MCT cost model might not necessarily represents the price actually paid by H3G for national roaming.

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[199] http://www.statistics.gov.uk/downloads/theme_economy/Rp04.pdf
[200] http://www.hm-treasury.gov.uk/d/201001forcomp.pdf
[201] There are a number of potential price indices we could use to convert the efficient cost estimates into nominal terms. We have constructed a price index which reflects the fact that costs are incurred over the financial year. The impact of adopting a different inflation rate for conversion of the efficient cost estimates into nominal terms is small.

A2.32 Our preference is to rely on the national roaming partners' TACs for simplicity and because it is conservative. It is simple to implement because TAC figures are publicly available yearly figures. The approach is conservative for two reasons. First, TACs are set on the basis of glide paths which are above cost. Second, roaming services are offered in a more competitive environment than termination generally with potentially four networks bidding for providing the services. Moreover all the additional volumes that a partner would carry over its network due to national roaming are likely to generate economies of scale for the partners and this may have been taken into account in the commercial negotiations. As a result we would expect pricing to be keener than for MCT when sold to ONOs in a monopoly market.

A2.33 We anticipate that the use of TACs as an estimate for national roaming costs is more likely to overstate than understate H3G's national roaming costs. This appears to be a reasonable compromise given that we are not separately estimating its national roaming implementation costs.

A2.34 [✄]. Our sensitivity analysis confirms that the conclusions on cost recovery do not depend critically on the assumption we make on H3G's national roaming cost.

A2.35 The effective efficient cost estimates are shown for each of the operators in Table 4 below.

Table 4: Effective efficient cost estimates in pence per minute (nominal terms)

	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011
H3G	[5.0-6.0]	[5.0-6.0]	[5.0-6.0]	[4.0-5.0]	[4.0-5.0]
O2	4.6	4.6	4.5	4.4	4.5
Orange	4.6	4.6	4.5	4.4	4.5
T-Mobile	4.6	4.6	4.5	4.4	4.5
Vodafone	4.6	4.6	4.5	4.4	4.5

Section B: Efficient cost recovery

A2.36 The efficient cost recovery assessment involves comparing effective revenues with effective efficiently incurred costs for calls terminated on ported-in and non-ported numbers. The margin which a RNO receives on each call minute terminated on a ported-in number is equal to the TAC of the DNO minus the efficient cost of the RNO.

A2.37 As we are focusing on those calls in which H3G is a party, we only include calls to numbers ported-in from H3G in the 2G/3G MNOs' cost recovery assessment, whereas for the H3G cost recovery assessment we include calls to numbers ported-in from each of the four 2G/3G MNOs.

A2.38 The margin which a TNO earns on each call minute terminated on a non-ported number is the TNO's TAC minus the efficient cost of terminating the call.

A2.39 The calculations used to produce the pence per minute margin on each call type are summarised in Table 5 below, where TAC^{DNO} is the TAC of the DNO and C^{RNO} is the effective efficient call termination (CT) cost of the recipient/terminating network operator, Q_i^P is the volume of call minutes ported in from donor i, Q^P is the total volume of minutes terminated on a ported-in number, Q^{NP} is volume of call minutes to ported numbers and Q^T is the total volume of terminated minutes.[202]

Table 5: Pence per minute efficient cost recovery calculations

	Type of call	Calculation
A	Calls to ported-in numbers	H3G : $\sum_{DNO1DNO4} (TAC\ i - C^{H3G}) * \frac{Q_i^P}{Q^P})$ 2G/3G MNOs: $TAC^{H3G} - C^{2G/3G}$
B	Calls to non-ported numbers	$TAC^{TNO} - C^{TNO}$
C	Across all terminated calls	$A * \frac{Q^P}{Q^T} + B * \frac{Q^{NP}}{Q^T}$

A2.40 To calculate the total margin (in £millions) earned on ported-in numbers we multiply the pence per minute margins on calls to ported-in numbers by the volume of ported-in call minutes and divide by 100,000,000 to convert the units from pence to £millions. For H3G we quantify the total margin on numbers ported-in from each of the other four MNOs, whereas for the 2G/3G MNOs we only quantify the cost recovery on numbers ported in from H3G. The relevant volumes for the 2G/3G cost assessment are the volume of minutes ported-in from H3G to the RNO.

A2.41 The pence per minute margin on calls to non-ported numbers does not vary by ONO, so the total margin (in £millions) earned on non-ported numbers is the total number of non-ported minutes multiplied by the pence per minute margin, with units converted from pence to £millions. As discussed above, the MNOs were unable to supply an accurate break-down of non-ported traffic by ONO. For this reason we report the aggregate cost recovery for non-ported traffic across all ONOs.

[202] The following therefore holds: $Q^T = Q^P + Q^{NP}$

Table 6: Cost recovery in £millions

	Type of call	Calculation
D	Calls to ported-in numbers	H3G: $\frac{\sum_{DNO1}^{DNO4} (\mathrm{TAC}_{\mathrm{i}}^{\mathrm{DNO}} - \mathrm{C}^{\mathrm{H3G}}) * \mathrm{Q}_{\mathrm{i}}^{\mathrm{P}})}{100{,}000{,}000}$ 2G/3G MNOs: $\frac{(\mathrm{TAC}^{\mathrm{H3G}} - \mathrm{C}^{2\mathrm{G}/3\mathrm{G}}) * \mathrm{Q}_{\mathrm{H3G}}^{\mathrm{P}}}{100{,}000{,}000}$
E	Calls to non-ported numbers	$\frac{(\mathrm{TAC}^{\mathrm{TNO}} - \mathrm{C}^{\mathrm{TNO}}) * \mathrm{Q}^{\mathrm{NP}}}{100{,}000{,}000}$
F	Across all terminated calls	D+E

A2.42 The TAC for each MNO was set to be equal to the forecast efficient cost estimate in 2010/2011. As noted in paragraphs 6.104, 6.105 and 6.113 above, our analysis shows a small but non-zero margin on calls to non-ported numbers in 2010/2011. There are two reasons for the TAC being slightly different from efficient cost estimates in 2010/2011:

2.42.1 Differences in price indexation: We have used the average RPI index over the financial year to convert the efficient cost estimates from real to nominal terms whereas the price index used to calculate the year-on-year percentage change in TACs is the RPI inflation rate in the year ending in December in the preceding financial year.

2.42.2 Forecast error in the geometric adjustment factor: In deriving the controlling percentages (X) in the March 2007 Statement, which are used in the RPI-X formulation to calculate the TACs, we adopted an assumption about the rate of inflation in order to quantify the geometric adjustment. As stated in A18.42 of the MCT Statement and A1.8 of the Amendment to SMP Services Conditions Ofcom used an expected inflation assumption of 2.8% for RPI. The actual and forecast inflation rates which we have used to convert the efficient cost estimates into nominal terms differ from 2.8%.

Section C: Financial impact of change in regime

A2.43 In assessing what financial impact a shift to alternative charging arrangements in the retrospective period would have on the Parties, we compared the D/R and R/R alternative regimes to the present D/D regime. This analysis focused on those calls that are under consideration in the Disputes, namely the calls terminated to ported numbers and to which H3G is a party. We consider the issues that would be likely to arise if these alternatives were implemented retrospectively.

A2.44 Our assessment focused on the differences in net revenues that would have resulted from a retrospective change in charging arrangements for calls to ported mobile numbers. For this quantification of the financial impact, we assumed for simplicity that traffic volumes and that patterns do not vary in response to a change in regime. This means that the MNOs are assumed to face the same efficient costs of terminating calls and that only the change in revenue need be examined. We do not expect this simplification to affect the conclusions we draw from the financial impact analysis.

A2.45 For both the D/R and R/R alternative regimes, we considered the financial impact on all MNOs in their role as ONO, DNO and RNO. The total financial impact on an MNO is therefore the sum of the financial impacts on that MNO as ONO, DNO and RNO. However we only considered calls in which H3G is part of the call.

Table 7: Financial impact of changing regime in £millions

	From D/D to D/R	From D/D to R/R
ONO	Q^{P} (TAC^{DNO} – TAC^{DNO}) = 0	Q^{P} (TAC^{RNO} – TAC^{DNO}) / 100,000,000
DNO	Q^{PO} (TAC^{DNO} – TAC^{RNO}) / 100,000,000	Q^{PO} (TAC^{RNO} – TAC^{RNO} –TAC^{DNO} + TAC^{DNO}) = 0
RNO	Q^{P} (TAC^{RNO} – TAC^{DNO}) / 100,000,000	Q^{P} (TAC^{RNO} – TAC^{DNO}) / 100,000,000

Retrospective period

The D/R alternative regime

A2.46 The position of each of the Parties under a D/R regime is as follows

A2.47 The ONO would keep paying the same termination rate and would not face any change in expenditure;

A2.48 The DNO would still receive its own termination rate but would pay the recipient termination rate instead of passing on its own. Depending on how these two termination rates compare, the DNO may be worse or better off as a result of a shift to a D/R regime. It would be worse (or better) off on each call it onward routed when its own termination rate is lower (or higher) than the recipient termination rate.

A2.49 The RNO would receive its own termination rate instead of the donor termination rate. Again depending on how these two termination rates compare, the RNO may be worse or better off as a result of the change in regime. It would be worse (or better) off on each call it receives when its own termination rate is lower (or higher) than the donor termination rate.

A2.50 For each year and each MNO, we have estimated by how much MCT revenues (in £millions), would vary as a result of a change to a D/R regime. The focus is on calls to which H3G is a party, either as donor or recipient.

A2.51 Table 8 shows the overall difference in revenues for each MNO of moving to a D/R regime from the D/D regime (i.e. the net effect of its roles as DNO and RNO, on calls to ported-in and ported-out numbers involving H3G).

Table 8: Overall financial impact of a change to D/R alternative regime in £millions (nominal terms)

	2006/2007	2007/2008	2008/2009	2009/2010
H3G	[30-40]	[30-40]	[30-40]	[10-20]
O2	[-10 to 0]	[-10 to -20]	[-10 to 0]	[-10 to 0]
Orange	[-10 to 0]	[-10 to 0]	[-10 to 0]	[-10 to 0]
T-Mobile	[-10 to 0]	[-10 to 0]	[-10 to 0]	[-10 to 0]
Vodafone	[-10 to 0]	[-10 to 0]	[-10 to 0]	[-10 to 0]
Total*	0	0	0	0

Source: Ofcom

A2.52 As the financial impact of the change to D/R regime on the ONO is zero, we only quantify the financial impact of a change to D/R on the DNO and RNO. The overall financial impact in £millions is simply the sum of the financial impacts on the MNO as a DNO and an RNO. The financial impact on each MNO as DNO and RNO is shown in £millions in the following tables.

Table 9: Impact on DNO of change to D/R alternative regime in £millions (nominal terms)

	2006/2007	2007/2008	2008/2009	2009/2010
H3G	[0-10]	[0-10]	[0-10]	[0-10]
O2	[-10 to 0]	[-10 to 0]	[-10 to 0]	[-10 to 0]
Orange	[-10 to 0]	[-10 to 0]	[-10 to 0]	[-10 to 0]
T-Mobile	[-10 to0]	[-10 to 0]	[-10 to 0]	[-10 to 0]
Vodafone	[-10 to 0]	[-10 to 0]	[-10 to 0]	[-10 to 0]
Total	[-30 to -20]	[-20 to -10]	[-20 to -10]	[-10 to 0]

Table 10: Impact on RNO of change to D/R alternative regime in £millions (nominal terms)

	2006/2007	2007/2008	2008/2009	2009/2010
H3G	[20-30]	[20-30]	[20-30]	[10-20]
O2	[-10 to 0]	[-10 to 0]	[-10 to 0]	[-10 to 0]
Orange	[-10 to 0]	[-10 to 0]	[-10 to 0]	[-10 to 0]
T-Mobile	[-10 to 0]	[-10 to 0]	[-10 to 0]	[-10 to 0]
Vodafone	[-10 to 0]	[-10 to 0]	[-10 to 0]	[-10 to 0]
Total	[20-30]	[10-20]	[10-20]	[0-10]

The R/R alternative regime

A2.53 The position of each of the networks under an R/R alternative regime is set out below:

2.53.1 The ONO would pay the RNO's termination rate to the DNO. Depending on how these two termination rates compare, the ONO may be worse or better off as a result of the change in regime. It would be worse (or better) off on each call to a ported number for which the donor termination rate is lower (or higher) than the recipient termination rate.

2.53.2 The DNO would receive the recipient termination rate and pass it to the RNO. Hence a shift to an R/R alternative regime would be neutral as regards its impact on the DNO: even though it would receive and pay out amounts that differ from those under a D/D regime they would balance out.

2.53.3 The RNO would receive its own termination rate instead of the donor termination rate. Again, depending on how these two termination rates compare, the RNO may be worse or better off as a result of the change in regime. It would be worse (or better) off if its own termination rate were lower (or higher) than the donor termination rate.

A2.54 For each year and for each MNO we estimate by how much the MCT revenues (in £millions) would vary as a result of a change in regime for the termination rate applied to ported numbers. Again the focus is on calls to which H3G is a party.

A2.55 Since the RNO would receive the same termination rate under both a D/R and an R/R regime, our estimates of the financial impact on the RNO of a change to the R/R regime are the same as for the D/R regime (given our assumption of unchanged volumes). The impact on ONOs can only be calculated in aggregate as we do not have the required data to provide a split across ONOs.

Prospective period

A2.56 For each alternative regime and for each MNO we have estimated the changes in termination rates (in ppm) and in termination revenues (in £m) in 2010/2011.

A2.57 Table 11 below summarises the outcome of the financial impact analysis in the case of a change of regime, on a ppm basis. Since the changes in termination rates received by RNOs are the same whether the shift is to D/R or R/R, it is reported only once, namely in the first column. In the second column, we report the impact on the DNO under D/R. We do not report: i) the impact on DNO resulting from a shift to R/R as we know that the shift from D/D to R/R is financially neutral for them; or ii) the impact on the ONOs that a shift to R/R would generate because of a lack of data.

Table 11: Outcome of our financial impact analysis of a change of regime for termination rates for calls to ported numbers, for the year 2010/2011 in pence per minute (nominal terms)*

	Impact on RNO if change to R/R	Impact on DNO if change to D/R
H3G	0.3	0.3
O2	-0.3	-0.3
Orange	-0.3	-0.3
T-Mobile	-0.3	-0.3
Vodafone	-0.3	-0.3

Source: Ofcom

A2.58 The Table 11 above shows that a shift to charging arrangements based on the recipient paid principle in 2010/2011 would imply that as RNO, H3G will get 0.3ppm more on each call minute to a ported number whereas other MNOs will receive 0.3ppm less on each call minute to a number that ported away from H3G into their network. It also shows that a shift to a D/R regime would mean that as a DNO H3G would have to pay 0.3ppm less on each call minute that it onward-routes to a ported-out number. Conversely, as DNO, the other MNOs would have to pay 0.3ppm more on each ported-out minute.

A2.59 Table 12 below reports the impact of a change of regime on each MNO on a £millions basis. We quantify the impact as RNO for a change to either regime, the impact as DNO for a shift to the D/R regime only (as a shift to R/R is neutral for DNOs), and the total impact for MNOs resulting from a change to the D/R regime (as it is neutral for ONOs).

Table 12: Outcome of our financial impact analysis of a change of regime for termination rates for calls to ported numbers, for the year 2010/2011 in £millions*

	Impact on MNO as RNO if change to D/R or R/R	Impact on MNO as DNO if change to D/R	Total impact on MNOs if change to D/R
H3G	[0-10]	[0-10]	[0-10]
O2	[-10 to 0]	[-10 to 0]	[-10 to 0]
Orange	[-10 to 0]	[-10 to 0]	[-10 to 0]
T-Mobile	[-10 to 0]	[-10 to 0]	[-10 to 0]
Vodafone	[-10 to 0]	[-10 to 0]	[-10 to 0]
Total	[0-10]	[-10 to 0]	0

**Totals may not sum due to rounding*

Source: Ofcom

Section D: H3G own submission on financial impact

A2.60 In a letter sent to Ofcom on 14 August 2009 H3G quantified the financial impact of the "donor pays" regime in which the RNO receives the DNO's termination rate compared with the "recipient pays" regime in which the RNO receives its own termination rate. H3G quantified the underpayments to H3G for calls to numbers ported in to H3G, the overpayments from H3G for calls to numbers ported out from H3G, and the overpayments from originators for calls to numbers ported out from H3G from January 2004 to June 2009, compared to H3G's preferred charging regime.

A2.61 In a letter sent to Ofcom on 9th November 2009 H3G explained how the quantitative estimates of the above effects were calculated. It is this revised submission which we refer to below. The revised submission which accompanied the letter refined the inputs to the analysis, namely:

2.61.1 extraction of national roaming minutes from minutes received over O2 and Orange interconnections; and

2.61.2 corrections to Vodafone's and Orange's termination rates.

A2.62 The calculations used in the quantification of each effect can be summarised in Table 13 below where Q_i^P is the volume of minutes to numbers ported in to H3G from donor i, and Q_i^{PO} is the volume of minutes to numbers ported *out* from H3G to recipient i.

Table 13: H3G's quantification of financial impact of "donor pays" regime in £millions (nominal terms)

	Financial Impact in £millions	Calculation
A	Underpayments to H3G	$\frac{\sum_{DNO1}^{DNO4}(TAC^{H3G} - TAC^{DNO}) * Q_i^P}{100{,}000{,}000}$
B	Overpayments to RNOs	$\frac{\sum_{RNO1}^{RNO4}(TAC^{H3G} - TAC^{RNO}) * Q_i^{PO}}{100{,}000{,}000}$
C	Overpayments by ONOs	B * Origination proportion.

A2.63 The estimates of overpayments of termination rates by the ONO were derived by H3G in two stages.

A2.64 A proxy percentage split is applied to H3G's total ported out volume of minutes to remove those volumes that originated on its own network. Based on an internal analysis belonging to December 2008, H3G estimates that this percentage is [✂]%.

A2.65 A percentage split of origination by each interconnect partner is calculated from H3G's overall incoming traffic (excluding ported in and national roaming traffic). These percentages are then applied to the remainder of ported out minutes (after the removal of H3G originated minutes) to determine the percentage split of origination by each interconnect partner of onward routed call minutes.

A2.66 We have not attempted to quantify the overpayments by ONOs to DNOs as we lacked the required split by ONO of the data on the volume of minutes to numbers ported out from H3G. This was unavailable as the ONO is not able to identify the RNO if the call is onward routed.

A2.67 The assumptions which H3G has adopted do not accurately quantify the overpayments by ONOs as the proportion of minutes assumed to be originating on a given operator are calculated on the proportion of minutes received to H3G's non-ported numbers which are originated by that ONO. As this only includes minutes where the ONO has a direct interconnect with H3G it understates the proportion of traffic coming from MNOs which use transit, and overstates the proportion of traffic coming from fixed network operators as their traffic volumes include traffic which they are transiting for third party originating MNOs.

A2.68 Whilst the input data for the calculation of the "underpayments" and "overpayments" are similar to the ones we have used there are two main differences between the way in which we have quantified the "underpayments" to H3G and the "overpayments" from H3G.

A2.69 H3G has used the actual termination rates charged by ToD and has calculated the underpayments and overpayments split by ToD. In contrast, as explained in paragraph

1.7 above, we have conducted the analysis across all times of day because we have relied on TACs. The results of our analysis may differ from H3G's to the extent that the actual traffic split by ToD differs from the average traffic split.

A2.70 H3G has quantified the underpayments and overpayments on a monthly basis, whereas our analysis was done on a quarterly basis.

A2.71 Our own financial effects analyses are summarised in Tables 14 and 15 below.

Table 14: Comparison of H3G and Ofcom estimate of total "underpayments" to H3G in £millions, constant terms

£millions	2006/2007	2007/2008	2008/2009
H3G estimate	[30-40]	[30-40]	[20-30]
Ofcom estimate (i.e. H3G as RNO)	[20-30]	[20-30]	[20-30]

Table 15: Comparison of H3G and Ofcom estimate of total "overpayments" from H3G

£millions	2006/2007	2007/2008	2008/2009
H3G estimate	[0-10]	[0-10]	[0-10]
Ofcom estimate (i.e. H3G as DNO)	[0-10]	[0-10]	[0-10]

Section E: Asymmetric Regulation Effect

A2.72 This section outlines how we quantified the asymmetric regulation effect, which is the difference between an MNO's *effective* termination rate (after taking account of the impact of termination rates for calls to ported numbers) and its efficient cost compared to other MNOs.

A2.73 We quantify the asymmetric regulation effect under the current regime, and H3G's proposed regime in which the RNO receives its own MTR.

A2.74 We calculated the effective termination rate under the current regime as the weighted average of the termination rate a MNO receives for termination of calls to non-ported numbers and the termination rates it receives from the DNO, where the weights are given by the traffic proportions of calls to non-ported numbers, and calls ported-in, respectively. This was calculated as part of the cost recovery assessment.

A2.75 Under H3G's proposed alternative regime MNOs would receive their own MTR regardless of whether the call is terminated on a non-ported number or a ported-in number. The effective termination rate is therefore equal to the termination rate received for calls to non-ported numbers, and the cost is unchanged.