
Annex H

Fair target charge and the level of charge control

1 Structure of the charge control

H.1 As described in Chapter 6 of this explanatory statement, the Director's approach to controlling charges is to set a ceiling on the weighted average charge that an operator can levy during each year of the control. This involves identifying the fair target charge in 2005/06, the final year of the proposed control, and then calculating the appropriate percentage by which the current charge should fall each year from the average charges in 2002/03, after application of the Competition Commission's (CC's) recommended 15% reduction in July 2003 and allowing for inflation. The formula for this calculation is generally described as RPI (Retail Price Index) – X.

H.2 The Director considers that the charge control regime should last until March 2006 when it will be appropriate to undertake a subsequent review of the market. In contrast to the proposals in the May consultation, taking account of the likely date of the further Notification and final explanatory statement, the Director believes that it is now more appropriate that the duration of the charge control is reduced so that it operates over two periods rather than three as a result of removing the initial period ending 31 March 2004. Hence there are two periods over which the proposed control will be in force:

- a) 1 April 2004 to 31 March 2005 (2004/05); and
- b) 1 April 2005 to 31 March 2006 (2005/06).

H.3 As stated in the May consultation, the Director proposes that the target average charge (TAC) for the first period should be set as an absolute target in pence per minute and thus specified in terms of the RPI-X formula only for the second period of the control. The underlying intention for this adjustment to the structure of the charge controls is to allow the charges of the four operators to be aligned in two ways: firstly, it is desirable for Orange and T-Mobile to have the same TAC, reflecting the identical efficient costs that they incur as 1800MHz operators⁷⁷. Secondly, although the fair charge differs in each year for combined 900/1800MHz operators (Vodafone and O₂) and 1800MHz operators (Orange and T-Mobile), it is desirable to align the target charges of the two types of operators in this first period so that the TAC for each is the same amount above the fair charge. Alternatively stated, the Director considers it appropriate to align the target charges so that the gap between the TAC for the two types of operators equals the gap between the fair charge for each type of operator for the first period. Thus one type of operator would not have an advantage over the other which potentially might result in a distortion in retail competition.

H.4 Furthermore, the Director is concerned that consumers (callers to mobile) should not suffer as a result of any further delays in implementation. As a result of removing the initial charge control period, MNOs will be able to charge higher prices for call termination up until 31 March 2004 than would have been the case under the May consultation proposals. The Director therefore proposes that the TAC for 2004/05

⁷⁷ Currently Orange and T-Mobile have different average charges.

(stated explicitly as an absolute target in pence per minute) should be lower than would have prevailed under his previous approach in order that consumers are not disadvantaged by the delay in implementation.

1.1 Responses regarding the target charge gradient

H.5 In response to the May consultation, both Vodafone and T-Mobile expressed their concern that the charge control gradient is too steep. In particular, in paragraphs A.2.178-A.2.189 of its response, Vodafone states that the TAC gradient proposed in the May consultation is unreasonable in the context of the Director's objectives that charge reductions should be both sufficiently gradual to allow operators and customers to adjust to new levels and structures of mobile charges as well as sufficiently quick to deliver substantial benefits to consumers.

H.6 T-Mobile expresses its opinion (paragraphs 8.5-8.7 of its response) that downwards regulation of termination charges should consider the impact on prices to mobile subscribers, financial harm to operators and 3G investment.

H.7 Vodafone also submits two alternative glidepaths. However, the Director rejects both these proposals since he disagrees with Vodafone's assessment of the level of the fair charge (see Annex F for details) and does not believe that either delivers benefits to consumers sufficiently quickly. Indeed, as outlined above, the Director proposes to revise the glidepath calculation to ensure that the benefit to consumers is not reduced further as a result of delay in implementation.

H.8 As stated in the May consultation, the Director continues to believe that a glidepath is preferable to a one-off cut (sharing the CC's view expressed in paragraphs 2.530 to 2.531 of their report). However, the Director's current proposals aim to ensure that the same benefit to consumers is delivered by the glidepath as proposed in the May consultation, which was similar to the CC's recommendation.

H.9 Whilst the Director recognises that his current proposals result in a larger reduction in 2004/05 than before, this arises because of a delay in implementation. He believes that MNOs, and the market more generally, have been made sufficiently aware of his intentions (and previously the CC's) over an extended period of time. The Director is of the view that MNOs have had sufficient opportunity to anticipate the reduction in future termination revenues and accommodate these changes in their financial planning, and it would be inappropriate to disadvantage consumers by allowing higher charges to prevail for longer as a result of any further delays in implementation. The Director's view of the lack of impact on 3G investment is set out in Annex L (cost benefit analysis). Given the expectation of further regulation of mobile termination charges over the last couple of years, the Director does not believe that his proposals are likely to lead to significant disruption or damaging consequences to mobile subscribers. Whilst Vodafone correctly notes that the Director's review of September 2001 required a smooth glidepath of four equal reductions, the Director is mindful that more than two years have passed since that date, during which consumers have continued to pay significantly higher charges than envisaged in the proposals of that review, which are substantially above cost.

2 Fair target charge

H.10 The Director has noted in Chapter 5 of this explanatory statement that his proposals for regulation, including the charge control, reflect considerations of economic efficiency and the intention to maximise benefits to end-users. He refers to the wholesale termination charge which he believes best achieves these objectives as the “fair target charge”. Before determining the level of the charge control, it is first necessary to determine the fair target charge at the end of the control period. The fair target charge is based on the LRIC of termination plus two mark-ups, the first an equal proportionate mark-up for the recovery of network and non-network common costs, and the second an allowance for the network externality.

H.11 The derivation of the appropriate LRIC including the mark-up for recovery of common costs is discussed in Annex F, and the value of the network externality surcharge is addressed in Annex G. The sum of these determines the fair charge in each year as shown in pence per minute (expressed in real 2000/01 terms) in the table below.

Table 1: Fair charge in each year in pence per minute (real 2000/01 prices)

| Pence per minute (real 2000/01) | 2001/02 | 2002/03 | 2003/04 | 2004/05 | 2005/06 |
|---------------------------------|---------|---------|---------|---------|---------|
| 900/1800MHz operators | | | | | |
| LRIC+ mark up for common costs | 5.97 | 5.55 | 4.75 | 4.46 | 4.21 |
| Network externality | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 |
| Fair charge | 6.37 | 5.95 | 5.15 | 4.86 | 4.61 |
| 1800MHz operators | | | | | |
| LRIC+ mark up for common costs | 7.17 | 6.60 | 5.51 | 5.13 | 4.79 |
| Network externality | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 |
| Fair charge | 7.57 | 7.00 | 5.91 | 5.53 | 5.19 |

H.12 For the purpose of the charge control, the critical charges are the fair charges in 2005/06 which are the target charges for the final year of the control. The fair target charges of 4.61ppm and 5.19ppm (in real 2000/01 terms) for combined 900/1800MHz and 1800MHz operators respectively are similar (approximately 0.1ppm lower) to the charges for 2005/06 proposed in the May consultation, as well as those determined by CC and set out in Table 2.11 of their December 2002 report.

H.13 Regarding the difference in fair charges for combined 900/1800MHz and 1800MHz operators, as discussed in Annex F, the Director has not received compelling evidence to deviate from his previous view, stated in the May consultation. The Director therefore still agrees with the CC’s conclusion stated in paragraph 2.301 of their report that, at current traffic levels of the MNOs, both types of operators employ a similar amount of network equipment and so have similar costs. As stated in the May consultation, the difference in the fair charge reflects the difference in LRIC derived from the use of economic depreciation to obtain the path of costs over time. Under economic depreciation cost recovery is deferred from earlier years, in which utilisation was lower, to later years, in which higher levels of utilisation are experienced. This effect is more pronounced for 1800MHz networks, because the characteristics of their spectrum imply that such operators have a smaller maximum cell radius and so experience lower site utilisation in the earlier

years of their operation than the combined 900/1800 MHz operators, thus resulting in a higher fair charge in the future.

3 Calculation of X

H.14 The value of X for the charge control can be calculated from the starting charge (at the beginning of the first period) and the fair target charge (in 2005/06). The Director's approach to calculating the control is set out below:

- determine starting charge;
- calculate target average charge for 2004/05;
- calculate RPI-X for 2005/06.

3.1 Starting charge

H.15 Given that the fair target charge has been derived in real 2000/01 terms, it is more convenient to calculate the required reductions in real terms. This necessitates expressing the starting charge in real 2000/01 terms as well. The Director requested information from the MNOs in March 2003 regarding their termination charges and call volumes, enabling the average charge for 2002/03 to be calculated using 2002/03 time of day charges and 2001/02 call volumes, consistent with standard practice in previous proposed charge controls. This confirmed the average charge for combined 900/1800MHz operators to be 9.35ppm (as required by the existing price controls on Vodafone and O₂) and showed the average charge to be 11.03ppm for 1800MHz operators.

H.16 The Director has then derived current termination charges by applying the 15% real reduction implemented following the CC's recommendation. This lower level of charges has applied in accordance with the Continuation Notices given to the four MNOs on 23 July 2003, with effect from and including 25 July 2003.

H.17 Finally, the Director has expressed these starting charges (applicable in 2003/04) in real 2000/01 terms by dividing the nominal charges by the compounded RPI values for 2001/02, 2001/02 and 2003/04. The resulting figures are shown in Table 2 below.

H.18 Vodafone asserts in paragraphs A.2.163 to A.2.170 of its response that the method used to derive the starting charge in the May consultation, which is similar to the approach described above, is flawed. Vodafone claims that the Director's approach for converting the current charge in nominal terms to real 2000/01 terms by dividing by the compounded RPI factor is incorrect. Instead, Vodafone believes that the correct approach is to start with the actual target charge in 2000/01 and apply the historical RPI-X reductions with RPI set to zero, in order to derive the current charge in real 2000/01 terms.

H.19 The Director rejects Vodafone's suggestion as he continues to believe that his calculation methodology is valid. The reason why Vodafone's approach results in a different, higher, figure for the current charge expressed in real 2000/01 terms is due to a mistaken belief that a RPI-X reduction, applied to nominal charges, is identical to a real reduction of X%, applied to real charges. This is not the case, yet Vodafone

adopts this position by asserting that the correct calculation is to apply RPI-X reductions with RPI set to zero. The discrepancy arises because the RPI-X formulation treats inflation as an additive calculation, whilst applying real reductions is a true geometric calculation. Algebraically, a RPI-X reduction (applied to nominal charges) is exactly equivalent to a real reduction of X' % (applied to real charges) where $X' = X / (1+RPI)$, hence Vodafone's calculation overstates the historical real reductions. It is this amended percentage that Vodafone should have applied to its 2000/01 actual charges to derive the current charge in real 2000/01 terms. If this amendment is made, Vodafone's approach results in identical values to those calculated by the Director.

Table 2: Derivation of starting charge in real 2000/01 terms

| | 900/1800MHz operators | 1800MHz operators |
|--|-----------------------|-------------------|
| Charge in 2002/03 (nominal) | 9.35 | 11.03 |
| Charge in 2003/04 (nominal) RPI-15 reduction | 8.04 | 9.47 |
| Charge in 2003/04 (real 2000/01) ⁷⁸ | 7.53 | 8.88 |

3.2 Target average charge for 2004/05

H.20 The approach proposed in the May consultation essentially determined the level of the charge for 2004/05 by first calculating the size of three equal percentage reductions required to take the starting charge down to the fair target charge, before applying two such reductions to obtain the 2004/05 target charge. As noted above, the Director's intention is to follow the same approach but to apply an additional amendment to ensure that consumers are not disadvantaged by the delay in implementation of charge reductions after 31 March 2004.

H.21 Given the starting charge and the fair target charge, both expressed in real 2000/01 terms, it is straightforward to calculate that three real reductions of approximately 15% and 16% would be required for combined 900/1800MHz and 1800MHz operators respectively. This is the same magnitude of reduction as stated in the May consultation⁷⁹.

H.22 Under the proposals set out in the May consultation, one of these charge reductions would have applied before 31 March 2004. Under the expectation that the charge control proposed in the May consultation would have come into force at the beginning of January 2004, consumers would have benefited from these lower charges for the final quarter of 2003/04. To avoid disadvantaging consumers for the delay in implementation, the Director proposes to reduce the target charge level for the subsequent year (2004/05). A simple approach for calculating the reduction to apply to the target charge for 2004/05 is to divide the additional amount paid for mobile termination in the final quarter of 2003/04 by 4. Given that terminating call volumes per quarter are likely to be approximately constant from the final quarter of 2003/04 until the end of 2004/05⁸⁰, this ensures that the decrease in benefit to consumers resulting from paying this additional amount in the fourth quarter of

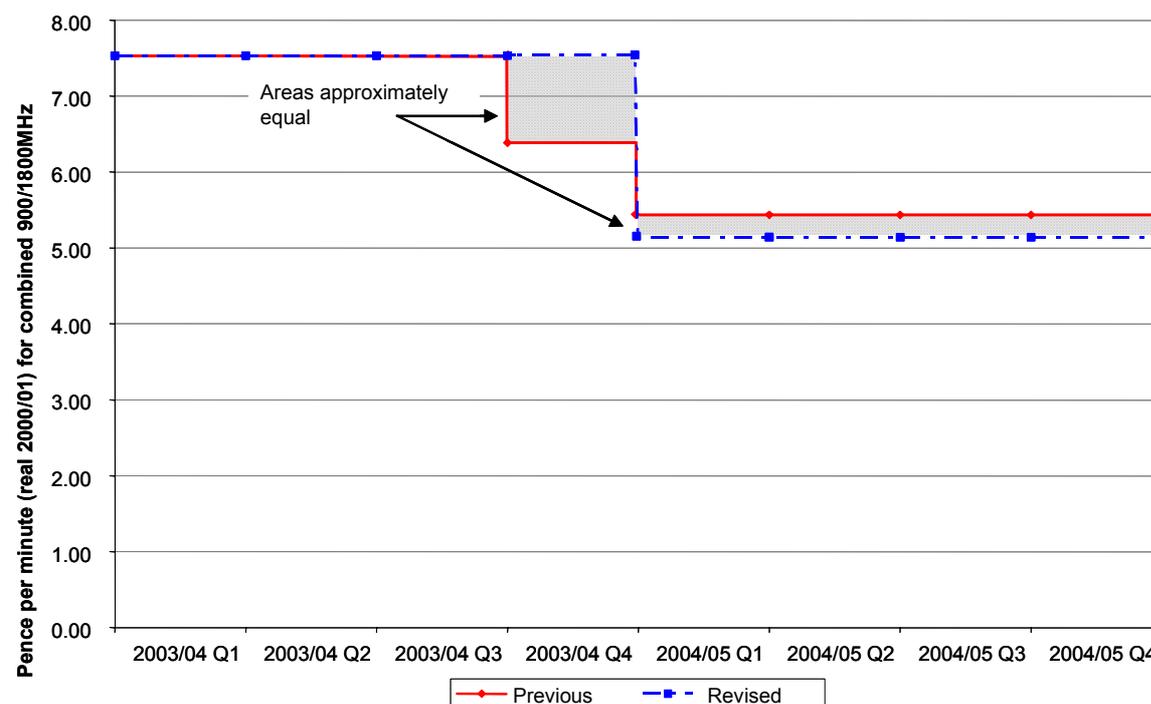
⁷⁸ Note that this is the starting charge in 2003/04 (in real 2000/01 terms) rather than the starting charge in 2002/03 as used in the May consultation.

⁷⁹ Table 2, Annex G.

⁸⁰ The LRIC model assumes a growth of less than 0.5% per quarter.

2003/04 approximately matches the increase in benefit resulting from paying a lower charge (by a quarter of this amount) throughout the whole of 2004/05⁸¹. This calculation is illustrated by the preservation of area in the Figure below. Table 3 below shows the impact of the first of the three equal reductions on the starting charge in 2003/04 for combined 900/1800MHz and 1800MHz operators separately which is used to determine the magnitude of the combined 900/1800MHz adjustment for the delay in implementation.

Figure 1: Adjustment to 2004/05 TAC for delay in implementation



H.23 As described above, and consistent with the May consultation, the Director proposes to set the TAC for 2004/05 as an absolute target in pence per minute so that the gap between the target charges for the two types of operators exactly matches the gap in the fair charge for this period.

H.24 From Table 2 above, the termination charge for combined 900/1800MHz operators at the start of the control period is 7.53ppm (in real 2000/01 terms). Following the methodology described above, applying two reductions of 15% in real terms and subtracting 0.28ppm (in real 2000/01 terms) to compensate for the delay in implementation results in a target charge of 5.14ppm (in real 2000/01 terms) for combined 900/1800MHz operators for 2004/05. From Table 1, the gap in the fair charge for 2004/05 is 0.67ppm (5.53ppm – 4.86ppm) which when added to 5.14ppm gives a target charge of 5.81ppm (in real 2000/01 terms) for 1800MHz operators. Table 3 illustrates this calculation and shows that alignment of the charges in 2004/05 of the two types of operators only reduces the 1800MHz operator charge by

⁸¹ Greater precision could be achieved by taking into account volume growth as well as discounting to determine the net present value of benefits. However both these effects are very small. Furthermore, whilst taking account of growth in volumes might suggest a smaller reduction to the 2004/05 TAC, the impact of discounting (for example, using the Treasury's social time preference annual rate of 3.5%) would more than counteract this consideration, implying a larger reduction.

0.03ppm (in real 2000/01 terms). Expressed in nominal terms (assuming RPI of 2.9%⁸² for 2004/05), the TAC for 2004/05 is 5.65ppm for combined 900/1800MHz operators and 6.38ppm for 1800MHz operators.

Table 3: Derivation of target average charge for 2004/05

| <u>Pence per minute</u> <u>(real 2000/01 unless otherwise stated)</u> | 900/1800MHz operators | 1800MHz operators |
|--|------------------------------|--------------------------|
| Starting charge in 2003/04 | 7.53 | 8.88 |
| Target charge in 2005/06 | 4.61 | 5.19 |
| Real reduction required over three periods | 15% | 16% |
| Starting charge in 2003/04 | 7.53 | 8.88 |
| Charge after one real reduction | 6.39 | 7.42 |
| Difference after one real reduction | 1.14 | 1.46 |
| Additional reduction for delay by 1Q | 0.28 | 0.36 |
| Fair charge in 2004/05 | 4.86 | 5.53 |
| 900/1800MHz fair charge in 2004/05 | 4.86 | 4.86 |
| Diff with 900/1800MHz fair charge in 2004/05 | 0.00 | 0.67 |
| Starting charge in 2003/04 | 7.53 | 8.88 |
| Charge after two real reductions | 5.43 | 6.20 |
| Charge after reduction for delay by 1Q | 5.14 | 5.84 |
| Charge after adjust for diff in fair charge | 5.14 | 5.81 |
| Target charge for 2004/05 (nominal) | 5.65 | 6.38 |

3.3 RPI-X for 2005/06

H.25 To complete the calculation, the value of X for the RPI-X control in the final year can be derived from the real percentage reduction necessary to reduce the TAC in 2004/05 to the fair target charge in 2005/06. Specifically, the value of X is determined by the real percentage reduction multiplied by (1+ RPI), where RPI is the value for 2005/06 and taken to be 2.9%.

H.26 In paragraphs A.2.173-A.2.176 of its response, Vodafone argues that by rounding this percentage to the nearest integer, as was proposed in the May consultation, the resulting lack of precision has a potentially discriminatory effect if it takes one type of operator below their fair charge but leaves the other type of operator above their fair charge.

H.27 The Director agrees that such a discriminatory effect would be undesirable and hence proposes to round the value of X to the nearest half-integer. To state a more precise value of X than this in the charge control would be inappropriate as it would suggest an unrealistic level of precision. Rounding the value of X to the nearest half-integer gives RPI-10.5 and RPI-11.0 for combined 900/1800MHz and 1800MHz operators respectively. The resulting charge control is shown in Table 4.

⁸² UK implied inflation from the difference in nominal and real rates on 5-year gilts averaged over November 2003, consistent with the risk free rate used in the cost of capital calculations, <http://www.bankofengland.co.uk/statistics/yieldcurve/main.htm>

3.4 Responses regarding difference in glidepath by operator type

H.28 Vodafone (paragraphs A.2.171-A.2.172 of its response), Orange (section 10.4.2.3 of its response) and T-Mobile (paragraphs 8.8-8.10 of its response) have argued that the larger first period reduction for 1800MHz operators, resulting from the intention to align the charges of the four operators, is unreasonable and disproportionate. Orange also states that the Director's proposals indicate that he considers it appropriate to further penalise the previously unregulated, less cash rich, newer entrants to the market.

H.29 Firstly, the Director rejects the alternative proposals suggested by the MNOs as they do not achieve his previously stated objectives. Orange suggests that both the combined 900/1800MHz and 1800MHz operator glidepaths should be set so that they have equal reductions in each period, however, this does not meet the Director's objective to align the charges of the four operators in order to address concerns over the potential for distortion. Vodafone's proposal to derive the 1800MHz operator glidepath so that it has equal reductions in each period and then align the combined 900/1800MHz operator glidepath with the 1800MHz operator glidepath would result in a smaller initial reduction for combined 900/1800MHz operators and would deliver significantly reduced benefits to consumers which the Director believes would inappropriately disadvantage consumers.

H.30 The glidepath for 1800MHz operators is described with reference to the glidepath for 900/1800MHz operators, however, this is in part for clarity of articulation. The Director has given significant regard to the different costs incurred by 1800MHz operators due to the properties of their spectrum (see Annex F for details) and believes that his proposed 1800MHz operator glidepath is reasonable given that the target average charge proposed in the first period (2004/05) is above his calculated fair charge (reasonable economic cost). The Director does not believe that there is a compelling reason for differentiating on the basis of cost of capital⁸³ or market share (see section 3.4 of Annex F).

H.31 In response to Orange's concerns, the Director believes that it is preferable not to derive Orange's TAC in the first period solely on the basis of Orange's current termination charges, but rather in relation to the average 1800MHz and average combined 900/1800MHz operator charges in order to align the target charges as described in paragraph H.3 of this explanatory statement. With regard to Orange's concern that 1800MHz operators are penalised, the Director emphasises that he believes it is appropriate to apply a larger first period reduction to the 1800MHz operators' charges because their current charges are in even greater excess of cost than the combined 900/1800MHz operators, even after taking account of their higher costs. The Director has no intention to penalise a particular type of operator nor do his proposals have such an effect. As noted above, permitting 1800MHz operators to continue to set termination charges even further above cost that combined

⁸³ T-Mobile's submission (Cost of capital for T-Mobile UK, July 2003) only identifies one factor that might lead to differing cost of capital estimates for combined 900/1800MHz and 1800MHz operators. This factor involves the use of firm-specific book to market ratios. Such an approach represents a departure from the CAPM, using an Arbitrage Pricing Theory (APT) model, which, as outlined in Annex E, is not appropriate in the Director's view.

900/1800MHz operators would risk a distortion of competition in the retail mobile market.

4 Summary

H.32 In summary, the Director proposes that the target average charge for the first period (2004/05) should be set at 5.65ppm for combined 900/1800MHz operators and 6.38ppm for 1800MHz operators, followed by a charge control of RPI-10.5 for combined 900/1800MHz operators and RPI-11.0 for 1800MHz operators in the remaining period (2005/06).

Table 4: TAC in 2004/05 and RPI-X for 2005/06

| <u>Pence per minute (nominal)</u> | 900/1800MHz operators | 1800MHz operators |
|-----------------------------------|------------------------------|--------------------------|
| Target charge for 2004/05 | 5.65 | 6.38 |
| RPI-X for 2005/06 | 10.5% | 11.0% |
