# Annex D

## Alternative solutions

D.1 This Annex discusses alternative solutions to the Director's proposal of directly regulating 2G termination charges with an RPI-X cap and the MNOs' comments that were put forward in their responses to the May consultation and in follow-up submissions to the Director. All these solution would require some form of regulatory intervention from the Director to be implemented, but are considered by MNOs to be less intrusive than the proposed charge control. These solutions are described in more detail in Annex C of the May consultation.

D.2 In the May consultation, the Director put forward his view that these solutions would not generate enough pressure on the level of the mobile termination charges in the short term to be a valid alternative remedy to the charge control. In their responses, the MNOs suggested further reasons why they still believe that these solutions could be effective.

D.3 Having examined the MNOs' submissions, the Director remains of the view that none of the remedies herein discussed will, in the immediate future, create the necessary conditions to bring termination charges down to the competitive level. The primary reason for the Director taking this view is that, in order for these remedies to be effective, they need to be accompanied by changes in the behaviour of the MNOs and/or the called and calling parties which are unlikely to happen in the short term.

D.4 All bar one (solution 8) of the remedies discussed below were considered and dismissed by the CC during its investigation into the prices for calls to mobiles.

**The underlying problem that these solutions should address**

D.5 As discussed throughout this document (in particular, see Chapter 2 and Annex A), a key reason why the MNOs have a monopoly in the provision of termination services to their subscribers is the CPP arrangement adopted in the UK telephony market. Under the CPP arrangement the calling party (and not the called party) pays the total price of the retail call. This means that the call termination charge is included in the originating network provider's (either fixed or mobile) cost base and is reflected in the retail price it sets for calls originating on its network. As a consequence with CPP there is no link between the person paying for the calls, and hence for the termination charge, (i.e. the calling party) and the person who makes the choice of the terminating network and who could thereby influence the level of the termination charge (i.e. the called party). The overall effect of this arrangement is that:

***(a) in the retail market the MNOs have an incentive to keep the price of those services required and paid for by the subscriber at a level to attract and retain customers, but they have less incentive to keep the price of calls to mobiles low; and***

***(b) in the wholesale market, the MNOs have little incentive to keep call termination charges low because originating operators have to terminate the calls of their customers and have to pay the termination charge.***

D.6 Hence, the ideal solution to generate some downward pressure on the level of the termination charges would be to allow the calling party (i.e. who pays for the call and thus for the termination charge) to choose the network on which to terminate the call. If this were possible, it would provide the MNOs with the incentive to compete on inbound call charges. However, this solution is not currently technically feasible, and it is unlikely that it will be in the short to medium term. Failing this, a number of possible remedies could be considered. This Annex discusses those solutions that would not involve a direct charge control.

**Solution 1 – Receiving party pays (RPP)**

D.7 In the May consultation, the Director examined the possibility of introducing an RPP system. This was proposed by the MNOs as a technically feasible solution that could change the incentives the CPP system generates.

D.8 The Director agreed that the RPP is technically feasible, though its introduction may require (fixed and mobile) operators to incur some costs. However, the Director concluded that RPP was an unreliable remedy as it is difficult to predict how called parties would react and, if the called parties resisted it and made limited use of these facilities, no competitive pressure would be placed on mobile termination charges. In addition, the Director made the further point that it seems economically more efficient that the cost of a consumption decision (i.e. the decision to make a call) is borne by the person who takes that decision (i.e. the calling party).

D.9 In its submissions to the Director following the May consultation, T-Mobile still supports the implementation of RPP. T-Mobile proposes the introduction of a '0800' service that makes the call free for the caller, while the mobile subscriber pays for it. As T-Mobile notes, the system would require all the MNOs to agree on a special number block to which the service would apply, as this would simplify its identification by consumers. The system would also require the Director to allocate a substantial number of additional phone numbers to MNOs.

D.10 Orange instead suggests that, rather than a complete change of systems from CPP to RPP, consumers should have the choice between the two. Orange asserts that by offering both CPP and RPP, consumers would gain from increased choice and that awareness of prices of calls to mobiles would increase. Indeed, Orange already offers an RPP product called 'Orange Locally Integrated Number (LIN) Service'[32].

D.11 In the view of the Director the adoption of a full RPP system could bring termination charges down, but there are several drawbacks with such a system. It is difficult to predict how called parties would react and whether they would be willing to

[32] Advice from Orange customer service as of November 2003: Subscribers to the Orange LIN service pay a monthly fee of either £15 / £30 (depending on geographic location) and are typically charged 8ppm for incoming calls. The service restricts the receipt of SMS messages to those from other Orange subscribers only.

absorb the cost of the call. Hence, the Director is concerned about the possible adverse effects of RPP on economic efficiency. In the US, where the RPP is the predominant arrangement in the mobile market, the level of penetration has remained low compared with the EU countries and it is likely that this is, at least in part, a consequence of the RPP system. RPP could also reduce the level of usage of mobile phones. With RPP the called party decides whether to accept a call by comparing the benefit (s)he could derive from it with the termination charge (s)he would have to pay. The uncertainty on the nature and value of the calls that may be terminated on their phone could lead mobile subscribers to keep their phone switched off or not to disclose their mobile number, thus reducing the volumes of calls made and received.

D.12 In addition, the Director is of the view that the cost of implementing an RPP solution, which would require a change of systems for all MNOs plus the allocation of significant blocks of numbers, could be very high. The MNOs have not provided any assessment of these costs. Further, for the duration of the period necessary for MNOs to agree and implement an RPP system, he believes that consumers would be disadvantaged by the lack of constraints on termination charges.

D.13 With regard to Orange's suggestion of running both systems in parallel, the Director considers that for RPP to be a viable alternative to a charge control, it should act as a constraint on the level of termination charges. If both CPP and RPP are in place, the effect on the level of the termination charges is hard to predict. If the called parties resist paying for receiving calls and make limited use of the RPP facility, no competitive pressure would be placed on mobile termination charges. The evidence shows that, where RPP is currently available to consumers in the UK, take up is very limited. Orange itself describes its Orange LIN Service as 'a niche product'. In addition, the potential negative impact on economic efficiency discussed above would still be present.

**Conclusion on solution 1**

D.14 For all the reasons discussed above, the Director believes it would be inappropriate to require the operators to introduce RPP as an alternative to the proposed charge control. However, the MNOs can implement RPP services in parallel with existing ones and the Director will examine any evidence they may bring about the level of take-up.

**Solution 2 - Call-back**

D.15 In the May consultation, the Director examined call-back as a possible means of introducing competitive pressure on termination charges. Call-back occurs when the direction of a call is 'reversed' and the calling party is called back by the called party. This remedy involves the MNOs introducing a service that allows the calling party to choose whether to call a mobile customer directly, as it happens, or by sending her a text message or leaving a voicemail to be called back. In the former case the caller would pay the price of the direct call, which includes the termination charge set by the MNO, in the latter the caller would only pay a reduced price for the message/voicemail (compared to a direct call) and the called party would then have the option of calling back and thus bear the costs of making the mobile originated call. The Director acknowledged that this service could be implemented using existing technology and that the relevant costs would not be high.

D.16 However, the Director concluded that are three potential problems with call-back, such that it did not appear to be a realistic remedy. These are discussed below together with the MNOs' views on each of them and the Director's responses:

1) Is an 'indirect' call a good substitute for a 'direct' call?

i) The Director stated that call-back is based on the assumption that an 'indirect' call (i.e. the messaging service or the voicemail) is a good substitute for a 'direct' call. If this were true, callers would choose between the direct and indirect services only on the basis of relative prices and service quality and would thus use the indirect service when calling networks with high termination charges. However, the Director pointed out that for the caller to consider the indirect service to be a good substitute for a direct call, the mobile customer would need to be willing to call the caller back and to do so speedily, and the evidence suggests that mobile customers would not behave in this way.

ii) The Director also added that, for this remedy to work, callers would need to know all relevant prices. However, the evidence points to consumers being relatively poorly informed about prices for calls to mobiles (see Annex A). Hence, the proposed remedy would be likely to be ineffective until consumers become much better informed.

iii) In its response to the May consultation O2 argues that customers return calls in response to messages about missed calls and that there is nothing to suggest that this behaviour would change if a call-back service were introduced. O2 also adds that the amount of information required by end-users is relatively small, being only 'the relative costs of the call-back service and the direct service'. O2 states that it is 'confident' that end users could become well informed and suggests running an industry funded awareness campaign.

iv) Orange states that sufficient evidence is available to suggest that mobile customers would be willing to call back, citing Oftel's investigation of Komtel's use of automatic calling equipment to induce mobile users to call back numbers that were unknown to them. Orange also argues that customers need only know that fixed to fixed calls are relatively cheaper than fixed to mobile calls, and that this can be reinforced by the use of a recognised number range (e.g. 0870) for all call-back services.

v) T-Mobile supports the view that a call-back system (referred to as 'voicemail remedy'), alongside measures to improve customer awareness, would provide a competitive constraint on termination charges. In particular, T-Mobile argues that by offering alternatives, such as call-back, consumer awareness would increase (as opposed to regulating charges and not offering alternatives, in which case customers have little reason to become better informed).

vi) The Director notes that consumers do call back in response to calls that they have not been able to take, as had occurred in the Komtel case cited by Orange. However, neither Orange nor O2 have provided any evidence that this happens in such a large number of cases that call-back could be expected to be considered a viable alternative to direct calls. In addition, replying to a missed call is not the same as pro-actively choosing to adopt a call-back service. Mobile subscribers may still value the ability to be quickly contacted (and pay no charge for it) and, thus, may prefer to receive calls directly rather than set up a call-back service (especially if the subscriber has to pay for it).

vii) The Director considered O2's and Orange's assertion that the amount of information required is 'relatively small'. However he considers that available evidence shows limited awareness of both relative and absolute prices (see Annex A). He believes that the use of alternative numbers for call-back – such as the 0870 number range – could offer some help. However, consumers do not appear to have high awareness of different number ranges (hence the success of some premium rate numbers scams), so the effect is likely to be very limited. In addition he considers that reserving a large amount of numbers for setting the call-back service would be quite costly.

viii) The Director notes the comments on consumer awareness raised by MNOs, in particular the suggestion made by both T-Mobile and O2 of an industry-funded awareness campaign. The Director's views on this issue are discussed in paragraph D.47 – D.48 below.

2) Is the mobile customer's service made worse by high termination charges when call-back is available?

i) In the May consultation, the Director stated that the effectiveness of call-back as a potential remedy is also based on the assumption that the mobile customer's service is made worse by high termination charges, as this would lead callers to use the indirect service instead of directly calling the mobile phone. Hence, the mobile customer would seek suppliers providing better service – by implication, a mobile network with low termination charges, so that callers would use the direct calling option.

ii) However, the Director concluded that consumer research and empirical evidence suggests that callers to mobiles base their decisions on the general level of prices and not on the prices for calling particular networks. Hence, mobile customers could not, on the basis of the current level of price awareness of callers, rely on receiving more direct calls, even if they switched to a network with lower termination charges. The incentive to switch would, therefore, be weak. MNOs would recognise this and would face weak incentives to offer lower termination charges. Hence, the Director's view was that call-back would be an ineffective remedy at present and would simply reduce the overall quality of the service received by mobile subscribers.

iii) In response to these points, O2 argues that experience suggests that, because of the convenience and the lower cost of not having to call back, mobile customers prefer to receive direct calls rather than use a call-back service. Hence, it believes that call-back would affect the quality of the service enjoyed by subscribers.

iv) The Director agrees that it is likely that mobile subscribers prefer to receive direct calls. However, given the current behaviour of callers to mobiles, it is unlikely that by switching to another network, subscribers would get more direct calls. Callers appear to react mostly to the average price of calling a mobile and, thus, their behaviour would not change if the called party switched network. Hence the Director is concerned that, at least at present, call-back services would not generate pressure on the MNOs to reduce termination charges.

3) Have the MNOs the ability and the incentives to render call-back ineffective?

i) The third potential problem with call-back discussed in the May consultation is that the incentives faced by the MNOs would render the service ineffective, unless very detailed regulation on prices and quality of services was introduced.

ii) The argument made by the Director is that, if callers could choose between the direct and indirect services, this would lead to mobile customers choosing an operator with low termination charges because they would receive a greater proportion of direct calls on that network. However, the MNO, rather than reducing termination charges, would have the incentive to reduce the extent of substitutability between the indirect and direct service by providing a costly and low quality indirect service. The mobile operator determines the ‘generalised cost’ to the caller of making the indirect call. It could, thus, raise this cost to the level where calling customers did not use the service and were effectively forced to pay the excessive charge for the direct service instead, making the remedy ineffective. To ensure that MNOs did not act in this way would require detailed regulation of the quality and level of all aspects of the call-back service.

iii) O2 argues that, because of competitive pressures, MNOs could not provide a low quality indirect service, as customers would switch MNOs to get a better call-back service. O2 also adds that, whilst formal regulation is unnecessary and undesirable, should customers have difficulties in assessing the quality of call-back services, the Director could co-ordinate publication of performance indicators. Orange too argues that an MNO would not offer a substandard service in the face of competition. Orange suggests that pricing could be ‘pegged’ at a fixed point to prevent the MNOs from setting high prices for call-back services.

iv) The Director is not persuaded that competitive constraints would prevent the MNOs from offering a low quality call-back service, so as to reduce its take-up. The main customer of the indirect service is the caller. Since it is the called party who chooses the network through which they are to be reached and mobile subscribers do not appear to be concerned about the cost to other of calling them (see Annex A), the MNOs have no incentives to improve their call-back service to make it appealing for callers. Hence the MNOs could successfully set a high price for the call-back service or offer it at such a low quality (e.g. the call would not be returned quickly because the call-back message would take time to reach the called party) so as to force callers to call direct. In addition, again for the reason that mobile subscribers do not appear to be concerned about the cost to other of calling them, if they had to pay a high price for setting up the call-back service, they would have no incentives to take it up. Equally it is unlikely that they would switch network to get a better call-back service.

v) The Director accepts that the problem of the cost of this service may be partially off-set, if prices for call-back services were pegged at a recognised price point. However, he considers that this would not solve the problem of the quality of these services. In addition, he considers that setting the points at which prices should be pegged would not be less intrusive and resource-intensive than setting a direct control on termination charges, but there would be less of a guarantee of it being effective. Further, he is concerned that setting price points may have an adverse effect on price competition and generate incentives to collude.

**Conclusions on solution 2**

D.17 For these reasons, the Director believes that call-back would not currently be a viable remedy to solve the problem of the lack of competitive pressures on mobile call termination charges. However, this does not prevent the MNOs from developing such a service voluntarily. If over time callers became better informed about and responded to the relative prices for calls to different mobile networks and if call-back services were developed which were of sufficient quality, so that the use of call-back started to become wide-spread and acted as a constraint on termination charges, then the Director may reconsider his position on the need for a control on mobile termination charges.

**Solution 3 – Call divert**

D.18 In the May consultation the Director also considered call-divert as a possible alternative remedy to a charge control to increase competitive pressure on termination charges. Call divert is based on mobile subscribers using a single terminal that is both a cordless phone and a GSM phone, which would allow them to make and receive calls using their "fixed line" (via the cordless element of the phone) when within the range of the cordless base station, thus bypassing their mobile network and its termination charges.

D.19 The Director‘s view was that the main obstacle to this being an effective remedy is that the called party would have to acquire the necessary equipment. The cost of such dual phones is currently high and it would have to be offset by the benefits accruing to the called party. However, most mobile customers consider only the charges that face them when making their choice of equipment, so the savings from lower termination charges that would benefit the calling party would be unlikely to affect their choice of equipment. In addition, the Director also noted that the range of the cordless element is still very restricted so calls would be charged at the rate of calls to a fixed number only in a limited number of cases. The Director dismissed this as a viable remedy.

D.20 In its response Orange agrees that the solution would be 'unlikely to have a significant impact' because of the limited range of the cordless element.

*Conclusions on solution 3*

D.21 The Director still considers that this remedy is currently unlikely to introduce any significant competitive pressure on the level of the termination charges.

**Solution 4 - Mobile virtual network operators with multiple roaming agreements**

D.22 In the May consultation the Director considered whether the presence of full mobile virtual network operators[33] (MVNOs) with multiple roaming agreements could increase competitive pressure on termination charges, so as to render the charge control redundant.

D.23 A full MVNO provides both origination and termination services to its subscribers. Hence, it could have termination agreements with more than one MNO and select the mobile network on which to terminate each call on the basis of its charges[34]. This would put some pressure on MNOs to offer them lower termination charges.

D.24 The Director expressed the view that this solution would be technically difficult to implement, as the process of changing the network onto which a mobile is connected currently takes a significant amount of time (possibly around 15 - 20 seconds). Nevertheless, the Director argued that the main obstacle was not technical. He made the point that, even if the MVNOs were able to negotiate lower termination charges, they would be unlikely to have the incentive to pass the savings on to callers to mobiles. They would have the same lack of incentives to reduce prices for calls to mobiles as the MNOs. This is because the MVNO, like an MNO, has the mobile subscriber as its customer, not the calling party.

D.25 Orange agrees with the Director that, to the extent that CPP creates inappropriate incentives, this solution would not be effective.

**Conclusions on solution 4**

D.26 In conclusion, the Director still considers it unlikely that the presence of full MVNOs with multiple roaming agreements would introduce any significant competitive pressure on the level of the termination charges. For MVNOs to have an

[33] A mobile virtual network operator (MVNO) is a firm that provides mobile telephony services to its customers, but which does not have an allocation of spectrum and uses part of an MNO's network (the 'host MNO'). An MVNO could be a simple service provider or it may be able to authenticate its subscribers on one or more mobile networks and route inbound calls to them. The latter type is referred to as a "full MVNO".
[34] This would require a regulatory obligation for MNOs to sign multiple roaming agreements with MVNOs, as no MNO would have the incentive to do so.

effect, mobile customers need to choose their network on the basis of inbound call charges, which they currently do not. However, if they did so, there would be no need for any regulatory intervention, since such consumer behaviour would lead to competition on termination charges among the existing MNOs.

**Solution 5 - Multiple SIM cards**

D.27 In the May consultation the Director considered whether the use of multiple SIM cards could generate pressure on the MNOs to reduce termination charges. The use of multiple SIM cards would enable the called party to choose on which network to receive calls. If they then chose to receive calls on a network with lower termination charges, this could place some competitive pressure on the level of these charges. The Director pointed out that to be effective this solution, apart from some technical difficulties[35], would rely on the called party being responsive to the price of inbound calls, which the available evidence shows he is not (see Annex A for more details).

D.28 In its response, Orange agrees that the solution is unlikely to have a significant impact during the period under review. However it argues that, if the calling parties became better informed about the prices of calls to different networks, and responded to these prices, it is possible that mobile subscribers would adopt multiple SIM handsets and be induced to switch to low cost networks for inbound calls.

D.29 The Director agrees with Orange that under different conditions this could become an effective remedy, but he believes such a change in the behaviour of callers is unlikely to happen in the short term.

**Conclusions on solution 5**

D.30 The Director is still of the view that a remedy based on multiple SIM cards is unlikely to be effective given the current behaviour of calling and called parties and because current technology does not easily allow its introduction. However, he considers that, if over time consumers behave differently, its effectiveness could increase. The Director, therefore, intends to monitor consumers' behaviour to identify any changes that may render a direct control on termination charges redundant.

**Solution 6 - GSM Gateways**

D.31 In the May consultation the Director examined whether GSM gateways could be a possible alternative remedy to the charge control. A GSM gateway is a way of converting off-net mobile calls onto on-net calls. It works by setting up a mobile call on the network where the call is to be terminated, and then "connecting" this call to the original call. By using a GSM gateway, the network originating the call pays the (lower) on-net retail rate to the MNO, rather than the usual wholesale call termination rate.

D.32 The Director concluded that their use would not address the problem of a lack of competitive pressure on termination charges. GSM gateways simply exploit an

[35] No mechanism currently exists that could instruct a phone to switch network automatically when a phone is arriving.

arbitrage opportunity generated by the current low price for on-net calls. Hence, MNOs could easily undermine their viability by changing the structure of their prices. In addition, GSM gateways are inefficient because they use extra network facilities to convert the call into an on-net call and, thus, employ more resources than a standard call to a mobile.

D.33 In response to the May consultation, the Director received comments from two parties. Orange supports the view that GSM gateways would not address the lack of competitive pressure on termination charges, adding that their commercial use would generate ‘significant negative detriments for both calling party and the mobile consumer’. SPC Network states that GSM gateways only existed as a result of the MNOs’ discriminatory behaviour, but does not specifically argue for GSM gateways as an alternative remedy to charge controls.

**Conclusions on solution 6**

D.34 The Director is still of the view that GSM gateways would not introduce significant competitive pressure on the level of mobile termination charges. In his view, they would be more likely to dissuade MNOs from offering low on-net call prices, as these would have the effect of providing a by pass opportunity for their termination monopolies. In addition, the Radiocommunications Agency has recently confirmed that the use of public gateways should not be authorised, unless they operate under the spectrum licence of an MNO with that MNO’s approval. However, if the use of GSM gateways is legalised in the future, the Director will monitor their effect on call termination charges to establish whether they might have a role to play in addressing the problem of lack of pressure on mobile termination charges.

**Solution 7 - Tying termination charges to the prices for competitively supplied services**

D.35 In the May consultation the Director considered the introduction of a solution that generated competitive pressure in termination charges by tying these charges to the competitively determined retail prices. This solution would pass the benefits of competition in retail mobile services on to consumers of mobile call termination. The Australian Competition and Consumer Commission (ACCC) has implemented a solution of this type. The Director, however, concluded that this solution was not attractive because:

1. it could distort the competitive markets to which the non-competitive service is tied;
2. it would expand regulation into areas not previously covered;
3. it would not address the distorted price structure, which would require larger decreases in termination charges than in retail prices; and
4. it has potential practical problems (of measurement of the average percentage change of a large set of different and complex tariffs and because any measure used could be inaccurate and open to strategic manipulation by the MNOs).

D.36 T-Mobile and Orange both disagree with the Director’s view that this solution would distort more competitive markets. Orange argues that the very same criticism could be levelled against the solutions proposed by the Director. T-Mobile suggests that competition is driven by the incentive to compete on price where existing prices are above cost, and linking termination to retail does not change this dynamic. T-Mobile adds that even, if such a problem of distortion existed, it is easily remedied by linking termination charges to an industry basket, rather than a firm's own retail prices.

D.37 The Director does not agree with Orange's position. In the mobile retail market no operator has SMP and competition is constantly driving prices down, hence tying termination charges to an index based on these prices would affect the MNOs' incentives to compete. The charge control instead operates directly on the termination markets where each MNO has a monopoly. The Director believes that it is not desirable to link decisions on how to set prices in a competitive market to the revenues earned in a monopolistic market, as this will engender a feedback effect that will have a negative impact on the competitive market.

D.38 The Director considers that T-Mobile's proposal recognises the distorted incentives that having a direct link between the prices set by an MNO in a competitive market and in a monopolist one generates, but that using an industry basket (of retail prices) does not eliminate this problem. The only solution would be to make the prices in the monopolistic market (i.e. the termination charges) dependent on an index that cannot be affected by the MNOs.

D.39 Orange further argues against the Director's view that there could both be practical problems in applying this solution and a risk of departing from cost-reflective charges. Orange's view is that this seems 'very odd…where, some two years after Oftel started its original assessment of a fair termination charge, this calculation is still in dispute'.

D.40 In response to Orange the Director points out that the two-year process was the result of the challenges brought by the MNOs, which ended with a CC Review supporting his position followed by a High Court decision also in his favour. The current new consultation follows due process under the new regulatory regime that took effect on 25 July 2003.

**Conclusion on solution 7**

D.41 The Director is still of the view that tying termination charges to competitively determined retail prices is not attractive for the reasons discussed above.

**Solution 8 - Delivering a call further into the terminating network**

D.42 In the May consultation the Director examined whether delivering a call to a mobile phone to a point lower down in the mobile network could introduce some pressure on termination charges.

D.43 However, the Director dismissed it because this solution does nothing to address the problem at hand. It can reduce the MNOs' costs of providing mobile termination, but it would not increase the amount of competitive pressure on termination charges.

D.44 Orange agrees with the Director that this solution would not address the problem.

**Conclusions on solution 8**

D.45 The Director is still of the view that this potential remedy is not worth further consideration, since it would not increase pressure on termination charges.

**Calls over GPRS**

D.46 Whilst this point was not raised in the formal responses to the May consultation, the MNOs have also suggested that voice calls over GPRS could act as a constraint on termination charges and should, therefore, be considered as a potential alternative remedy. The Director discussed these types of calls in the chapter on market definition in the May consultation and again in Annex A of this document. He considers that these calls would not introduce additional competitive pressure on termination charges primarily because is the MNO to which the called party subscribes that sets both the voice termination charges and the prices for the Internet connection necessary to make the call[36], as well as the quality of the service (i.e. data delay and bit errors). Hence, the MNO could adjust the GPRS quality parameters such that it was still acceptable for web browsing and e-mail, but not for voice calls. The Director considers that, given the nature of the mobile termination markets, MNOs would have no incentives to make GPRS calls an effective alternative to normal 2G voice calls. Further, the Director notes that no empirical evidence has yet been provided to demonstrate that, where such services are being offered, they are taken up by customers as substitutes to traditional voice calls, so that they could be considered to represent a potential significant competitive constraint on termination charges.

**Raising consumer awareness**

D.47 Both T-Mobile and Orange have made the point that the fundamental problem the Director should address is the lack of consumer awareness of the cost of calling mobiles. They both claim that competitive pressure on termination charges could be achieved through an increase in consumer awareness of prices of calling a mobile. Their proposal is to run a consumer awareness campaign, eventually coupled with the introduction of another remedy, such as call-back. They suggest that the Director could support such an industry-funded programme to make it more effective. T-Mobile suggests that awareness could also be raised through: the publication of comparative tables of fixed-to-mobile prices and by setting retail prices of fixed operators at few pricing points easily remembered by consumers.

D.48 The Director currently does not consider that this would be an effective alternative remedy to a charge control. He considers that changes in the behaviour of the called and calling parties could generate some pressure on the level of the

[36] This solution has some additional problems:

a) It requires mobile users to have, and be prepared to use the appropriate hardware and software; and

b) The process relies on both parties being able to send and receive data at the time of a call, which means that the calling party first has to make sure that the intended receiving party is in such a position.

termination charges and that these changes could occur as consumers become more aware of relative prices and of methods for keeping down the cost of making and receiving calls on mobiles. However, he is of the view that even if a consumer awareness campaign is run, this would take time before its effects are felt.

D.49 In addition, the Director has repeatedly made the point that he considers setting pricing points as undesirable because it could have a negative effect on competition by generating incentives to collude among the operators (apart from the fact that has no power within the context of this market review to impose remedies on fixed operator).

D.50 Overall, the Director thinks that in the short term a consumer awareness campaign could not be an effective alternative solution to the charge control. However, as mentioned before, the Director would support any such initiative from the industry and will consider with interest its results and how they might impact on his position on the need for a control on termination charges.

**Bilateral agreements**

D.51 In its response Vodafone proposes that the Director, rather than setting a charge control for mobile-to-mobile termination charges, imposes an obligation on the MNOs to reach bilateral agreements. The Director has discussed Vodafone's comments on this issue in Chapter 5.

**Summary of the Director's views on these alternative solutions**

D.52 There are essentially four types of remedy alternative to a charge control to the problem of insufficient competitive pressure on mobile termination charges. They are:

(1) a departure from the CPP principle, which is the underlying cause of the problem;

(2) "borrowing" competitive pressure by linking termination charges to the charges for more competitive services.

(3) the introduction of substitute services for the calling party so he can bypass the termination service of the mobile customer's MNO, which might involve some action by the mobile customer to enable the substitute service to be used;

(4) the introduction of arrangements by which mobile customers take actions to reduce the cost of calls to them;

D.53 The Director's views of these groups of options are as follows:

***(1) In the Director's view a move to RPP (solution 1) would have uncertain results as well as a negative impact on economic efficiency. While such a move should not be ruled out forever, the Director does not believe it would be appropriate to introduce RPP at this time.***

***(2) The potential remedies "borrowing" competitive pressure are remedies 6 and 7. The problem with these remedies is that they also dilute competitive pressure in the services to which call termination is linked. Since there is, in a sense, a finite amount of competitive pressure, the linkage of a competitive service to a monopoly service increases the competitive pressure on the monopoly service at the expense of reducing the competitive pressure on the previously competitive services.***

***(3) Currently there are no effective substitute services available for callers to mobiles (see Chapter 2 and Annex A). However, with suitable action by mobile customers, it is possible for callers to be offered other options for calling mobile customers (solution 2). This means that for (3) to be effective, the key is what happens under category (4).***

***(4) There are a number of ways in which mobile customers could make it easier for callers to call them at a lower rate (solutions 3, 4 and 5 all come into this category). For any of these remedies to be successful, a change in consumer behaviour by both callers to mobiles and mobile subscribers is required. In particular, callers to mobiles need to become better informed about the relative prices for calling different mobile networks, and to respond to this information by making more calls to mobile subscribers on networks with low termination charges and fewer calls to networks with high termination charges. This would induce mobile customers to become more responsive to the price of inbound calls so they would be prepared to incur some cost to enable callers to call them more cheaply. It is interesting to note that, if such a change of behaviour took place, the MNOs themselves would have an incentive to compete on inbound call charges. Thus, in order for remedies in category (4) to be effective it is necessary for there to be a change in consumer behaviour along the line of the type of change that would of itself remove the problem and the need for a remedy.***

D.54 Accordingly, whether any category (4) remedy would be technically or theoretically feasible is not the key question. More important is whether it would play any part in changing consumers' information set and behaviour, so that callers were more aware of the prices for calls to specific networks and mobile customers were more responsive to the prices of inbound calls in choosing their mobile network (because of the differing volume of inbound calls they would receive on different networks). In the Director's view, none of the proposed remedies would by itself quickly change consumers' behaviour in this way, but each might have a part to play in focussing more attention on inbound call charges and thus contributing to a gradual change in behaviour.

D.55 A point of particular relevance is that mobile customers currently have the opportunity to exercise choice in a way that might constrain termination charges only when they make a choice of network. Such choice, while not irreversible, is exercised infrequently by most customers. Some of the proposed remedies in category (4) would enable mobile customers to take action to put pressure on termination charges without switching their network operator.  To that extent the Director believes these remedies could have a part to play in changing consumer behaviour. Thus, while he is not persuaded of the adequacy of these proposed remedies in the short term as an alternative to a charge control, he would encourage the fixed and mobile operators to develop these ideas with a view to seeing whether they might bring about changes in consumers' behaviour over time and make direct regulation redundant.