



Cable Europe response to the European Commission Consultation on a Draft Recommendation on the Regulatory Treatment of Termination Rates

15 September 2008

Cable Europe, the European Cable Communications Association, groups all the leading European cable TV operators and their national trade associations throughout Europe. The aim of Cable Europe is to promote and defend the industry's policies and business interests at European and international level, and to foster co-operation among its members. The European cable TV industry provides broadband, telephony, digital TV to more than 73 million customers.

Cable Europe welcomes the opportunity given by the European Commission (EC) to comment on its draft Recommendation on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU (the Draft Recommendation) as the harmonization of the regulatory treatment of fixed and mobile networks is key to promoting network competition and the development of efficient fixed-mobile converging services in the single market.

I. Introduction

Cable Europe believes that the EC Draft Recommendation, which purports to establish a harmonized approach to the regulatory treatment of termination rates, develops a sound conceptual and methodological approach to key issues such as the distortions originated by high mobile termination rates (MTR), the adoption of a LRIC bottom-up cost standard, the treatment of common and non-traffic related costs in fixed and mobile LRIC modeling, the establishment of a transition period, etc. In that sense, Cable Europe supports the draft Recommendation and would like to provide some comments that substantiate this support.

However, Cable Europe also believes that some aspects of the Draft Recommendation, like the distortions originated by the asymmetric regulatory treatment of fixed and mobile termination rates, mentioned in recital 3 of the Draft Recommendation and in sections 2.1, 4.1 and 5 of the accompanying memorandum, should be given a more prominent role. More specifically, we believe that in the light of the analysis contained in the memorandum an explicit reference to the need to reduce fixed-mobile asymmetries should be included in the Draft Recommendation itself. In our opinion, a cost-benefit analysis of the distortions brought about by different types of asymmetries in the regulatory treatment of termination rates (F-F, M-M and F-M) would reveal that it is fixed-mobile asymmetries that have the highest potential for introducing distortion in competition as they allow very significant cross-subsidies from a group of competitors (fixed operators) to another (mobile operators) and prevent optimal interconnection agreements for converging services. This should raise the



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Commission's and NRAs' concerns in a converging fixed-mobile environment, as we explain in section II.

In section III, we elaborate on the economic principles that in our view support the corner stones of the Draft Recommendation: 1.) the use of the long term avoidable costs of providing termination, as resulting from a bottom-up LRIC model, as the costing principle to set regulated termination rates; and 2.) the recovery of common and non-traffic sensitive costs through (competitive) services other than termination.

In section IV, we aim at providing some insights about the practical implementation of the costing principles contained in the Draft Recommendation as far as bottom-up LRIC modeling is concerned. We will focus on mobile termination rates for two reasons: 1.) when talking about F-M termination rates asymmetries, it is currently high (above-cost) mobile termination rates - as compared with significantly lower fixed termination rates - the main source of distortion; and 2.) the principles contained in the Draft Recommendation will introduce more significant changes in mobile bottom-up LRIC modeling than in fixed modeling.

In section V we conclude.

II. Competition distortions created by high MTR and F-M asymmetries

The Draft Recommendation tacitly recognises that the competition problems raised by TR asymmetries are not limited to F-F and M-M asymmetries, but also extend to the sizeable asymmetry existing between high mobile termination rates and much lower fixed termination rates. Therefore, recital (3) of the Draft Recommendation points out that:

"Significant divergences in the regulatory treatment of fixed and mobile termination rates create a fundamental distortion between fixed and mobile markets and consumers. Furthermore, the absolute level of mobile termination rates remains high in a number of Member States compared to those applied in a number of countries outside of the European Union, and also compared to fixed termination rates generally, thus continuing to translate into high, albeit decreasing, prices for end-consumers."

However, it fails to explicitly conclude on the distorting effect that this asymmetry exerts on competition, particularly on fixed-mobile competition, and limits itself to highlight the negative impact of high absolute MTRs on retail prices.

The accompanying memorandum to the Recommendation is however more explicit. In section 2.1, it states that:



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"In the past, negotiations between fixed and mobile operators typically evolved differently because mobile operators could raise the initially unregulated mobile termination rates without experiencing a reciprocal increase in the often tightly regulated fixed termination rate (FTR). This raised allocative-efficiency concerns where there is an implicit cross-subsidy from fixed network operators and their customers to mobile operators and mobile customers."

Likewise, according to section 4.1 of the memorandum accompanying the Draft Recommendation:

*"The main advantage of low interconnection charges based on an incremental-cost approach which **allocates only efficiently incurred costs is that it promotes efficient production and consumption and minimises potential competitive distortions.** It sends correct signals to originating operators as to the costs generated by their activities and they can therefore adjust their behaviour in the most efficient manner.*

For example, allowing network costs to be recovered from the wholesale termination rate which do not result directly from the provision of that service can lead to distorted signals and higher prices for the originating operators and, consequently, their consumers. In effect, this results in them cross-subsidising the investment costs of other operators' networks and may also result in a sub-optimal number of calls being made. Currently, there are net transfers of wholesale termination revenues from:

- fixed network operators to mobile network operators, creating **an effective cross-subsidy between fixed and mobile markets and consumers**; and*
- net senders to net receivers of voice traffic, which can reinforce network effects and increase barriers to smaller operators expanding within markets.*

Furthermore, this can promote inefficiency on the part of the terminating operator." (emphasis added)

In connection with the above statements, Cable Europe misses a more developed analysis of the negative impact of the fixed-mobile cross-subsidy referred to by the Commission over competition. In particular, we expect that the distorting effect of the subsidy will be particularly acute in an environment of increasing fixed-mobile substitution.

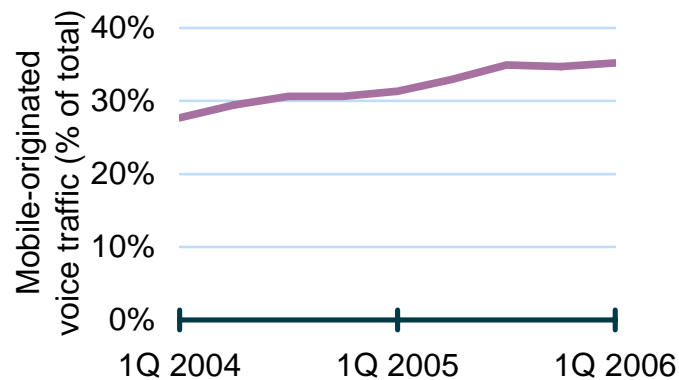
In effect, as stated in a study *Fixed-Mobile substitution in Western Europe: causes and effects*, by Analysys Research Ltd, "mobile voice services become increasingly affordable, and users opt for the convenience and personalisation of mobile phones, mobile voice services are progressively substituting for fixed voice services across Western Europe. Between the first quarter of 2004 and the first quarter of 2006, the proportion of households with a mobile phone but no fixed line grew from 9% to 12%, while the proportion of voice minutes that originated



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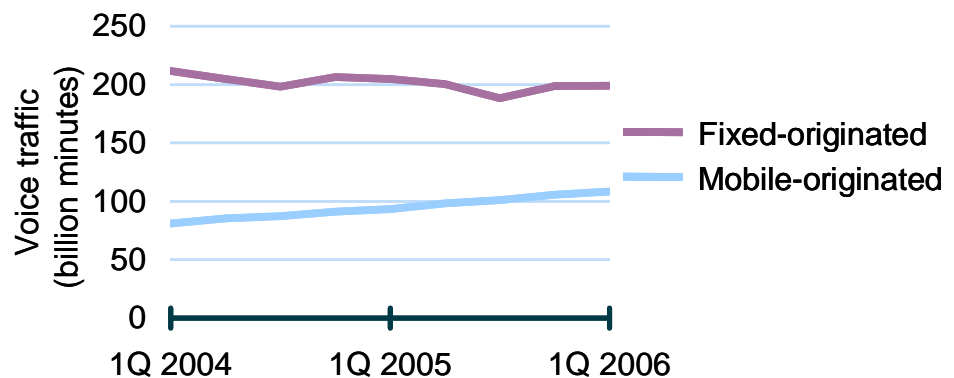
on mobile networks increased from 28% to 35%", as it is shown in figures 1 and 2.

Figure 1: Proportion of households in Western Europe that were mobile-only, December 2003–December 2005.



Source: Analysys Research, 2007

Figure 2: Volume of fixed-originated and mobile-originated voice traffic in Western Europe, 1Q 2004–1Q 2006



Source: Analysys Research, 2007

Against this background of increasing fixed-mobile substitution we note that fixed and mobile networks are not being treated equivalently. Whereas fixed networks have been subject to tight cost orientation principles, mobile networks have traditionally been allowed to apply considerable mark-up over costs. In addition, the regulatory treatment of mobile termination costs by most NRAs has been such that, as a result of the methodology used and by contrast with the fixed case, a greater portion of the cost of the entire network is attributed to termination. This regulatory asymmetry, if not corrected, has the potential to hinder the emergence



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and expansion of converging services by limiting the potential of fixed operators to compete in this market.

As shown above, competition of mobile services in the same retail market as fixed services (calls made at home and in the office) is leading to fixed-mobile substitution of both calls and lines. In circumstances where the players are indeed competing in the same retail market, then a party who obtains a higher termination rate gains a network externality which can cause competition harm (ultimately, the weak give to the strong). In this sense the British regulator, Ofcom, has stated in their fixed termination market review that:

"Not only does the terminating provider increase its call termination revenues but it also increases its competitors' end-to-end retail costs, as the terminating provider's competitors have to buy its call termination service. The effect of this is that a provider with higher call termination prices has a competitive advantage at the retail level over its direct competitors. This perverse cost incentive is known as the 'termination externality.'"

In fact, this is a major reason why regulators have historically preferred symmetry (or small and time-limited asymmetries) in termination rates amongst fixed operators. Following the same logic, the principle might be extended to fixed-mobile asymmetry.

We note that this principle, if adopted, might mean that termination rates should be set at below LRIC for the higher cost (i.e. mobile) networks (i.e. it would not be consistent with a position seeking full cost recovery).

There are a variety of ways in which a lower mobile termination charge, close to that regulated for fixed termination, could be calculated:

1. Bill and keep (i.e. a rate of zero) applied not only to M-M but also to F-M termination.
2. Seek symmetry between fixed geographical and mobile rates as a matter of principle (this is the US position).
3. Change the mobile costing methodology (e.g. by excluding common costs and non-traffic related costs from mobile termination)
4. Simply apply the current costing methodology at face value to eliminate over-recovery

Selecting the options of "bill and keep" or "symmetry with fixed rates as a matter of principle" would have a number of additional benefits, in particular reducing the cost of regulation of mobile termination rates.

However, although the Draft Recommendation might be tacitly referring to options 1 and 2 above in recital (18), it clearly focuses in option 3 as a way to reach lower mobile termination rates that are closer to those applied to fixed networks.



In Cable Europe's opinion the Draft Recommendation should explicitly refer to the competition problem created by asymmetric fixed-mobile rates and also include the reduction of such asymmetry as a policy that NRAs should pursue by the adoption of alternative tools consistent with a competitive market, among which the changes proposed in the costing methodology by the Commission in the Draft Recommendation is only one example.

III. The economics of termination price regulation

In this section we put forward the economic principles, their precise interpretation and modelling application which in Cable Europe's opinion should underlie the Commission's Recommendation.

III.1. Marginal cost as prime costing principle

Section 4.1 of the memorandum accompanying the Draft Recommendation states that:

*"When deciding on the correct level of the regulated wholesale termination rate, it is essential to ensure that the methodology adopted promotes efficient production and consumption decisions, and minimises any artificial transfers and distortions between competitors and consumers. Therefore, **regulators should construct models which set wholesale termination charges as close to marginal cost as possible.** The closer the termination price of all operators is to the marginal cost, the more likely it is that this will lead to the most efficient and least distortionary use of call termination services, and minimise the risk of problems such as cross-subsidisation between operators and customers and inefficient pricing and investment behaviour. Therefore, it is justified to apply a pure LRIC approach where the relevant increment is the wholesale call termination service and which includes only those costs that would not be incurred if that service were no longer produced (i.e. avoidable costs)."* (emphasis added)

Cable Europe fully agrees with this view.

Under standard economic assumptions – for a purely competitive economy, economic efficiency (technical and allocative) is maximized when all services are priced at marginal cost. This means that if termination prices are set at the marginal cost of producing that service then allocative efficiency is automatically ensured.

Traditionally, regulators in the telecom sector has avoided setting prices according to marginal costs since that would not allow operators to recover common and joint costs, which are pervasive in the telecom sectors. In effect, in the telecom sector the same network elements are typically shared by different services and a marginal cost approach applied to every single service would prevent even efficient operators from covering their total costs.



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The regulatory pricing problem is therefore to maximize economic efficiency subject to the constraint that the regulated firm covers its total costs (including its cost of capital). In other words, it is necessary to ensure that the economic principles applied to the recovery of non-regulated service, joint and common costs are also robust from an economic/social viewpoint.

According to basic Ramsey pricing theory the answer is to set percentage mark-ups for all services inversely proportional to the elasticities of demand. That is, percentage mark-ups are highest for the least elastic services and lowest for the most elastic services.

However, regulators have also been reluctant to apply Ramsey mark-ups to regulated telecommunication services (interconnection, access to the local loop, termination, etc.) for a number of reasons ranging from the political reluctance to adopt what essentially is a discriminatory pricing policy to practical reasons associated with the difficulties to calculate demand elasticities for regulated services. Instead, they have typically applied a variety of ad-hoc mark-ups (e.g. equi-proportionate mark-ups) over the LRIC or fully attributed costs estimated for individual services to recover joint and common costs.

By contrast with this approach, the Commission, in the draft Recommendation, adopts an economic approach to wholesale termination pricing that while going back to the first-best policy of setting prices equal to marginal costs, does not rely either in a pure Ramsey model nor in the traditional equi-proportionate approach for the distribution of joint and common costs among services, but instead leaves the full recovery of such costs to non-regulated services.

Some may argue that precisely it is these non-regulated and, allegedly, competitive services that are likely to show higher demand elasticity and, thence, the Commission would be acting against Ramsey pricing and economic theory. In Cable Europe's opinion this view however is wrong and the Commission's approach is correct.

There are at least four factors that mitigate against the use of Ramsey pricing in setting termination rates: 1) the use of quantity discounts; 2.) the negative impact of high MTR over fixed networks; 3.) the increased role of regulation in the industry; and 4) the political-economic consequences of shifting wealth among groups of operators and consumers on the basis of imprecise estimates of demand elasticities by regulators:

Quantity discounts

In its standard form, Ramsey pricing is based on a model of linear pricing, where quantity discounts are not offered and common costs are recovered by introducing mark-ups over the marginal costs of different services. Its theoretical benefits apply in this context¹.

¹ Although the basic Ramsey-Boiteux model can be generalized to nonlinear pricing as well, it would pose considerable complexity in the case of mobile telecommunications given the complex non-linear pricing policies applied by operators. In these circumstances, the recovery of common costs as



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Contrary to that model, the telecoms industry has an elaborate structure of quantity discounts. Contract subscribers pay lower per-minute charges than do prepaid subscribers. Big-bucket customers pay the lowest usage charges of all. These plans allow operators, even in the absence of regulatory intervention, to price many services closer to marginal cost, while still recovering fixed costs through fixed monthly charges from contract customers.

Under these circumstances, the EC proposal not to allow recovery of common costs in termination rates is perfectly efficient: termination prices are optimally set closer to the marginal cost of the service while mobile operators can recover common costs from mobile contract subscribers through non-uniform pricing with no efficiency loss.

In addition, it is possible that optimal non-linear pricing also improves economic efficiency in the industry compared to optimal linear pricing (Ramsey prices) by reducing the spill-over effect of high termination rates on fixed networks, as we will explain in the next subsection.²

Impact of high MTR over fixed networks

One effect that it is not taken into account by a basic Ramsey Pricing approach applied to mobile termination pricing is that a high mobile termination rate may distort competition by the effect produced in the closely related fixed voice market.

A calling party network pays (CPNP) wholesale termination regime allows a mobile operator to levy charges on other market players (interconnecting operators) and their customers, who are normally to some extent detached from the pricing decisions of the operator providing the termination service. Thus there is little incentive for the operator selling the termination service to compete and offer better prices on that part of the business. Any productivity gains achieved by the operator will only flow through to termination prices paid by interconnecting operators according to the rate at which the regulator can maintain up-to-date price controls. In a rapidly developing market (e.g. 3G mobile, NGN deployment) there is the potential for regulated price controls to become years out of date. As such, an approach to termination prices based on getting those prices closer to marginal costs and increasing the proportion of each operator's business which prices are constrained by market forces instead of regulatory mechanisms, does not only allow for the efficient recovery of common costs under a non-linear pricing scenario (see above) but also increases the incentives for operators to improve their productivity and efficiency and reduces the negative spill-over effects of high mobile termination pricing on fixed telecommunications.

suggested by the Commission may well be more reasonable than the use of Ramsey pricing to approximate the actual non-uniform pricing structure.

² For a full discussion of the potential benefits of quantity discounts and other non-uniform pricing structures, see S. J. Brown and D. S. Sibley, *The Theory of Public Utility Pricing*, Cambridge University Press, 1986.



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Increased role of regulation in the industry

The recovery of common costs through non regulated services also reduces the burden of regulation that must define a material component of cost recovery through inter-operator charges. This, in turn, increases legal certainty. That is to say, with the EC's proposal a mobile operator would recover a larger portion of its revenues on the basis of providing more value to subscribers than its competitors. It would recover a smaller portion of its revenues on the basis of a parameter set by regulatory calculation that can be subject to errors resulting from the lack of complex information and also from the impossibility to catch up with rapid technological/market development. In addition, this calculation might produce results which are unharmonized across different NRAs and also (as we see below) subject to external influence exerted on the regulatory process. Reducing the scope of regulation in this way generally leads to an increase in efficiency (that is not taken account of in the Ramsey formula).

Industries function better when unnecessary regulation is removed. The EC's proposal decreases the role of regulation without compromising the regulatory goals.

Increased risk of political-economic influence

Closely related to the above is the fact that if Ramsey pricing is used, considerable wealth can be transferred between fixed operators/subscribers and mobile operators/subscribers on the basis of very subjective regulatory judgements. In particular, statistical estimates of demand elasticities for services are typically quite imprecise. Nevertheless, a great deal of money changes hands on the basis of subjective regulatory judgements regarding these estimates.

Subjective regulatory judgements inevitably lead to rent-seeking behaviour on the part of industry participants – both suppliers and customers. Such participants can usually exert significant political influence. Such behaviour can have destructive consequences for the entire regulatory process. Many regulators try to ameliorate this problem by relying as much as possible on simple rules, rather than subjective judgements. The rules may diverge significantly from optimality, but they avoid the adverse political-economic consequences. The EC's proposal is therefore advantageous in this respect.

Whilst an Equi Proportionate Mark-Up (EMPU) methodology removes the need to make a judgement on demand elasticities, it remains an intrusive form of regulation.

An additional benefit of the Commission approach is that it allows to internalize the "call externality" without suppressing the calling party pays principle.



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In the memorandum accompanying the Draft Recommendation, the nature of this “call externality” is explained as the externality created by not recovering part of the termination cost of an incoming call from the receiving party:

*“Under RPP [**receiving party pays**] the receiving network terminates calls without charging the originating operator the full cost of that termination service, leading the operator to potentially recover part of the termination costs from their own retail customers.*

*Since this charge is now noticeable to the consumer, there is an incentive for the consumer to respond to that charge where more competitive alternatives exist. Thus, both incoming and outgoing call charges are subject to competition. Such a settlement system is consistent with an argument that while the calling party causes a cost originating the call, the called party causes a cost by accepting it and thus it recognises the existence of **a positive call externality to the receiving party.**” (emphasis added).*

However, in recital (14) of the Draft Recommendation the Commission, while recognizing the existence of a “call externality” under the current CPP system, disregards replacing CPP for a RPP principle:

*“In any case, it may be noted that call termination is a service which generates benefits to both calling and called parties (if the receiver did not receive a benefit it would not accept the call), which in turn suggests that both parties have a part in the creation of costs. The use of cost causation principles to set cost-orientated prices would suggest that the creator of the costs should bear those costs. **Recognising the two-sided nature of call termination markets with costs being driven by two sides, not all related costs need to be recovered via the regulated wholesale termination charge.** However, for the purposes of this Recommendation, it is proposed that the avoidable costs of providing the wholesale call termination service can be recovered via the wholesale charge.” (emphasis added).*

In Cable Europe’s opinion, given that under cost causation both the calling and the receiving parties should contribute to terminating cost it is not neither necessary nor justified to replace the CPP system by a RPP system but only to adopt a regulatory pricing policy that is flexible enough to ensure that both parties contribute to the cost. In that sense, although the Draft Recommendation proposes to allocate **the full marginal cost** of terminating call to only one of the two sides of the market (the calling party), by stating that common costs are to be recovered from other non-regulated services, gives incentives to receiving networks to allocate some costs to receiving customers according to demand elasticities (that is to say, according to its customer willingness to pay for receiving calls) and competition conditions. This, in consequence, induces the internalization of call externalities not by introducing a RPP or regulating a second price (receiving calls) but by leaving operators to freely allocate some costs to receiving parties according to market conditions.



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As a summary of all the above, in Cable Europe's opinion economic efficiency can be achieved when termination services are priced close to marginal costs as stated by the Draft Recommendation because while applying a first-best pricing principle to a regulated service, this policy allows the regulated operator to recover the common costs in a way that minimizes distortions and detrimental social effects of call externalities if there are high termination prices.

III.2. Likely impact

The Draft Recommendation's proposal to recovery of common and joint costs that are currently being partially allocated to terminating calls might be expected to have a positive influence on retail prices for originating calls and usage rates.

To this view some may oppose that the costing principles introduced by the Draft Recommendation will also have a negative impact over other services that will now have to support an increased share of joint and common costs. In particular, it may be hypothesized that mobile operators could tend to apply the following three mechanisms to cover common costs under the new rules set in the Draft Recommendation:

- Introduction of an incoming call fee to be charged by a mobile operator to its customers;
- Introduction (or extension where it already exists) of a mobile line subscription fee;
- Increased per minute prices applied to originating calls.

Allegedly, these pricing strategies will have, in turn, distributional effects over usage rates and consumer welfare. Therefore, by introducing an incoming call fee, low-use mobile subscribers (those who mainly receive calls) will be worse off and usage rates will decrease.

However, in Cable Europe's view this would be a partial impact analysis as it is necessary to take into account the following:

- Retail competition makes it unlikely that mobile operator can recover a larger proportion of common costs through retail call prices. It is true that the elasticities for retail mobile services have generally been found to be inelastic, but it is also true that the current level of retail prices already take into account such inelasticity. Therefore, the question is whether a reduction in MTRs increases or not the likelihood of a non competitive cooperative retail price increase. In this sense the economic literature suggests that it is high termination rates and not the opposite that contribute to tacit cooperation among mobile operators to keep retail prices high.
- Lower wholesale termination rates will bring about a reduction of fixed-mobile call prices and facilitate the reduction of mobile-mobile originated call prices. Lower termination rates will also reduce fixed to mobile subsidy and facilitate efficient convergence of fixed and mobile services. Efficient



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consumption would cause an expansion of traffic. Given the fixed nature of most costs in the telecommunications sector, this traffic expansion will result in reduced per unit costs of most services.

- Even if line subscription or receiving call fees are introduced, competition will give mobile operators incentives to minimize the impact of the new cost allocation rules by creating packages that include subscription fee, flat rates for incoming and outgoing calls, etc. Additionally, mobile operators almost always offer an elaborate schedule of quantity discounts. Such discounts allow the operators to recover substantial revenue from large contract customers, while keeping the marginal price of minutes of use to such customers low. Such pricing limits the repression of usage. Indeed, the marginal price for large customers is often zero.
- From the point of view of consumer welfare, it is the aggregated welfare of fixed and mobile consumers that matters. This means that on average most consumers will likely see simultaneous reductions of prices of outgoing fixed-mobile and potentially other calls, along with any would-be new subscription fee or incoming call fee. Consumers will then be able to choose the most efficient network to subscribe to, and make calls from: fixed, mobile or both. This lack of distortion in the market for subscription and calling should result in an increased social benefit. Therefore, if the proposed measures bring about an overall reduction of the bill paid by fixed/mobile consumers then they are suitable from the standpoint of a social cost-benefit analysis
- The question is not whether the introduction of -for example- an incoming call fee reduces mobile usage but rather if it induces the efficient level of consumption of telecommunications services by customers. Even if some customers are worse off, in the aggregate the measures would still promote efficient consumption and increase overall consumer welfare, as stated in the previous point.
- A reduction of termination rates as a result of the proposed measures will bring about a reduction of fixed-mobile asymmetries and, consequently, of distortions in fixed-mobile competition. More symmetric F-M termination rates should also ease the conclusions of interconnections agreements in a converging fixed-mobile market with the positive outcome of new converging services for customers.

IV. Practical implications for mobile LRIC modelling

As we pointed out in section II of this submission, regulators can adopt different regulatory tools to bring mobile termination rates to a level closer or equal to that of fixed termination rates. If regulators choose to apply an incremental costing approach to mobile termination rates along the principles contained in the Draft Recommendation, Cable Europe considers that: 1.) it is important to define a LRIC increment as close as possible to the marginal cost of termination rates; and 2.) the EC draft, as it stands, leaves room for interpretation and does not robustly



justify an accurate modelling approach. Consequently, Cable Europe submits that the draft recommendation should be expanded to unambiguously define the modelling principles. Each of these two issues will be developed in the following subsections.

IV.1. Definition of the increment in the LRIC model

In practical terms, that is to say, in terms of cost modelling, an efficient mobile termination rate close to the marginal cost of the service is achieved by calculating the long run average avoidable cost associated with termination. That is to say, the efficient termination price should equal the average avoidable cost of providing the service with the best technology and operating at efficient scale. It will be shown below that this long run average cost is by definition equal to the long run marginal cost of providing the entire service.

In a Long Run Incremental Cost (LRIC) model the so called "increment" admits a number of definitions:

- the marginal unit of demand for a service
- the total demand for a service
- the total demand for a group of services
- the total demand for all services in aggregate.

It would be impractical to utilise the increment definition marginal unit of demand for wholesale termination – for example, the cost of the marginal unit of demand (a minute) varies widely and unpredictably according to where in the network and when during the day that the minute is carried. Such pricing signals would be intractable and incomprehensible. On more economic grounds, such cost increment would not be suitable as regulatory pricing principle as it cannot be associated to the long term marginal cost but to the short term marginal cost and therefore would not generate the right market signals for investment in long term optimal capacity and network design.

Therefore, the first-best pricing principle of using marginal costs as the regulatory basis means that the long run incremental cost of the total demand for wholesale termination must be applied as it might be associated with long term marginal cost, that is to say the minimum cost increase incurred by an operator when traffic is expanded beyond the long term optimal network dimension or, alternatively, the maximum cost saving obtained when traffic decreases with respect to that optimal dimension. In effect, the long run incremental cost (LRIC cost) for an individual service as obtained from a LRIC model is averaged over the total terminating traffic yielding a long run average termination cost. As microeconomic theory states, the long run marginal cost and the long run average cost curves intersect each other at the point of optimal network dimension/minimum long run average cost. Consequently, at the point of long run efficient network dimension, the termination cost resulting from a LRIC model (an average cost) approaches the



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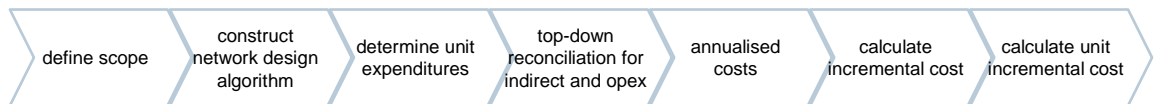
long run marginal cost of providing the service, which is the first-best economic pricing standard pursued by the Commission.

A broader definition for the increment, in which a number of services are grouped together (e.g. total traffic, total voice) introduces joint and common costs into the regulatory pricing problem. As explained above, efficiency will be increased when these costs are increasingly recovered from competitive, non-regulated services.

IV.2. Calculation of the incremental cost of wholesale termination

The LRIC modelling exercise defined by the EC requires the following steps to be taken:

1. define scope of model (scale, services, network elements)
2. construct bottom-up network design algorithm for each network element
3. determine modern, current, expenditures associated with each network element
4. undertake top-down reconciliation to identify missing indirect, overhead or operating expenditures not covered by the previous step
5. apply an expenditure annualisation method to determine annualised cost, including cost of capital employed
6. determine the incremental costs of wholesale termination by running the model with the total volume of wholesale termination traffic set to zero
7. divide the incremental cost by the terminated volume to specify the per-minute wholesale termination rate.



In the LRIC modelling process, the EC has already introduced a number of relevant issues:

8. exclusion of the coverage network from the incremental cost
9. definition of the coverage network
10. top-down reconciliation where necessary to improve robustness
11. economic depreciation



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12. efficient scale

13. efficient, modern technology

Cable Europe's submission on some of these aspects is provided below.

IV.3. Exclusion of the coverage network from the incremental cost

The exclusion of the coverage network from the incremental cost is an intrinsic and unavoidable outcome of the application of the increment total demand for wholesale termination. The clear principle of incremental costing means that by definition, costs which are incurred in the deployment of coverage cannot be sensitive to the volume of traffic which the coverage network subsequently carries. Non-traffic sensitive costs such as business overheads (supporting various network services and/or retail services in addition) also fall unambiguously into this exclusion. The EC should ensure that its final recommendation is clear in this respect by virtue of robustly applying the justified and efficient increment definition; it is not an optional or additional criteria but one which is fundamental and immovable from the incremental costing principle of a single service.

IV.4. Correct definition of a mobile coverage network

The text of the Annex to the Draft Recommendation sets out what is to be understood by "coverage" in the following terms:

*"Coverage **can be best described** as the capability or option to make a single call from any point in the network at a point in time, and capacity represents the additional network costs which are necessary to carry increasing levels of traffic." (emphasis added)*

Cable Europe agrees with this description. It logically suggests that **any** items of network equipment which, by their removal, reduce the capability or option to make a single call from **any** point in the network (i.e. reduces coverage) cannot be included in capacity. Cable Europe therefore suggests that the EC makes an "explicit definition" of its "description" of capacity by rewording this part of the Annex to the Draft Recommendation as:

*"Coverage **is defined as** the capability or option to make single call from any point in the network at a point in time, and capacity represents the additional network costs which are necessary to carry increasing levels of traffic."*

The text of the Annex states further:

"The need to provide certain minimum coverage requirements to subscribers will cause non-traffic related costs to be incurred"

Cable Europe finds that this statement is unnecessary and causes confusion by introducing a new concept -"minimum coverage"- that contradicts the EC's initial



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definition of coverage. The implication of “minimum coverage” is that mobile operators would only increase their coverage beyond the “minimum” in response to traffic levels. Cable Europe however does not find this implication to be satisfactory or likely. There is evidence that a mobile operator will increase its coverage in the absence of traffic when it believes that this will enhance its competitive position.

Cable Europe also suggests that the definition of mobile coverage is further explained in the recommendation to be **the total availability of national public mobile network signal across outdoor and in-building areas.**

The mobile coverage network should also be required to be a functioning network – i.e. capable of actually carrying one minute of traffic, of any particular type of traffic. As such, the coverage network can be defined to include the necessary minimum backhaul transmission, switching architecture, inter-switch transmission, ports and supplementary network management systems to enable the national radio network to function as a network. Any definition of coverage which is not a functioning network would not be capable of properly carrying a minute of traffic and thus would be inconsistent with the EC’s definition of coverage.

The same coverage definition should be applied in the fixed network model, albeit with a different access technology. It is likely therefore that the main switching nodes (MSC, tandem exchanges) in the fixed and mobile coverage networks and their inter-switch transmission topology are reasonably similar – geographically they are likely to be placed in the same population centres and use the same national transmission routes in order to support a minute of traffic. Cable Europe suggest that the EC Recommendation makes this consistent treatment of fixed and mobile coverage explicit.

As explained in the section on economic principles, the costs of this coverage network, along with other traffic-sensitive costs of retail services could be recovered from a mixture of subscriber line rental and voice/data per minute or flat charges. The same principle should apply to fixed networks although in this case, existing member state retail regulation regarding line rental has given rise to a particular structure of retail pricing and therefore cost recovery – though this retail regulation may or may not be lifted as part of member state regulatory actions.

Specifying all network availability as coverage is especially important in the context of fixed-mobile convergence. Indoor coverage explicitly competes against fixed origination services and as such is clearly a cost of the competitive mobile subscriber access and origination services, rather than incremental to wholesale termination services purchased by third parties. These third parties who must pay the wholesale termination rate are often competing to provide an alternative access and origination service in the same areas – by whatever existing or emerging technology – and therefore the choice of access technology should be indistinguishable by setting of technology independent regulation.

The approach defined precisely in this section is also consistent for example with the EC’s correct treatment of additional spectrum to increase capacity. Furthermore, in this regard we recommend that the EC expands the definition of



additional spectrum, again to be correct and consistent with the incremental costing approach, such that the costs associated with extra coverage achieved from additional spectrum (e.g. by virtue of operating at a lower frequency band) is not taken to be incremental to wholesale termination traffic.

IV.5. Economic depreciation

The model for network services will produce a schedule of capital and operating expenditures, or asset gross replacement cost. These expenditures must be recovered over time, ensuring the operator can also earn a return on investment. There are four main potential depreciation methods:

- historical cost accounting (HCA) depreciation
- current cost accounting (CCA) depreciation
- tilted annuities
- economic depreciation.

Economic depreciation is the recommended approach for regulatory costing. The table below shows that only economic depreciation considers all potentially relevant depreciation factors:

	HCA	CCA	Tilted annuity	Economic
MEA cost today		✓	✓	✓
Forecast MEA cost			✓	✓
Output of network over time				✓
Financial asset lifetime	✓	✓	✓	✓ ³
Economic asset lifetime			✓	✓

The primary factor in the choice of depreciation method is whether network output is changing over time. In a fixed network, circuit-switched traffic levels are relatively stable, and so tilted annuities are often chosen as a proxy for economic depreciation. In a mobile network cost model, where demand is more variable over time (e.g. for an actual operator), then results using tilted annuities will differ significantly from economic depreciation. However as fixed and NGN networks evolve with multi-play services, there is a decreasing likelihood of stable network outputs. The difference between HCA and CCA depreciation is the inclusion of MEA prices – which is applied in the calculation as supplementary depreciation and holding gains/losses. The difference between HCA and CCA is generally uninteresting in the light of more significant differences between HCA and annuity or economic depreciation. Cable Europe supports the EC position that only economic depreciation or a suitable proxy should be applied.

Proper consistency will also be required in the area of cost of capital. The EC draft is silent on this significant issue, which should be specified in the EC's final

³ Economic depreciation can use financial asset lifetimes, although strictly it should use economic lifetimes (which may be shorter, longer or equal to financial lifetimes).



decision according to consistent treatment between fixed and mobile systems. Technological neutrality and fixed-mobile convergence require that neither fixed or mobile systems are discriminated in terms of costs of capital employed – the opportunity cost of making investments – that are required to deploy a network and deliver services. As fixed networks move from digital circuit switching into NGN architectures and next-generation access facilities, they are equally as risky as 3G mobile systems built on the back of established and stable GSM networks and services. Asymmetry in terms of cost of capital should explicitly be stated by the EC as only permissible in the context of short-term justifiable risk allowances for new entrants.

IV.6. *Efficient scale*

The Draft Recommendation Annex states that:

"To determine the efficient scale for the purposes of the cost model, the recommended approach is to set that scale as follows: 1/Number of Mobile Infrastructure Operators. It may be expected that mobile operators, having entered the market, would strive to maximise efficiency and revenues and thus be in a position to achieve a minimum market share of 1/Number of Mobile Network Operators."

And accordingly, the EC states in recital (8) of the Draft Recommendation that:

"In order to achieve these objectives, the regulated termination rates should be brought down to the costs of an efficient operator. New entrants should be aware that symmetrical termination rates are applicable to all operators and they should not rely on receiving higher termination rates upon market entry."

For the purposes of setting cost-based wholesale termination regulation, Cable Europe supports this position and suggests that it should be a fundamental principle of a wholesale termination cost model that it be based upon 1/N scale. Mobile operators have typically been awarded national spectrum licences and have deployed coverage to in excess of 99% of the population. Therefore, they face no insurmountable impediment to achieving 1/N scale – particularly for the 99+% population covered – which should be funded by competing, interconnecting operators through termination charges.

By contrast with the "1/N approach" adopted for mobile networks, the Draft Recommendation leaves room for interpretation of scale in fixed networks. Therefore, in the Annex to the Draft Recommendation, the EC simply set out general guiding principles to be taken into account when defining efficient scale for fixed networks:

"To determine the efficient scale of an operator for the purposes of the cost model, NRAs should take into account that in fixed networks operators have the opportunity to build their networks in particular geographic areas and to



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focus on high-density routes and/or to rent relevant network inputs from the incumbents."

Cable Europe however suggests that the same, fundamental principles for determining scale in the case of mobile networks should be applied to fixed networks in order to maintain consistency between fixed and mobile costs and regulatory neutrality.

As the EC points out "alternative operator have the opportunity to build their networks in particular geographic areas". That means, that consistency with the mobile case requires that within those particular areas where alternative fixed networks have been deployed it is reasonable to expect that they can achieve $1/F$ market share, where F is the number of fixed access infrastructure providers within that coverage. In these areas, as it is also the case for mobile networks, a number of alternatives network would compete on the basis of same coverage and, as the EC states for mobile networks, "it may be expected that operators, having entered the market, would strive to maximise efficiency and revenues and thus be in a position to achieve a minimum market share of $1/\text{Number of Operators}$ ".

Therefore, applying a consistent coverage versus scale principle means that it is reasonable to calculate the fixed network cost according to, for example: 50% market share for the population (homes passed) where a cable operator is competing with the fixed incumbent, plus 100% market share for the population where the incumbent holds an access monopoly.

An alternative -though less rigorous approach- would consist of considering that the efficient fixed network operator has a market share of $1/N$ nationwide, where N is the number of alternative operators deploying their own network over a significant extension of the national territory.

According to the above, Cable Europe submits that an explicit reference to consistently determining fixed and mobile scale should be made in the Recommendation.

V. Conclusions

The Draft Commission's Recommendation on the regulatory treatment of termination rates constitutes a sound economic and regulatory approach to the problems created by the asymmetric and unharmonized treatment of fixed and mobile termination rates.

The main problems created by the asymmetric regulatory treatment of fixed and mobile termination rates are: 1.) distortions in fixed-mobile competition, pricing and resource allocation; 2.) obstacles to fixed-mobile convergence; 3.) reduced consumer welfare.

Mobile networks have matured to the stage where the general principles used to determine the termination rates should be no different to those applied for a fixed



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network. In particular, the exclusion of non-traffic sensitive costs from the calculation of mobile termination rates will improve the general level of symmetry between fixed and mobile rates and reduce the subsidy of these mobile operators by fixed operators with wide positive welfare effects.

Further regulatory approaches could be contemplated (e.g. symmetry at current fixed rates as a matter of principle, as in the US), based on the need to eliminate a termination externality distorting fixed-mobile substitution.

The exclusion of common costs from the increment in both fixed and mobile bottom up LRIC models, and their recovery through other non-regulated services, is supported by economic theory as it approaches a first-best pricing policy (pricing at marginal cost) and reduces externalities and distortions, as explained in this submission.

The likely impact of these measures on retail prices and usage are expected to be positive as they allow for a better allocation of resources and leaves more room for the interplay of market forces.

In terms of LRIC modelling two issues are crucial for the adequate implementation of the proposed measures: the definition of the coverage network and the choice of scale for the efficient operator in both fixed and mobile networks.

In the case of mobile networks, coverage should be defined, in line with the Commission's proposal as "the capability or option to make single call from any point in the network at a point in time, and capacity represents the additional network costs which are necessary to carry increasing levels of traffic." However, references to "minimum coverage" as they stand in the current Draft contradict the main definition and should be deleted. Furthermore, in order to avoid an unharmonized implementation, the definition should be further explained in the recommendation to be the total availability of national public mobile network signal across outdoor and in-building areas. It should also be stated that the coverage network must include the necessary minimum backhaul transmission, switching architecture, inter-switch transmission, ports and supplementary network management systems to enable the national radio network to function as a network.

Finally, in relation with the efficient scale of an operator for the purposes of the LRIC cost modelling, in the case of mobile networks the Draft Recommendation adopts a sound approach consisting in establishing the scale as 1/Number of Mobile Infrastructure Operators, irrespective of whether a particular operator has actually reached that scale. There is no reason why the same economic criterium should not be extended to modelling fixed termination rates. Consistency with the mobile case requires that in areas where alternative fixed networks have been deployed it is reasonable to expect that they can achieve 1/F market share, where F is the number of fixed access infrastructure providers within that coverage. In these areas, as it is also the case for mobile networks, a number of alternatives network would compete on the basis of same coverage.

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