



Commission for
Communications Regulation

Mobile Termination Rates:

Draft Bottom Up Pure Long Run Incremental Cost Model

Submissions to Consultation Document No. 14/29

Reference: ComReg 14/29s

Version: Final

Date: 15/10/2014

An Coimisiún um Rialáil Cumarsáide

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1 Eircom Group

eircom Group

Response to ComReg Consultation Paper:

**Mobile Termination Rates:
Draft Bottom Up Pure Long Run Incremental Cost Model**

ComReg Document 14/29



20 June 2014

DOCUMENT CONTROL

Document name	eircom Group response to ComReg Consultation Paper 14/29
Document Owner	eircom Group
Status	Non-Confidential

The comments submitted to this consultation are those of Meteor Mobile Communications Ltd. (MMC) and eircom Ltd (eircom) collectively referred to as eircom Group.

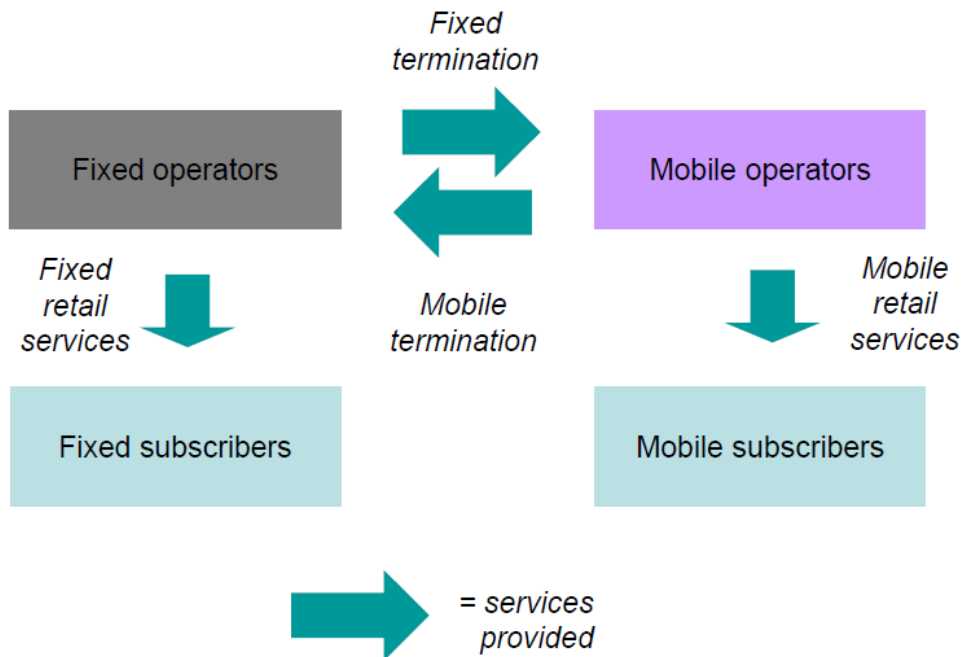
Introduction

In November 2012 ComReg issued a Decision¹ (D12/12) which had the effect of implementing from 1st July 2013 cost oriented Mobile Termination Rates (MTRs) and Fixed Termination Rates (FTRs) using Pure LRIC as the costing standard. Following an appeal of the MTR, part of the Decision the High Court ruled that MTRs should be set at an interim level significantly above the Pure LRIC benchmark level. Despite the High Court decision, ComReg has maintained the pure LRIC obligation for FTRs.

As highlighted in previous correspondence from eircom, this is contrary to ComReg’s own reasoning in D12/12 and the objectives for the European Commission’s 2009 Termination Rate Recommendation² which seek to ensure that MTRs and FTRs should be treated consistently regarding the application of Pure LRIC, in order to avoid competitive distortions by imposing a significant asymmetry in how costs are recovered between fixed and mobile services.

Fixed and mobile termination services are key inputs into the provision of fixed and mobile retail services as illustrated by the figure 1.

Figure 1.



As recognised by ComReg in Decision D12/12, the way fixed and mobile termination rates are set can have important implications for competition between operators. A key issue considered by ComReg was whether termination rates should include a contribution to fixed and common costs. For an operator to make a reasonable economic return it needs to recover all of its fixed and common costs from the services that it provides. However, if termination rates are set at pure LRIC, as determined by ComReg, then an operator providing termination services receives no contribution to its fixed and common costs from these charges. All other things equal, this means that an operator needs to recover more fixed and common costs from its other services (than it would if there termination rates included a contribution to fixed and common costs).

¹ Price Control Decision D12/12 ComReg Document No. 12/125 Mobile and Fixed Voice Call Termination Rates in Ireland (the „2012 Price Control Decision“)

² European Commission Recommendation: “The Regulatory Treatment of Fixed and Mobile Termination Rates in the EU” (2009/396/EC), dated 7 May 2009.

As fixed operators make a material contribution to mobile operators fixed and common costs through MTRs but mobile operators do not make a contribution to fixed operators fixed and common costs via FTRs we are presented with a significant distortion of competition. This is because it leads to a change in the relative pricing of fixed operators' products compared to mobile operator's products and thereby alters the relative attractiveness of the products to telecommunications subscribers. This will affect the ability of fixed operators to be able to retain existing subscribers and call volumes, or compete for new subscribers and call volumes. Fixed operators would be disadvantaged compared to mobile operators in two ways:

1. **A direct effect:** Mobile operators pay only pure LRIC for fixed termination rates and reflect this in lower retail prices for calls originated on mobile networks. In contrast, fixed operators have to pay mobile termination rates significantly above pure LRIC and would be expected to reflect this in fixed retail prices.
2. **An indirect effect:** Through charging only pure LRIC for FTRs fixed operators need to recover more of their fixed and common costs from their own subscribers by increasing the retail prices of fixed telecommunications services. The mechanism for this change is that a decrease in FTRs would lead to decreased interconnection revenues for each fixed subscriber (because fixed subscribers receive calls). This fall in FTRs would decrease the future profitability of fixed subscribers and, given the significant competition from other fixed operators and from mobile operators, this decrease in profitability would be passed through into higher charges for fixed customers due to the waterbed effect³. In contrast, mobile operators, will continue to recover a significant proportion of their fixed and common costs from mobile termination services enabling them to keep down mobile retail prices.

Through both direct and indirect effects fixed operators are at a substantial disadvantage to mobile operators. Mobile operators are able to provide more competitive services due to the distortion of competition that arises from the asymmetric treatment of termination services. This would be expected to lead to both

- (i) a decrease in the number of fixed subscribers and
- (ii) a decrease in the volume of fixed originated call volumes, as fixed subscribers and call volumes switch to mobile.

This analysis is consistent with Decision D12/12 which recognises the distortions in competition between fixed and mobile operators that arise from above pure LRIC termination rates. For example, the Decision noted that the European Commission had set out objectives for the 2009 Termination Rate Recommendation that included levelling the playing field between fixed and mobile operators and ensuring that more competition is possible. Decision D12/12 also refers to the distortions between fixed and mobile operators that arise when neither fixed nor mobile termination rates are set at pure LRIC in several places.

"...mark-ups over the efficient costs of wholesale call termination can generate competitive distortions between fixed and mobile networks, and between Service Providers of the same networks that have asymmetric market shares. The direction and intensity of retail competition can

³ The waterbed effect describes the interdependence between the prices that are charged by an operator to its retail customers and the profits it makes from providing interconnection services to other operators. ComReg recognises the waterbed effect in D12/12 (see, for example, paragraph 5.21). The waterbed effect would be expected to be observed in both fixed and mobile markets. This is because, when operators compete to attract subscribers, they take account of the interconnection profits (or losses) that are yielded from each additional subscriber when setting retail prices. Therefore, if operators expect an increase (or decrease) in profits from the provision of interconnection services this will be translated into lower (or higher) retail prices because the operators will compete harder to acquire each new customer.

be distorted in a number of ways by the level of Termination Rates which may not necessarily be related to the superior technical or cost efficiency of a given Service Provider.”⁴

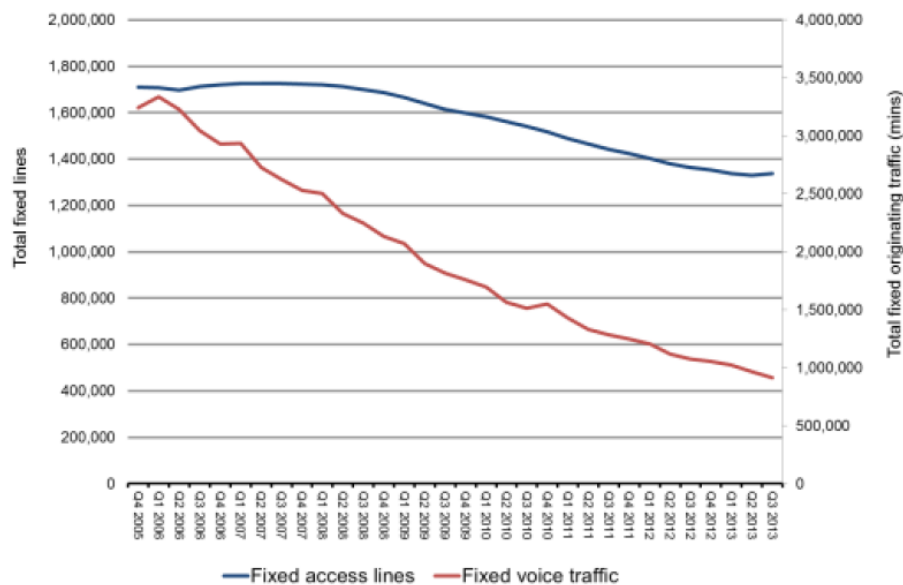
“The further Termination Rates move away from the incremental or efficient cost of the wholesale call termination service, the greater the transfers between Service Providers and the greater the potential for competitive distortions between FSPs and MSPs, and between Service Providers with asymmetric market shares. It may also raise impediments for at least some customers to switch networks to the extent that they enjoy on-net discounts within calling circles.”⁵

“Reducing these wholesale transfers provides a more competitively neutral framework at the retail level thereby supporting all forms of inter-operator (including fixed-to-mobile) competition”⁶

The distortions referred to in these paragraphs can only be even greater while MTRs continue to be set significantly above pure LRIC and FTRs are set at pure LRIC.

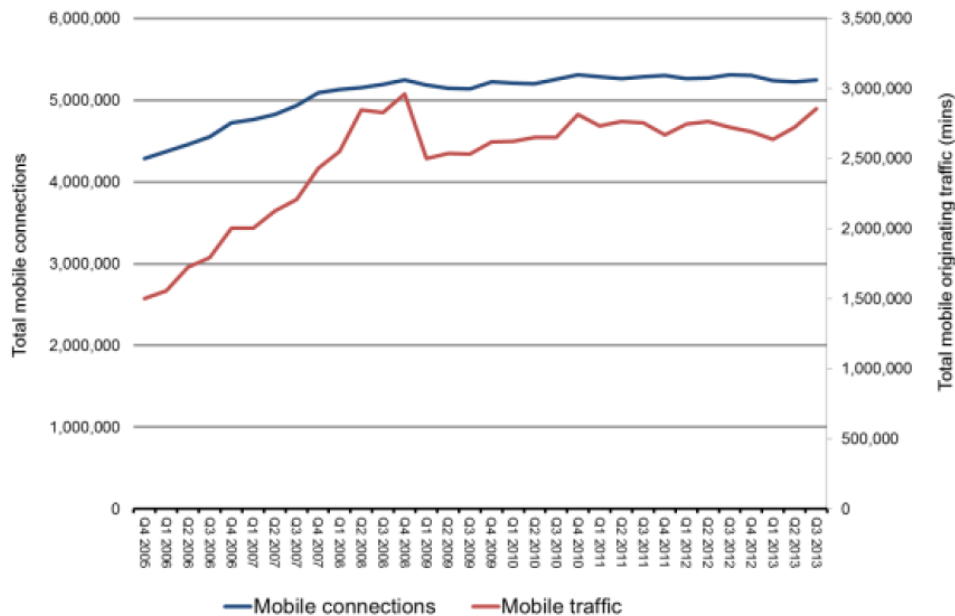
There is significant competition between fixed and mobile operators in Ireland for both subscribers and calls. Mobile is a suitable alternative for customers that wish to purchase standalone fixed voice access and calls. There are a growing number of households that are choosing to forego a fixed voice connection in favour of mobile which underlines the competitive constraint that mobile imposes on fixed providers. As illustrated when comparing Figure 2 and Figure 3, there is a clear and persistent migration of voice traffic away from fixed access lines.

Figure 2: Fixed Access & Traffic Trend



⁴ Decision D12/12 paragraph 2.15
⁵ Decision D12/12 paragraph 2.18
⁶ Decision D12/12 paragraph 2.19

Figure 3: Mobile Connections and Traffic Trend



The situation in Ireland is similar to that in many other European countries. It is reported that the European Commission is considering removing market 1 (Access at a Fixed Location) as the only retail market in the current list of recommended markets because it considers that there are no longer entry barriers. In particular, we understand that the Commission recognises that traffic is shifting from fixed to mobile networks, and dominant operators in the fixed-access market will be constrained by the presence of mobile operators⁷.

By increasing the relative price of fixed access and calls and by enabling mobile operators to retain low prices for mobile access and calls (subsidised by customers of fixed operators and fixed operators themselves), ComReg is exacerbate these trends to the disadvantage of fixed customers and fixed operators.

eircom appreciates ComReg’s previous expressions of a commitment to expedite the completion of the modelling exercise and the ultimate delivery of a decision on the mobile call termination rate. In this context we note that it has been necessary to extend the consultation period to cater for questions that have been raised by stakeholders and to allow all interested parties to consider the responses to those questions.

In light of the extended consultation period there is an even greater emphasis on the need for ComReg to take all necessary steps to ensure that those elements that are under its control; (namely the review of submissions and delivery of a final decision through the Commissioners), are rapidly progressed to ensure the delivery of a prompt decision on a Pure LRIC MTR, putting an end to the distortions to the market that will have been perpetuated for over a year beyond what was intended in D12/12.

⁷ See MLex, 10 December 2013, EU Commission seeks to shorten list of regulated telecom markets

Response to Consultation Questions

Q. 1 Do you agree with ComReg’s preliminary views regarding the appropriateness of the operator parameters and their application in the Draft BU Pure LRIC Model? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views.

On the matter of market share, eircom notes that market share has a significant impact on the resulting MTRs, highlighting the importance of applying valid market share assumptions. We note that in table 1 of the current consultation document (ComReg 14/29), it is assumed that a new entrant commencing operations in 2003 would achieve a 25% market share by 2007. This does not reflect the experience of new entrants to the Irish market however in the interest of reflecting the current reality we consider this to be a reasonable approach as a more gradual increase in market share would necessitate a model that extends further back in time, adding to the complexity and uncertainties in the modelling exercise.

Extract from ComReg 14/29 (Table 1):

	2003	2004	2005	2006	2007	2008	2032
Market share	0%	3.50%	12.50%	21.5	25%	25%	...	25%

The foreword looking impact of the market share assumptions is of greater significance as demonstrated in Table 16 of ComReg 14/29.

Extract from ComReg 14/29 Table 16 – Analysis of pure LRIC costs (Euro) under baseline scenario⁸⁷ and two alternative market share scenarios

	2015	2016	2017	Average 2015-2017
Total Pure LRIC (baseline 25% market share)	0.006	0.0057	0.0053	0.0057
Scenario: 33% market share 2003-2032	0.0048	0.0045	0.0043	0.0045
Scenario: 25% until 2014 and 33% from 2014 until 2032	0.0056	0.0053	0.0053	0.0053

Now that the outcome of the proposed H3GI/O2 acquisition, is known ComReg should adopt the 3rd scenario from Table 16 which assumes a forward looking 33% market share from 2014.

eircom agrees with ComReg’s preliminary views regarding the appropriateness of the operator parameters and their application in the Draft BU Pure LRIC Model. We agree that an actual operator approach which would likely result in differing MTRs across the operators would be inconsistent with the Termination Rate Recommendation⁸, particularly with respect to ensuring that MTRs are based on efficiently incurred costs.

Given the diverging characteristics across the 4 Irish mobile operators with respect to market share and the profile of each customer base, an average operator approach would constitute a very inaccurate means of achieving a representative model. eircom also concurs with ComReg view that this would fail to address the efficiency requirement with respect to resulting MTRs.

⁸ European Commission Recommendation: “The Regulatory Treatment of Fixed and Mobile Termination Rates in the EU” (2009/396/EC), dated 7 May 2009.

As regards the hypothetical efficient new entrant approach, eircom welcomes the fact that ComReg is cognisant of the need for regulated MTRs to accommodate legacy technologies and the associated investments. It would not be reasonable to set MTRs at a level that fails to meet the higher costs associated with legacy technologies while those technologies continue to be used in the delivery of call termination service. We also welcome ComReg's intent to allow for a reasonable rate of return on efficiently incurred costs by including the cost of capital in the Draft BU Pure LRIC Model.

With regard to the structure of the model eircom considers the proposed Bottom Up (BU) approach to be the most appropriate among the approaches considered, as a means of establishing a pure LRIC MTR as required in the Recommendation.

Q. 2 Do you agree with ComReg's preliminary views regarding the appropriateness of the service parameters and their application in the Draft BU Pure LRIC Model? Please provide reasons for your response clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views

ComReg advises that the primary reason for applying a 30 year model is to allow for the economic depreciation profile for those assets with longer lives, for example towers while also extending to up to two spectrum allocation periods. It was also noted that the model will be subject to review again in 2017 which will allow for the underlying assumptions to be reviewed in light of market and technology trends. eircom acknowledges the rationale for this approach though we would like to stress the importance of ensuring a review in the next three years given the challenges that arise in reliability projecting beyond 2017 in such a dynamic market.

We note that Figure 2 of the current consultation document (ComReg 14/29) projects growth in outgoing minutes that is significantly greater than the growth in incoming minutes. With declining fixed line minutes we assume that this relies on an underlying assumption in the model that on-net traffic is driving the growth in outgoing minutes (assuming on-net traffic qualifies as outgoing minutes while not being considered an element of incoming minutes associated with MTR). This may be true for a limited time while lower priced on-net offers continue to prevail across mobile price plans, however with declining MTRs, we would expect such offers to become less relevant as the lower input cost will likely result in an increasing prevalence of offers that allow for any-network calls at discounted rates. This is an example of the difficulty that is faced in forecasting market trends, noted in the previous paragraph.

Following previous queries to ComReg in respect of SMS trends, ComReg has revised its forecast for SMS from continued growth down to a continuation of current volumes up to 2032. ComReg explained that future population growth and Machine to Machine applications influence the SMS forecast. However eircom expressed its view that these two elements would be unlikely to counter the already evident market trend of a steep decline in SMS usage of approximately 25% per quarter up to Q1 2014.

eircom notes that an action was taken to review the forecast depicted in Figure 8 of the Specification Document. ComReg subsequently stated in clarifications provided by email that data in the draft model is based on operator forecasts for SMS while adding that operators are encouraged to review forecast data provided as part of the data request, or provide forecasts if they believe they are in a position to do so. For its data submissions, eircom forecasted a year ahead in the case of SMS and this forecast concurred with the market trend of declining SMS volumes. We appreciate that ComReg has now confirmed that one data submission did forecast increasing SMS volumes, however we don't believe that this justifies an assumption that SMS

volumes will not decline, given that ComReg’s own quarter market data reports are already testifying to a decline in SMS traffic.

Q. 3 Do you agree with ComReg’s preliminary views regarding the appropriateness of the technological parameters and the network structure (including network design parameters and dimensioning rules) used to model the hypothetical efficient operator’s mobile network? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views.

With regard to the lifespan of 2G technologies, an assumption is made⁹ (apparently based on operator forecasts) that 2G will carry 40% of total voice traffic in 2020 with 2G technologies remaining beyond 2020 to serve Machine to Machine (M2M) demands. eircom questions both assumptions as it is its expectation that 2G is likely to be phased in the early 2020s.

Figure 4 of ComReg 14/29 presents the forecasted total data traffic by technology. With respect to data traffic, we consider the model to prematurely diminish the portion of data traffic carried over 2G networks in the nearer term. eircom would expect 2G to continue at low single figure percentages for data usage to 2020 tailing-off towards zero beyond 2020.

Also regarding LTE, we consider the data volumes attributed to LTE to be understated for 2014. For instance approximately 30% of Meteor’s data traffic is already being carried by LTE in 2014, whereas the model appears to suggest less than 5%.

Table 22 of ComReg 14/29 sets out the proportion of 2G 1800MHz sites collocated with 900 MHz sites. The percentages applicable to collocation at Urban, Suburban and Rural sites appear to be counterintuitive and the reverse of reality. eircom acknowledges that the percentages are calculated against total sites excluding 3G, however regardless of whether 3G sites feature in the percentage calculation, eircom would expect the percentage of sites with collocation to reduce when looking from urban to suburban to rural sites. For instance in the case of the Meteor network approximately 30% of urban sites, 30% of suburban and 30% rural sites involve 2G 900MHz/1800MHz collocation. Therefore we believe that the percentages in the draft Model should be reviewed, the order reversed and possibly revised upwards.

Extract from ComReg 14/29a Table 22: Proportion of 2G 1800MHz sites collocated at 2G 900MHz sites

Geo-type	Used in draft for consultation model
Urban	4%
Suburban	8%
Rural	14%

In ComReg 14/29 Figure 18 the trend assumed for the draft model for 2G only sites, 3G only sites and 2G and 3G sites with the respective percentage of total sites being 53%, 39% and 8% for 2014. eircom would expect the percentage of 3G only sites to be far lower with the difference being made up in combined 2G and 3G sites. Based on the Meteor network at the time of this submission the breakdown is; 30% 3G, 30% 2G & 3G, 30% 2G only.

⁹ Deloitte MTR Model Specification Document for Ireland. A Draft for Consultation Report for ComReg 10 April 2014, section 4.2 (ComReg 14/29a)

Q. 4 Do you agree with ComReg’s preliminary views regarding the appropriateness of the network element costs used to cost the hypothetical efficient operator’s mobile network? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views.

eircom has identified 3 particular elements in the model that require further consideration which are individually addressed here.

1. Indirect Capex Mark-up

The first being capex mark-up for indirect costs. In the draft model a mark-up for indirect capex of 40% of direct capex. is applied. eircom appreciates that mobile operators were only able to provided limited data in respect of this, however it is not clear how ComReg settled on such a high mark-up.

This is not an insignificant driver of the MTR that will ultimately result from the model and in light of this eircom has sought to establish the effect of applying a lower mark-up. To demonstrate the impact, eircom has applied what we consider to be a still conservative 26% mark-up. The results of this are set out in table 1¹⁰.

Table 1: Applying a 26% Indirect Capex Mark-up

Avg=	0.54	2013	2014	2015	2016	2017	2018	2019
Pure LRIC	Nominal	0.0064	0.0061	0.0057	0.0054	0.0051	0.0048	0.0045
	Real	0.0064	0.0059	0.0055	0.0051	0.0047	0.0044	0.0041
Applying 26% of Capex mark-up & leaving all other variables unchanged and implement								

When setting the Fixed Termination Rate (FTR), the indirect capex mark-up is far lower, in the region of 10% when the average is taken between the two sets of regulatory approaches that apply in the fixed model (PSTN based and NGN based). The results of applying a 10% mark-up to the MTR model are shown in table 2.

Table 2: Applying a 10% Indirect Capex Mark-up

Avg=	0.48	2013	2014	2015	2016	2017	2018	2019
Pure LRIC	Nominal	0.0057	0.0054	0.0051	0.0048	0.0045	0.0043	0.0040
	Real	0.0057	0.0053	0.0049	0.0046	0.0042	0.0039	0.0036
Applying 10% Capex mark-up & 10% Opex mark-up & leaving all other variables unchanged								

2. Efficiency Gains

The second element that requires consideration is the matter of an efficiency coefficient¹¹ which appears not to have been addressed at all in the model. The concept of efficiency coefficient has been applied to the FTR cost model at 12%.

¹⁰ All other variables are kept constant at the base line levels that are set in the draft model that has been provided by ComReg.

¹¹A concept developed in the 1960s by the Boston Consulting Group (BCG) who observed that the unit cost of manufacturing in the semiconductor industry fell by about 25% for every doubling of the volume produced. Further research has shown that this was not unique to this industry, but could be observed in many industries.

eircom has isolated the effects of applying a lower indirect capex mark-up and efficiency gains which results in a reduction in the resulting MTR from 0.57c to 0.54c and 0.48c respectively. The combined effect of both could result in an even lower MTR of 0.45c and 0.40c respectively when combining with the above two scenarios as set out in tables 3 and 4.

Table 3. Applying a 12% Efficiency Coefficient

Avg=	0.45	2013	2014	2015	2016	2017	2018	2019
Pure LRIC	Nominal	0.0064	0.0057	0.0050	0.0045	0.0040	0.0036	0.0033
	Real	0.0064	0.0056	0.0049	0.0043	0.0038	0.0033	0.0029

Applying 26% of Capex mark-up & 12% efficiency and leaving all other variables unchanged and implement

Table 4. Applying a 12% Efficiency Coefficient

Avg=	0.40	2013	2014	2015	2016	2017	2018	2019
Pure LRIC	Nominal	0.0057	0.0051	0.0045	0.0040	0.0036	0.0032	0.0029
	Real	0.0057	0.0050	0.0044	0.0038	0.0033	0.0029	0.0026

Applying both 10% Capex mark-up & 10% Opex mark-up and 12% efficiency & leaving all other variables unchanged.

3. Price Levels Relative to other EU Countries for Cost Inputs

In Table 21 of ComReg 14/29 an asset life of 15 years is placed on the NMC whereas the highest benchmark that ComReg has presented is Sweden at 10 years with UK as low as 6 years. eircom would expect many NMC elements to be subject to far short economic lives with significant variation across elements, therefore we consider a 15 year economic life to be unrealistic and that a 10 year asset life is likely to be at the upper end of a realistic estimate.

eircom is also concerned that the price level of the Capex items set out in table 25 of ComReg 14/29a appears high relative to the benchmarking of other EU NRAs, particularly with respect to RAN elements which are sensitive with respect to influencing the model outcomes.

Q. 5 Do you agree with ComReg’s preliminary views regarding the appropriate implementation approach in the Draft BU Pure LRIC Model? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant supporting factual evidence.

Please see the responses to the previous questions.

Q. 6 Do you agree with ComReg’s preliminary views regarding the maximum MTR that MSPs should charge for the forthcoming price control period? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views.

Regarding the proposal to apply a single average rate up to 2017, eircom is of the view that this is preferable to specific rates for each year, on the basis that it does not consider there to be a material impact in choosing one option over the other, while opting for an average rate avoids the administrative overhead that would arise with annual MTR adjustments.

Q. 7 In light of the preliminary results from the Draft BU Pure LRIC Model, do you believe that there is any other data that might be relevant? If so, please provide the data to ComReg. In particular,

where available, please provide data which ComReg has been thus far unable to obtain from operators as indicated in Table 12 of this Consultation.

Aside from data provided in response to question 3 by way of reference to the Meteor network, eircom does not believe that there is any other data available to it at this time that might be relevant.

Q. 8 Do you agree with ComReg's preliminary views regarding notification periods and statements of compliance? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views.

eircom considers the proposed approach to notifications to be pragmatic in accommodating the calendar billing cycles that typically apply to interconnect services, while thereafter avoiding any unnecessary delays in having the modelled MTR applied to interconnect traffic.

We note that the notification periods accommodate future changes. While we believe that such an approach prudently allows for various outcomes with respect to the application of a single average rate to 2017 or specific rates for each year, eircom reiterates its preference for a single average rate to 2017 for the reasons outlined in response to question 6.

Q. 9 Is there any other issue you wish to respond to relating to the issues discussed in this Consultation Document? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views.

Further to our commentary in the introduction to this response, eircom notes ComReg's intention to conclude the process of setting the pure LRIC based MTR later this year. As highlighted above the asymmetry in the basis for regulating MTRs as compared to FTRs is a serious concern for eircom as it undermines its ability to compete in a market that has evolved into a market for communications services in which fixed and mobile operators compete head to head for customers. This demands an expeditious move to pure LRIC MTRs failing which a review of FTRs would be called for to avoid an enduring asymmetry.

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Ms Claire Kelly
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20 June 2014

Dear Ms Kelly

RE: SUBMISSION RE COMREG 14/28 and 14/29

I refer to: (i) ComReg Doc. No. 14/28, "*Review of Cost of Capital, Mobile Telecommunications, Fixed Line Telecommunications and Broadcasting (Market A and Market B)*" ("ComReg's Cost of Capital Consultation and Draft Decision"); and (ii) ComReg Doc. No. 14/29, "*Mobile Termination Rates: Draft Bottom Up Pure Long Run Incremental Cost Model*" ("ComReg's MTR Cost Model Consultation and Draft Decision").

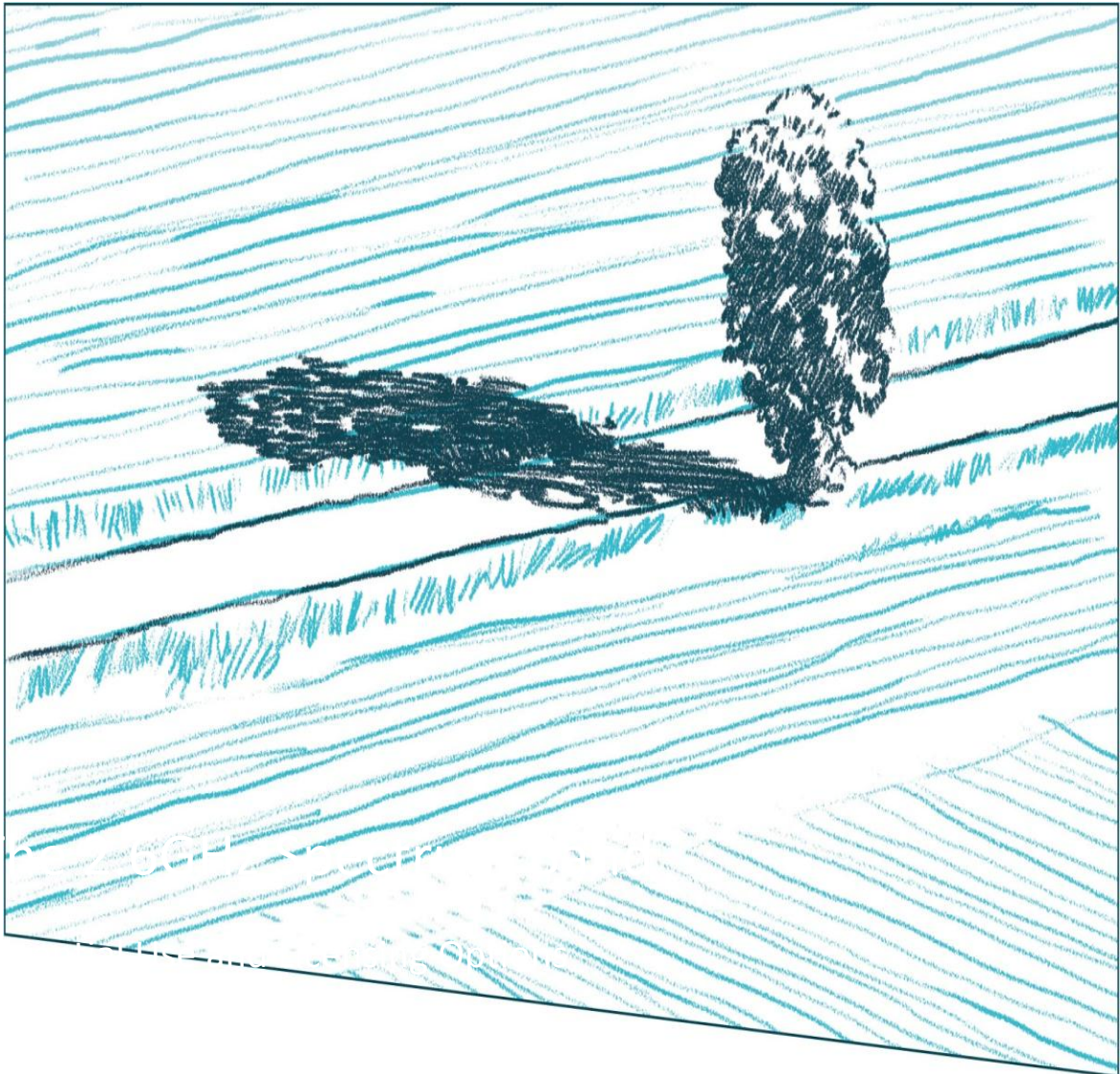
As ComReg is aware, the European Commission approved the acquisition by Hutchison 3G Ireland Limited ("Three") of O2 (the "Transaction") on 28 May 2014. Three and O2 expect to complete the Transaction shortly. The acquisition by Three of O2 could have a significant impact on the information gathered to date by ComReg, ComReg's approach to the cost of capital for mobile telecommunications and its MTR cost model, and Three's response to ComReg's related consultations. As a result, Three believes that it is premature (and disproportionate) for ComReg to consult in respect of this matter until the Transaction is completed and Three has an opportunity to provide an informed response to ComReg.

Without prejudice to the above, Three reserves the right to raise any points made by third parties in response to ComReg's Cost of Capital Consultation and Draft Decision, and/or ComReg's MTR Cost Model Consultation and Draft Decision in any subsequent challenge to ComReg's resulting decision.

Yours sincerely

CATRIONA COSTELLO
Senior Regulatory Affairs Manager

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**Mobile Termination rates:
BU-LRIC Model consultation
ComReg 14/29
20th June 2014**

Telefonica

Telefonica welcomes the opportunity to respond to the consultation on the BU-LRIC model in relation to mobile termination rates.

Telefonica, where applicable, has responded to the questions raised in the consultation however Telefonica has grave concerns at the timing of the consultation. As ComReg are aware two of the four mobile operators are involved in a merger which will result in significant change for both operators in terms of network design, cost and functionality. Any submissions or data given to ComReg over the course of this consultation process is therefore subject to significant revision in the coming months and would not be valid as a basis for assumptions around future network costs. Telefonica would strongly urge ComReg to defer considering of the BU-LRIC model until such time as the integration of the merged networks is clear.

Telefonica would also remind ComReg that Telefonica in its response to the consultation on SMP in the market for wholesale voice call termination on mobile networks objected to the use of the BU-LRIC approach to cost modelling. Telefonica notes that Vodafone had challenged the use of the cost model in its legal action to ComReg's price control decision and that this action is still outstanding.

Q. 1 Do you agree with ComReg's preliminary views regarding the appropriateness of the operator parameters and their application in the Draft BU Pure LRIC Model? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views.

Telefonica believes the market structure needs to be decided before ComReg can come to a conclusion on the appropriate market shares but notes and accepts ComReg's approach to market shares for all active MNOs in the market.

Telefonica however have concerns with a number of assumptions made in this section. Telefonica notes that a BU approach is preferred by ComReg for this modelling exercise. ComReg are not consistent in explaining why it is appropriate to apply BU approaches to mobile but not in other markets regulated by ComReg, for example, broadcasting. The applicable BU approach does address inefficiency and legacy costs but top down analysis is lighter touch in terms of cost to industry.

The modelling approach by ComReg has also highlighted a number of assumptions which are not consistent with reality. For example, ComReg assume an efficient operator would only invest in LTE not 3G whereas operators are investing 3G to enhance service in rural areas before considering 4G.

Q.2 Do you agree with ComReg's preliminary views regarding the appropriateness of the service parameters and their application in the Draft BU Pure LRIC Model? Please provide reasons for your response clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views?

Telefonica in general agrees with much of the service assumptions however Telefonica are concerned that ComReg assumes outgoing and incoming minutes per subscriber is flat but this is not reflective of reality. In fact it is probably the case that the expansion of 'all you can eat packages' means in the coming years there will be an increase in the number of minutes on the network.

Q. 3 Do you agree with ComReg's preliminary views regarding the appropriateness of the technological parameters and the network structure (including network design parameters and dimensioning rules) used to model the hypothetical efficient operator's mobile network? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views.

Telefonica are concerned at the approach taken in relation to spectrum costs and in particular the assumption that it is a linear decision to either buy more spectrum or invest in the network. Operators are not able to make such linear decisions and are obliged to purchase blocks of spectrum at irregular intervals so operators may have insufficient spectrum and therefore do not have an optimal network design but instead have additional costs. ComReg are taking a hypothetical allocation of spectrum which could not be purchased or used by an operator in the fashion ComReg assume. This highlights the limitations of cost modelling on hypothetical operators as the component costs could not be replicated by a real world operator.

Q. 4 Do you agree with ComReg's preliminary views regarding the appropriateness of the network element costs used to cost the hypothetical efficient operator's mobile network? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views.

Telefonica are broadly in agreement with the network costs as detailed in the consultation. Telefonica would note however that it is a mistake not to include UMTS 900 in the modelling as all operators utilise this Technology layer. It is reasonable to assume 2G & 3G Rollout from a timeline of 2003 however it is not logical to assume any Operator in 2014 would deploy only 4G (LTE) to support Voice & Data services.

ComReg's assumptions in relation to national roaming are supported by the fact that in 2014 only 2 of 4 Mobile operators have a network that provides full national coverage on its own. Telefonica would note ComReg's assumption that network sharing is purely passive sharing, this is despite network sharing agreements are in place in the market which do share active components.

Telefonica have concerns that the sectorisation to 20% of Rural area is very high versus our experience in the market. This may be a symptom of Micro cell legacy that has driven the high omni-sectorisation % in rural areas. Telefonica also notes that the modelling does not appear to cover Transmission, i.e. Microwave Radio or Fibre and doesn't appear to cover data centre modelling either as owned or hosted solutions. There is no consideration in the modelling for Business Continuity impacts (e.g. Battery Backup, Generator backup to ensure Service Uptime) and the associated network costs.

Finally, Telefonica notes that it is not clear if the modelling for MVNO Access on Network is included and would seek clarification from ComReg.

Q. 5 Do you agree with ComReg's preliminary views regarding the appropriate implementation approach in the Draft BU Pure LRIC Model? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant supporting factual evidence.

Telefonica have no comments on this section but would refer ComReg to its response on cost of capital.

Q. 6 Do you agree with ComReg's preliminary views regarding the maximum MTR that MSPs should charge for the forthcoming price control period? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views.

Telefonica have no further comments on this section

Q. 7 In light of the preliminary results from the Draft BU Pure LRIC Model, do you believe that there is any other data that might be relevant? If so, please provide the data to ComReg. In particular, where available, please provide data which ComReg has been thus far unable to obtain from operators as indicated in Table 12 of this Consultation.

Telefonica have no further comments on this section

Q. 8 Do you agree with ComReg's preliminary views regarding notification periods and statements of compliance? Please provide reasons for your Mobile Termination Rates: response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views.

Telefonica agree with ComReg's proposals on notification and compliance.

Q. 9 Is there any other issue you wish to respond to relating to the issues discussed in this Consultation Document? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views.

Telefonica have no further comments

4 Tesco Mobile Ireland Limited

20 June 2014

Mobile Termination Rates

– Bottom Up Pure Long Run Incremental Cost Model

Reference: ComReg 14/29

Submission by Tesco Mobile Ireland Limited ("TMI")

20 June 2014

Response to ComReg 14/29 – Mobile Termination Rates: Draft BU Pure LRIC Model

A. Introduction

1. This submission is made by Tesco Mobile Ireland Limited ("TMI") in response to ComReg's Consultation and Draft Decision Document entitled "Mobile Termination Rates: Draft Bottom Up Pure Long Run Incremental Cost Model ComReg Document No. 14/29" (**Consultation**).
2. TMI welcomes the opportunity to respond to the Consultation and we have responded to the questions raised in the Consultation insofar as those questions are directly relevant to our business.
3. Our primary concern in regard to this Consultation is its timing. ComReg has acknowledged in the Consultation that "considerable uncertainty" exists in regard to the potential outcome of the H3GI/O2 transaction but there are other uncertainties as well (e.g., the possible/likely entry of UPC, Carphone Warehouse, possible flotation of Eircom, rumours of challenges by an MNO to the H3GI/O2 decision and the pending pertinent litigation before the Supreme Court). Just to focus on the H3GI/O2 transaction, the outcome of this transaction, and the relevant conditions attached to the European Commission's decision which are not in the public domain, may necessitate fundamental and material changes not only for two of the four existing MNOs, but for the market as a whole and hence MTR setting. This would call into question ComReg's key assumptions as regards market shares and the resultant market conditions which may prevail when the transaction is implemented. It is acknowledged that there is never an optimum time to make decisions in a dynamic market but it would be impossible for any regulator to make a valid and robust decision right now given the state of flux. The Consultation is premised on a number of assumptions (e.g., 3.38 and 3.39) which are already overtaken by events. Given that the Consultation is to map out the landscape for future years, a short delay for matters to be clarified would be prudent. If a decision were reviewed then it is likely that it would be found that ComReg did not have all the relevant facts in its possession when it made the decision but a short postponement would have clarified matters to the point of the decision being more defensible as it would otherwise be out of date (e.g., 2.13).
4. The Consultation also refers to the Vodafone successful appeal against ComReg's 2012 MVCT Decision and ComReg's 2012 Price Control Decision and ComReg's appeal to the Supreme Court. While the High Court has held over its decision relating to the choice of pure LRIC as the appropriate methodology until such time as a model is completed by ComReg. The Consultation Document is the preliminary stage to the completion of a BU Pure LRIC model for Ireland, yet the High Court and Supreme Court litigation arguable creates an air of uncertainty around the Consultation procedure.
5. Any submissions or data given to ComReg in response to the Consultation, particularly in regard to future network costs, risk being rapidly superseded by events outside of ComReg's and the MSPs' control.
6. Therefore, TMI strongly urges ComReg to defer considering of the Bottom Up Pure Long Run Incremental Cost Model, at least until there is greater clarity as regards the H3GI/O2 transition and the surrounding (and as yet unclear) events in the market place because of that transaction.

B. Questions

- Q.1 *Do you agree with ComReg's preliminary views regarding the appropriateness of the operator parameters and their application in the Draft BU Pure LRIC Model? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views.*

ComReg's model is constructed on the basis of a number of network assumptions, which are based on prevailing conditions in the market. As the structure and dynamics of the market are likely to change very shortly with the European Commission having already conditionally approved the H3GI/O2 transaction (though those conditions are not in the public domain), we submit that that there is an imperative to wait before coming to a conclusion on the appropriate market shares.

The modelling approach by ComReg is based on a number of assumptions including the assumption that an efficient operator would only invest in LTE and not 3G as set out in para 3.23. TMI is of the view that this assumption is not consistent with the prevailing and/or future market dynamics where operators are investing in 3G to enhance service in rural areas before progressing 4G further.

We note that at para 3.27, ComReg notes that a "TD model is not appropriate", however, this is inconsistent with ComReg's approach in regard to other markets, e.g., broadcasting. While bottom up may have its merits, such as addressing both inefficiencies and legacy costs, top down analysis is lighter touch in terms of cost and burden which is placed on the industry.

- Q.2 *Do you agree with ComReg's preliminary views regarding the appropriateness of the service parameters and their application in the Draft BU Pure LRIC Model? Please provide reasons for your response clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views.*

Figure 2 of the Consultation appears to assume that forecasts for both outgoing and incoming annual voice minutes per subscriber will be flat. However, with the advent and increased popularity of all-you-can-eat packages, this would appear to undermine ComReg's assumption.

- Q.3 *Do you agree with ComReg's preliminary views regarding the appropriateness of the technological parameters and the network structure (including network design parameters and dimensioning rules) used to model the hypothetical efficient operator's mobile network? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views.*

As TMI is not an MNO (i.e., does not have its own network), it is not in a position to respond to this question but it would not want to see any outcome which could have a negative impact on MVNOs and their customers.

- Q.4 *Do you agree with ComReg's preliminary views regarding the appropriateness of the network element costs used to cost the hypothetical efficient operator's mobile network? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views.*

As TMI is not an MNO (i.e., does not have its own network), it is not in a position to respond to this question but it would not want to see any outcome which could have a negative impact on MVNOs and their customers.

- Q.5 *Do you agree with ComReg's preliminary views regarding the appropriate implementation approach in the Draft BU Pure LRIC Model? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant supporting factual evidence.*

TMI is not in a position to comment on the technical aspects of the implementation approach in the Draft BU Pure LRIC Model. However, as mentioned above, in the context of the ongoing Vodafone litigation, we believe that the appropriate approach is to defer implementation of the BU Pure LRIC Model.

- Q.6 *Do you agree with ComReg's preliminary views regarding the maximum MTR that MSPs should charge for the forthcoming price control period? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views.*

We have highlighted above our concerns in regard to the underlying assumptions in the model and the timing of its introduction.

- Q.7 *In light of the preliminary results from the Draft BU Pure LRIC Model, do you believe that there is any other data that might be relevant? If so, please provide the data to ComReg. In particular, where available, please provide data which ComReg has been thus far unable to obtain from operators as indicated in Table 12 of this Consultation.*

At this stage, we do not believe we have any additional data which may be relevant.

Q.8 *Do you agree with ComReg's preliminary views regarding notification periods and statements of compliance? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views.*

TMI are of the view that ComReg's preliminary views regarding notification periods as set out at paragraph 4.4 are reasonable .

Q.9 *Is there any other issue you wish to respond to relating to the issues discussed in this Consultation Document? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views.*

In relation to the substantive issues discussed in the Consultation Document TMI have nothing further to add however we would take this opportunity to reiterate our concerns in relation to the timing of the Consultation Process as set out above.

As outlined above due to events outside of ComReg's control, in particular the H3G/O2 transaction, Vodafone's appeal against ComReg's 2012 MVCT Decision and ComReg's 2012 Price Control Decision, any submissions or data given to ComReg in response to the Consultation around future network costs risks being undermined by significant changes in the market.

Therefore, acknowledging that there is no optimum time but recognising that we are currently going through probably the greatest period of flux in the Irish telecom sector in the last twenty years, TMI strongly urges ComReg to defer, for a short time, its consideration of the BU-LRIC model until there is greater clarity, particularly as regards the H3G/O2 transaction.

5 Verizon



Verizon Enterprise Solutions response to ComReg’s Consultation and Draft Decision: Mobile Termination Rates: Draft BU Pure LRIC Model

1. Verizon Enterprise Solutions (“Verizon”) welcomes the opportunity to respond to ComReg’s Consultation and draft decision on Mobile Termination Rates: Draft BU Pure LRIC Model (ref 14/29) (the “Consultation”).
2. Verizon is the global IT solutions partner to business and government. As part of Verizon Communications – a company with nearly \$108 billion in annual revenue – Verizon serves 98 per cent of the Fortune 500. Verizon caters to large and medium business and government agencies and is connecting systems, machines, ideas and people around the world for altogether better outcomes.
3. Please note the views expressed in this response are specific to the Irish market environment and regulatory regime and should not be taken as expressing Verizon’s views in other jurisdictions where the regulatory and market environments could differ from that in Ireland.
4. In Ireland, Verizon is a fixed rather than mobile operator. As such we do not offer a response to the specific questions contained in the Consultation on the cost inputs used to calculate the appropriate termination rates. Rather we offer our view from a fixed provider’s perspective on the methodology used in the context of the wider regulatory framework. We hope that ComReg will take our submission into account in reaching its final decision.

Summary

5. Mobile termination rates (“MTRs”) in Ireland have been the subject of intense debate and scrutiny, especially in the last 18 months or so. ComReg summarises the story of upheaval and uncertainty in section 1 of the Consultation. Clearly this has been detrimental for nearly all concerned – in particular the majority of the industry, ComReg itself and above all consumers. The only group which has benefitted, and continues to benefit, is the mobile operators (“MNOs”) that profit from termination rates that remain far in excess of cost.
6. Verizon welcomes and fully supports ComReg’s intention to set mobile termination rates (“MTRs”) using a bottom-up “pure” long run incremental cost methodology (“BU-LRIC”) in Ireland. We welcome ComReg’s draft model, being as it is based on the BU-LRIC methodology. It is clear that ComReg has sought to ensure the model is evidence-based and robust. Our view, quite simply, is that ComReg should follow through with its draft proposal and seek to implement the new rates as swiftly as possible.



BU-LRIC Cost methodology

7. There can be no doubt that BU-LRIC is the appropriate cost methodology to use. As ComReg notes in paragraph 3.12, this choice of methodology is consistent with that of the European Commission in its 2009 Termination Rate Recommendation, with recent regulatory precedent in other EU Member States, as well as with recent comments issued by the European Commission via letters to other NRAs pursuant to Article 7 of the Framework Directive, and recent BEREC opinions.
8. This cost methodology was decided upon by ComReg as far back as 2012, and nothing has changed in the interim to question this decision. The arguments for it are well rehearsed, and while there may be questions as to the particulars of the inputs, there is surely no further discussion needed on the methodology itself.

Current over-recovery

9. The current MTR for those MNOs subject to it is 2.6 cent per minute (“cpm”), set as an interim maximum by the Courts following Vodafone’s appeal. While it is possible to see the logic in setting this rate¹, when compared to the rates proposed in the Consultation, which are based as far as possible on actual operator data, it becomes apparent just how far in excess of cost the current rate is (and indeed all the much higher rates that have preceded it).
10. The rates in the Consultation are the result of ComReg putting a substantial amount of work into determining a robust BU-LRIC model (which, as an aside, should have been completed long ago and avoided the need to use benchmarking and the resulting problems). We therefore have a solid evidence-based model now. The model seeks to minimise uncertainty, assumption or forecast. It is based as far as possible on actual operator data, and is specific to the Irish context. We should therefore be able to rely on this model and place significant weight on the resulting outcomes.
11. The draft rate in the Consultation for 2014, based on efficient costs of a hypothetical operator operating in an Irish context, is 0.64 cpm. That equates to a reduction of 1.96cpm or approximately 75% from the current rate. Even accounting for the fact that the Consultation MTRs are set on the basis of a hypothetical operator, as things stand the MNOs are quite clearly able to set MTRs *much* higher than their efficient costs of termination.

¹ The Court-set rate is equal to the rate set by ComReg in its Decision D12/12 for the period January 2013 to 31 June 2013



12. This says nothing of the rates which preceded the current rate, which were much higher again. Indeed in the latter months of 2012 they were still upwards of 5cpm. For too long, the MNOs have profited at the expense of competition and consumers in terms of both origination *and* termination charges. For reasons unclear, ComReg has tolerated this regime and before now has proved very reluctant to impose meaningful cost-based reductions despite the market power held by the MNOs and the obvious detriment caused.

13. While we therefore welcome this Consultation and its proposals, we would urge ComReg to follow through with a real sense of urgency to ensure the remedies are implemented as soon as possible. It must not be distracted by the inevitable opposition and resistance that will be shown by the MNOs as they seek to protect their commercial positions.

Verizon Enterprise Solutions
June 2014

6 Vodafone Ireland Limited



**Vodafone Response to ComReg Consultation: Mobile Termination Rates: Draft Bottom Up Pure
Long Run Incremental Cost Model**

Disclaimer

Vodafone maintains the objections set out in the Appeal against ComReg's choice of Pure LRIC and Vodafone's response to this consultation is strictly without prejudice to those over-arching objections. Additionally, as a consequence of the issues outlined above, it has not been possible for our response to this consultation to include an exhaustive list of the issues that Vodafone has with the model and/or the consultation process and Vodafone reserves the right to raise further queries, issues and specifications in this consultation.

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Introduction

The regulation of mobile termination is a fundamental matter as it conditions the industry, the structure of prices and consequently the level of consumption in mobile markets in both the short- and the long-run. This will have an important bearing on consumer outcomes but also, because mobile communications is an important facilitator of social participation and productivity, on wider economic performance at the national level.

It is for this reason that the European Commission requires that the nature and justification for remedies is subject to a fair and transparent process and places a responsibility on National Regulatory Authorities to explicitly consider and evaluate the extent to which a proposed price control remedy promotes efficiency, sustainable competition and maximises consumer benefits.

Bearing this in mind, Vodafone has consistently been and remains concerned about the appropriateness of Pure LRIC in the Irish market.

In other countries the imposition of LRIC has been justified by the assertion that common costs can be recovered by other parts of the mobile market. This is normally supported by the completion of a LRIC+ or LRAIC model in parallel with a LRIC model. At ComReg workshops in early 2014 it was indicated that a LRIC+ model would be completed at the same timescale as the LRIC model. This has not been done. This calls into question the validity and completeness of ComReg's assessment with regards to the appropriateness of the proposed remedy as without the development of a LRIC+ model the extra costs being imposed on non LRIC traffic cannot be assessed.

Vodafone welcomes the opportunity to comment on ComReg's Draft BU Pure LRIC Model. It does so, however, strictly without prejudice its objections to the choice of Pure LRIC as set out in its appeal (the "Appeal") to the High Court against ComReg's decision (D12/12, ComReg 12/125), which is ongoing, and those objections are maintained. While recognising the efforts made by ComReg and its consultants, Vodafone's review raises serious concerns in terms of the accuracy of the proposed model as will be exemplified throughout this response. One of the striking figures is the lack of an in depth sensitivity analysis which is considered good practice in any model of this complexity. The need for this is illustrated through Vodafone's review of the model revealing many small calculation errors but also more fundamentally, it produces results which do not seem to be in line with reality and contradict logical expectations.

Section 2.1 (p5) of the model specification document sets out that "*the draft for consultation model has been designed assuming a hypothetical efficient existing operator... and allows the modelling of efficient costs and scale, whilst at the same time enabling costs and technology assumptions to be closely aligned with those actually faced by the operators currently in the Irish market.*"

However, in a number of fundamental respects the draft model does not align with the conditions actually faced by operators in the Irish market. These include, but are not limited to, the fact that ComReg has not checked that the historical WACC used as a model input does not reflect its own historical estimation of the WACC for the Irish market, nor that it reflects the WACC that ComReg included in the Mobile Licenses of Operators. ComReg has not checked that the assumed historical spectrum allocation for 2G reflects the actual amount of spectrum that ComReg made available in the market. In terms of the proportion of traffic types, ComReg has not compared the derived fixed to mobile and mobile to fixed traffic ratios with the information ComReg publishes on a quarterly basis.

The detail of these issues are set out elsewhere in the consultation response however they represent a pattern whereby the areas of ComReg's stated approach, which are capable of being reviewed by respondents, show a divergence with the purported design principle. Therefore this must raise the realistic prospect that there are similar

divergence(s) in those areas where ComReg's assumptions and decisions on choice of parameters are not capable of being independently reviewed or verified, such as the choice of cost inputs. This raises serious concerns that the draft model does not conform to the design principles being consulted on.

In terms of the unexpected results from ComReg's proposed regression methodology as regards the balance of terminating and originating off-net mobile to mobile traffic and the relative proportion of fixed to mobile and mobile to fixed traffic, the fact that there is no validation of this model output indicates that such validation and checks that are included in the model are inadequate to identify areas where the modelling algorithms are producing results which are not consistent with the way real markets behave.

Model deviations from expected real market behaviours such as this call into question whether the model is capable of providing an accurate estimate for the pure LRIC Mobile termination rate for the Irish market.

In many respects it would appear that ComReg is not only modelling a hypothetical operator but is also modelling some hypothetical market because the inputs used by ComReg for the historical portion of the model and the outputs produced by the model do not conform to conditions in the Irish market.

It is for that reason that Vodafone has concluded that the model in place is not fit for purpose and requires a more extensive review and scrutiny by ComReg and its consultants.

At minimum further rounds of consultation are required to improve the model.

Vodafone's consultation response is structured as follows: Section 1 outlines Vodafone's key concerns with regards to the choice of Pure LRIC in the Irish context, Section 2 pinpoints some critical issues with regards to transparency and appropriateness of the process applied and finally, Section 3 addresses the specific questions raised in ComReg's consultation document.

Choice of Pure LRIC

Notwithstanding its engagement with the consultation process currently being undertaken, Vodafone maintains its position, as set out in the Appeal, (a) in respect of the fact that in principle pure LRIC is not an appropriate choice of cost methodology for MTRs in the Irish market and (b) that there were, and continue to be, material procedural deficiencies in the manner in which ComReg made this choice.

The draft decision relies on the decision to impose pure LRIC made in November 2012 without specific market impact analysis. Vodafone maintains the objections made in the Appeal to the inadequacy of the original analysis which led to this decision. It is unreasonable that there has been no reconsideration or updating of the original theoretical decision on pure LRIC and/or validation against actual market information despite the fact that this decision was taken more than 19 months ago and in a rapidly changing market.

ComReg has outlined to Vodafone a Financial Impact Analysis of a pure LRIC rate of 0.57c but conducts no numeric analysis of consumer welfare benefit and does not appear to have used this Impact analysis in any consideration of the proportionality or otherwise of its proposed measure.

In other jurisdictions Pure LRIC has been justified by the assertion that common costs can be recovered elsewhere. To this end standard impact assessments usually include an LRIC+ or LRAIC rate to allow for comparability and decide on the least onerous remedy. Up to now Vodafone was under the impression that in line with regulatory good practice ComReg intended to follow a similar procedure, as ComReg indicated in workshops conducted in early 2014 that a LRIC+ model would be completed at the same timescale as the LRIC model (and again, this is easily achievable). As evident from the current consultation, it seems that ComReg has reneged on its commitment in this regard. As of today, Vodafone is not aware that ComReg has developed or intends to develop a LRIC+ or LRAIC model necessary to assess the appropriateness of the substantial burden which would be placed on the industry by introducing a Pure LRIC rate.

Procedural Issues- Failure to use additional market information

In proposing to mandate a MTR based on a pure LRIC price ComReg presumably relies exclusively on its decision D12/12, ComReg Document No. 12/125, which remains the subject of Vodafone's Appeal and the analysis leading up to its decision D12/12 as the basis for its use of a pure LRIC methodology to formulate the specific price control proposed to be imposed. It is significant to note that this decision is dated November 2012 and the inputs to the analysis predate this decision.

Since November 2012 additional market specific information has become available. This information goes directly to the justification for the choice of pure LRIC in November 2012. In particular the following information is available:

- 1) In relation to the issue of the cross-subsidisation of the mobile sector by the fixed sector and the consumer welfare benefit of a reduction in MTRs a key parameter is the extent to which fixed operators would pass through any such reductions in MTR to their own customers. In January 2013 MTRs in the Irish market were reduced to a symmetric average rate of 2.60c. Following the intervention of the High Court this rate will be stable until at least September 2014. ComReg has failed to make any examination of the extent of any pass through to fixed retail customers of these reductions. Further ComReg has not used these reductions which started from a lower absolute base than previous reductions to examine if there is a linear or any other relationship in pass through when one takes account of starting point for the reduction, i.e. what proportion of the reduction gets passed through to consumers if the absolute starting point for the reduction is taken into account? ComReg has not carried out any assessment of the level of pass through

based on a stable symmetric MTR of 2.60c. Nor has it carried out any sensitivity analysis to determine if further reductions would lead to the same level of pass through.

- 2) A second justification proposed by ComReg in its original decision for the choice of pure LRIC is that higher MTRs in some way discriminate against smaller mobile operators and new market entrants. The reduction of MTRs to a symmetric level of 2.60c represented a reduction on the previous values in the market. ComReg has not used this actual market change, which is now almost 18 months in the market, to assess the extent to which reductions in MTR have facilitated the commercial and competitive position of smaller and more recent market entrants such as Tesco Mobile Ireland and LycaMobile or the extent to which a rate of 2.60c might continue to have an adverse impact on these operators, i.e. ComReg has not assessed if there is effective competition at an MTR rate of 2.60c.
- 3) In order to ensure that a price control obligation based on pure LRIC is proportionate ComReg must assess the extent to which any common costs which otherwise would have been recovered as part of MTR charges absent a pure LRIC price control can actually be recovered from the rest of Vodafone's business. To carry out even the most rudimentary assessment one would need to know what the value of these common costs are. Since the date of the original choice of pure LRIC, and as part of the process of modelling the costs of mobile termination, ComReg has gathered very large quantities of operator cost data using its formal information gathering powers. This would have allowed ComReg to form a view on the level of common costs in question. However ComReg has not used this information to explicitly estimate the level of common costs nor has it assessed the extent to which these costs can be recovered or if they can the extent to which this would adversely affect the profitability of operators as against benefits which might accrue to end users and to other market participants.

ComReg's reliance on an analysis which is almost 2 years old when additional, relevant and more recent information is available cannot be considered appropriate where a highly intrusive remedy is under consideration. ComReg has failed to set out any reasoning in support of a view that this additional and up to date market information is not relevant and could not or would not have a material impact on its original analysis leading to the choice of pure LRIC.

Consultation Process

Considering the very serious impact that MTR will have on the mobile operators in Ireland Vodafone believe that the consultation process has fallen significantly short of the thorough and transparent process that it should have been.

ComReg has taken real operator data and synthesised the model inputs for a hypothetically efficient operator. While ComReg has provided a copy of the model and an associated “design” document the level of detail in which these set out the methodology by which the operator data has been used is simply not sufficient to allow an intelligent review and comment on the methodology used.

Notwithstanding the additional time given to interested parties to formulate a response, it has become apparent to Vodafone in conducting its review that the time given to respond to the model was not adequate given the very complicated format of the spreadsheets and the sparse documentation of variable and calculations. This situation is exacerbated by ComReg’s failure to properly annotate the model itself in spite of Vodafone requesting that this be done.

Access to ComReg’s technical consultants was not adequate – a single two hour telephone conference was not adequate to answer the questions asked and the follow up written answers added little to expand our understanding of the model.

As an initial review Vodafone has attempted to validate model inputs and outputs against publicly available market data. This review would provide some comfort that the model is an accurate approximation of a mobile operator in the Irish market. This review has yield results where ComReg has used failed to use as input parameters those attributes it itself has imposed on the market such as the value of mobile WACC. The review also highlights areas where the model produces results which are incompatible with the market information which ComReg itself publishes such as traffic proportions. Finally the modelling methodology produces results which are simply wrong such as the fact that the economic depreciation approach used by ComReg fails to recover all costs and the fact that in some scenarios the model states that radio sites are required to carry traffic but that no actual radio equipment is needed on some of these sites.

ComReg may argue that it can adjust for such unexpected results however simply ignoring these or manually inserting sensible values, does not address the fundamental issue that the model algorithm produces such nonsense results in the first place. That it can be identified that the model deviates so starkly from reality in these cases means that a serious question arises as to whether the model also has similar deviations in those cases which are more difficult to verify.

The parameters that Vodafone has examined are straightforward to check, in particular where these checks involve a validation against information that ComReg itself publishes. The lack of such basic quality control by ComReg over the draft model it has asked us to comment on means that the overall process is compromised as neither the market nor ComReg itself can have any confidence that the model is fit for purpose.

At a minimum the draft model must be review by ComReg with the appropriate quality checks carried out and a revised model and documentation set issued for comment and review by market stakeholders. Where ComReg choses to retain the existing model by “calibrating” for the deficiencies identified then Undertakings must be given an opportunity to review and comment on the proposed adjustments to ensure that they are proportionate reasonable and justified and that the model ultimately produces an MTR reflective of conditions in the Irish market.

Consultation Questions

Q. 1 Do you agree with ComReg’s preliminary views regarding the appropriateness of the operator parameters and their application in the Draft BU Pure LRIC Model? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views.

Form of the modelled operator

Vodafone notes that in the modelled period all network operators have deployed their networks in a competitive environment. In this context normal market forces will have ensured that such deployments were at the maximum levels of efficiency that can be achieved in the Irish market.

On this basis a correctly constructed model based on the hypothetically efficient existing operator and an actual operator at a given market share should be strongly aligned.

However, the model documentation highlights stark differences between assumed inputs, model outputs and actual operator costs or network deployments which must be regarded as being highly indicative that the model is not an accurate reflection of an operator in the Irish market.

Top Down Analysis

ComReg’s Document 14/29 recognises the risk that a BU model may contain unrealistic assumptions.

In Vodafone’s view there are a number of assumptions contained in the model which individually and/or cumulatively produce an unrealistic figure for the termination increment. In addition, there are significant simplifications in the network model, which make comparison with real model figures difficult.

Vodafone’s network has been effectively constructed in a competitive environment with two operators in place for almost twenty years, and 4 operators for more than 10 years. The costs incurred by Vodafone are therefore a reflection of the real cost which should be taken in to account in deriving a network model.

In line with the text of the Termination Recommendation ComReg should carry out a reconciliation of the results of a bottom-up model with the results of a top-down model in order to produce as robust results as possible.

ComReg 14/29:

- 3.32 There is an associated risk however that some of the assumptions adopted in a BU model may prove to be unrealistic for an actual operator to achieve. For this reason, the 2009 Termination Rate Recommendation notes that:
- “Given the fact that a bottom-up model is based largely on derived data., regulators may wish to reconcile the results of a bottom-up model with the results of a top-down model in order to produce as robust results as possible and to avoid large discrepancies in operating cost, capital allocation between a hypothetical and a real operator.” 37*

To address these concerns, a reasonable “calibration” of the Bottom Up model must be carried out. Whether this is by comparison to a fully-fledged Top Down model, or by comparison of key model inputs and outputs to the real world and assessing whether any discrepancies are solely attributable to efficiency gains. However, it appears that

ComReg has not carried out the most basic level of calibration of comparing the model inputs and outputs with either known historical facts or data relating to actual network deployments.

The calibration referenced in paragraph 3.34 of the consultation document is limited and is flawed as the maximum and minimum range which is used for comparison includes those operators who use National Roaming and/or are 3G only. Vodafone notes that while ComReg's consultants compare the number of modelled TRXs to the number of TRXs actually deployed by operators this second figure was not directly asked for in the data gathering carried out by ComReg and must have been derived or imputed from some other source.

In respect of the assumed or modelled inputs, ComReg has not checked that the historical WACC, used as a model input, reflects its own historical estimation of the WACC for the Irish market, nor that it reflects the WACC that ComReg included in the Mobile Licenses of Operators. ComReg has not checked that the assumed historical spectrum allocation for 2G reflects the actual amount of spectrum that ComReg made available in the market. In terms of the proportion of traffic types ComReg has not compared the derived fixed to mobile and mobile to fixed traffic ratios with the information ComReg publishes on a quarterly basis.

In respect of the outputs, there does not appear to be any attempted comparison between the number of sites that the model predicts for a certain aggregated volume of traffic and the actual number of sites deployed by operators for that same volume. If there was a difference this would require explanation as being related primarily to efficiency issues before the model output could be relied upon.

Furthermore given the hypothetical nature of the model produced a financial calibration, it should have been carried out using real financial data obtained from operators. To assist this Vodafone submitted extensive financial data as part of the data gathering exercise. No reference has been made to a suitable financial calibration.

This highlights the central issue that any consistency checks carried out by ComReg and its Consultants to date as regards the alignment between the model outputs and real world effects have not been sufficient to identify stark misalignments in parameters which are straightforward to check. This must call into question whether similar deficiencies in the model exist in parameters which are less easy to check. But also, more fundamentally, it calls into question the appropriateness of the current model to assess the relevant costs of mobile termination.

Market Share

The recent notification of the O2/3 merger approval indicates that as part of the remedies some reservation of network capacity and or spectrum must be made by the merged entity to support new entrants. Clearly this implies that in the context of the Irish market a generic hypothetical infrastructure operator will have less than 33% market share for its own traffic. It may have as low as 25%. In this context and taking account of the ComReg commentary on the merger approval notification Vodafone believes that it would be unsafe and disproportionate to assume a modelled market share higher than 25% at this time. Vodafone notes that ComReg has designated six operators as having SMP in their individual MVCT markets. Also, as part of the Multiband Spectrum Auction process ComReg there were four bidders and in the initial stages of auction design ComReg contemplated that there may be demand from a new infrastructure based provider. This reinforces Vodafone's view that any change to the proposed 25% market share proposed to be used in the model would require a substantive consultation in its own right.

Q. 2 Do you agree with ComReg’s preliminary views regarding the appropriateness of the service parameters and their application in the Draft BU Pure LRIC Model? Please provide reasons for your response clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views

Vodafone believes that the proposed ComReg approach is deficient in a number of material respects. These are set out below.

Relationship of on-net/off-net based on linear regression

ComReg uses a regression analysis to generate forecasts of future traffic profiles and to populate the model for historical traffic loads.

According to the specification document the proposed on-net / off-net ratio is based on a significant linear relationship. It is questionable that the analysis conducted is sufficient to establish such a link. Although ComReg’s Consultant published an R2 value that usually indicates the linear fit of the relationship, no p-value is given to validate the underlying analysis. The fact that ComReg’s Consultant outlines that data for 2013 was used to establish this relationship raises concerns about its accuracy. Assuming that ComReg’s Consultant ran a regression based on the data submission from 4 operators at one point in time seems to be unlikely to lead to a robust result by established econometric standards.

By way of examples of the deficiencies in ComReg’s approach to on-net/ off-net modelling within its draft consider the following:

If the model assumes a stable 25% market share for the Hypothetically Efficient Operator (‘HEO’) then there must also be some assumption about the market shares in the rest of the market. The most straightforward assumption is that all operators have equal and stable market shares with a pool of customers who have average calling profiles. There is nothing in the Model Specification document to suggest that any other assumption has been used.

In terms of off-net mobile to mobile calls the Irish market is a closed system. That is the total volume off-net minutes originated to another Irish network most equal the total volume of minutes terminated by Irish networks from another Irish mobile network.

Based on equal and stable market shares and a pool of average customers one would then expect that for the modelled network the volume of off-net to mobile originated minutes would be the same as the volume of minutes terminated from mobile for an average customer.

This is not what the demand or the forecast portions of the model are saying. In fact the only year in which this balance is achieved by the model is in 2013.

No commentary has been provided to explain this.

Extract from Model Worksheet “Load > d1. Demand”

	2012	2013	2014
Mobile to fixed minutes (outgoing)	260	282	282
Fixed to mobile minutes (incoming)	234	277	274

Similarly the estimates produced by the regression analysis for the split between mobile and fixed traffic on both incoming and outgoing basis is not producing figures consistent with actual market information.

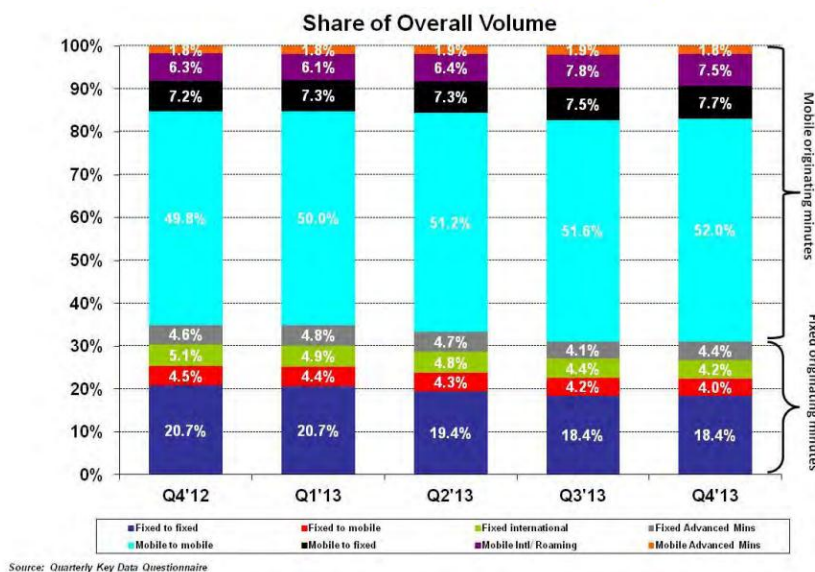
The mobile/fixed incoming and outgoing split in the model has a 1:1 ratio in 2013, whereas actual traffic for Q4 2013 had a ratio of 2:1.

Hence the derived model inputs relied on by ComReg deviate significantly from the information ComReg publishes on a quarterly basis.

This raises concerns that the draft model does not reflect the true market conditions and is not appropriate.

ComReg Quarterly report Q4 2013 Reference Number: 14/19

Figure 1.3.1 - Share of Total Voice Call Volumes (Minutes)¹⁴



Source: Quarterly Key Data Questionnaire

2G Busy hour traffic

The calculation of busy hour traffic is not producing traffic figures consistent with actual network traffic.

Calculation using working days produces a 2G traffic in BH of 10,618 in 2011. Vodafone’s 2G BH traffic at this time was more than 40,000 Erl. Taking this as the traffic for a 40% market share we would expect the HEO with 25% market share to have a busy hour traffic of approximately 25k ERL.

While we understand that there will be variation between the HEO and actual traffic experienced by an operator this variation appears outside reasonable variation.

Extract from Model Worksheet “Reference: Load > B1”
 b1.13.2. Aggregate BH traffic by technology - erlangs (per hour all subscribers)

	2007	2008	2009	2010	2011
Overall traffic in overall BH	26,478	39,328	46,843	79,630	128,120
2G traffic in 2G BH	10,920	13,402	14,254	13,174	10,618

Busy hour calculations

Networks are dimensioned in respect of the “busy hour”, in recognition that traffic profiles vary over a given day and it is necessary to construct a network which will meet demand levels at their peak, rather than in respect of an average. Although the model seems to reflect this dynamic in general terms by adopting a percentage of traffic in a busy hour based on averaged data may lead to a misleading result in terms of actually observed busy hour dynamics. Two factors should therefore be considered in the model.

Firstly, demand on a cell-by-cell basis will be less peaky, i.e., the percentage of traffic in the busy hour will be higher for an individual cell than the national average, as a consequence of different cells experiencing peaks at different times of day. It is therefore appropriate to reflect this in the network dimensioning within the model.

Secondly, the busy profile observed in the Irish market shows that data busy hour profiles are less peaky than voice. This effect should also be taken into account in the current model.

Q. 3 Do you agree with ComReg’s preliminary views regarding the appropriateness of the technological parameters and the network structure (including network design parameters and dimensioning rules) used to model the hypothetical efficient operator’s mobile network? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views.

Nodal layout methodology

Vodafone notes that the principles underlying ComReg’s proposed use of a scorched node approach accords with its view that the competitive conditions in the Irish market mean that the modelling of a hypothetical efficient existing operator should yield results which align strongly with the actual deployments of MNOs normalised for market share. Significant deviations between the modelled and actual results therefore call into question the accuracy of the model. A comparison of this type is therefore a key validation of whether the model is fit for purpose.

Treatment of Spectrum

Vodafone agrees that based on the likely deployment of LTE and the level of its use to carry voice in the time period for the proposed price control it is appropriate not to model LTE.

Vodafone notes that the proposed treatment of 900MHz spectrum is not consistent with the approach set out in paragraph 3.138 of the consultation document.

Reference: Table 1. Figures used in model > D3. RAN Parameters

			2003-2013	2014-2032
Spectrum holding for full traffic scenario	900MHz spectrum (kHz)	kHz	9,000	9,000
	1800MHz spectrum (kHz)	kHz	15,000	10,000
	2100MHz spectrum (kHz)	kHz	15,000	15,000

The model makes the spectrum assumptions as shown in table 1 above. In order to conform to the approach set out in paragraph 3.138 Vodafone believe that two changes must be made to the figures above.

Firstly, the amount of 900MHz spectrum available to each of the GSM operators from 2003 to 2013 was 7200kHz. This should be reflected in the model. There was no process available for operators to obtain an increase in spectrum before the spectrum auction of 2012 and a Modelled Operator had no opportunity to have more spectrum. This actual market condition must be reflected in the model.

Also, from 2014 onwards Vodafone will have implemented UMTS900. This is necessary to meet the customer demand for improved 3G coverage. The total 900MHz spectrum available to a Modelled Operator will be 25% of the available 900MHz spectrum, i.e. 8750 kHz (25% of 35MHz). Of this spectrum 5000 kHz will be used for UMTS900, and 3750 kHz will then be available for GSM. We believe that the operation of UMTS900 will be a standard action implemented by all operators and must be reflected in the model. Even if were not to be reflected then ComReg would need to justify why not.

The GSM spectrum available to a Modelled Operator should then be:


Efficient Operator Spectrum holding for 2G

2003-2013 2014-2032

2G Spectrum holding for full traffic scenario	900MHz spectrum (kHz)	kHz	7200	3,750
	1800MHz spectrum (kHz)	kHz	15,000	10,000

Geographic traffic profile

The 2G/3G proportion of traffic in rural areas is the same as in urban and suburban areas. This is not a reasonable assumption as propagation at 2100MHz, the frequency used by 3G, is limited in rural areas. The proportion of traffic carried in rural areas is then significantly less than urban and suburban areas. In Vodafone's data submission we presented figures showing a lower rural traffic proportion, e.g.

 % of traffic on 2G in 2010.

Reference: Load > D1 demand

Urban proportion of voice traffic on 2G	V	%	02	U	V02U	68%
Urban proportion of voice traffic on 3G	V	%	03	U	V03U	32%
Suburban proportion of voice traffic on 2G	V	%	02	S	V02S	68%
Suburban proportion of voice traffic on 3G	V	%	03	S	V03S	32%
Rural proportion of voice traffic on 2G	V	%	02	R	V02R	68%
Rural proportion of voice traffic on 3G	V	%	03	R	V03R	32%

Re-use Factor


The model uses a re-use factor of 10. We believe that in order to provide a reasonable quality service to customers a re-use factor of 12 should be used. This factor has been widely applied in other European models and used, for instance, by regulators in Portugal, Romania or the UK.

In Ireland, we have had particular problems in obtaining access to sites to use for base station locations. Because of this we have had to use sub-optimal locations, making frequency planning more difficult and making it more important to avoid interference. Hence using larger re-use factors than would be needed in cities where optimum locations are available.

In locations where the absence of suitable site has forced operators to use a tighter re-use than 12, this has resulted in degradation of network quality. This reduction in quality should not be part of an efficiently planned network.


In summary we believe that the model should use a re-use factor of 12.

Busy Hour

In paragraph 3.156 ComReg sets out that there is a 10% Busy Hour uplift to recognise geographic and localised busy hour variations. Historically the uplift required to deal with these effects was materially higher than 10% e.g. in 2004 Vodafone experienced a factor of .

In relation to ComReg's response of 30 June 2014 to the issue of TRX rounding ComReg sets out that the use of such uplift factors is one of the justifications for the use of averaged and non-integer number of TRXs. In fact it is because the uplift factor is required to deal with localised per cell peak traffic demand effects that such network wide averaging is entirely inappropriate and integer numbers of TRXs must be used.

Traffic timeslots per carrier

The model assumes Traffic carrying timeslots per TRX of 7.5, this is not a realistic figure. The average figure in the Vodafone Network is , to allow for our typical signalling allocation of BCCH+2 SDCCH.

The reduced spectrum available to GSM 900 because of UMTS900 will reduce the TRX per cell and thus the average traffic timeslots per TRX.

Reference : Network > D3 RAN Parameters > d3.1.1.BTS and TRXs

Traffic timeslots per carrier	# of timeslots	7.5
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Conversion factors

As stated in the consultation document as well as the model specification, the conversion in the model is based on Erlang based busy hour calculations. The model, however, constructs conversion in a way that is linked to Mbit/s. Basic sensitivity tests of the nominal full rate bit rate in the busy hour show that increasing the data rate for voice produces a lower rate. The table illustrates the magnitude of this effect.

Original

Assumptions	
Nominal full rate bit rate – incl. overhead (bits/s)	12,200
3G - speech rate (bit/s)	9,600
LTE - speech rate (bit/s)	9,600
Average characters per sms	80

Pure LRIC	Nominal	€ 0.0068	€ 0.0064	€ 0.0060	€ 0.0057	€ 0.0053	€ 0.0050	€ 0.0047
	Real	€ 0.0068	€ 0.0063	€ 0.0058	€ 0.0054	€ 0.0050	€ 0.0046	€ 0.0043

Test

Assumptions	
Nominal full rate bit rate – incl. overhead (bits/s)	16,000
3G - speech rate (bit/s)	9,600
LTE - speech rate (bit/s)	9,600
Average characters per sms	80

Pure LRIC	Nominal	2013	2014	2015	2016	2017	2018	2019
	Real	€ 0.0064	€ 0.0060	€ 0.0057	€ 0.0053	€ 0.0050	€ 0.0046	€ 0.0043
		€ 0.0064	€ 0.0059	€ 0.0055	€ 0.0050	€ 0.0046	€ 0.0043	€ 0.0039

In response to Vodafone’s request for clarification ComReg stated that *“will instead impact on the conversion factor applied to traffic such as 2G data, as measured in E. A change to the relative conversion factor such as this, may then lead to a change in the relative network load, used to dimension elements, and the apportionment of the cost of these elements to services”*.

Vodafone continues to believe that this approach is flawed as the conversion factor for voice demand bears no relationship to the network impact of a given data load. This is particularly so in the context of 2G where the data load will be low volumes of GPRS traffic.

Treatment of voice to data conversion

ComReg has set out that it accepted Vodafone’s position that the impact on the network of data carrying real time services such as voice is higher than general data usage and stated that this had been accommodated. However no details have been given on how this is done and it is impossible for respondents to comment on whether this issue has been adequately reflected in the model. (See paragraph 3.164 of the consultation document) Given the material deficiencies identified by Vodafone in those model parameters which can be validated and this lack of transparency, the inability to validate ComReg’s approach in respect of this matter raises a material procedural concern.

Sharing of network elements between operators

When one considers the interplay between the type of site that might be shared (and implicitly the volume of sites shared) and the level of savings that might be achieved, the combination of site volumes and synergy savings achieved appear to be within the expected range.

Logical structure of modelled network

The Consultation sets out a high level network topology. The functional blocks within this topology are aggregations of specific network implementations. The level of aggregation and the lack of granular description of cost allocation mean that it is not possible to properly assess whether the approach and costing adopted by ComReg are reasonable or realistic.

For example in response to Vodafone's query as to whether MPLS and cross connect costs were accounted for ComReg's response was that they were incorporated in indirect cost mark-ups. However no breakdown of how these mark-ups is derived has been provided and there is no way in which a respondent can validate or assess the adequacy of ComReg's approach.

Within the last three years transmission elements have absorbed more than $\approx 8\%$ of Vodafone's network budget. We do not see that this is reflected in the outputs of the model. In addition the lack of detail and description provided does not allow Vodafone to assess where the discrepancy has been created.

As set out in our previous submissions we believe that the transmission network topology is oversimplified and hence the costs are understated.

Transmission

In the draft ComReg model it appears to be assumed that the modelled operator self-supplies all access transmission to its base station sites or uses fibre based access.

In order to meet roll-out and coverage requirements it is Vodafone's experience that even the most efficient MNO would have used a proportion of copper based leased lines even if these are more expensive in the long term compared to self-supply. This is especially true in the early stages of network deployment and commercial growth. Vodafone believes that this is reflected by the actual activity of operators in the Irish market and the limited market availability of fibre based leased lines in the early part of the modelled period.

While ComReg's consultants observe that microwave and fibre transmission are predominantly observed in operator returns there is no analysis of whether this is consistent over the entire period being modelled nor is there any analysis of what proportion of base station access links might be based on leased lines going forward.

In this regard while constructing the model inputs ComReg's consultants have failed to carry out a calibration of the input assumptions both in terms of those verifiable against historical fact and against likely market developments over the period during which the modelled price might apply.

Q. 4 Do you agree with ComReg’s preliminary views regarding the appropriateness of the network element costs used to cost the hypothetical efficient operator’s mobile network? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views.

Appropriateness of network element costs: Share of NMC and MSC costs.

It appears the model does not take into account any MSC or NMC costs. These costs constitute a very significant contribution to the overall costs of building and operating a network. Management of data parameters for sites and transmission elements constitutes a significant part of these costs. These costs will scale with size of network and thus a portion of the costs should be attributable to the incremental cost of termination

Completeness of costs accounted for in the model

We have in answer to Question 3 stated that the Network Model is an over simplification of a real network, and previously supplied details of our actual spend on MPLS as a sample of spend which is not covered by elements used by ComReg. There should be a top down calibration of the costs produced by the model against real costs experienced by operators. Although the model specification document refers to such a check no factual evidence has been provided for operators to assess the appropriateness of the assumed cost split. Once again given the deficiencies identified in those parameters which can be validated this lack of transparency and inability to review and comment is a significant procedural concern.

Planned element utilisation factors

In the process of actual network deployment the applied utilisation factor can vary greatly. In a setting with expected large traffic grow utilisation factors are likely to be a lot lower than the rate assumed in the model. Vodafone’s own data shows that historic utilisation rates were as low as ~~8~~% Given that the modelled operator in the time period relevant to the review is likely to have experienced large traffic growth, the overall rate should be adjusted to take account of historic utilisation factors between 2003 -2013. As the data request by ComReg only requested current and future utilisation factor estimates, the overall rate should be adjusted on this basis.

Q. 5 Do you agree with ComReg’s preliminary views regarding the appropriate implementation approach in the Draft BU Pure LRIC Model? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant supporting factual evidence.

Consistency and sensitivity checks

Although the consultation document pinpoints that there have been sensitivity and sanity checks the review of the actual model illustrates clear deficiencies.

Vodafone has highlighted this issue with regards to e.g. the incoming/outgoing traffic patterns as well as the rounding issues of TRXs. Vodafone’s review revealed further discrepancies. These are summarised below. This list, however, is not deemed to be exhaustive.

- The model calculates the number of TRXs required by calculating the number of time slots required and divides timeslots by the number of available timeslot per TRX (c1. RAN). This yields a fractal number which is used to calculate the total number of TRXs. This procedure is incorrect. In order to meet a 2% grade of service on each site sufficient TRXs are needed derived from the traffic at the site and the corresponding Erlang table. An average does not meet this requirement. Therefore, the calculation methodology is flawed by leading to an understatement of the required number of TRXs.
- ComReg’s consultants have outlined that the model produces non-integer numbers of 2G radios because this is based on an average of the total number of radios required divided by the total number of sites. However at low traffic volumes this average is less than 1. The only way in which this result could occur is if the model is predicting that sites are required to carry traffic, but that on some number of these sites there will be no radio equipment required to actually carry the traffic. This output clearly does not represent any operator whether hypothetically efficient or actual, and demonstrates fundamental errors within the modelling algorithms.
- ComReg uses carrier capability to calculate user throughputs (c.1 Ran calculations). However, that does not reconcile with reality. Whereas ComReg asserts that 3G carriers are capable of 100% of potential user throughput, in reality practical limits of 50% to 70% apply. Once again given the deficiencies identified in those parameters which can be validated, this lack of transparency and inability to review and comment is a significant procedural concern.
- Vodafone asserts that the response given by ComReg with regards to collocation is insufficient. ComReg hasn’t explained why the percentage of 2G 1800 MHz collocation is so different to the number of 1800 MHz equipped sites. The numbers of sites calculated to have 900 MHz and 1800 MHz do not calibrate against Vodafone’s network data.
- In addition complex calculations throughout the model are insufficiently documented. One example is the calculation average effective cell radii in the context of 3G. Upon Vodafone’s information request ComReg has given a very abstract explanation of the calculation mechanisms employed. There is still insufficient information to properly review and comment on this aspect of the model.
- The 900 MHz effective voice traffic per cell (c1. Ran, row 116, 117, 118) calculated by the model is significantly higher in rural compared to urban areas. This does not seem to calibrate with expected Voice traffic patterns Vodafone’s experiences where urban traffic per site is much higher than in rural areas.

- Given the issues that exist with ComReg’s assumptions on carrier utilisation then the fact that there have been no checks on 3G uplink constraints is a cause for material concern.
- Similarly the obvious issues that have been identified previously with the consistency of derived traffic for originating and terminating off-net volumes and the fixed to mobile and mobile to fixed traffic ratios underscores the fact there has not been a robust consistency check carried out on any derived or forecast traffic volumes and calls into question the validity of any other derived or calculated model outputs.

Any consistency checks carried out by ComReg and its Consultants to date as regards the alignment between the model outputs and real world effects have not been sufficient to identify stark misalignments in parameters which are straightforward to check. This must call into question whether similar deficiencies in the model exist in parameters which are less easy to check.

WACC consideration

The current draft model considers a constant nominal pre-tax WACC of 8.66%. This directly contradicts market realities and past licence conditions mandated by ComReg. While the model might consider a hypothetical operator it must do so in the actuality of the Irish market. Therefore to be valid the model must apply the historical WACC that applied in the Irish market from time to time. To do other than this means that the model does not just model a hypothetical operator but also models a hypothetical market.

ComReg set out in Vodafone’s 3G licence that the appropriate WACC to apply for the period 2003 to 2008 was 18%.

In the period 2003 to 2008 ComReg determined that a WACC of 11.5% was appropriate for the fixed market in Ireland representing a risk premium of 6.5% for mobile. Similarly in the period post 2014 it is proposing that the mobile sector continues to have a risk premium over fixed. While ComReg had not determined a WACC for the Irish mobile sector in the period 2008 to 2014 Vodafone believes that ComReg would have to justify why the mobile sector did not have a similar risk premium over fixed during this period. In 2008 ComReg set a fixed WACC of 10.21%. This implies that the mobile WACC was higher than this. Given the size of the risk premium in the period 2003 to 2008 the risk premium for mobile over fixed for the period 2008 to 2014 is likely to lie close to the midpoint of those that applied in adjacent periods i.e. the mobile WACC in this period would be of the order of 13%-15%.

It is deeply concerning that ComReg should advance as a proposition model inputs which are at such variance with its own interventions in the market and in particular the licence conditions pertaining to the service being modelled.

Economic depreciation

Vodafone agrees with ComReg’s choice of economic depreciation as the appropriate methodology.

However, an extensive review of the currently employed economic depreciation has revealed alarming results which question the appropriateness of the underlying calculations.

1. Unexpected under/over-recovery of costs with regards to relevant incremental

In theory economic depreciation should yield an equalisation of the present value of cost recovery and the present value of investment both on the OPEX and the CAPEX side. To test this proposition Vodafone has calculated the present value of cost recovery for incremental assets as well as the present value of investment. The results reveal significant under-recovery of costs e.g. on site and TRX OPEX profiles as well as a mixed profile on the CAPEX side.

CAPEX			OPEX				
	PV cost recovery	PV Investment	Over/(under) recovery		PV cost recovery	PV Investment	Over/(under) recovery
Site	40744242.4	40078131.73	2%		45966870.03	49016473.9	-6%
BTS	60650611.72	55375538.78	10%		59158982.71	59690886.35	-1%
TRX	30229377.69	27600184.56	10%		29935190.05	27231053.99	10%
BSC	13009326.4	11877843.24	10%		10958874.04	12785073.8	-14%
Node B	1682391.481	1971086.149	-15%		2431388.382	2935311.459	-17%
3G radio	2821095.266	3452438.005	-18%		3701424.206	4941999.72	-25%

2. Cost recovery profile indicates that model starts to recover asset investments before the investments actually occur

The cumulative cost recovery split by asset class shows that e.g. CAPEX cost recovery for sites in year 2004 starts before the actual investment is made. This is counter-intuitive. It seems highly questionable that an asset can recover its costs before is actually deployed. ComReg must take account of this and adapt the model accordingly.

In summary, both factors indicate some fundamental errors with regards to the application of the applied economic depreciation calculations. Vodafone therefore urges ComReg to review these issues and ensure adequate cost recovery throughout the model.

Q. 6 Do you agree with ComReg's preliminary views regarding the maximum MTR that MSPs should charge for the forthcoming price control period? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views.

In November 2012 ComReg adopted measures relating to Mobile Voice Call termination on Vodafone's network. Pursuant to ComReg's obligations under the Framework Directive¹, save in **exceptional** circumstances, ComReg must complete a review of this market prior to November 2015.

The annual pure LRIC price proposed by ComReg shows a decline over the proposed three year price control period. Averaging this figure over the three years means that in Year 1 the imposed MTR is in fact lower than the pure LRIC price i.e. Vodafone would not recover even the marginal cost of providing the service in that year. Unless ComReg has pre-judged the outcome of the 2015 market review or does not intend to carry it out, then the only way in which ComReg can be certain that Vodafone will recover even the marginal cost of providing the MVCT service in 2015 is not to use a three year average. There is precedent for interconnect rates that change annually, and the operational overhead is minimal provided there is advance visibility of the dates of rate changes and the rates that are changing.

In this context the imposition of a price control which has effect on Vodafone beyond the required date for the next market review either prejudices the outcome of the market review or represents an admission by ComReg that it does not intend to meet its own obligations under the Framework Directive.

In terms of simple arithmetic if ComReg intends to use an averaged price it should include a contribution from the portion of 2014 which might be subject to this price control.

If ComReg wishes to ensure market certainty it should specify the price rather than mandating an upper limit with a maximum MTR.

¹ Article 16 paragraph 6 of Directive 2002/21/EC (Framework Directive) (as amended) provides that :

"Measures taken in accordance with the provisions of paragraphs 3 and 4 shall be subject to the procedures referred to in Articles 6 and 7. National regulatory authorities shall carry out an analysis of the relevant market and notify the corresponding draft measure in accordance with Article 7: (a) within three years from the adoption of a previous measure relating to that market. However, exceptionally, that period may be extended for up to three additional years, where the national regulatory authority has notified a reasoned proposed extension to the Commission and the Commission has not objected within one month of the notified extension;..."

Q. 7 In light of the preliminary results from the Draft BU Pure LRIC Model, do you believe that there is any other data that might be relevant? If so, please provide the data to ComReg. In particular, where available, please provide data which ComReg has been thus far unable to obtain from operators as indicated in Table 12 of this Consultation.

Given the model reflects a generic hypothetical operator Vodafone believes that there is no basis for ComReg to have a confidential version. If a particular data point is a direct use of a specific operator's data then only that operator will recognise this. The other operators will not know if the data point is an average or is related to only one operator. Even if they did know it related to one operator they could not know which one.

ComReg's approach in this regard has limited respondents' ability to fully engage with the consultation process.

Q. 8 Do you agree with ComReg’s preliminary views regarding notification periods and statements of compliance? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views.

The wording of the initial implementation requirements in the draft Decision Instrument is not entirely clear i.e. “*this date to be the start of the first month which begins one month from the effective date*”

Vodafone suggests the following alternative:

“the MTR as specified in Section 4.2 shall be applied to all traffic from the first day of the calendar month which commences at least 30 days from the effective date. All relevant invoices and credit notes shall reflect this rate”

ComReg has singled out eircom alone amongst transit operators for the provision of advance notification. If eircom has SMP in the transit market this preferential treatment further entrenches this market dominance. If eircom does not have SMP in the transit market this proposed obligation in the mobile termination market hands it a potential competitive advantage vis a vis its competitors in the transit market.

In justifying the imposition of a pure LRIC methodology ComReg took account of cross market effects between the fixed and mobile markets and outlined that its proposed approach would alleviate competitive distortions. It is surprising therefore that in its proposed notification procedures ComReg will in effect introduce a competitive distortion into the “Transit” market by virtue of a remedy imposed in the Mobile Termination markets.

Q. 9 Is there any other issue you wish to respond to relating to the issues discussed in this Consultation Document? Please provide reasons for your response, clearly indicating the relevant paragraph numbers to which your comments refer, along with relevant factual evidence supporting your views.

There are indications that UPC wishes to enter the market as a “heavy” MVNO requiring porting establishment. This implies that UPC will ultimately have its own number range and interconnect arrangements for termination.

Recent press reports suggest that Carphone Warehouse will also enter the Irish market as an MVNO although it is not clear whether it too will be in the form of a “heavy” MVNO.

ComReg has determined that other “heavy” MVNOs such as Tesco Mobile Ireland and LycaMobile constitute separate termination markets. The clear implication of this is that UPC, and perhaps Carphone Warehouse, could not be subject to an obligation to set MTR on a pure LRIC basis until such time as ComReg conducts a market review and found SMP in the relevant market.

Much of ComReg’s reasoning regarding the imposition of pure LRIC related to the distortive effects of asymmetric rates on new entrants. ComReg has not carried out any analysis of the potential distortive effects of so called “regulatory holidays” for new entrants while the wider market, subject to the most onerous form of price control, waits for ComReg to carry out market reviews on the new entrants.

Conclusion

While we have concerns about its exact form and implementation Vodafone welcomes the principled move towards a symmetric cost orientation obligation across individual Irish mobile voice termination markets.

However, we continue to have strong concerns regarding the appropriateness of a pure LRIC rate and maintain the objections in that regard set out in the Appeal. Both the consultation document and the draft model do not give a sufficient justification to address this key issue. In the absence of the calculation of a LRIC Plus rate and sensitivity tests in relation to cost recovery, the results the model produces are highly questionable.

Further, fundamental flaws in the mechanics of the model call into question that the model as is can provide a justified basis for regulating mobile voice termination in the Irish market.

Vodafone therefore urges ComReg to fully address the issues highlighted in this response with an updated cost model and a thorough impact analysis of the proposed remedies. Notwithstanding its views on the appropriateness of the choice a LRIC cost standard Vodafone is of the firm opinion that a further consultation on a corrected model is required to give operators confidence that it outputs what would be an appropriate LRIC price.