Public consultation on the methodology for cost modeling

Position statement

Contents

1. Introduction

The Office of the Commissioner for Electronic Communications and Postal Regulations ('the OCECPR') is empowered under The Electronic Communications and Postal Regulation Law 112(I)/2004 as amended, to make decisions in relation to the regulatory remedies that may be required to address the risks that arise for consumers as a consequence of the lack of effective competition.

On February 17th, 2016, the OCECPR issued the Public Consultation on the methodology for cost modelling in Cyprus to gather the views and comments of all interested stakeholders in regards to the proposed methodology for the implementation of the following costing tools:

- Bottom-Up Long Run Incremental Costs (BULRIC) model for fixed networks
- Bottom-Up Long Run Incremental Costs (BULRIC) model for mobile networks
- Margin-Squeeze (MS) model
- Net Cost of Universal Service (NCUS) model
- Ancillary Services model

As a result of this process, the OCECPR has received comments to the Consultation Document (CD) from Cyta, MTN, Primetel, Cablenet and Callsat. The OCECPR appreciates the time and efforts dedicated by these Operators to elaborate their responses, which will surely contribute to improve the robustness of the methodology to be applied to the costing models.

This statement illustrates OCECPR's position on the questions and recommendations raised by the Operators. In particular, the structure of the document has been divided in two main sections as described below:

- **Responses to specific concerns on the Process**, which provides OCECPR's answers to operators' concerns on the overall process.
- **Responses to specific questions,** which includes the treatment of operators' contributions on the list of questions presented by OCECPR in the Public Consultation document.

2. Responses to specific concerns on the Process

During the public consultation process, Cyta, MTN and Primetel expressed a number of concerns related to the general process concerning the development of the costing models which do not fall into any of the specific questions outlined in the Consultation Document. OCECPR is glad to provide a deeper description of the role of this project, providing an answer to each specific question raised by the operators.

It has been noted that Callsat and Cablenet have not requested any additional clarification regarding the overall process of the project, and hence, no comments from their part will be included in this section.

2.1. Concern 1: Consultation process

This section discusses Operators' concerns regarding the public consultation on the costings models.

Cyta's concerns

Cyta considers that *"The current process, as identified in Exhibit 1.1 of the Methodology document, does not provide for any consultation on the models once these have been developed. Cyta does not agree with the process being followed which is also against the norms adopted in other EU countries where there is almost always a formal consultation both at the draft model stage (once the model has been developed and is producing draft, meaningful outputs) and also again at the draft results stage (when any formal decisions based on the model have been drafted but not finalised). Therefore it is strongly proposed that in order to safeguard the robustness of the process and ensure the integrity of the final results the usual practice is followed and the opportunity is given for commenting on two more occasions as they are outlined above."*

Additionally, according to Cyta's view, there a number of issues that would require "*an additional consultation round to be included in the overall timeframe*" once the models are developed and populated.

Finally, Cyta emphasises *"the confidential nature of much of the information that is being supplied to OCECPR. We would therefore stress that any "public" versions of*

the models have confidential data adequately disguised. We acknowledge that this will mean that the results will not correlate precisely with the "official" results of the confidential versions, but this can easily be addressed by OCECPR explaining the need for confidentiality to be maintained and that the results are "broadly in line" with the outputs of the confidential versions of the models."

MTN's concerns

MTN argues that "*The OCECPR has not explicitly sought stakeholders' views on the overall procedure and information provided as part of this consultation. However, we note that the consultation document deals only with very high level methodological principles (which MTN agrees, are necessary to discuss), but provides limited to no information on the actual implementation of those principles in the models OCECPR plans to develop. While it is common procedure in other jurisdictions to undertake a more detailed, or indeed several, consultations on the principles and implementation of the model, there is currently no certainty that this will also be the case in OCECPR's proceedings*."

Additionally, it notes that *"there is ample precedent of regulators making similar fixed BU LRIC models publically available. For example, regulators in Spain, Belgium, Denmark, Sweden and Norway have published models for consultation prior to determining the costs of fixed access and interconnection charges for wholesale voice and broadband products.*

MTN therefore urges OCECPR to follow such precedent and ensure that any further consultation is done in the most transparent way possible, by consulting on the detailed implementation of the modelling methodologies and publically available versions of the models."

Primetel's concern

Primetels states that: *"Συμφωνούμε με την προσέγγιση του ΓΕΡΗΕΤ για τη μεθοδολογία ανάπτυξης κοστολογικών μοντέλων. Θεωρούμε ότι είναι πολύ σημαντικό να υπάρχει διαφάνεια στην υλοποίηση του κοστολογικού μοντέλου.*

Με βάση τα πιο πάνω θεωρούμε ότι το μοντέλο (σε πλήρη ανάλυση και χωρίς να συμπεριλαμβάνει εμπιστευτικά στοιχεία) θα πρέπει είναι διαθέσιμο στα ενδιαφερόμενα μέρη μαζί με λεπτομερή τεκμηρίωση, στην οποία θα καταγράφονται όλες τις παράμετροι, υποθέσεις/παραδοχές, εξαιρέσεις που έχουν ληφθεί υπόψη στην υλοποίηση του μοντέλου. Τα στοιχεία αυτά θα πρέπει να είναι διαθέσιμα στα ενδιαφερόμενα μέρη για σχόλια κάθε φορά που τροποποιούνται και πριν την εκάστοτε υλοποίηση του κοστολογικού μοντέλου."

OCECPR's response

As outlined in Exhibit 2.1 of the Consultation Document, there are different precedents as to the approach followed by European NRAs once the implementation of the costing models has been completed.

While some countries including Portugal, Spain, France, UK, Belgium, Netherlands, Denmark, Finland, Sweden and Romania have shared their costing models, it is also true that Austria, Croatia, Greece, Bulgaria and Estonia did not.

OCECPR notes that it is discussing internally the approach that should ultimately be adopted on whether or not to submit the final models to a public consultation process with the stakeholders and expects to take a decision in the upcoming days. All the operators involved in this process will be informed as soon as a final decision is taken by the OCECPR.

2.2. **Concern 2: Model description and methodological details**

This section discusses Operators' concerns regarding the description of the model and the general level of detail of the methodological guidelines presented in the Consultation Document.

Cyta's concerns

Cyta considers that *"the document released for consultation is very "high level" and is lacking throughout on detail thus rendering the effort to meaningfully comment on the all the issues raised difficult. Additionally, many important issues are not dealt with in the document and consequently important questions are not asked. It is our strong view that this renders the document not fit for purpose as the sole "defining" document on the methodology that will be adopted for the four models – particularly given the lack of any subsequent consultation on the models when developed (which could easily be very complex and contain a number of significant errors and misunderstandings). This fact deprives Cyta the opportunity to state its position on important issues. It is the view of Cyta that OCECPR must produce a second, detailed methodology document and circulate this for formal consultation* ***prior*** *to OCECPR's retained consultants commencing any work on model development, at which stage, it should be evident in which part of the model(s) each type of data requested from Cyta were utilised.*

There is no real discussion on the methodology that will be adopted for operating costs. Given that operating costs tend to represent a significant portion of total product costs, we would expect them to be discussed in some depth in the overall methodology. Likewise we would also expect that indirect capital costs such as accommodation costs are discussed. In this regard, we would remind OCECPR that Cyta has a detailed cost allocation model that it uses for its own costing purposes and that the data contained within that model could prove very useful to OCECPR in its assessment of necessary operating costs. We expect that in the more detailed document of the Regulator the methodology of calculating operating costs and indirect capital costs is discussed."

MTN's concerns

MTN considers that *"The OCECPR has not explicitly sought stakeholders' views on the overall procedure and information provided as part of this consultation. However, we note that the consultation document deals only with very high level methodological principles (which MTN agrees, are necessary to discuss), but provides limited to no information on the actual implementation of those principles in the models OCECPR plans to develop. While it is common procedure in other jurisdictions to undertake a more detailed, or indeed several, consultations on the principles and implementation of the model, there is currently no certainty that this will also be the case in OCECPR's proceedings."*

OCECPR's response

OCECPR understands Cyta and MTN's view on having additional consultative rounds, but sees no substantiated reason on why the methodological public consultation lacks sufficient detail.

The table below presents a summarised view on the contents that are generally included in this type of consultations where, despite a few differences among countries, it may be observed that the methodological aspects covered are typically the same:

Methodological aspect / Country	Spain[1] [2]	Portugal[3]	Belgium[1] [4]	Norway[5]	Sweden[6]	Cyprus
Cost Standard	✓	✓	✓	✓	✓	✓
Definition of the increments	✓	✓	✓	✓	✓	✓
Allocation of common costs	✓	×	✓	✓	✓	✓
Asset valuation	✓	×	✓	×	×	✓
WACC	✓	✓	✓	✓	✓	✓
Depreciation method	✓	✓	✓	✓	✓	✓
Period of time modelled	✓	✓	✓	✓	✓	✓
Treatment of the information	×	×	×	×	×	✓
Demand forecasts	✓	✓	×	×	×	✓
Type of operator	✓	✓	✓	✓	✓	✓
Operator's definition	✓	✓	✓	✓	✓	✓
Network technologies considered	✓	✓	✓	✓	✓	✓
List of services	✓	✓	✓	✓	✓	✓
Geographical analysis	✓	✓	×	✓	×	×
Network design and dimensioning	✓	Annex	✓	✓	Annex	×

At the same time, OCECPR agrees to include a brief Annex on the methodological algorithms that will be used in the Bottom-Up LRIC models, in order to provide greater transparency on the modelling approach it expects to adopt.

Additionally, whereas MTN does not provide any reason on why it considers that the public consultation "*deals only with very high level methodological principles*", it may be observed that Cyta's concerns (e.g. treatment of OpEx, accommodation costs) are not treated in any of the public consultation documents analysed in the table above.

In any case, for the avoidance of doubt, OCECPR also presents the treatment of these additional issues outlined by Cyta in section 3.1.16 ('Other questions regarding Bottom-Up LRIC Models').

[1] We note that these consultations were launched not until the draft models were completed. No consultations took place before the development of the models.
[2] http://telecos.cnmc.es/c/document_library/get_file?uuid=ee36ec1f-4ed2-4a1f-991f-8779ea19d251&groupId=10138
[3] http://www.anacom.pt/streaming/ConceptualApproachMobileBU_LRICmodel.pdf?contentId=1079788&field=ATTACHED_FILE
[4] http://www.ibpt.be/public/files/en/805/3653_en_consultation_document_for_bipt_23-12-2011_.pdf
[5] http://www.nkom.no/marked/markedsregulering-smp/kostnadsmodeller/lric-fastnett-kjerne/_attachment/1805?_download=true&_ts=139100f7b30
[6] https://www.pts.se/upload/Ovrigt/Tele/Prisreglering/Mobil_LRIC_Conceptual_design_model_specification_Analysys_080125.pdf

Based on the above, and the clarifications that are provided to the operators in this document, OCECPR's sees no need for conducting additional rounds of consultation on the methodology to be adopted in the development of the costing models.

3. Responses to specific questions

This section includes the operators' contributions to specific methodological approaches outlined in the CD and the OCECPR's position. The responses to specific questions will address the comments provided in regards to each question included in the CD. These responses have been divided in the following subsections:

- Responses to specific questions regarding Bottom-Up LRIC Model
- Responses to specific questions regarding Margin-Squeeze Model
- Responses to specific questions regarding Ancillaries Services Model
- Responses to specific questions regarding NCUS Model

3.1. Responses to specific questions regarding Bottom-Up LRIC Model

This section presents a summary of OCECPR's understanding on the Operators' comments on specific questions outlined in the CD on the methodology for BULRIC Modelling and details the OCECPR's position. This has been divided according to the 15 questions asked in the document.

3.1.1. Question 1: Do you agree with the use of a Pure LRIC standard for the calculation of voice termination services, while using a LRIC+ approach for the other services?

Cyta's concerns

"Cyta does not agree that the Pure LRIC standard should be used for the calculation of voice termination services, but instead believes that such services should be based on the LRIC+ standard. Our objections are based on the fact that:

- *The use of Pure LRIC detracts significantly from the principle of cost causality underpinning the overall LRIC approach.*
- *The selection of voice termination services as the increment to which Pure LRIC is applied is totally arbitrary as there is no justifiable economic rationale to treat such services differently than, for example, voice origination and on-net voice services*
- *It is clearly discriminatory since an off-net voice call is deemed to "cost" less than an on-net voice call.*

In the event that Pure LRIC is adopted as the standard for the calculation of voice termination services, Cyta would like to emphasise that all costs that would otherwise have been allocated to voice termination services must be recovered from all remaining services based on the LRIC+ standard and the principle of cost causality. This practice (applying cost causality principle selectively on specific products) actually discriminates against network operators and gives the wrong signals to investors. Specifically, only MVNO's will benefit with negative long term effects on the level of investment.

We would stress that there is no real discussion on the methodology that will be adopted for operating costs. Given that operating costs tend to represent a significant portion of total product costs, we would expect them to be discussed in some depth in the overall methodology. Likewise we would also expect that indirect capital costs such as accommodation, Power, IT costs are discussed."

MTN's concerns

"The European Commission (EC) recommends using a pure LRIC approach for costing voice termination services, and a LRIC+ approach for costing other services. Given the regulatory precedent, MTN agrees with this approach.

However, given the lack of precision in the current consultation document about how OCECPR plans to implement the pure LRIC approach in its own model, MTN is concerned that OCECPR's application could lead to inaccurate cost results. In particular, MTN believes it is vital that OCECPR assesses accurately the degree to which network costs are variable over the long term. As set out in the EC's 2009 recommendation on the regulatory treatment of fixed and mobile termination rates: "in a LRIC model, all costs become variable"[7]. This concept needs to be appropriately translated into a long term dimensioning of mobile network equipment. For example, the cost of some network assets, such as base stations, may be considered fixed in the short run. Therefore, even though excluding termination traffic from the network could imply a decrease in peak traffic of around 10%-20%, in the short run, network assets such as base stations would remain fixed. However in the long run, both active and passive network equipment (such as towers and sites) would be re-optimised to take account of this lower traffic. Therefore, the costs of both active and passive network equipment should be included in the estimate of pure LRIC. OCECPR should thus be careful not to

[7] *COMMISSION RECOMMENDATION of 7 May 2009 on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU*

unduly characterise costs as fixed, by overly relying on the current structure of existing mobile networks."

Primetel's concerns

"Συμφωνούμε. Θεωρούμε απαραίτητο όπως δημοσιοποιηθεί το προτεινόμενο αναλυτικό μοντέλο με όλες τις παραμέτρους του για περαιτέρω σχόλια πριν την τελική υλοποίηση του. Είναι σημαντικό τα ενδιαφερόμενα μέρη να γνωρίζουν όλες τις παραμέτρους του μοντέλου και όλες τις υποθέσεις/παραδοχές που έχουν γίνει εκ μέρους του ΓΕΡΗΕΤ έτσι ώστε να μπορούν να εκφράσουν τη γνώμη τους."

Cablenet's concerns

"Αναφορικά με την μέθοδο κοστολόγησης για υπηρεσίες τερματισμού φωνής σταθερών δικτύων, θα θέλαμε να αναφέρουμε ότι διαφωνούμε με τη χρήση της μεθοδολογίας Pure LRIC, καθώς η εταιρεία μας αναπτύσσει ακόμη το δίκτυο και τα συστήματα μέσω των οποίων παρέχει υπηρεσίες σταθερής τηλεφωνίας. Το συγκεκριμένο μοντέλο δεν μας δίνει την δυνατότητα απόσβεσης του μέρους των επενδύσεων αυτών που αφορούν τερματισμό φωνής με αποτέλεσμα να υπάρχει ανάγκη επιδότησης των εξόδων αυτών από άλλες υπηρεσίες, των οποίων υπάρχει άρα η ανάγκη αύξησης των λιανικών τιμών. Πιστεύουμε ότι η συγκεκριμένη πρακτική θέτει την υπηρεσία μας σε δυσχερή θέση με τον ανταγωνισμό και τον εγκατεστημένο παροχέα που κατέχει ΣΙΑ και ο οποίος έχει αποσβέσει το ενσύρματο δίκτυο του εδώ και πολλά χρόνια. Για τον λόγο αυτό θεωρούμε ότι και οι υπηρεσίες φωνής μέσω ενσύρματων δικτύων θα πρέπει να κοστολογηθούν με την μέθοδο LRIC+ όπως και οι άλλες υπηρεσίες.

Επίσης σημειώνουμε ότι πρέπει να γίνει ειδική πρόνοια για τη δυνατότητα παρόχων που θα παρέχουν υπηρεσίες κινητής τηλεφωνίας μέσω του μοντέλου Νοητού Παροχέα Κινητών Υπηρεσιών (MVNO) να χρεώνουν επιπρόσθετο τέλος τερματισμού για κλήσεις που θα τερματίζουν στο δικό τους νοητό κινητό δίκτυο, έτσι ώστε να υπάρχει η δυνατότητα απόσβεσης των στοιχείων δικτύου που χρησιμοποιούνται για τερματισμό. Σημειώνουμε ότι τα στοιχεία δικτύου, με βάση την κίνηση φωνής, χρησιμοποιούνται περίπου εξίσου για εκκίνηση και τερματισμό κλήσεων. Τονίζουμε ότι το κόστος των στοιχείων που απαιτούνται για την παροχή τερματισμού κλήσεων από νοητούς παροχείς κινητών υπηρεσιών εμπίπτει πλήρως εντός των προνοιών τόσο του μοντέλου LRIC, όσο και του μοντέλου LRIC+, καθώς για αυτούς ο εξοπλισμός αυτός είναι ξεκάθαρα αυξητικός (incremental). Εάν δεν υπάρχει η δυνατότητα απόσβεσης μέρους του κόστους από τον τερματισμό, οι νοητοί παροχείς κινητών υπηρεσιών θα υποχρεούνται να ανακτήσουν όλο τους το κόστος από την εκκίνηση κλήσεων, που τους θέτει σε ακόμη δυσμενέστερη θέση σε σχέση με τους παροχείς κινητών υπηρεσιών.

Εναλλακτικά θα πρέπει να υπάρχει μείωση του καθορισμένου κόστους τερματισμού που θα δικαιούται να χρεώνει ο πάροχος που παρέχει τις υπηρεσίες MVNO (για παροχείς που ρυθμίζονται και υποχρεώνονται να παρέχουν υπηρεσίες προς νοητούς παροχείς κινητών υπηρεσιών) προς τον νοητό πάροχο. Η αιτιολόγηση της μείωσης είναι ότι ο πάροχος των υπηρεσιών MVNO επωφελείται σε μεγάλο βαθμό με επιπρόσθετη κίνηση που του φέρνει ο νοητός πάροχος (τερματισμό που υπό κανονικές συνθήκες θα τερματιζόταν στο δίκτυο του νοητού παρόχου κινητών υπηρεσιών).”

CallSat’s concerns

“We agree with this methodology as Voice Termination services are differential than origination services, were basically the customer or end user can control usage and the network or company can also use methods to instigate usage. However, we would like to point out and emphasize that reverse termination services, such as Freephone calls should also be in this category as the costs allocated to these services are basically the same as those for actual termination. Calls to Freephone are not and should not be considered in the same light as originating costs as they only use the network and cost elements that voice terminating calls use. These calls should not be left for commercial agreements between companies, as the SMP has an unfair influence over this price and the holder of the Freephone number does not have any leverage for negotiation. The holder of the number may be generating traffic on the network, but the prices are decided by SMP’s.”

OCECPR’s response

OCECPR recognises the merits of a pure LRIC costing approach to regulate voice termination services, and feels that this approach does not injure other services or investments. Indeed, the pure LRIC standard is being used by most European NRAs following EC’s recommendation on the treatment of Fixed and Mobile Termination Rates. Hence, a pure LRIC approach will be used in the model to calculate voice termination costs.

The following exhibit outlines how the implementation of pure incremental costs will be performed in the Bottom-Up LRIC Models:

Implementation of Pure LRIC costing
1. Calculation of resources required to cope with total traffic demand
2. Calculation of the costs associated to the network resources modelled in step 1
3. Calculation of resources required if termination traffic is not provided
4. Calculation of the costs associated to the network resources modelled in step 3
5. Calculation of pure incremental costs (Costs Step 2 – Costs Step 4)
6. Allocation of pure incremental costs to services

As it may be inferred from the exhibit above, the costs that will be considered as incremental will be those related to the network elements that may be removed when termination services are not provided.

Despite Cyta and Cablenet's contribution on the treatment of common costs, OCECPR notes that common costs, by definition, are not related to any service in particular. In this sense, and following European common practice, network common costs will be shared with all network services, except voice termination.

Regarding the treatment of Freephone calls, OCECPR notes that as already outlined in the public consultation, these will not be included in the Bottom-Up models.

3.1.2. Question 2: Do you agree with the use of an effective-capacity approach for the allocation of network common and joint costs?

Cyta's concerns

"Section 3.1.2 refers to the allocation of "common costs". This is an over simplification as a distinction should be drawn between fixed common costs and variable common costs. Relevant variable common costs should be allocated directly to the Pure LRIC increment, and via suitable allocation drivers to all other services relevant to a particular cost type/pool.

The underlying principle of cost allocation should be cost causality. In this regard, we agree that capacity consumption is a good measure of cost causality. A cost object (for example, a network router) is dimensioned according to peak hour demand, and then the cost of that object is allocated to the services using that

object on the basis of relative consumption of the available capacity during the peak hour.

There is an important caveat to the previous paragraph with regards to voice telephony, especially over a fixed telecommunications network. Even where there is a common "all IP" network, voice telephony traffic should be carefully managed as it traverses the network. This could be achieved via various means, including VLANs, traffic prioritisation, and traffic segregation. The impact of this is that, for example, 10 Mbps of busy hour voice telephony traffic should tend to have a significantly larger amount of network capacity allocated to it than 10 Mbps of basic Internet traffic."

MTN's concerns

"The approach described by the OCECPR is unclear. For example, in section 3.2.1 OCECPR seems to describe that there are only two increments being considered in the model: (i) terminating traffic; and (ii) all other traffic. This approach would be consistent with the approach taken in other mobile models. However, in relation to question 2, the OCECPR provides an example of the allocation of costs to different SMS products. In this example, OCECPR seems to describe that the model first estimates the pure LRIC of many different services (i.e. not just (i) termination traffic; and (ii) all other traffic). Second, the model identifies the joint costs for subsets of services (e.g. the costs associated with an SMS-C platform) and allocates those costs to each service within the subset on the basis of each service's share of effective capacity.

MTN is concerned that the current consultation describes the functionality of the model in two contradictory ways, without there being any clarity about the on-going procedure for finalising the model and stakeholder involvement in the process. We believe that opportunity should be given to stakeholders during the remaining procedure to review and comment on the approach implemented, by OCECPR undertaking a second consultation on the practical implementation of the models. As part of this procedure, the draft models should be provided to stakeholders (with appropriate redactions of commercially confidential information)."

Primetel's concerns

"Συμφωνούμε δεδομένου ότι θα έχουμε πρόσβαση στο μοντέλο και στις υποθέσεις/παραδοχές που το συνοδεύουν έτσι ώστε να υπάρχει επαρκής επεξήγηση για τις υποθέσεις/παραδοχές που γίνονται."

Cablenet's concerns

"Συμφωνούμε."

CallSat's concerns

"We feel that this is the fairest way for this allocation and should have been in place a very long time ago. The method should also be universal for all of the costs of capacity regarding ports and links, on a bilateral basis. Both parties require these interconnections in order to be able to effectively service their customers."

OCECPR's response

OCECPR welcomes the agreement reached in the way common costs are allocated to services and notes the following on the questions arisen by the operators:

- Despite Cyta's indications, no variable common costs will be allocated to termination services, as it would imply the use of a LRIC+ standard instead of a Pure LRIC standard. Equivalently, no distinctions will be made between variable and fixed common costs, as it would have no relevance on the costing of network services.
- Regarding MTN's contributions, OCECPR feels that the SMS-C example has been misunderstood by the operator. In such example, OCECPR aims to illustrate the allocation of SMS-C's common costs (which may exist, irrespective of the set of increments defined in the model) following an EPMU approach, and how it would be improved through the use of an effective capacity approach. It should be noted that no indications on the set of increments employed may be inferred from that example.

3.1.3. Question 3: Do you agree with the use of an EPMU approach for the allocation of G&A expenses costs?

Cyta's concerns

"We would stress that the principle of cost causality should not be limited to network costs, as other costs can also be allocated using similar techniques. A good example of this would be the corporate Human Resources department, which could be allocated on the basis of either staff numbers or staff costs. The underlying staff costs could also have been allocated on the basis of an ABC (Activity Based Costing) analysis.

We accept that Equi-Proportional Mark-Ups are a very easy way to allocate costs. However, the reason that they are easy is because they do not offer an accurate and objective way to allocate costs. Whilst it might be acceptable to utilise EPMU where for a small amount of residual costs that need to be recovered, it is not an acceptable approach where the costs to be recovered are significant (and we would define "significant" as in aggregate representing more than 5 to 10% of the total resultant cost base)."

MTN's concerns

"MTN agrees with the approach of using EPMU for allocating G&A expense costs."

Primetel's concerns

"Συμφωνούμε δεδομένου ότι θα έχουμε πρόσβαση στο μοντέλο και στις υποθέσεις/παραδοχές που το συνοδεύουν."

Cablenet's concerns

"Συμφωνούμε."

CallSat's concerns

"We feel that this is the easiest methodology to currently use but care needs to be given with the allocation and incremental costing methodologies and results. The G&A expenses taken into consideration need to be that of an efficient operator employing modern technology and methodology, and not of an operator with an oversized workforce etc."

OCECPR's response

OCECPR notes that Cyta's suggested approach to use an ABC methodology for allocating G&A expenses is not feasible in Bottom-Up modelling.

ABC systems are based on actual, static information that reflects the distribution of the operator's workforce in different functions, and hence are a good tool to be taken into account in Top-Down costing systems. However, this approach is not suitable for multi-year exercises, as the distribution of staff costs per activity should be calculated/estimated yearly, which is not actually feasible.

In fact, to the best of OCECPR's knowledge, no public Bottom-Up models have implemented this approach for the allocation of G&A expenses.

Regarding CallSat's contributions, OCECPR notes that the percentage of G&A expenses will be carefully calculated to ensure no inefficiencies are taken into account.

3.1.4. Question 4: Do you agree with the OCECPR's view in how assets should be valued?

Cyta's concerns

"It is unclear to Cyta what is actually meant by the term "Current Cost Accounting" (CCA) as is used in the document since the term is generally used in relation to Top Down (LRIC) models as opposed to Bottom Up models. We accept that "current cost" essentially has the same meaning as "replacement cost", but this is not the case with the term "Current Cost Accounting", which refers to something else. CCA is a method used by accountants to estimate replacement cost by taking into consideration fluctuations in the purchase price of assets during each year, and accounting for such fluctuations via holding gains and losses in the formal company accounts. CCA is therefore an accounting construct and not a Bottom Up LRIC modelling construct. Cyta would therefore appreciate it if the OCECPR would clarify the use of the term in the final version of the methodology.

Cyta notes that the methodology indicates the use of HCA for civil infrastructure costs in both of the Bottom Up LRIC models. It is our strong view that Historical Cost Accounting has no justifiable role to play in a Bottom Up LRIC model. We accept that there is a move within regulatory circles to utilise historical costs as a means of setting a price anchor with the copper access network, but that is a very specific application and is in no way a justification for its use in Bottom Up LRIC modelling, which essentially by definition should be based on replacement costs. To do so will risk sending fundamentally incorrect build-buy signals to the market, and in essence punishes those operators that have invested heavily in infrastructure in favour of new entrants that simply wish to free-load on heavily or fully depreciated infrastructure. Cyta therefore urges the OCECPR to use replacement costs for civil infrastructure within both of the Bottom Up LRIC models.

Cyta does not accept that civil engineering assets are "unlikely to be replicated". The normal accounting lifetime for such assets is generally in the region of 40 to 50 years. Thus in this regard "unlikely" would have to essentially mean "not within the next 200 to 300 years", which is plainly an unfounded assertion to make.

It is quite common in large urban areas for there to be competing access infrastructure. Moreover, competing fibre access networks are deployed in many

countries in non-urban areas. For example, in the UK competing fibre access networks are now being deployed on a commercial basis in rural areas by a number of new operators. In Romania we understand that the access network is now no longer regulated with regards to broadband, due to the existence of competing access infrastructure across the country."

MTN's concerns

"MTN agrees with the use of CCA in the context of valuing assets in the mobile network.

However, MTN considers that the current approach described by the OCECPR to value assets in the fixed network is somewhat unclear. For example, for valuing civil infrastructure OCECPR generically discusses the use of HCA up until 2016 after which it will use CCA in the context of modelling civil infrastructure in the fixed network model, but does not set out what the use of HCA and CCA in the model implies in practice.

In this context, OCECPR quotes Ofcom as an example of a regulator applying HCA for valuing civil infrastructure assets. In fact, in the quote, Ofcom explains the determination of the regulatory asset value (RAV) of copper and civil infrastructure assets. It is important to note that this valuation is made not in the context of bottom-up modelling but in the context of using BT's financial data as a basis for determining the cost of wholesale access services. In this circumstance Ofcom proposed to apply the remaining net book value of BT's assets as a basis for estimating the cost of wholesale access services.

OCECPR does not set out how it intends to implement HCA for civil infrastructure assets. Two approaches can be considered:

- *It could estimate, through a bottom-up model, the quantity of the civil infrastructure and copper assets required in the network and value these assets using the historic unit costs of such assets, effectively as if such assets were deployed today at historic prices; or*
- *It could rely on the historic (net book) value of such assets according to Cyta's regulatory or statutory accounts.*

It is important to note that Ofcom implements and the EC recommends the latter approach for setting wholesale access prices. Based on this approach, OCECPR would consider Cyta's net book value of relevant assets in place of bottom-up modelling duct and copper assets.

For assets deployed after 2016, OCECPR proposes a CCA approach without providing detailed information about the specific approach for implementing CCA. Again, Ofcom uses a similar approach of using historic asset values up to one year and CCA thereafter. Ofcom's CCA approach considers actual network equipment and the index considered for estimating current cost is the retail price index (RPI). The use of RPI ensures a stable valuation of infrastructure assets without the potential for significant fluctuations in regulated prices (for example as a result of changes in underlying asset prices such as copper inputs). OCECPR should consider a similar approach for ensuring reliable revaluation of the assets for years after 2016 to ensure that wholesale prices are determined on a stable cost basis.

Finally, it is important to note that Ofcom's approach relies on BT's regulatory financial information, after having considered that such assets have been deployed efficiently. It there are any doubts about the efficiency of Cyta's network then OCECPR should follow a mixed approach by:

- *First, preparing a bottom-up model of an efficient duct and copper network in Cyprus; and*
- *Secondly, applying the unit net book value (e.g. value per km) of copper and duct assets according to Cyta's regulatory financial accounts to the efficient amount of duct and copper infrastructure determined in the first step.*

Again, given that OCECPR's approach is somewhat unclear at this point in time, MTN requires that the actual implementation, in description or as implemented in the actual model, will be shared with stakeholders and subjected to further consultation with the industry."

Primetel's concerns

" Συμφωνούμε."

Cablenet's concerns

"Γενικά συμφωνούμε με την μεθοδολογία που προτείνεται με εξαίρεση τα τεχνικά έργα τα οποία αφορούν ανάπτυξη συστημάτων αγωγών σε δημόσιους χώρους μετά την 1η Ιανουαρίου 2016. Σε αυτές τις περιπτώσεις ο υπολογισμός του κόστους βάση της προσέγγισης CCA θα πρέπει να χωρίζεται κατ' ελάχιστο στις τρεις ακόλουθες κατηγορίες ώστε να υπολογίζεται το πραγματικό κόστος της ΑΤΗΚ για την κάθε κατηγορία.

α) Περιπτώσεις όπου η ΑΤΗΚ αναπτύσσει με δικά της έξοδα το σύστημα αγωγών και επωμίζεται την επανόρθωση της τελικής επιφάνειας πεζοδρομίων και δρόμων.

β) Περιπτώσεις όπου η ΑΤΗΚ αναπτύσσει με δικά της έξοδα το σύστημα αγωγών και δεν επωμίζεται την επανόρθωση της τελικής επιφάνειας πεζοδρομίων και δρόμων.

γ) Περιπτώσεις όπου η ανάπτυξη γίνεται από ιδιώτες, όπως σε περιπτώσεις ιδιωτικών αναπτύξεων (διαχωρισμό οικοπέδων) καθώς επίσης και σε περιπτώσεις ανέγερσης υποστατικών όπου το κόστος ανάπτυξης του συστήματος αγωγών το επωμίζεται ο ιδιώτης.

Στην περίπτωση όπου δε θα ληφθούν υπόψη οι προαναφερόμενες συνιστώσες κόστους έτσι ώστε να διαχωρίζονται οι αγωγοί της ΑΤΗΚ στις εν λόγω κατηγορίες, τότε το υπολογιζόμενο κόστος της ΑΤΗΚ σε πολλές περιπτώσεις θα είναι μεγαλύτερο από το πραγματικό (μεγάλο μέρος των αγωγών της ΑΤΗΚ εμπίπτει στην τρίτη κατηγορία και σε αυτή την κατηγορία υπάρχει δυνητικά η μέγιστη ζήτηση για ανάπτυξη εναλλακτικών δικτύων πρόσβασης) με αποτέλεσμα την αδικαιολόγητη αύξηση του ενοικίου χρήσης των αγωγών για ανάπτυξη δικτύων πρόσβασης από εναλλακτικούς παροχείς.

Συμπληρωματικά θα θέλαμε να σας ενημερώσουμε ότι είμαστε στην διάθεση του γραφείου σας για να σας παρέχουμε λεπτομερείς πληροφορίες για την κοστολόγηση υποδομών που αφορούν τα συστήματα αγωγών για σκοπούς υπολογισμού στη βάση CCA."

CallSat's concerns

"Taking into consideration and agreeing with the concept that there is difficult replacement value and alternatives for many of the fixed network assets, we disagree that this approach should allocated from the deployment dates (before and after) 1/1/2016. We feel that this approach would be biased to the general network rollout being used for the fixed network, including ducting other such charges. Cyta have rolled out an effective fibre network and use technology and methods other than those of the traditional 'copper' network. To have these at Historical cost value and not at current cost may not be as precise or valid as it initially seems.

This method may overvalue assets as the inflationary influences do not counterbalance the price reductions over the last years.

Furthermore, IFRS even with Historical Cost, the 'fair value' of the asset can be accounted for, so it would not necessarily be the Cost of the asset, but rather the

value it would bring at its disposal; hence depreciation etc needs to be taken into consideration also."

OCECPR's response

OCECPR wants to clarify that the term CCA is used in the document to refer to the use of Current Costs (i.e. the consideration of the costs required for the deployment of a telecommunications network today), as opposed to HCA (i.e. book value of the assets historically deployed by an operator).

It should be noted that the valuation of network assets at current prices is in general designed to allow an alternative operator to make an informed choice between building its own network and renting existing infrastructure from the incumbent (i.e. "buy or build"), in instances where it is at least as efficient as the benchmark (efficient) operator. Hence, this approach would enable the development of infrastructure-based competition.

However, given that a new entrant is not expected to develop his own copper access network, the regulatory actions performed by the OCECPR should not be based on the premise of deciding between "buy or build" alternatives. Instead, they should be focused on accurately reflecting the real cost incurred by the Incumbent providing these services. Based on this rationale, OCECPR considers that copper civil infrastructure assets acquired before 2011[8] should be valued according to the Historical Cost Accounting standard. This vision is, for instance, shared by the French NRA (ARCEP), which outlined that [9]:

"*for copper local loop assets, the choice between building a new network ("make") or renting the existing one ("buy") is meaningless and the long-term economic signal constituted by replacement costs has no reason to exist. On the contrary, the reuse of these assets that are not bound to be replicated should be encouraged.*

Using an approach based on the operator's real investments in these assets is therefore more suitable than modelling that results in a "make or buy" type signal"

[8] Instead of the year 2016 initially considered in the Public Consultation. The original year has been reassessed in order to fully guarantee that all assets related to the provision of FTTx services will be valued at their replacement cost (CCA).
[9] Public consultation on the "Criteria for choosing an investment cost annualisation methodology and the transition from copper to fibre". March 2011

It should be noted, based on the above, that only those copper-related civil infrastructure assets will be valued according to their historical costs. This means that all fibre-related investments, independently of the date they were acquired, will be valued at their replacement cost (CCA). Therefore, the use of historical costs will be limited to setting the cost of copper access services, being all the other services costed through a CCA methodology.

Regarding MTN's concerns on how the HCA methodology will be implemented, OCECPR notes that both of the methodologies presented by the operator would lead to equivalent results provided the number of network elements modelled is the same as that in Cyta's network. Adopting an approach solely based on Cyta's regulatory accounts would lead to (i) the consideration of any potentially existing inefficiencies and (ii) tying up the copper civil infrastructure value for all the years included in the model.

Instead, OCECPR will adopt a mixed approach under which the historical unit cost of equipment is extracted from Cyta's regulatory accounts. At the same time, the Bottom-Up model will calculate the units of copper infrastructure needed. Finally, a PxQ approach will be adopted in order to obtain the value of this infrastructure for each of the years included in the model.

This approach will let OCECPR consider at current costs any recent investments performed by Cyta on its copper access network.

OCECPR also notes that it will not define the unit cost of the civil infrastructure assets based on their NBV, as it would require the NBV of these assets to be defined for future years, which explains why this approach is not in place in the development of Bottom-Up models.

As outlined by CallSat, in order to avoid any potential misalignment with OCECPR's objectives due to misunderstandings of Cyta's treatment of its financial accounts, instead of looking at Cyta's statutory accounts, OCECPR will extract the required information directly from Cyta's HCA regulatory accounts.

The approach that will be followed by the OCECPR in the treatment of assets will be announced, after OCECPR carries out further investigation.

3.1.5. Question 5: Do you agree with the use of the WACC as a mechanism for the estimation of the reasonable amount of return?

Cyta's concerns

"Cyta agrees with the use of WACC as a mechanism for the estimation of the reasonable amount of return as long as the WACC utilised in the models reflects the WACC of the SMP operator concerned. The reason for requesting this is that there are many important differences among operators which affect the WACC. For example Cyta does not have any debts and since debt is an important factor that affects the WACC taking an average may lead to a WACC figure that is not representative of the WACC of an efficient operator."

MTN's concerns

"The approach is consistent with that in other jurisdictions and MTN agrees that capital costs should be determined this way.

It is important to note that Cyta provides both fixed and mobile services. In the first instance, Cyta must therefore provide separate WACCs for its fixed and mobile business. This is because providing a blended WACC would risk underestimating the return that is required for investing in mobile networks in Cyprus and overestimating the return that is required for investing in fixed networks.

In the context of the 'hypothetical efficient operator', WACC figures provided by Cyta even if separated into a mobile and a fixed WACC may still reflect the fact that it operates a combined fixed and mobile business. There may be reasons why the separated WACC estimates for a joint fixed and mobile business could differ to the cost of capital for standalone fixed and mobile businesses. For example, a mobile operator that also has a fixed network may be able to achieve backhaul connectivity on more reliable terms than its rivals that do not have a fixed network. This may impact on the risk profile of the mobile operators. A hypothetical efficient mobile operator should not be expected to also operate a fixed business. Therefore, MTN encourages OCECPR to analyse carefully the reasonableness of using Cyta's WACC figures for fixed and mobile in its BU LRIC models."

Primetel's concerns

"Συμφωνούμε. Θεωρούμε ότι το WACC για σταθερά δίκτυα δεν μπορεί να είναι μεγαλύτερο από το μικρότερο των ακόλουθων:

- *το WACC το οποίο χρησιμοποιεί η ΑΤΗΚ για κινητά δίκτυα*

- *από το WACC που θα χρησιμοποιηθεί από το ΓΕΡΗΕΤ για κινητά δίκτυα"*

Cablenet's concerns

"Συμφωνούμε."

CallSat's concerns

"We agree with the WACC being used however we would like to request some clarification why there is a requirement for this to be reported separately for fixed and mobile networks (if this is beyond the concept of account separation), and too what extent the 'accounting separation' in place actually provides this information. WACC is found by using market equity and debt figures both for weighting and for rate of return. As the only publicly traded company in Cyprus is Primetel there is a lack of information available in order to arise at this figure. Therefore, which markets are benchmarked? What pricing model is used for Equity return – is it CAPM? How is the WACC figure found? This is a critical part of regulation and we believe that these calculations and information should be scrutinized and publicly available as they do play an important part in the markets overall investment decisions."

OCECPR's response

OCECPR appreciates operators' contributions and emphasises that the reasonability of WACC values provided by the operators will be thoroughly assessed in order to ensure these figures are representative of the Cypriot market realities.

At the same time, answering CallSat's comment, OCECPR clarifies that the calculation of WACC figures is irrespective of the costing methodology that is to be used (e.g. accounting separation or Bottom-Up modelling). Additionally, OCECPR clarifies that, as outlined in the public consultation, different WACC figures will be used for mobile and fixed models, as both businesses have different financial constraints.

3.1.6. Question 6: Do you agree with OCECPR's view to implement an economic depreciation approach for cost annualisation in the BULRIC models?

Cyta's concerns

"Cyta agrees that, in principle, the annualisation of fixed asset costs should be based on economic depreciation or a good proxy for economic depreciation.

However, it does not agree with the specific approach outlined in the document. Further it believes that price-tilted annuities would provide a much better proxy for economic depreciation than the methodology proposed. It would also have the very significant additional benefit of reducing the complexity of the two BU LRIC models.

The algorithm shown at the top of page 19 (section 3.1.5) is an algorithm originally developed by Analysys Mason and applied in a bottom-up mobile model in the UK. It has subsequently been applied by Analysys Mason (and by other consultancies that have employed ex-Analysys Mason employees) in models in other jurisdictions. A more sophisticated version of the algorithm has recently been used in the UK. Its use by regulators has therefore been essentially limited to projects run by such consultants, with most (if not all) of the other consultancies much preferring the more pragmatic (and easier to model) tilted annuity approach.

There are a number of problems with the so-called 'economic depreciation' algorithm proposed (these problems also apply to the more sophisticated algorithm which has been used in the UK):

- *Economic Inconsistency*

The algorithm produces a measure of average inter-temporal cost (adjusted for input price changes) and will only in exceptional and implausible circumstances produce the same results as a true measure of economic depreciation. In the telecoms industry costs produced by true economic depreciation and average inter-temporal cost are likely to be very different indeed.

The telecoms industry is characterised both by rapidly growing demand for certain services (e.g. broadband usage) and powerful economies of scale and scope. Economies of scale and scope are particularly important in fixed telecoms networks but are also a significant factor in mobile networks. As a result of these two factors the cost per unit of bandwidth has declined rapidly in recent years and will continue to do so. Falls may have been enhanced by input price declines but such declines are a less important factor and have not, in any case, been incurred for all assets.

Declining bandwidth costs have resulted in declining prices per unit of bandwidth and such declines will continue to take place, as operators compete with one another by offering lower prices. Given the above, it is quite extraordinary that OCECPR should propose an algorithm which results in unit costs staying constant throughout the period from 2016 to 2050 (except to the extent that input prices change) and which, in turn, suggests that retail prices should stay constant (in the absence of input price changes).

A further related concern is that the algorithm produces unit costs which would not be sustainable in a competitive market. The unit costs produced by the algorithm for any given year depend on the year in which an operator enters the market. For example, the unit cost of an operator entering the market in 2010 would be higher in 2016 than if the operator had entered the market in 2011. In turn the unit cost of the operator which entered the market in 2011 would be higher than if the operator had delayed a year. These unit cost disparities create arbitrage opportunities which would be competed away in a competitive market.

By way of comparison, the tilted annuities approach proposed by Cyta would result in declining unit costs where demand is increasing (even where input prices are constant) and would ensure that unit costs in a given year do not depend on the operator's date of entry into the market.

We have illustrated this in the example below (Scenarios 1 and 2), using the formula provided by OCECRP.

The example is based on the following simple assumptions:

- *Capital expenditure is Euros 1,000 and would be the same whether the investment were made in Year 1, Year 2 or Year 10. Modifying this assumption to allow for input price changes complicates the analysis slightly in that unit costs change over time. However, the essential result – differences in unit cost according to entry date – remains unchanged;*
- *The capital good has a lifetime of 20 years, starting from the year the capital expenditure is made;*
- *Output starts one year after the capital expenditure is made. It is assumed that 100 units can be sold in year 2 and potential output increases by 5% per year;*
- *The cost of capital is 12%;*
- *Unit costs are calculated under two alternative assumptions: i) the operator enters the market in Year 1; ii) the operator enters the market in Year 3;*
- *The period considered for each scenario is 20 years – where the operator enters the market in Year 1 output is sold from Years 2-20; where the operator enters the market in Year 3 output is sold from Years 4-22.*

As can be seen the unit cost for the operator entering the market in Year 1 is a constant 1.11 while the unit cost for the operator entering the market in Year 3 is only 1.01. Note that if the price of capital equipment increases/falls over time unit

costs will increase/fall over time. However, in any given year unit costs will be lower if the operator enters in Year 3 than if it enters in Year 1.

Scenario 1: Operator Enters Market in Year 1

Scenario 1, Years 1-10 of asset life

Year	1	2	3	4	5	6	7	8	9	10
alpha	0.89	0.80	0.71	0.64	0.57	0.51	0.45	0.40	0.36	0.32
Reference price (p)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Production factor (O)		100	105	110	116	122	128	134	141	148
Annualised cost (d)		111	117	122	128	135	142	149	156	164
Discounted Annualised cost		88	83	78	73	68	64	60	56	53
Sum of Discounted Annualised cost	1,000									
Annualised cost per unit		1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11

Scenario 1, Years 11-20 of asset life

Year	11	12	13	14	15	16	17	18	19	20
alpha	0.29	0.26	0.23	0.20	0.18	0.16	0.15	0.13	0.12	0.10
Reference price (p)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Production factor (O)	155	163	171	180	189	198	208	218	229	241
Annualised cost (d)	172	181	190	199	209	220	231	242	254	267
Discounted Annualised cost	49	46	43	41	38	36	34	31	30	28
Annualised cost per unit	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11

Scenario 2: Operator Enters Market in Year 3

Scenario 2, Years 1-10 of asset life

Year	3	4	5	6	7	8	9	10	11	12
alpha	0.89	0.80	0.71	0.64	0.57	0.51	0.45	0.40	0.36	0.32
Reference price (p)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Production factor (O)		110	116	122	128	134	141	148	155	163
Annualised cost (d)		111	117	122	128	135	142	149	156	164
Discounted Annualised cost		88	83	78	73	68	64	60	56	53
Sum of Discounted Annualised cost	1,000									
Annualised cost per unit		1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01

Scenario 2, Years 11-20 of asset life

Year	13	14	15	16	17	18	19	20	21	22
alpha	0.29	0.26	0.23	0.20	0.18	0.16	0.15	0.13	0.12	0.10
Reference price (p)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Production factor (O)	171	180	189	198	208	218	229	241	253	265
Annualised cost (d)	172	181	190	199	209	220	231	242	254	267
Discounted Annualised cost	49	46	43	41	38	36	34	31	30	28
Annualised cost per unit	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01

- *Demand Forecasting Period*

Implementation of the algorithm requires demand (and costs) forecasts to be made for a period of around 35 years and is extremely sensitive to the forecasts made. It is simply impossible to forecast a parameter such as bandwidth demand even five years into the future let alone 35 years. The same issue occurs with assessing the impact of competition and of technological change.

An examination of publicly available models for other jurisdictions shows that the forecasts made in models developed in the past bear limited resemblance to actual

outturns. Forecasting inaccuracies will increase significantly as the length of the forecast period increases.

- *Increase in Output greater than WACC*

A further problem exists if the annual percentage increase in output is higher than the WACC, since now the impact of later years increases each year into the future. Thus, not only is the probable accuracy of long range forecasts very low, but their relative importance to the result becomes very high.

Models using the so-called economic depreciation algorithm often make simplifying assumptions relating to demand growth after a certain year e.g. constant demand or constant demand growth. Assumptions of this kind have no theoretical basis and simply highlight the impossibility of generating meaningful long term demand forecasts.

In summary, Cyta has major concerns over the use of the proposed approach to asset annualisation:

1. *Given the same underlying market conditions, with an underlying annual increase in demand, an operator entering the market later will have a lower unit cost than an equivalent operator entering the market at the start.*
2. *The unit cost resulting from the approach remains constant over a number of decades, whereas the market reality requires a decline in the unit cost as overall usage grows (and/or equipment prices fall).*
3. *The approach requires accurate forecasts of demand spanning a number of decades, which is clearly not feasible.*
4. *If the increase in output exceeds the WACC then the relative importance of later years increases each year rather than decreases.*

Given these fundamental problems Cyta strongly believes that the regulator should not use the its proposed proxy for economic depreciation but should use price-tilted annuities instead. As noted, the price-tilted annuities methodology produces unit costs which fall over time both as input prices fall and as demand increases. These are precisely the outcomes one would expect in a competitive market. The use of price-tilted annuities will also reduce the complexity of the two bottom up models significantly, making them easier to understand, easier to audit and sanity check, and less prone to errors in implementation.

Cyta Price-Tilted Annuity Formula

Cyta proposes the use of the following formula for price-tilted annuities as a much better proxy for economic depreciation:

*Annual Charge = Investment * (WACC - Input Price Change)/(1 - ((1+Input Price Change)/(1+WACC))^asset life)*

With this formula:

a) *Where the input price falls/increases – the annual charge falls/increases to take account of this, and existing operators are thus prepared to be able to compete with later entrants;*
b) *In the absence of input price changes – the annual charge is constant over time which means that per unit costs decline where output increases (a constant annual charge divided by the increasing output) which is what one would expect where there are strong economies of scale;*
c) *The approach requires much, much less information than the proposed so-called economic depreciation and makes the modelling much simpler and more concise.*

The following scenarios illustrate the impact of using the formula we propose.

Scenario 3: Operator Enters Market in Year 1, Zero Price Tilt

Scenario 3, Years 1-10 of asset life

Year	1	2	3	4	5	6	7	8	9	10
alpha	0.89	0.80	0.71	0.64	0.57	0.51	0.45	0.40	0.36	0.32
Reference price (p)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Production factor (O)		100	105	110	116	122	128	134	141	148
Annualised cost (d)		134	134	134	134	134	134	134	134	134
Discounted Annualised cost		107	95	85	76	68	61	54	48	43
Sum of Discounted Annualised cost	1,000									
Annualised cost per unit		1.34	1.28	1.21	1.16	1.10	1.05	1.00	0.95	0.91

Scenario 3, Years 11-20 of asset life

Year	11	12	13	14	15	16	17	18	19	20
alpha	0.29	0.26	0.23	0.20	0.18	0.16	0.15	0.13	0.12	0.10
Reference price (p)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Production factor (O)	155	163	171	180	189	198	208	218	229	241
Annualised cost (d)	134	134	134	134	134	134	134	134	134	134
Discounted Annualised cost	38	34	31	27	24	22	19	17	16	14
Annualised cost per unit	0.86	0.82	0.78	0.75	0.71	0.68	0.64	0.61	0.58	0.56

Scenario 4: Operator Enters Market in Year 3, Zero Price Tilt

Scenario 4, Years 1-10 of asset life

Year	3	4	5	6	7	8	9	10	11	12
alpha	0.89	0.80	0.71	0.64	0.57	0.51	0.45	0.40	0.36	0.32
Reference price (p)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Production factor (O)		110	116	122	128	134	141	148	155	163
Annualised cost (d)		134	134	134	134	134	134	134	134	134
Discounted Annualised cost		107	95	85	76	68	61	54	48	43
Sum of Discounted Annualised cost	1,000									
Annualised cost per unit		1.21	1.16	1.10	1.05	1.00	0.95	0.91	0.86	0.82

Scenario 4, Years 11-20 of asset life

Year	13	14	15	16	17	18	19	20	21	22
alpha	0.29	0.26	0.23	0.20	0.18	0.16	0.15	0.13	0.12	0.10
Reference price (p)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Production factor (O)	171	180	189	198	208	218	229	241	253	265
Annualised cost (d)	134	134	134	134	134	134	134	134	134	134
Discounted Annualised cost	38	34	31	27	24	22	19	17	16	14
Annualised cost per unit	0.78	0.75	0.71	0.68	0.64	0.61	0.58	0.56	0.53	0.50

Scenario 5: Operator Enters Market in Year 1, 5% Annual Price Decline

Scenario 5, Years 1-10 of asset life

Year	1	2	3	4	5	6	7	8	9	10
alpha	0.89	0.80	0.71	0.64	0.57	0.51	0.45	0.40	0.36	0.32
Reference price (p)	1,000	950	903	857	815	774	735	698	663	630
Production factor (O)		100	105	110	116	122	128	134	141	148
Annualised cost (d)		168	159	151	144	137	130	123	117	111
Discounted Annualised cost		134	113	96	82	69	59	50	42	36
Sum of Discounted Annualised cost	1,000									
Annualised cost per unit		1.68	1.52	1.37	1.24	1.12	1.02	0.92	0.83	0.75

Scenario 5, Years 11-20 of asset life

Year	11	12	13	14	15	16	17	18	19	20
alpha	0.29	0.26	0.23	0.20	0.18	0.16	0.15	0.13	0.12	0.10
Reference price (p)	599	569	540	513	488	463	440	418	397	377
Production factor (O)	155	163	171	180	189	198	208	218	229	241
Annualised cost (d)	106	100	95	91	86	82	78	74	70	67
Discounted Annualised cost	30	26	22	19	16	13	11	10	8	7
Annualised cost per unit	0.68	0.62	0.56	0.50	0.46	0.41	0.37	0.34	0.31	0.28

Scenario 6: Operator Enters Market in Year 3, 5% Annual Price Decline

Scenario 6, Years 1-10 of asset life

Year	3	4	5	6	7	8	9	10	11	12
alpha	0.89	0.80	0.71	0.64	0.57	0.51	0.45	0.40	0.36	0.32
Reference price (p)	903	857	815	774	735	698	663	630	599	569
Production factor (O)		110	116	122	128	134	141	148	155	163
Annualised cost (d)		151	144	137	130	123	117	111	106	100
Discounted Annualised cost		121	102	87	74	62	53	45	38	32
Sum of Discounted Annualised cost	902									
Annualised cost per unit		1.37	1.24	1.12	1.02	0.92	0.83	0.75	0.68	0.62

Scenario 6, Years 11-20 of asset life

Year	13	14	15	16	17	18	19	20	21	22
alpha	0.29	0.26	0.23	0.20	0.18	0.16	0.15	0.13	0.12	0.10
Reference price (p)	540	513	488	463	440	418	397	377	358	341
Production factor (O)	171	180	189	198	208	218	229	241	253	265
Annualised cost (d)	95	91	86	82	78	74	70	67	63	60
Discounted Annualised cost	27	23	20	17	14	12	10	9	7	6
Annualised cost per unit	0.56	0.50	0.46	0.41	0.37	0.34	0.31	0.28	0.25	0.23

In this section it is mentioned that international benchmarks may be used. Given the size of the Cypriot market and other specificities, international benchmarks may not give an accurate figure of the actual situation. Therefore we recommend that extra care is taken when using international benchmarks and that the necessary adjustments are made in order to reflect better the local situation."

MTN's concerns

"MTN accepts that the EC recommendation suggests economic depreciation as a basis for amortising the costs of asset investments. However, MTN highlights that the approach suggested by OCECPR is only one option for implementing this. More importantly, it is the option most susceptible to forecast errors as it will be applied to very long-lived assets for which the necessary forecasts of demand are notoriously hard to predict. MTN further notes that the cost recovery profile imposed by such an economic depreciation approach is mostly inconsistent with the typical development of prices. For example, under the economic depreciation approach, costs would be recovered in line with demand (measured as capacity), which would generally be expected to increase significantly over the period covered in the models. However, ARPUs have rarely ever increased for telecommunication services, while the required capacities for services have significantly increased over time.

As a result, MTN recommends that annualised capital costs are determined using a tilted annuity approach, which is also a form of economic depreciation. A tilted annuity approach amortises the costs of investments so that annual costs are equal over the lifetime of the assets (after taking account of the nominal rate of asset price changes). This results in annual cost recoveries that are more consistent with the pricing of telecommunication services. Another advantage of an approach based on annuities is the significantly reduced complexity of the models, which improves the transparency and ability to verify the models developed by OCECPR. There are also examples of regulators applying the tilted annuity approach. The Austrian, Danish, German, Luxemburgish and Swedish regulators have developed fixed or mobile or both types of models using tilted annuities as a basis for amortising capital investments."

Primetel's concerns

"Συμφωνούμε νοουμένου ότι θα υπάρξει διαφάνεια και θα γνωστοποιηθούν οι κύριες παράμετροι που θα ληφθούν υπόψη έτσι ώστε να μπορούμε να εκφράσουμε την άποψη μας (π.χ. ωφέλιμη ζωή ανά περιουσιακό στοιχείο)."

Cablenet's concerns

"Συμφωνούμε."

CallSat's concerns

"We have no objection or query regarding this. It is an EC recommendation and has been effectively implemented by other European NRA's."

OCECPR's response

OCECPR believes that the implementation of an economic depreciation has multiple advantages, especially in the case of recently deployed networks (e.g. FTTH, 4G) in order to avoid low usage ratios having an excessive impact on the results, which could potentially become unrealistic. At the same time, OCECPR also emphasises its aims to align the methodology employed to that recommended by the EC.

Nevertheless, OCECPR fully recognises that demand projections may exert a substantial force in 2016 costs, which by nature, introduce some additional levels of uncertainty.

Based on the above, OCECPR will adopt a tilted annuities methodology based on the formula presented below:

$$d_i = I \cdot \frac{p_i}{\sum_{n=i_0}^{i_0+UL-1}(p_n \cdot \alpha_n)}$$

Where:

- I is the investment associated to the asset
- d_i is the annualised costs at year i (within the useful life)
- p_i is the reference price of the asset for the year i
- UL is the useful life of the asset
- i_0 is the year when the asset was purchased
- α_i represents the cost of capital factor and responds to the following formula:

$$\alpha_i = (1 + WACC)^{-(i-i_0+1)}$$

This decision will be reflected in the final version of the methodological document.

3.1.7. Question 7: Do you agree with OCECPR's view to determine the traffic demand in the BULRIC models?

Cyta's concerns

"*Cyta agrees with the general approach outlined in section 3.1.8, and that such information should be sourced from the operators. However, Cyta does have some significant reservations with how this approach might be implemented, in particular:*

- *If the operators are not given sufficient time to gather, and check the required information. In regards to this please also note that the required information is not always readily available but rather it has to be extracted from various systems and processed accordingly. If adequate time is not given then and due to lack of checking the quality of the information may be compromised.*
- *No one can be expected to produce meaningful traffic (or indeed subscriber) forecasts that extend much beyond the next 3 to 4 years. The uncertainties of the market (technological change, competitive forces, etc.) are simply too great for longer term forecasts to have any realistic level of validity.*

Whilst we might accept that, in principle, OCECPR's consultants might come to a view that there is a need to adjust the figures provided by the operators, it is our strong view that the affected operators must be contacted and consulted prior to such adjustments being finalised. It is quite possible that OCECPR's consultants might simply not adequately understand some Cyprus specificities or be making erroneous assumptions themselves. This is one further reason to support our request for a consultation round to be held whilst the models are still in "draft" form. Therefore, we are of the view that traffic information has to originate from the operators but adequate time should be given for the gathering, processing, and checking of that information."

MTN's concerns

"MTN agrees with the approach described by OCECPR for populating the demand modules of the cost models. In relation to the concerns raised regarding the economic depreciation approach, MTN notes that the demand for such a long period of time (2010 – 2050) is notoriously hard to predict and could be subject to significant estimation errors. In relation to question 6 above on economic depreciation, MTN notes again that an annuity approach does not rely on demand assumptions and services costs can be based on significantly shorter forecasts, only covering the current price review period.

Finally, MTN expects that traffic forecasts provided by operators in the data collection process can vary significantly and should therefore be subject to extensive scrutiny and international benchmarking. As outlined above, OCECPR should facilitate a subsequent consultation on the implementation of the model and the model itself to allow stakeholders to comment on model inputs, including demand forecasts."

Primetel's concerns

"Συμφωνούμε."

Cablenet's concerns

"Συμφωνούμε."

CallSat's concerns

"Yes, from a historical level as well as the method to be used when information is not readily available. Benchmarking with other EU states may not be fully representative, but if it comes to estimating forecasts based on other member states trends it is useful."

OCECPR's response

Regarding Cyta's concerns on the time given for gathering the required data, OCECPR notes that the same time frame has been granted to all operators, and expects the data provided by them to be of maximum quality and, to the maximum possible extent, free from mistakes.

The treatment/adjustment of any sets of data by OCECPR's consultants was fully treated and discussed during the on-site meetings held the week of April 11th, and hence, OCECPR does not envisage a need for further consultations in relation to the treatment of input data with the operators.

On the other hand, based on the adjustment of the depreciation methodology agreed on the previous point, OCECPR does not see a need to include a time frame that goes until 2050. Based on that, the suggested timeframe to be modelled will be adjusted to encompass the years from 2010 to 2025.

When developing such projections, OCECPR will only use data from international benchmarks when strictly necessary and will thoroughly analyse their adequacy to the Cypriot market.

3.1.8. Question 8: Do you agree with OCECPR's suggested approach to model a hypothetical existing operator with the characteristics described?

Cyta's concerns

"Cyta agrees with the general approach outlined in section 3.2.1, which is broadly in line with current EC guidelines for mobile BU LRIC modelling and experience elsewhere in Europe. We would, however, add two specific comments:

- *The final bullet on page 24 does not actually say anything in terms of what the modelled network architecture and topology will comprise. The previous four bullets have a brief summary position attached (for example, "Market Share: 33,3%"). The bullet needs to be modified to include the summary position. Our suggested amended bullet would be:*
  - *"Network architecture and topology to be modelled: Weighted average (in terms of subscribers) of the network architecture and topology used by the three existing MNOs"*
- *Whilst the MTR will be based on the model of a Hypothetical Existing Operator, we believe it is also crucial that specific runs of the model are made that more closely resemble each of the real life mobile operators in Cyprus. This is necessary as an important cross check on the dimensioning rules used in the model to calculate the required number of base stations by technology."*

MTN's concerns

"MTN believes that it is reasonable to model a hypothetical operator, as long as it accurately captures the circumstances under which actual operators operate in the market.

However, MTN notes that applying this approach for the mobile model would be inconsistent with OCECPR's proposed approach to the fixed network model. For the fixed network model, OCECPR proposes to assume a hypothetical network based on Cyta, to reflect the actual circumstances of the network in Cyprus. The same would seem relevant for developing a model of a mobile network operator. This is because it is important to take into account the factors specific to Cyprus and reflected in the networks currently deployed in order to avoid a situation in which a difference between hypothetical and actual operators is interpreted as inefficiency rather than a true constraint on operators in Cyprus. OCECPR can ensure this by calibrating the BU model to match the existing mobile networks when using the respective levels of demands on those networks. This would help improve the credibility of the model.

However, it is important to consider in such an exercise that economies of scale and scope achievable by Cyta, as a combined fixed and mobile operator, are not universally achievable by all mobile operators in the market. As such, a hypothetical mobile operator should be presumed to not be able to generate such economies of scale or scope, in full or in part, and any aspects of Cyta's network roll-out that are directly attributable to the fact that Cyta is a combined fixed and mobile operator should be disregarded in this exercise. OCECPR should seek to identify such aspects by comparing the network roll-out of Cyta and other mobile networks in Cyprus."

Primetel's concerns

"Συμφωνούμε."

Cablenet's concerns

"Διαφωνούμε με τη χρήση ενός υποθετικού παροχέα που θα έχει μόνο το 33.3% μερίδιο αγοράς για την περίπτωση της αγοράς κινητής τηλεφωνίας. Στην Κύπρο η ΑΤΗΚ εξακολουθεί να κατέχει ένα ποσοστό αγοράς πέραν του 62% και δεν υπάρχουν ενδείξεις ότι το ποσοστό αυτό θα μειωθεί άμεσα (με βάση τα στατιστικά του ΓΕΡΗΕΤ ο ρυθμός μείωσης του μεριδίου αγοράς της ΑΤΗΚ είναι μόλις της τάξης του 2% κάθε έτος). Θεωρούμε άρα ότι η ΑΤΗΚ θα διατηρήσει μερίδιο αγοράς στην κινητή τηλεφωνία πέραν του 50% για αρκετά χρόνια ακόμα.

Δεδομένου του γεγονότος ότι τα πλείστα κόστη που αφορούν την λειτουργία δικτύων κινητής τηλεφωνίας είναι σταθερής ή ημι-σταθερής μορφής, το μερίδιο αγοράς και άρα ο αριθμός των συνδρομητών και η κίνηση του δικτύου επηρεάζουν άμεσα και ουσιαστικά το μοναδιαίο κόστος των τιμών που αφορούν τις υπηρεσίες κινητής τηλεφωνίας, όπως εκκίνηση κλήσεων, εκκίνηση και τερματισμός γραπτών μηνυμάτων (SMS) και αποστολή και λήψη δεδομένων.

Θεωρούμε ότι οι χονδρικές τιμές των υπηρεσιών αυτών που θα προκύψουν από το μοντέλο κοστολόγησης είναι αυτές που θα είναι υπόχρεη η ΑΤΗΚ να προσφέρει σε νοητούς παροχείς κινητής τηλεφωνίας στο πλαίσιο της ρύθμισης της ως οργανισμός με ΣΙΑ στη συγκεκριμένη αγορά. Η ίδια η ΑΤΗΚ, λόγω και του μεγέθους του μεριδίου αγοράς που κατέχει, είναι ο κύριος ανταγωνιστής του οποιουδήποτε νοητού παρόχου και ο παροχέας από τον οποίο δυνητικά θα προέλθουν πολλοί από τους πελάτες του. Είναι κρίσιμο άρα για οποιονδήποτε νοητό πάροχο να μπορεί να ανταγωνιστεί την ΑΤΗΚ στην βάση των πραγματικών της κόστων.

Κρίνουμε άρα πολύ σημαντικό το μέγεθος του παροχέα που θα χρησιμοποιηθεί στο μοντέλο κοστολόγησης της κινητής τηλεφωνίας να είναι το πραγματικό μερίδιο αγορά που κατέχει η ΑΤΗΚ ανά πάσα στιγμή."

CallSat's concerns

"Yes, both operators are unique in there set-up and have very different business approaches to the market. Using a hypothetical operator is the best option at is would reflect best practices of an operator."

OCECPR's response

OCECPR appreciates the comments provided by all operators and includes below its observations on the main issues discussed:

- As outlined by Cyta, OCECPR agrees to adjust the final bullet on page 24, which should be read as follows "*Network architecture and topology: Based on the network developed by the existing MNOs in the market*". As opposed to Cyta's suggested text, OCECPR notes that the architecture and topology of the different operators can't be easily *weighed* or *averaged*. However, OCECPR acknowledges that the characteristics of the 3 MNOs should be considered when designing the structure of the hypothetical existing operator.
- Regarding Cyta's second comment, OCECPR outlines that the results of the model will be checked against the different operators' data in order to:
  - *Identify any potential inefficiencies*
  - *Ensure that the results are aligned with operators' actual data*
- In regards to the distinction of the type of operators modelled in the fixed and mobile networks outlined by MTN, OCECPR outlines that there are several differences in both businesses that merit this decision. That is, whereas in the mobile segment there are three MNOs with coverage levels that are comparable, in the case of the fixed segment, the incumbent status of Cyta creates a large difference in terms of geographical footprint between Cyta and the alternative operators. This requires the use of different approaches in the definition of the operators modelled. In fact, this approach is shared by most European NRAs, including Spain, France or Norway.
- As per MTN's second comment, OCECPR notes that the mobile model will not take into consideration those efficiencies that may be applicable to Cyta derived from being an integrated operator.

- Regarding Cablenet's comment on the scale of the mobile hypothetical operator, we note that according to the EC's recommendation the market share level considered should refer to the "minimum efficient scale" of an operator, and not the actual scale of the operator. In fact, the EC recommends NRAs to consider a 20% market share. While OCECPR acknowledges the market conditions in Cyprus may recommend the use of a different approach (i.e. consideration of a 33% market share), it does not see a reason to adjust the level of market share to the 50% suggested by Cablenet.

3.1.9. Question 9: Do you agree with the consideration of the above listed services in the BULRIC Model for Mobile Networks?

Cyta's concerns

"Cyta considers the services listed in section 3.2.1 under "List of Modelled Services" to be reasonable for the purposes of assessing the total network demand that needs to be addressed by the modelled mobile operator.

Cyta would like to emphasise, however, that it understands that the purpose, and thus focus, of the BU LRIC model to be limited to the calculation of the cost of Wholesale Call Termination on a mobile network. ***If this is not the case, then OCECPR should be very explicit in highlighting this.*** *Our reasoning is that models that have a specific purpose and/or focus should not be "automatically" relied upon to produce equally consistent and valid results for products and services outside of that focus.*

Should the purpose or focus of the model expand into other areas, then it is crucial that OCECPR undertakes a detailed review of the model accordingly, and adapts the input detail and/or calculation methodology accordingly."

MTN's concerns

"MTN notes that BU LRIC models may be unsuitable for calculating service costs that are primarily driven by non-network operating expenses. For example, it is not clear how the cost of connection and subscription fees would be estimated using a BU LRIC model. It may be more appropriate to base these cost estimates on the actual costs incurred by operators. This approach would be simpler and more transparent.

MTN further notes that a number of services which OCECPR proposes to cover in the model (e.g. subscription, connection) are not currently regulated by OCECPR. For the avoidance of doubt MTN seeks OCECPR's confirmation that the fact that it is modelling the costs of unregulated services does not imply that it intends to regulate such services. MTN would expect, in line with common regulatory practice, that any decision to regulate such services would be subject to a separate determination and corresponding consultation procedure."

Primetel's concerns

"Συμφωνούμε. Εισηγούμαστε όπως προστεθούν και οι υπηρεσίες M2M."

Cablenet's concerns

"Συμφωνούμε με την εξέταση των αναφερόμενων υπηρεσιών.

Συμπληρωματικά, όπως αναφέραμε και στη απάντηση μας στη ερώτηση 1, επιθυμούμε να αναφέρουμε ότι οι παροχείς οι οποίοι παρέχουν υπηρεσίες κινητής μέσω MVNO τύπου Α και Β κατέχουν δίκτυο πυρήνα με δυνατότητες δρομολόγησης με επακόλουθη την μειωμένη χρήση πόρων δικτύου πυρήνα του MNO κατά τον τερματισμό στους συνδρομητές τους σε σχέση με τις περιπτώσεις τερματισμού για τρίτους παροχείς οι οποίοι είναι διασυνδεδεμένοι με τον MNO. Για τον λόγο αυτό το τέλος τερματισμού παροχέα MVNO τύπου Α και Β σε συνδρομητές του στο δίκτυο του MNO θα πρέπει να είναι πιο χαμηλό από το τέλος τερματισμού τρίτων παροχέων που είναι διασυνδεδεμένοι με το δίκτυο του MNO και τερματίζουν την κίνηση στους συνδρομητές του MNO."

CallSat's concerns

"In addition to the services, the below should also be taken into consideration on order to make regulation more effective and limit the ability of SMP's to undertake margin squeezing scenarios. A more in-depth review and analysis of these scenarios is needed as they are a substantial part of an alternative operators cost base, and any negotiations or commercial agreements for these services is difficult as there are no substitutes or alternatives for this usage/service.

- *Calls to Freephone numbers need to be emphasized that they come under the scope of terminated calls; as reverse termination and need to be clarified and costed accordingly.*
- *MVNO services such as billing (for ESP services), set-up costs, subscriber activation, and CDR exchange should also be included as these are also a large part of costs for virtual operators. A market the size of Cyprus may not justify full MVNO scenarios for new entrants but rather light MVNO/ Extended Service*

Provider (ESP) may make more business sense. Currently these are not utilised and the regulation is completely ineffective. This is apparent by definition on the number of entrants in this market, as well as the ESP scenario has been 'locked' by the only regulated MNO of this service (Cyta), and has made it totally economically unfeasible for a new entrant to choose this service. Set-up costs are unjustifiably high for an ESP leading to a compulsory Full MVNO Scenario."

OCECPR's response

Regarding Cyta's and MTN's contributions, OCECPR notes that a Bottom-Up model should include all relevant network services being provided by Operators, so as to ensure the robustness and causality of the cost allocations performed, irrespective of whether OCECPR expects to regulate any of those services or not.

OCECPR also outlines there was a typographical error in the consultation document and, as pointed out by MTN, connection fees will not be included in the Bottom-Up model, but will be treated in the ancillary services model.

Regarding billing, set-up, activation costs related to MVNO services, the OCECPR notes that these are already included in the model for Ancillary Services and hence, should not become part of the Bottom-Up model. In the case of Freephone calls, as already outlined in question 2, these will not be included in the model.

3.1.10. Question 10: Do you agree with the suggested definition of the increments in the model for mobile networks?

Cyta's concerns

"The EC 2009 Recommendation on wholesale call termination concentrates on the definition of a single increment, essentially as that recommendation is concerned with the pure LRIC cost of wholesale call termination. Prior to that recommendation, increments tended to only be specified in fairly broad terms.

The reality of the BU LRIC models produced by regulators up to that point was that the actual, precise definition of any increments used did not impact on the cost-based prices that the models produced as outputs. This "reality" makes perfect sense if, as was the case, the models concentrated foremost on the principle of cost causality, which essentially crosses the boundaries of any increments "defined" or specified in an arbitrary fashion.

Putting this another way, as long as the model respects the principle of cost causality, and has been developed and populated in a professional manner, then the size and scope of any increments should not affect the final results of the model. Clearly, the use of a "pure LRIC" increment represents an exception to this since the cost-based price that results for the service covered by that increment no longer respects cost causality.

In summary, the position of Cyta is that OCECPR can define the remaining "increments" as it sees fit, as long as the principle of cost causality is properly reflected within the model which is safeguarded by the use of LRIC+. This is an important reason for an additional consultation round to be included in the overall timeframe once a draft version of the model has been developed and populated by OCECPR's retained consultants.

One final specific point that Cyta would like to bring to the attention of OCECPR is that messaging services appear to have been included within the "termination" increment – and would thus, presumably, be part of the Pure LRIC increment. This is clearly an error that should be rectified in the final version of the methodology document. The EC 2009 Recommendation only requires wholesale call termination to third parties to be calculated on the basis of Pure LRIC:

> *"Within the LRIC model, the relevant increment should be defined as the wholesale voice call termination service provided to third parties" [Article 6 of the EC 2009 Recommendation]*

For the avoidance of doubt, if OCECPR does intend the inclusion of messaging services in the "termination" increment, then Cyta would stress that it strongly disagrees with such a definition of the increment."

MTN's concerns

"As already set out in response to Question 2, MTN believes that there may be an inconsistency between the proposed approach regarding the allocation of common costs, and the definition of increments. OCECPR proposes to consider only two increments in the mobile model: (i) termination; and (ii) other services. This is inconsistent with the increments set out in the context of explaining the approach for allocating joint and common costs.

On the basis of the approach set out in the context of this question, the issue of common cost allocation would not arise. Given that the increment for terminating traffic would not recover any common costs, all common costs would be attributed to the second increment. Again, we note that this inconsistency warrants further

explanations regarding the implementation of the model and that these should be shared and consulted on with the industry, once OCECPR's models are more fully developed."

Primetel's concerns

"Συμφωνούμε."

Cablenet's concerns

"Συμφωνούμε."

CallSat's concerns

"Not Exactly. We do believe that the Regulator should view all wholesale services in their specific detail and act accordingly. One of the reasons for regulating an MNO is that commercial discussions and negotiations are non-existent as there is no alternatives to services so the MNO does not need to negotiate – there is no choice but to use that specific service. As we mentioned above, the Regulation is severely lacking in some areas that are not traditional considered. Having high costs in these areas can be a serious barrier to entry."

OCECPR's response

OCECPR welcomes the contributions made by all operators and describes below its views on the different issues that have been raised:

- As it has already been outlined at the beginning of this document, OCECPR will adopt a Pure LRIC approach for the calculation of voice call termination services. Based on this, OCECPR considers that Cyta's comment would not be into play
- We note that MTN's perceived inconsistencies have already been treated in section 3.1.2. At the same time, OCECPR clarifies below the list of increments considered in the mobile model, as these may not be clear in the consultation document due to a formatting issue:
  - *Voice call termination*
  - *Other voice and messaging services*
  - *Data*
- Even though Callsat expressed its disagreement with this point, it is not clear to the OCECPR which approach is suggested through its contribution.

3.1.11. Question 11: Do you agree with the suggested technologies to be considered for radio access, transmission and core networks in the BULRIC Model for Mobile Networks?

Cyta's concerns

"Cyta is of the opinion that the suggested technologies to be considered for radio access, transmission and core networks appear reasonable. However, a final opinion will not be possible until we have seen how the text referred to by Question 11 is actually implemented within the model. This is an important reason for an additional consultation round to be included in the overall timeframe once a draft version of the model has been developed and populated by OCECPR's retained consultants.

For the avoidance of doubt, Cyta would like to stress that we now utilise a common IP core network for all of the mobile radio access technologies (thus, 2G, 3G, and 4G.) Very little is said in the document on how the mobile networks will be "designed" within the model. Given that the network designs are central to the design of the model, we expect OCECPR to provide details on the mobile networks to be designed within the model."

MTN's concerns

"MTN agrees with the radio technologies considered in the mobile model."

Primetel's concerns

"Συμφωνούμε."

Cablenet's concerns

"Συμφωνούμε γενικά, αλλά εισηγούμαστε όπως γίνει μελέτη και ανάλυση της αγοράς όσον αφορά τις μοναδιαίες τιμές υπηρεσιών εάν κάποιες σχεδόν ξεπερασμένες τεχνολογίες δεν χρησιμοποιούνταν (όπως 2G για φωνή και μηνύματα). Ειδικά δε για δεδομένα, πρέπει να μην ληφθεί καθόλου υπόψη το κόστος για μετάδοση τους με τεχνολογία 2G.

Επίσης θεωρούμε ότι οι μισθωμένες γραμμές είναι ξεπερασμένες σαν τεχνολογία και θα μπορούσαν να αντικατασταθούν σχεδόν πλήρως με οπτικές ίνες."

CallSat's concerns

"Yes. We have no comments or objections for the suggested technologies, however we would suggest that the OCECPR reserve the right to adapt or adjust these considerations for any new technology should the need arise – telecoms is a fast changing industry and we do not believe that it would be wise that the OCECPR limit itself when technologies such as 5G are already being discussed in other areas of the World."

OCECPR's response

Based on the general agreement reached in this question, OCECPR will maintain the position outlined in the Public Consultation.

At the same time, it includes below its position on the different issues raised by the operators:

- As it has been outlined in the introductory section of this document, a brief overview on the dimensioning algorithms will be included in the final methodological document. Nevertheless, as opposed to Cyta's argumentation, OCECPR sees no reason why these algorithms would be needed in order to define the technologies to be considered in the model.
- OCECPR notes that the mobile model to develop will not be 5G ready as there are many uncertainties regarding this technology. In case a new update of the model is needed once 5G technologies are already in the market, a new consultation phase will be launched, as there may be other methodological choices that could need to be revisited as a result of that evolution.
- Finally, OCECPR notes that in order to represent current market conditions, it believes it is necessary to include all access technologies in the market (including 2G). Regarding the use of Leased Lines, whereas OCECPR acknowledges that the use of PDH/SDH is obsolete, Ethernet Leased Lines provide an efficient transmission solution to operators which will be taken into consideration in the model.

3.1.12. Question 12: Do you agree with OCECPR regarding the consideration of a hypothetical existing operator with the same characteristics as Cyta?

Cyta's concerns

"Cyta agrees with the general approach outlined in section 3.2.2, which is broadly in line with current EC guidelines for fixed BU LRIC modelling and experience elsewhere in Europe. We would, however, add two specific comments:

- *The characteristics should be limited to those pertinent to Cyta's fixed telecommunications business, thus excluding its mobile telecommunications business.*
- *Modelled services should assume the same "technical" presentation as the actual services, thus, for example, TDM for TDM, Ethernet for Ethernet, SDH for SDH, PDH for PDH."*

MTN's concerns

"MTN agrees with this approach. However it is concerned by OCECPR's reference to the Maltese approach. The MCA in Malta considered "…GO [the incumbent operator in Malta] as a proxy for the model's hypothetical efficient operator…". This would suggest that such a model does not undertake any analysis that corrects for the fixed operator's inefficiencies, but rather considers them as a given. For example, suppose the incumbent operator happens to have deployed equipment at local exchange nodes with excessive line capacity, when smaller variants of the same equipment were available. Or similarly, the incumbent operator may have high operating costs relative to other operators in the market. For example, Cyta is known to pay some of the highest salaries in the market. Therefore, taking the incumbent as a benchmark for efficiency may overstate service costs, and not mimic the outcome of a competitive environment. Furthermore, this approach is not consistent with the approach OCECPR proposes for the mobile model and OCECPR should equally consider suitable benchmarks for assessing the efficiency of Cyta's fixed network business for determining efficient inputs and assumptions for the fixed network model."

Primetel's concerns

"Συμφωνούμε."

Cablenet's concerns

"Συμφωνούμε."

CallSat's concerns

"Yes. We have no comments or objections to using Cyta as a basis for the hypothetical operator."

OCECPR's response

OCECPR appreciates operators' contributions, and will therefore model a hypothetical existing operator with the same characteristics as Cyta, as originally outlined in the Public Consultation paper.

Regarding other contributions to this question, OCECPR notes that:

- The consideration of "*the same characteristics as Cyta*" shall only apply to Cyta's fixed telecommunications business, except when relevant synergies are identified between its fixed and mobile businesses which may require special attention.
- According to the Long-Run approach that is to be expected from a Bottom-Up LRIC model, Modern Equivalent Assets (MEA) will be used to replace obsolete network technologies such as PDH or SDH.
- Regarding MTN's comment, OCECPR notes that in no circumstance has it related any efficiency issue applicable in Malta to Cyprus, and its recommendation is clear: "*model a hypothetical existing operator based on Cyta*". This is not to say that Cyta's OpEx will be directly adjusted for efficiency, as suggested by MTN, but only in case any clearly identifiable inefficiencies are found.

3.1.13. Question 13: Do you agree with the consideration of the above listed services in the BULRIC Model for Fixed Networks?

Cyta's concerns

"*Cyta considers the services listed in section 3.2.2 under "List of Modelled Services" to be generally reasonable for the purposes of assessing the total network demand that needs to be addressed by the modelled mobile operator. We would point out, however, that the services listed do not include Leased Lines with an Ethernet presentation, which Cyta does provide, but does include FTTH access services, which Cyta does not yet provide, and thus needs to be modified accordingly.*

Cyta would like to emphasise, however, that it understands that the purpose, and thus focus, of the BU LRIC model to be limited to the calculation of the cost of

Wholesale Termination of Voice Calls on a mobile network. ***If this is not the case, then OCECPR should be very explicit in highlighting this.*** *Our reasoning is that models that have a specific purpose and/or focus should not be "automatically" relied upon to produce equally consistent and valid results for products and services outside of that focus."*

MTN's concerns

"*MTN makes the following observations in relation to the services considered in the fixed network model:*

- ***Leased line connections:*** *MTN notes that the leased lines considered in the model are based on legacy PDH and SDH technology (E/STM carrier leased lines). Given that the model explicitly considers next generation core equipment, it would make sense to further utilise the model for costing next generation transmission services such as virtual private circuits and 1GE and 10GE native Ethernet based transmission services.*
- ***xDSL broadband subscription fee and FTTX broadband line subscription fee:*** *these fees are considered as a single entry in the list of services and it is unclear if such fees will be modelled as a single blended cost item or separate cost items. It is further unclear if this entry refers to wholesale or retail charges. OCECPR should clarify this line item.*
- ***IPTV services:*** *OCECPR considers modelling the cost of an IPTV access product. However, the consultation does not foresee any product in relation to the transport of IPTV services nor is it clear whether this service is a retail or wholesale product. MTN agrees that IPTV services should be considered in the model. This is because competition already focuses on double and triple play services including IPTV services and this trend is likely to grow in importance. It is therefore reasonable to consider such wholesale services (access and multicast transport) to aid OCECPR in any future decision for regulating additional wholesale services. However, OCECPR should clarify what exactly the model will cover.*
- ***Infrastructure access products:*** *In many jurisdictions there is an increasing focus on promoting access to passive infrastructure services, such as duct access and dark fibre products. In fact, OCECPR already regulates duct access on Cyta's duct network although this is yet to be implemented by Cyta. In light of this and the potential need to regulate further passive infrastructure services in the future, OCECPR should consider including the costing of such services in the fixed network model."*

Primetel's concerns

"Συμφωνούμε. Επιπρόσθετα να συμπεριληφθούν όλα τα Ethernet και VPN προϊόντα της ΑΤΗΚ (με υφιστάμενες ή μελλοντικές ταχύτητες) καθώς και dark fiber υπηρεσίες αφού όπως έχουμε ενημερωθεί, η ΑΤΗΚ προσφέρει αυτό το προϊόν σε συγκεκριμένους συνδρομητές της.

Επίσης να συμπεριληφθεί το χονδρικό τέλος συνδρομής Τηλεόρασης μέσω διαδικτυακού πρωτοκόλλου (IPTV)."

Cablenet's concerns

"Συμφωνούμε με τις προτεινόμενες υπηρεσίες και θεωρούμε πολύ σημαντικό να συμπεριληφθούν και οι ακόλουθες, καθώς αφορούν τα σημαντικότερα στοιχεία κόστους για την παροχή των ευρυζωνικών υπηρεσιών. Πιστεύουμε ότι με την εφαρμογή κοστολογικού έλεγχου στις πιο κάτω υπηρεσίες θα διαφανεί ότι η παρούσα τιμή παροχής τους είναι αδικαιολόγητα ψηλή, με δυνατότητα μεγάλων περιθωρίων μείωσης, με τελικό επωφελούμενο τον τελικό χρήστη.

α) Τέλη παροχής διεθνής χωρητικότητας από σταθμούς προσαιγιάλωσης στην Κύπρο προς τους σταθμούς προσαιγιάλωσης του εξωτερικού που έχουν πρόσβαση τα υποβρύχια καλώδια στα οποία συμμετέχει η ΑΤΗΚ, για χωρητικότητες 10 και 40 Gbps και χρονική περίοδο μίσθωσης 15 χρόνων.

β) Συνεγκατάσταση σε αγωγούς καθώς επίσης και χρήση φρεατίων για πρόσβαση σε υποστατικά.

Όσον αφορά την παροχή τηλεόρασης (IPTV), εισηγούμαστε όπως γίνει χωριστή μελέτη για το τεχνικό κόστος παροχής της υπηρεσίας και χωριστά για το κόστος περιεχομένου."

CallSat's concerns

"*In addition to the listed services, the below should also be considered:*

- *Facility Services for Wholesale Line Access (such as CLI)*
- *Installation and Fault costs (such as visits from technicians)."*

OCECPR's response

Based on the contribution provided by the operators, OCECPR recognizes the following:

- Based on MTN and Cyta's comments regarding Leased Lines services, it will substitute PDH/SDH services by Fast Ethernet and Gigabit Ethernet Leased Lines.
- The model needs to be capable of considering any historical, current or projected FTTH services provided by Cyta.
- Regarding xDSL and FTTH subscription fees, OCECPR notes that all different speed configurations available in the market will be considered in the model. Additionally, it clarifies that these two terms refer to the retail services, whereas the bitstream line subscription fee would refer to wholesale services.
- The IPTV service to be considered refers to the retail service consisting of the full provision of IP Television to the subscriber (including contents rights and transmission). At the same time, OCECPR outlines that it has no plans to model an IPTV wholesale service, as it is not regulated and no evidence exists of it being provided massively in the country.
- OCECPR notes that infrastructure sharing and installation services are already addressed in the model for ancillary services (see question 23). Additionally, it should be noted that CLI services are regulated under a retail minus approach and therefore will not be included in the ancillary services model.

3.1.14. Question 14: Do you agree with the suggested definition of the increments for the model for fixed networks?

Cyta's concerns

"The EC recommendation on wholesale call termination concentrates on the definition of a single increment, essentially as that recommendation is concerned with the pure LRIC cost of wholesale call termination. Previous to that recommendation, increments tended to only be specified in fairly broad terms.

The reality of the BU LRIC models produced by regulators up to that point was that the actual, precise definition of any increments used did not impact on the cost-based prices that the models produced as outputs. This "reality" makes perfect sense if, as was the case, the models concentrated foremost on the principle of cost causality, which essentially crosses the boundaries of any increments "defined" or specified in an arbitrary fashion.

Putting this another way, as long as the model respects the principle of cost causality, and has been developed and populated in a professional manner, then

the size and scope of any increments should not affect the final results of the model. Clearly, the use of a "pure LRIC" increment represents an exception to this since the cost-based price that results for the service covered by that increment no longer respects cost causality.

In summary, the position of Cyta is that OCECPR can define the remaining "increments" as it sees fit, as long as the principle of cost causality is properly reflected within the model. This is an important reason for an additional consultation round to be included in the overall timeframe once a draft version of the model has been developed and populated by OCECPR's retained consultants."

MTN's concerns

"MTN agrees with the suggested definition of the increments proposed by OCECPR. This approach is consistent with the approach taken by a number of regulators in other jurisdictions."

Primetel's concerns

"Συμφωνούμε."

Cablenet's concerns

"Όπως αναφέραμε και στην Απάντηση 1 διαφωνούμε με την κοστολόγηση υπηρεσιών κίνησης φωνής σε σταθερά δίκτυα βάση του μοντέλου Pure LRIC."

CallSat's concerns

"Yes. We have no comments or objections for the suggested increments."

OCECPR's response

OCECPR notes that the treatment of Cyta's contributions has already been included as part of its answer to question 10, and will proceed with the definition of the increments presented in the public consultation paper.

3.1.15. Question 15: Do you agree with the suggested technologies to be considered for access, transmission and core networks in the BULRIC Model for Fixed Networks?

Cyta's concerns

"Cyta is of the opinion that the suggested technologies to be considered for access, transmission and core networks generally appear reasonable. We would, however, question if it is correct to completely ignore the use of SDH equipment. Our reasoning here is twofold:

- *There is still a high volume of leased circuits (at both the retail and wholesale level) that are "based on" SDH technology – the circuit "presentation" is SDH, and in many cases there will be a critical need for the circuit to be synchronous.*
- *The intention is to retain TDM exchanges in the model, at least during the transition period, and these exchanges will require SDH equipment in order to connect to the Media Gateways which are in general sited at remote locations (there are few Media Gateway sites than TDM exchange sites).*

However, since very little is said in the document on how the fixed network will be "designed" within the model, a final opinion will not be possible until we have seen how the text referred to by Question 15 is actually implemented within the model and details are provided on the fixed networks to be designed within the model. This is an important reason for an additional consultation round to be included in the overall timeframe once a draft version of the model has been developed and populated by OCECPR's retained consultants."

MTN's concerns

"*MTN agrees, to some extent, with the choice of access technologies to be modelled. MTN believes that the xDSL equipment considered in the model should be backward compatible (i.e. suitable for simultaneously handling current and legacy DSL technologies) and that the provision of three xDSL technologies in parallel must not result in inefficient utilisation of network equipment or inefficient deployment of parallel network infrastructure. For example, if the model considers three separate xDSL technologies and the equipment is not compatible, then this may mean that at a given access node, there are three separate pieces of xDSL equipment each with a low level of utilisation. This would clearly be inefficient and imply high unit costs and could therefore result in excessive wholesale access charges. MTN understands that modern network equipment can accommodate different technology types in a single piece of equipment. Taking the same example above, this means that all three xDSL technologies may be accommodated in a*

single piece of equipment, implying lower unit costs and resulting in lower access prices.

MTN agrees with the choice of transmission technologies but notes that the use of microwave links in a fixed network is questionable and unlikely to be an efficient technology for a stand-alone fixed operator. MTN further notes that OCECPR's decision to only consider DWDM and native Ethernet technologies is inconsistent with the services it wishes to model. E and STM carriers are those of PDH/SDH transmission technologies. Since the model is meant to no longer incorporate these technologies, it would be inconsistent to model these types of services instead of Gigabit Ethernet transport services (which OCECPR currently does not consider in the list of services it plans to cost using the model).

MTN disagrees with the proposed technologies for the core network and believes that modelling TDM and NGN core technologies would represent an inefficient network and unduly reward Cyta for maintaining a legacy network beyond its typical useful asset life. Cyta's TDM network is likely to be fully depreciated and a hypothetical network operator of the scale and scope of Cyta would not invest into TDM and NGN technology in parallel. Instead, it would consider the modern equivalent network structure only. Modelling both technologies in parallel would also be inconsistent with the OCECPR's views regarding the transmission network. Here, OCECPR is of the view that SDH technology has largely been replaced by its Ethernet counterparts. It should equally be the case that the TDM network equipment is largely being replaced by NGN equipment. Contrary to the OCECPR, MTN believes that there is very limited precedent today of models being developed using legacy TDM technology. For example, MTN is aware of cost models developed in Denmark, Sweden, Norway, Luxemburg, Belgium, France and Spain that do not include any TDM equipment. Other jurisdictions are likely to follow a similar approach"

Primetel's concerns

"Συμφωνούμε."

Cablenet's concerns

"Συμφωνούμε γενικά, αλλά όσο αφορά το κομμάτι του δικτύου μεταφοράς θεωρούμε ότι τόσο οι τεχνολογία με μικροκυμματικές ζεύξεις, όσο και η τεχνολογία SDH έχουν ξεπεραστεί και αντικατασταθεί με Ethernet μέσω οπτικών ινών.

Όσον αφορά τα δίκτυα πρόσβασης, παρακαλούμε όπως διευκρινιστεί τι θα ισχύει σε περιπτώσεις αλληλοκάλυψης των διαφορετικών τεχνολογιών. Τα στοιχεία κόστους

της πιο παλιάς τεχνολογίας δεν θα προσμετρούν καθόλου πλέον ή θα εξακολουθούν να υπολογίζονται στο συνολικό κόστος της συγκεκριμένης τεχνολογίας;

Ανεξάρτητα από την πιο πάνω απόφαση που θα ληφθεί, εισηγούμαστε ότι το κόστος οποιωνδήποτε συνιστωσών στοιχείων (όπως π.χ. αγωγών και φρεατίων, καμπίνων κ.ο.κ.) προσμετρούν εξ' ολοκλήρου για το κόστος της πιο νέας τεχνολογίας (π.χ. για το GPON). Δεν πρέπει να γίνεται καθόλου επιμερισμός του κόστους στην παλιά τεχνολογία."

CallSat's concerns

"For access networks, Cyta are currently using xDSL3 technology so we believe this should be considered as part of the costing analysis. Basically, due to their very strong position, network coverage and overall positon all the services that Cyta offer should be considered.

For transmission and core networks we have no comments or objections with the suggested technologies."

OCECPR's response

OCECPR appreciates the contributions provided by the operators and outlines below its responses to the different issues raised:

- OCECPR agrees with MTN in that the access technologies considered in the model should be capable of providing simultaneously the different kinds of xDSL services dimensioned.
- The use of microwave links will be based on their actual use, as reported by the incumbent operator. OCECPR will always take into consideration the most cost efficient alternative, even if consists of microwave technologies that may come of use for interconnecting remote rural areas.
- Regarding the use of TDM technologies, OCECPR notes that it will consider a migration path from TDM to NGN technologies, representing the actual status of Cyta's network at each year. Irrespective of the approach taken in other countries with regards to the treatment of TDM/NGN networks, OCECPR still needs to understand the costs of providing services through TDM networks.
- OCECPR appreciates CallSat's comments on the use of xDSL3 technologies.
- In case there is overlapping of different technologies (e.g. copper, FTTH) in the access network, the cost of the shared resources will be allocated to both services based on their use.

3.1.16. Other questions regarding Bottom-Up LRIC Model

Cyta's concerns

"Cyta has a specific concern related to the Mobile BU LRIC model related to busy hour traffic. We have two specific points to stress:

- *It is not sufficient to take an overall network busy hour traffic level. Within mobile networks, the busy hour traffic (and indeed the busy hour itself) will vary from base station to base station and from technology to technology (2G, 3G, and 4G). For example, some base stations will be busy in the morning whilst customers are travelling to work, and others during the day, whilst customers are at work.*
- *Certain parts of Cyprus enjoy high levels of tourists, particularly during the summer months. On the assumption that the mobile model will, as is the norm for such models, consider a range of different geotypes, then we would urge OCECPR to include geotypes that are specific to areas frequented by tourist. Cyta is very willing and available to support OCECPR in the identification of these areas geographically. Furthermore, if OCECPR's retained consultants can inform us on how they intend to define the various geotypes in general, then Cyta can provide our own assessment of which base stations fall into which goetype category.*
- *There is no real discussion on the methodology that will be adopted for operating costs. Given that operating costs tend to represent a significant portion of total product costs, we would expect them to be discussed in some depth in the overall methodology. Likewise we would also expect that indirect capital costs such as accommodation costs are discussed. In this regard, we would remind OCECPR that Cyta has a detailed cost allocation model that it uses for its own costing purposes and that the data contained within that model could prove very useful to OCECPR in its assessment of necessary operating costs. We expect that in the more detailed document of the Regulator the methodology of calculating operating costs and indirect capital costs is discussed*
- *Very little is said in the document on how the fixed and mobile networks will be "designed" within the models. Given that the network designs are central to the design of the models, and that very little time exists for that model development, we find it very hard to believe that OCECPR does not already have a very good idea of what those network designs would be. On that basis, we find it odd that very little is said about this in the methodology document. We therefore expect OCECPR to provide details on the fixed and mobile networks to be designed within the models*

We would urge OCECPR to ensure that the mobile BU LRIC model adequately addresses both of the above points."

OCECPR's response

Even though the above contributions provided by Cyta are not linked to any question in particular, OCECPR provides below its views on each of the four issues under discussion:

- Whereas OCECPR recognizes the merits of introducing two different busy hours in the model, as in fact, different sites may have their busy hours at different times of the day, it acknowledges it is not common practice among European NRAs to consider this aspect. In fact, only the Spanish NRA is known of having adopted such approach. At the same time, OCECPR notes that Cyta has not provided any of the traffic-related information at site level requested in the Excel templates, which prevents OCECPR from conducting any analysis of the traffic patterns at this level.
- As outlined in the previous point, Cyta was already asked to provide traffic information at site level, even in a more aggregated format as to that required to perform such analysis, which has not been provided throughout the data collection process. OCECPR considers that Cyta has already been allowed extensive time to provide such information and therefore, will not request to the operator any additional data.
- As presented in section 2.2, the treatment of operational expenses in the Public Consultation documents issued by other European NRAs is not common. Nevertheless, as Cyta will have observed, OpEx figures related to the different network elements were requested during the data gathering process, which are expected to be used in the model after having thoroughly analysed their validity based on the approach presented in Exhibit 3.3 of the Public Consultation. In case no values are available for a given resource, OCECPR will make use of international benchmarks and/or (if possible) Cyta's Top-Down costing system.
- OCECPR does not see a need to publish the dimensioning algorithms in order to be able to comment on the methodology to be adopted in the development of the costing models, as they are not linked whatsoever. Nevertheless, for the sake of transparency, a brief presentation of the dimensioning algorithms has been included as an annex in the final methodological document.

3.2. Responses to specific questions regarding Margin-Squeeze Model

This section presents a summary of OCECPR's understanding on the Operators' comments on specific questions outlined in the CD on the methodology for Margin-Squeeze modelling and details the OCECPR's position. This has been divided according to the 7 questions asked in the document.

3.2.1. Question 16: Do you agree with the consideration of adjusted EEO operator with a 20% market share?

Cyta's concerns

"*The final paragraph of section 4.1.1 provides three examples of market share that have been adopted by the relevant NRAs:*

- *Greece (population 10.8 million), 13.5%.*
- *Norway (population 5.2 million), 20.0%.*
- *Croatia (population 4.5 million), 25.0%.*

These examples show a clear relationship between the assumed market share of the Hypothetical Existing Operator and the population of the country concerned. Given that the population of Cyprus (excluding the area currently under Turkish occupation) is only around 800.000 it is clear that the assumed market share should be greater than 25.0%. Cyta is of the opinion that a market share of 30.0% would be appropriate."

MTN's concerns

"*MTN agrees with OCECPR's approach but notes that the current information provided as part of this consultation does not allow MTN to respond on the OCECPR's approach for inferring the corresponding downstream cost under the adjusted EEO test. On one hand, Cyta's costs do not represent those of a 20% market share operator. On the other hand, the use of the fixed bottom-up model assuming a level of demand consistent with a 20% market share would allow OCECPR to estimate the cost of a smaller scale operator but would not allow it to estimate the costs of an operator of equal efficiency to Cyta, as required under the EEO test. OCECPR should therefore set out more clearly its approach for estimating the downstream cost given its adjusted EEO test and again consult with the industry once this approach is more clearly defined."*

Primetel's concerns

"Συμφωνούμε."

Cablenet's concerns

"Στην περίπτωση των σταθερών δικτύων συμφωνούμε με το προσαρμοσμένο μερίδιο αγοράς ΕΕΟ της τάξης του 20%. Στην περίπτωση των υπηρεσιών που παρέχονται από δίκτυα κινητής το προσαρμοσμένο μερίδιο αγοράς ΕΕΟ θα πρέπει να μειωθεί στο 10% καθώς αφορά ποσοστό το οποίο είναι δυνατό να ανακτήσει ένας νεοεισερχόμενος παροχέας σε περίοδο περίπου πέντε χρόνων. Ένα πιο μεγάλο ποσοστό μεριδίου αγοράς το οποίο θα χρησιμοποιόταν σε άσκηση συμπίεσης περιθωρίου κέρδους θα είχε πιθανώς ως αποτέλεσμα την αύξηση των χονδρικών τιμών σε επίπεδα στα οποία να μην είναι δυνατή η βιωσιμότητα ενός νεοεισερχόμενου οργανισμού."

CallSat's concerns

"Yes. We have no comments or objections with the consideration."

OCECPR's response

OCECPR considers a market share of 20% for the adjusted EEO to be reasonable to develop a viable business plan. This value should not only be related with country population but also to the actual concentration in the market. In fact, the list of countries referenced by Cyta to prove the relationship market share vs country population is distorted if Luxembourg is added to the equation:

- Greece (population 10.8 million), 13.5%.
- Norway (population 5.2 million), 20.0%.
- Croatia (population 4.5 million), 25.0%.
- Luxembourg (population 0.5 million), 15.0%.

Additionally, OCECPR notes that according to the EC Recommendation on Fixed and Mobile termination rates, *"To determine the minimum efficient scale for the purposes of the cost model, and taking account of market share developments in a number of EU Member States, the recommended approach is to set that scale at 20% market share""*

3.2.2. Question 17: Do you agree with the adoption of a product-by-product analysis on the flagship products provided by the SMP Operator?

Cyta's concerns

"Cyta disagrees with the adoption of a product-by-product analysis. Cyta is of the opinion that the margin squeeze must be calculated for all products for each market (e.g internet market, mobile market etc). In accordance with the Deutsche Telecom case (Commission Decision of 21 May 2003 Case COMP/C-1/37.451, 37.578, 37.579 - Deutsche Telecom AG), (Court of First Instance (CFI) Case 7-271/03)) during the examination of revenues and costs all the products of the relevant market should be considered. Therefore the margin squeeze for the whole market should be calculated. It is mentioned in the case that "The tariffs to be taken into account for the comparison of wholesale and retail access services therefore must cover the full range of retail access services which competitors can offer."

MTN's concerns

"MTN agrees with OCECPR's product by product approach. It therefore disagrees in principle with the flagship approach, but agrees with the way in which OCECPR appears to interpret flagship products (see next response)."

Primetel's concerns

"Συμφωνούμε."

Cablenet's concerns

"Συμφωνούμε. Τονίζουμε ότι στην εξέταση των προϊόντων RED για την αγορά κινητής πρέπει οπωσδήποτε να λαμβάνονται υπόψη τα συγκεκριμένα χαρακτηριστικά χρήσης των πιθανών χρηστών των εν λόγω πακέτων (ειδικά για τα RED 2, 3 και 4). Άποψη μας είναι ότι με τις σημερινές μοναδιαίες τιμές υπηρεσιών κινητής τηλεφωνίας που έχει καθορίσει η ΑΤΗΚ και που προσφέρει σε νοητούς παροχείς, τα πακέτα RED 2, 3 και 4 δεν είναι δυνατόν να προσφερθούν από τους νοητούς παροχείς στην αγορά χωρίς σημαντική ζημιά."

CallSat's concerns

"We do agree with this approach, but however the OCECPR should reserve the right to be able to run a combination approach should the need arise. It is important when analysing the potential for margin squeezing scenarios that the analysis be done from the decision making side (retail perspective) and cost side (wholesale).

Therefore, if there are any underlying or indirectly linked products these should definitely be considered in a margin squeeze scenario. For example, Cyta's RED products offer unlimited voice, SMS and substantial data usage. The prices of this usage in some cases the retail prices of these services are cheaper than the wholesale prices.

We would also like to point out again here that the regulation is insufficient for access to wholesale mobile services (MVNO). Only one operator is regulated and is compelled to offer the service, while in essence all three MNO's can offer this service and are an SMP in the provision of this services (it can easily be viewed in the same light as wholesale termination services). Currently, if you compare the mobile data services offered by all the MNO's to the cost of wholesale data it is strikingly obvious that margin squeezing is in effect.

Also, we would like to emphasize again at this point that the OCECPR needs to consider what it considers and SMP operator for which services. For example, MTN has been operating with a MNO license for over 12 years with a 30%-35% market share, and is not considered as an SMP for the provision of wholesale mobile services. Access to MVNO services is a wholesale market, and regulation needs to be imposed to all operators that can offer this service- in the same way that any operator terminating calls is considered as an SMP for the market of terminating calls to their network, then any company with its own network should be considered as an SMP for access to these wholesale services. The market of mobile (MVNO) services is not competitive. The lack of margins, set-up costs, lack of alternatives are barriers to entry into this market. This is apparent from the number of companies offering this service. We are one of the few MVNO's operating in Cyprus. Primetel was another, but they have become a full MNO, and Lemontel, the other full MVNO, has been bought out by Cablenet and still does not offer post-paid services. There is another MVNO, Mundio, in the process of setting up (for a few years now) who use a hosted- full MVNO solution, whom have yet to commence commercial activities due to the various barriers to entry they are experiencing. Our experience with the MVNO market is that we currently use MTN, via a commercial agreement and have been trying to negotiate various rates and services for over 1 year with no affect, or even response. We are also trying to discuss with Cyta the potential of an ESP scenario and changes to the scenario they offer, and again no response for close to a year here as well. This is not representative of a competitive environment, and commercial discussion/negotiations are non-existent. This is also a major concern of ours when it comes to the discussions of Freephone calls that we have just started to discuss- the MNO's do not negotiate or discuss and merely impose regulation – if this

regulation does not cover all commercial aspects of a service then the market will not be competitive and the regulation ineffective.

To make this market more effective, we strongly insist that the only way (in a market of the size of Cyprus) is to regulate all MNO's to offer MVNO services, hence at least, removing the barriers of entry into this market."

OCECPR's response

OCECPR notes that, despite the high relevance that the Deutsche Telekom decision had in the telecoms market, it is now dated back from 2003, way before the 2013 EC Recommendation on consistent non-discrimination obligations, which outlines:

"*There are a number of reasons underpinning the use of a product-by-product test in an ex-ante setting where an operator has SMP upstream to one or a number of wholesale inputs required to replicate an offer at the retail level. In particular, the use of a product-by-product approach ensures that each bundle/standalone offer is replicable and that there can be no form of cross-subsidy between bundles/standalone offers*" (*underlining added by OCECPR)*

Therefore, OCECPR is still of the opinion that a product-by-product analysis should be performed

Regarding Callsat's concerns, OCECPR appreciates the indications given by the operator, and will assess any potential issues on the costs of MVNO services upon the finalization of the costing models.

3.2.3. Question 18: Do you agree with the definition and treatment of the flagship products?

Cyta's concerns

"Cyta could accept the consideration of 100% of the products on the basis that a product group approach is adopted. If OCECPR finally concludes that a product-by-product approach is necessary, then Cyta is of the strong opinion that the effort involved in undertaking a specific test for each and every product is disproportionate and thus the analysis should be restricted to only a limited set of flagship products."

MTN's concerns

"MTN agrees with the OCECPR's approach although we note that it seems somewhat inconsistent with the adoption of a flagship approach as set out in relation to the previous question. On one hand, OCECPR states that a flagship approach ensures that not every new product is subject to the MSQ test. However, it is unclear if any new product introduced by Cyta would be considered a flagship product and would therefore be subject to the margin squeeze test or if the approach only designates current products as flagship products, with OCECPR then deciding on a case by case basis if new products should also be considered flagship or not. MTN believes that OCECPR's approach should consider all products, new and existing, in the Margin Squeeze test to ensure that Cyta does not abuses its dominant position in the market."

Primetel's concerns

"Συμφωνούμε."

Cablenet's concerns

"Συμφωνούμε."

CallSat's concerns

"Yes we agree with the adoption of 100% of products be considered as flagship products and again stress that the OCECPR should reserve the right to consider these as combinations and in their entirety if the need arises."

OCECPR's response

Given that the amount of products being commercialised by Cyta is reduced (as no bundling is being carried out), the analysis of the complete product offering of Cyta becomes feasible in this case, without a need to appeal to the flagship product definition commonly adopted by other NRAs (in which cases, multiple bundles are being commercialised).

Based on MTN's comments, and in order to avoid any misunderstandings in the interpretation of OCECPR's guidelines, the editing of this section will be revisited to ensure it is clear that flagship products (as named by the EC) should represent Cyta's complete product portfolio.

3.2.4. Question 19: Do you agree with the use of the LRIC+ standard in the margin squeeze model, using FDC costs when LRIC+ data is not available?

Cyta's concerns

"Cyta is of the opinion that the use of the LRIC+ standard in the margin squeeze model, using FDC costs when LRIC+ data is not available, appears reasonable. However, a final opinion will not be possible until we have seen how the text referred to by Question 19 is actually implemented within the margin squeeze model. This is an important reason for an additional consultation round to be included in the overall timeframe once a draft version of the NCUS model has been developed and populated by OCECPR's retained consultants."

MTN's concerns

"MTN agrees with the use of the LRIC+ standard as a basis for estimating downstream costs for the margin squeeze test. We also agree with the use of FDC in the event that LRIC+ is unavailable. However, MTN is unclear how, under this approach, OCECPR will take into account the adjusted EEO approach. For example, OCECPR states that FDC from the operator's accounts should be used in the event that LRIC+ is unavailable but does not state where it expects to obtain LRIC+ estimates from. The two sources it could obtain such information from are:

- *The fixed bottom-up LRIC model it is currently developing.*
- *A top-down LRIC model developed by OCECPR or Cyta.*

As already set out in response to question 16, we believe that the use of the fixed bottom-up LRIC model would be inappropriate for the implementation of the margin squeeze test. This is because such a model should be based on a hypothetical operator of the scale and scope of Cyta. Such a model does not, therefore, represent the costs that an operator, equally efficient to Cyta but of a smaller scale, would incur.

If a top-down LRIC model, from either OCECPR or Cyta is being used, it would be important to consider what information would be obtained from such a model and how such a model would be adjusted to reflect the adjusted EEO (again, see response to question 16).

Finally, if relying on the FDC based on Cyta's accounts, OCECPR needs to develop a methodology for estimating the downstream costs of an adjusted EEO. This may be challenging if the FDC information does not provide sufficient information to allow

OCECPR to distinguish variable, fixed and common costs. This is important in order to identify the correct unit costs that would apply for an adjusted EEO rather than the EEO. For example, fixed costs will not change given the change in volume assumed under the adjusted EEO, and therefore the unit downstream costs will be higher for the adjusted EEO.

MTN therefore asks OCECPR to further specify its approach regarding the areas set out above and provide an opportunity to industry stakeholders to comment on that approach."

Primetel's concerns

"Συμφωνούμε."

Cablenet's concerns

"Συμφωνούμε με την χρήση LRIC+ ως πρότυπο στο μοντέλο συμπίεσης περιθωρίου κέρδους στις υπηρεσίες τερματισμού κίνησης φωνής σε κινητά δίκτυα αλλά όχι στα σταθερά δίκτυα βάση των προηγούμενων μας σχολίων. Στην περίπτωση όπου δεν υπάρχουν τα στοιχεία για χρήση της προσέγγισης LRIC+ βάση των οποίων θα επιτρέπεται η ανάκτηση των συνολικών δαπανών με τις οποίες θα επιβαρυνθεί ο φορέας εκμετάλλευσης με ΣΙΑ, τότε μπορεί να γίνει η χρήση FDC ενός αποδοτικού παροχέα ή η χρήση στοιχείων βάση διεθνών προτύπων."

CallSat's concerns

"Yes. We have no comment"

OCECPR's response

Based on operators' general agreement, OCECPR will make use of LRIC+ data, complemented with FDC related information when the former is not available.

Regarding MTN's concerns on how this information will be obtained, OCECPR notes the following with regards to the two main costs inputs that need to be defined in the model:

- **Network-related costs**: OCECPR will adjust the parameters of the Bottom-Up model it is currently implementing to make it representative of an efficient operator with a 20% market share.
- **Retail costs**: These will be extracted from the analysis of the information provided by all the operators, with the aim to ensure that the resulting values are representative of an efficient operator with a 20% market share.

- Additionally, it should be noted that, when regulated charges are available, these will be given additional preference.

3.2.5. Question 20: Do you agree with the relevant downstream costs that will be considered in the model?

Cyta's concerns

"Cyta is of the opinion that the relevant downstream costs categories identified in section 4.1.5 appear reasonable. However, a final opinion will not be possible until we have seen how the text referred to by Question 20 is actually implemented within the margin squeeze model. This is an important reason for an additional consultation round to be included in the overall timeframe once a draft version of the NCUS model has been developed and populated by OCECPR's retained consultants.

We would stress that the model needs to take great care to ensure that the same functionality (e.g. on island backhaul, or cost of customer CPE) is not costed twice. Also, the model should take proper account of the fact that the NGA wholesale input costs also include a mark-up for general management and business costs."

MTN's concerns

"We agree that the costs mentioned by OCECPR should be included in the downstream cost estimate. In the event that regulated services are bundled with other services, any net-cost in the provisioning of these bundled services should equally be taken into account. For example, Cyta could improve the attractiveness of its services through bundling. In the event that such bundled services (e.g. an IPTV product that is added to a broadband service) are provided at a price below the incremental cost of the added service (i.e. IPTV), the net-cost of the IPTV add-on must be taken into account in the margin for broadband services. This is especially important where bundled services cannot be replicated by access seekers."

Primetel's concerns

"Συμφωνούμε."

Cablenet's concerns

"Συμφωνούμε."

CallSat's concerns

"We believe that the item 'Wholesale prices for regulated wholesale products' be extended to include wholesale prices on non-regulated products. If all products are considered flagship products, then there are costs that will be incurred that do not fall under any regulation. However, if this is a combined service product then it will have to be taken into consideration if a complete analysis and view of a product is to be undertaken. There should in essence be no limitations on the costs to be used when it comes to margin squeezing examination."

OCECPR's response

OCECPR appreciates operators' agreement on the relevant downstream costs that will be considered in the model.

Additionally, it notes that in case any bundled offers are eventually provided by Cyta, these will be considered in the replicability test.

Finally, following CallSat's contributions, wholesale prices for non-regulated products will also be included in the list of downstream costs considered in the margin squeeze model.

3.2.6. Question 21: Do you agree with the consideration of the WACC in the margin-squeeze model?

Cyta's concerns

"Cyta is of the opinion that the use of the WACC from the BU LRIC model for fixed networks appears appropriate for use in the margin squeeze model. However, a final opinion will not be possible until we have seen how the text referred to section 4.1.6 is actually implemented within the margin squeeze model. This is an important reason for an additional consultation round to be included in the overall timeframe once a draft version of the NCUS model has been developed and populated by OCECPR's retained consultants. Please also note that wholesale prices include cost of capital, therefore WACC should not be double counted."

MTN's concerns

"MTN agrees with the use of WACC as proposed by OCECPR, subject to that WACC being properly calculated by OCECPR. Information missing from the current consultation document in that regard is how OCECPR plans to reflect the WACC of an adjusted EEO. For example, a fixed operator with 20% market share may face a

higher cost of capital given that its operation is subject to a much higher degree of competition. The WACC associated with Cyta's fixed operation does not reflect such an exposure to competition risk and would therefore not be suitable as a basis for determining capital costs of the adjusted EEO. See also response to question 5 above."

Primetel's concerns

"Συμφωνούμε."

Cablenet's concerns

"Συμφωνούμε."

CallSat's concerns

"Yes. We have no comments or objections for the suggested consideration."

OCECPR's response

OCECPR appreciates operators' agreement on the consideration of the WACC in the margin-squeeze model.

With regards to MTN's contributions on the adjustment of the WACC level, it should be noted that, whereas it is true that the adjusted EEO with a market share of 20% could have a different WACC than Cyta, OCECPR considers Cyta's WACC to be the best proxy in the definition of this figure in the margin squeeze test.

3.2.7. Question 22: Do you agree with the consideration of a static approach?

Cyta's concerns

"Cyta is of the opinion that the use of a static approach within the margin squeeze model appears reasonable, given that OCECPR already utilises such an approach with its ex post margin squeeze analysis. However, a final opinion will not be possible until we have seen how the text referred to section 4.1.7 is actually implemented within the margin squeeze model. This is an important reason for an additional consultation round to be included in the overall timeframe once a draft version of the NCUS model has been developed and populated by OCECPR's retained consultants."

MTN's concerns

"MTN agrees with the static approach."

Primetel's concerns

"Συμφωνούμε."

Cablenet's concerns

"Γενικά συμφωνούμε στην χρήση της στατικής προσέγγισης με εξαίρεση τις υπηρεσίες κινητής. Στην περίπτωση των υπηρεσιών κινητής η άσκηση συμπίεσης τιμών θα πρέπει να λαμβάνει υπόψη στον υπολογισμό του χονδρικού κόστους (CW) το ποσοστό νέων πωλήσεων του κάθε λιανικού προϊόντος/πακέτου και όχι την υφιστάμενη βάση πελατών του οργανισμού με ΣΙΑ. Στην περίπτωση που λαμβάνεται υπόψη στον υπολογισμό του CW όλος ο όγκος προϊόντων που αφορά την υφιστάμενη βάση πελατών της ΑΤΗΚ, όπου το μεγαλύτερο ποσοστό αφορά κλασικά πακέτα, υπηρεσίες με ψηλό περιθώριο κέρδους που εξακολουθούν να παραμένουν λόγω της αδράνειας των πελατών να μετακινηθούν σε νέα προϊόντα/πακέτα, τότε το PS θα είναι αρνητικό. Αν όμως ληφθεί υπόψη το τρέχον και μελλοντικό ποσοστό πωλήσεων στον υπολογισμό του CW του παροχέα που κατέχει ΣΙΑ το οποίο θα είναι το ίδιο με αυτό του νεοεισερχόμενου, όπου το ποσοστό πώλησης κλασικών πακέτων είναι σχεδόν μηδέν, τότε το PS βάση των πακέτων RED θα είναι θετικό χωρίς καν να λαμβάνονται υπόψη οι άλλες συνιστώσες κόστους CR, CN και M. Λόγω του ότι η αγορά υπηρεσιών κινητής είναι δυναμική, η άσκηση συμπίεσης τιμών θα πρέπει να επαναλαμβάνεται κάθε τρεις μήνες, καθώς επίσης και πριν την τροποποίηση ή διάθεση νέων προϊόντων από τον οργανισμό με ΣΙΑ. Σημειώνουμε ότι ο λόγος για τον οποίο η εταιρεία μας δεν προχώρησε με την παροχή υπηρεσιών κινητής είναι διότι υπάρχει συμπίεση τιμών βάση των τιμών του υποδείγματος MVNO της ΑΤΗΚ."

CallSat's concerns

"We would like to emphasize here that as the static approach does not take into consideration relevant cash flows from operations, it may not be a very realistic method of analysis during the current economic conditions in Cyprus. There may be cases where the lack of effective financing, or cash flow issues related to a service may provide a barrier to entry with a certain service. Although, the static approach is useful, we believe that the Regulator should not place any limitations on any considerations when it comes to providing healthy and effective competition."

OCECPR's response

OCECPR appreciates operators' agreement on the consideration of a static approach in the margin-squeeze model.

It also notes that the difference between adopting a static or a dynamic approach would fall mainly in the fact that under the latter, several periods would be modelled, based on sales forecasts. However, each period would be independent under such analysis, and the cash flows or sales variations YoY would not affect the results of other periods, as this could be creating an over-dependency on the demand projections estimated by the OCECPR.

Finally, whereas OCECPR will initially update the margin squeeze model on a year by year basis, if it sees relevant market dysfunctionalities that need to be urgently treated, it may adjust its approach towards adopting a quarter by quarter update.

3.2.8. Other questions regarding Margin-Squeeze Model

Cyta's concerns

"We could not find any mention in the methodology document of the customer lifetimes that will be assumed for the purposes of the margin squeeze tests. We would urge OCECPR to rectify this oversight in the final version of the methodology document. Cyta understands that the standard contract utilised by the major competing ISPs has a minimum duration of 24 months. We would thus expect that the lifetimes included within the model are in excess of this since not all customers will churn to a different ISP at the end of the minimum contract period."

MTN's concerns

"This section sets out our comments in relation to the margin squeeze test (MSQ) model.

We note that the methodology does not set out the way in which OCECPR will consider the relevant wholesale products. For example, a standard broadband margin squeeze test can be done using LLU but also bitstream access as a wholesale basis for the service. The current consultation does not cover this aspect. However, we consider that OCECPR should ensure there is no margin squeeze using any wholesale product, independent of the actual products being used on the market. This is so that access seekers have the ability to choose which wholesale products to use when offering retail services, and to prevent Cyta from attempting

to lock access seekers into using particular wholesale products. For example, an access seeker may wish to offer retail broadband services through an unbundled local loop wholesale product. However, an incumbent could have an incentive to restrict the access seeker to a bitstream product as this could lead to higher wholesale revenues for the incumbent. The MSQ test must ensure that the incumbent is not able to do this."

OCECPR's response

Regarding the customer lifetimes that should be used in the population of the Margin Squeeze model, OCECPR notes that these were already requested to the operator, without having achieved a positive answer so far.

In regards to the relevant wholesale products that should be considered, OCECPR notes that all of them will be available in the model, including the provision of both direct and indirect internet access, with the model automatically selecting the most cost efficient alternative in each region, provided it is available in a given geographical area.

3.3. Responses to specific questions regarding Ancillary Services Model

This section presents a summary of OCECPR's understanding on the Operators' comments on the specific question outlined in the CD on the methodology for Ancillary Services modelling and details the OCECPR's position.

3.3.1. Question 23: Do you agree with the OCECPR's approach for costing ancillary, one-off and non-material services? Which of the above stated services are the most important in terms of usage and cost?

Cyta's concerns

"*Cyta would point out that it is impossible to agree with an "approach" that has not been specified. Cyta does agree that these services are best addressed outside of the BU LRIC model, but cannot comment on the OCECPR approach unless/until it has been defined (and defined adequately) in the methodology document. An approach can be inferred from the columns specified in the Data Request for Ancillary Services, but OCECPR needs to be specific in how the various columns will be used.*

Even after an approach has been defined, a final opinion will not be possible until we have seen how that approach is actually implemented within the Ancillary Services model. This is an important reason for an additional consultation round to be included in the overall timeframe once a draft version of the model has been developed and populated by OCECPR's retained consultants.

With regards to the second question, we have the following specific comments:

- *Wholesale line rental connection is no longer available as a service (it ceased on 15th March). Thus this is not applicable for the purposes of the ancillary services model. Since that service was retail minus based on PSTN/ISDN2/ISDN30 retail connection fee then those services are also not applicable for the purposes of the ancillary services model.*
- *Shared Access subscription fee is not a one-off service and thus is not applicable for the purposes of the ancillary services model.*
- *There were no new Shared Access connections during either 2014 or 2015.*
- *Backhaul at the Landing station is included in Leased Lines Offer*
- *International Capacity from the landing stations to the main destination is not regulated*
- *Carrier selection and preselection Reference Offer will be removed as this market is no longer regulated.*
- *IPTV is not regulated*
- *The Prepaid services for mobile for SPs and ESPs will be set when the technical solution is finalised between the two providers*
- *Leased Lines Reference Offer should include Ethernet as well*
- *Other services -Activation/subscription services are not regulated"*

MTN's concerns

"The arguments provided for considering a simpler costing model separate from the fixed BU LRIC model for ancillary services is consistent with our response to the modelling of a connection fee as part of the mobile BU model. OCECPR should apply the same principles across mobile and fixed models.

For completeness, MTN notes that OCECPR's list appears to exclude the following two services:

- *The survey charge that applies when access seekers apply for duct collocation service; and*
- *The survey charge that applies when access seekers apply for an expansion of LLU/SLLU DSLAM capacities*."

Primetel's concerns

"Συμφωνούμε. Σημαντικές σε κόστος και χρήση είναι οι συνδέσεις και οι βλάβες του LLU/Bitsream."

Cablenet's concerns

"Συμφωνούμε με την κοστολόγηση των παρεπόμενων, εφάπαξ και επαναλαμβανόμενων υπηρεσιών.

Συγκεκριμένα θα θέλαμε να επισημάνουμε τη σημασία της εξέτασης των παρεπόμενων υπηρεσιών κατά την παροχή προϊόντων συνεγκατάστασης αγωγών της ΑΤΗΚ που αφορούν την μεγαλύτερη συνιστώσα κόστους και τον βασικό αποτρεπτικό παράγοντα στην ανάπτυξη ανταγωνιστικών δικτύων νέας γενιάς. Οι παρεπόμενες υπηρεσίες αφορούν την προετοιμασία μελέτης, έλεγχο διαθεσιμότητας αγωγών, παρακράτησης πόρων και επίβλεψη κατά την εγκατάσταση και συντήρηση των καλωδίων. Σημειώνουμε ότι μέχρι τώρα το κόστος ανάπτυξης ίδιας υποδομής σε περιπτώσεις μικρών αποστάσεων είναι μικρότερο από την παροχή των παρεπόμενων υπηρεσιών συνεγκατάστασης αγωγών από την ΑΤΗΚ, γεγονός που έρχεται αντίθετο με την φιλοσοφία της συνεγκατάστασης η οποία επιβάλλεται όπου υπάρχουν υφιστάμενες υποδομές για σκοπούς μείωσης του κόστους ανάπτυξης δικτύων.

Σημειώστε ότι παραμένουμε στην διάθεση του γραφείου σας κατά την δημιουργία των σχετικών μοντέλων για παροχή λεπτομερών πληροφοριών οι οποίες θα βοηθήσουν στην ακριβή περιγραφή όλων των συνιστωσών κόστους."

CallSat's concerns

"We disagree with the OCECPR's approach for costing ancillary services as mentioned in section 5. We believe that the BU LRIC model should be allocated across the board and do not agree with the separation of the services. These services cannot be considered separately as they offer and provide an integral part of the overall product/service (depending on which one). For example, a barrier to entry of MVNO's is not necessarily the costs of originating voice only, but rather the activation fee of the service is a considerable barrier (from the regulated offer at least). We strongly believe that if the OCECPR is not going to view each service within its entirety then competition and regulation will not be effective – again this is apparent even by a quick overview of the current market.

Furthermore, the vague comment that another costing method will be used is not sufficient for us and we will need more information/timeframe/examples in order to feel confident that these costs will be viewed effectively and quickly (and not in 2

years for example). If all products are considered as flagship products then why are costs that are required to offer a service, separated?

For the second part of this question, we again would like to say that not viewing these services in their entirety is not a commercially feasible method and analysis. The market is so small in Cyprus, as well as the margins, that ALL costs need to be considered. Although some are more important than others, none of them should be considered as unimportant. Some of the main barriers to entry in the market are associated with these costs and fees, and therefore their importance should not be diluted."

OCECPR's response

In regards to CallSat's contribution on the use of Bottom-Up costing models also for ancillary services, OCECPR notes that these models are designed to calculate the costs of network recurrent services, which do not make use of extensive labour force. Based on that, Bottom-Up models have proven unsatisfactory in trying to calculate the cost of ancillary services (a proof of that is that they are not being used for such purpose anywhere) and different alternatives have been adopted by the NRAs.

In order to cost these services, it becomes extremely relevant to identify those costs that are specifically required for their provision, which may differ from operator to operator. Because of this, OCECPR can't provide detailed indications on how each service will be costed.

Nevertheless, it includes below two examples on the approach that shall be taken for costing leased lines related services as well as those related to activations/cancellations:

- Leased Lines: Wholesale price = Retail price x % Retail minus
- One-off services: Wholesale price = One_off costs+Annual costs

Where `One-off costs´ refer to activities directly related to installation/uninstallation, activation/deactivation or provision of information, and `Annual costs´ refers to the annualised equipment costs, including their maintenance and operation. These terms would be calculated as follows:

$$One\_off\ \ costs = \ Man\_hours\ x\ Man\_hour\ price + Material\ costs$$

$$\begin{aligned} Annual\ costs = {} & Annualized\ costs\ (CAPEX) \\ & + Maintenance\ and\ operational\ costs\ (OPEX) \\ & + Other\ specific\ costs \end{aligned}$$

Regarding the specific list of services to be included in the model, OCECPR notes the following:

- *Wholesale line rental connection*: Will be preserved in the model
- *Shared Access subscription fee*: Will be removed from the model (only applicable for the Bottom-Up model)
- *Shared Access connection*: Will be preserved in the model
- *Backhaul at the Landing station*: Will be preserved in the model
- *International Capacity from the landing stations*: Will be preserved in the model
- *Carrier selection and preselection services*: Will be preserved
- *IPTV related services*: Will be preserved
- *Prepaid services for mobile for SPs and ESPs*: Will be preserved
- *Ethernet Leased Lines related services*: Will be included
- *Other services –Activation*: Will be preserved
- *Survey charge that applies when access seekers apply for duct collocation service*: Will be included
- *Survey charge that applies when access seekers apply for an expansion of LLU/SLLU DSLAM capacities*: Will be included

3.4. Responses to specific questions regarding NCUS Model

This section presents a summary of OCECPR's understanding on the Operators' comments on specific questions outlined in the CD on the methodology for Net Cost of Universal Service modelling and details the OCECPR's position. This has been divided according to the 9 questions asked in the document.

3.4.1. Question 24: Do you agree with the adoption of the MDF area as the relevant geographical level for the calculation of the NCUS of uneconomic areas?

Cyta's concerns

"*Cyta accepts that the adoption of the MDF area as the relevant geographical level is reasonable. However, as has been previously stated to OCECPR, revenue and*

usage data is collected within Cyta by area code and not MDF and there is not a complete 100% 1:1 match between the two. Having said this, we are of the opinion that the relationship between area codes and MDF areas will be sufficient to allow for an acceptable mapping of data between the two."

MTN's concerns

"Given international precedent, we agree with this proposal."

Primetel's concerns

"Συμφωνούμε."

Cablenet's concerns

"Συμφωνούμε."

CallSat's concerns

"No comment or objection."

OCECPR's response

OCECPR appreciates operators' contributions and their agreement with the adoption of the MDF area as the relevant geographical level for the calculation of the NCUS of uneconomic areas.

Cyta's comment about the relationship between area codes and MDF areas will be taken into consideration once data has been fully provided, analysed and verified.

3.4.2. Question 25: Do you agree with the OCECPR's view on how to allocate costs and revenues to each MDF area?

Cyta's concerns

"Cyta is of the opinion that OCECPR's view on how to allocate costs and revenues to each MDF area appears reasonable. However, a final opinion will not be possible until we have seen how the text referred to by Question 25 is actually implemented within the NCUS model. This is an important reason for an additional consultation round to be included in the overall timeframe once a draft version of the NCUS model has been developed and populated by OCECPR's retained consultants."

MTN's concerns

"Given the limited information provided by OCECPR, MTN reserves its judgement on this question. The cost categories in the NCUS model should reflect those in CYTA's audited regulatory accounting model and allocations should be fully consistent with the principles of cost causality and transparency. Full details on the final cost categories included in the model and all cost allocations, should be published for comment before any application by CYTA for USO funding is accepted."

Primetel's concerns

"Συμφωνούμε."

Cablenet's concerns

"Συμφωνούμε."

CallSat's concerns

"No comment or objection."

OCECPR's response

OCECPR appreciates operators' contributions and their agreement on the approach to allocate costs and revenues to each MDF area.

3.4.3. Question 26: Do you agree with the suggested treatment of the incoming call effect?

Cyta's concerns

"Cyta is of the opinion that OCECPR's view on how the suggested treatment of the incoming call effect appears reasonable. However, a final opinion will not be possible until we have seen how the text referred to by Question 26 is actually implemented within the NCUS model. This is an important reason for an additional consultation round to be included in the overall timeframe once a draft version of the NCUS model has been developed and populated by OCECPR's retained consultants."

MTN's concerns

"*MTN agrees that revenues from incoming calls should be considered in determining whether an MDF area is profitable or not. This should include revenues from incoming international calls as well as incoming domestic calls. Typically, MTN*

would expect that the NCUS model will work on an iterative basis, removing the most unprofitable MDF areas first and adjusting the profitability of other MDF areas after each unprofitable area is removed.

The OCECPR states that "revenues generated from intra LE are not considered". It is not clear what this is intended to mean. These revenues should be captured in the assessment of whether the MDF area under consideration is profitable.

OCEPCR is also asked to clarify the last bullet of this section as its meaning is unclear (i.e., "When the amount of revenues from calls made from a profitable area to unprofitable areas is above the profits of this area, the difference is not considered (assuming that a profitable area cannot finance other areas above its own profits)").

Primetel's concerns

"Συμφωνούμε."

Cablenet's concerns

"Συμφωνούμε."

CallSat's concerns

"No comment or objection."

OCECPR's response

OCECPR appreciates the agreement reached with regards to the approach to be taken in the treatment of the incoming call effect.

Regarding the methodology to be adopted, OCECPR notes that it will be based, provided that the information exists, on the creation of an origin-destination matrix for each local exchange, in which the traffic originated/terminated in any of the unprofitable local exchanges will be removed. The profits Cyta may be obtaining from the provision of these services will then be discounted on the amount of the NCUS calculated in the previous steps.

3.4.4. Question 27: Do you agree with the OCECPR's view in how profitability of areas should be assessed?

Cyta's concerns

"Cyta is of the opinion that OCECPR's view on how profitability of areas should be assessed appears reasonable. However, a final opinion will not be possible until we have seen how the text referred to by Question 27 is actually implemented within the NCUS model. This is an important reason for an additional consultation round to be included in the overall timeframe once a draft version of the NCUS model has been developed and populated by OCECPR's retained consultants."

MTN's concerns

"MTN agrees that all service revenues, including those of non-USO services, should be considered when determining if a MDF area is unprofitable. This will mirror the investment decision of the USP. USO and non-USO services will be provided over the same network and a provider will decide whether to invest in a given area (in the absence of regulatory obligations) by looking at the total revenues it can generate over its infrastructure."

Primetel's concerns

"Συμφωνούμε."

Cablenet's concerns

"Συμφωνούμε."

CallSat's concerns

"No comment or objection."

OCECPR's response

OCECPR appreciates operators' contributions and their agreement on the approach for areas' profitability assessment.

3.4.5. Question 28: Do you agree with the OCECPR's view in how Net Cost of uneconomic areas should be calculated?

Cyta's concerns

"Cyta is of the opinion that OCECPR's view on how the Net Cost of uneconomic areas should be calculated appears reasonable. However, a final opinion will not be possible until we have seen how the text referred to by Question 28 is actually implemented within the NCUS model. This is an important reason for an additional consultation round to be included in the overall timeframe once a draft version of the NCUS model has been developed and populated by OCECPR's retained consultants."

MTN's concerns

"MTN agrees with OCECPR's proposal, which appears to support the iterative process described by MTN in its response to Q26. In particular, MTN agrees that any losses on non-USO services should not be taken into account in calculating if a MDF area is profitable to serve."

Primetel's concerns

"Συμφωνούμε."

Cablenet's concerns

"Συμφωνούμε."

CallSat's concerns

"No comment or objection."

OCECPR's response

OCECPR appreciates operators' contributions and their agreement on the method for Net Cost calculation of uneconomic areas.

3.4.6. Question 29: Do you agree with the calculation methodology presented by OCECPR for Net Cost calculation of Enquiry Services?

Cyta's concerns

"Cyta is of the opinion that the calculation methodology presented by OCECPR for the Net Cost calculation of the Enquiry Service appears reasonable. However, a final opinion will not be possible until we have seen how the text referred to by Question 29 is actually implemented within the NCUS model. This is an important reason for an additional consultation round to be included in the overall timeframe once a draft version of the NCUS model has been developed and populated by OCECPR's retained consultants."

MTN's concerns

"This approach seems reasonable."

Primetel's concerns

"Συμφωνούμε."

Cablenet's concerns

"Συμφωνούμε."

CallSat's concerns

"No comment or objection."

OCECPR's response

OCECPR appreciates operators' contributions and their agreement on the calculation methodology for Net Cost calculation of Enquiry Services.

3.4.7. Question 30: Do you agree with the calculation methodology presented by OCECPR for this NCUS component?

Cyta's concerns

"Cyta is of the opinion that the calculation methodology presented by OCECPR for the Net Cost calculation for Discounts for People with Disabilities and in Social

Exclusion appears reasonable but it should be calculated based on loss of revenue as the Decree states. The Loss calculated should take into account retail price and not Access cost. A final opinion will not be possible until we have seen how the text referred to by Question 30 is actually implemented within the NCUS model. This is an important reason for an additional consultation round to be included in the overall timeframe once a draft version of the NCUS model has been developed and populated by OCECPR's retained consultants."

MTN's concerns

"MTN thinks that the NCUS calculation should take into account all the revenues generated by disabled users (including revenues from incoming calls to these users) and compare this to the costs of providing services, rather than only looking at the extent to which the price paid for access is below cost. This is because OCECPR's approach risks ignoring the revenues that these customers may generate from call services."

Primetel's concerns

"Συμφωνούμε δεδομένου ότι θα υπολογιστεί και χονδρικό τέλος για την υπηρεσία αυτή και θα είναι διαθέσιμο στους εναλλακτικούς παροχείς. Ο αριθμός των συνδρομητών που ανήκουν σε αυτή την κατηγορία είναι σημαντικός και χωρίς χονδρικό προϊόν οι εναλλακτικοί παροχείς δεν μπορούν να διεκδικήσουν μερίδιο αγοράς από αυτήν την κατηγορία."

Cablenet's concerns

"Συμφωνούμε."

CallSat's concerns

"No comment or objection."

OCECPR's response

OCECPR notes that it is in the process of updating the Decree, so it reserves the rights to adjust what it is stated in that reference. In that regard, OCECPR considers the approach described in the public consultation document to be better suited for the calculation of this NCUS component.

On the other hand, while OCECPR recognizes the merits of the approach suggested by MTN, it does not believe it to be applicable due to the difficulties of gathering the information needed for the development of that exercise.

Therefore, the approach to be adopted will be as described in the consultation paper.

3.4.8. Question 31: Do you agree with the indirect benefits that OCECPR intends to include in the calculation of the Net Cost of the Universal Service?

Cyta's concerns

"Cyta is of the opinion that the indirect benefits OCECPR intends to include in the calculation of the Net Cost of the Universal Service appears reasonable. However, a final opinion will not be possible until we have seen how the text referred to by Question 31 is actually implemented within the NCUS model, particularly with regards to how the model values the Cyta "brand". This is an important reason for an additional consultation round to be included in the overall timeframe once a draft version of the NCUS model has been developed and populated by OCECPR's retained consultants."

MTN's concerns

"MTN agrees that brand value and ubiquity can both be important components of the indirect benefit that a USP derives from its position. However, MTN does not agree that other possible forms of indirect benefit should be dismissed by OCECPR before it assesses the potential scale of these benefits. MTN would expect a full consultation on the results of the NCUS calculation would set out OCECPR's assessment of each possible type of indirect benefit and provide reasons for why any of these benefits may be excluded, with that reasoning going beyond the superficial benchmarking provided by OCECPR as part of this consultation."

Primetel's concerns

"Θεωρούμε ότι πρέπει να συμπεριληφθούν όλα τα στοιχεία του πίνακα 6.6 αφού όλα έχουν την βαρύτητα τους."

Cablenet's concerns

"Συμφωνούμε."

CallSat's concerns

"No comment or objection."

OCECPR's response

OCECPR appreciates the contributions provided by the operators, and notes that the issue of potential additional rounds of consultation is presented in section 2.1.

Regarding MTN and Primetel's contributions, OCECPR notes that it already analysed thoroughly the weight of the different intangible benefits components, reaching the conclusion that the following components have been either proven to be completely irrelevant or directly ignored by several NRA:

- Life Cycle
- Wholesale discount
- Customer Database
- Mailing

Therefore, the final list of the intangible benefits components that will be studied by the OCECPR will be composed of 'Brand Value' and 'Ubiquity'.

3.4.9. Question 32: Do you agree with the calculation methodology presented by OCECPR for each one of the indirect benefits?

Cyta's concerns

"Cyta is of the opinion that the calculation methodology presented by OCECPR for each one of the indirect benefits appears reasonable. However, a final opinion will not be possible until we have seen how the text referred to by Question 32 is actually implemented within the NCUS model, particularly with regards to the inputs used within each methodology, where those inputs have been sourced from, and the degree to which each input has been validated and benchmarked . This is an important reason for an additional consultation round to be included in the overall timeframe once a draft version of the NCUS model has been developed and populated by OCECPR's retained consultants. Whatever amount for indirect benefits is arrived at, needs to be justified.

We would, however, like to point out that the equations contained within the Question 32 box are not consistent with the text provided in section 6.4."

MTN's concerns

"Within the Q32 box in the consultation, OCECPR has included a formula for calculating the advertising revenues that a USP could earn from providing payphones. This is not mentioned elsewhere in the consultation although MTN agrees that this should be considered as a source of revenue for the USP.

The other calculations proposed are less clear. For example, the brand value could also be calculated as a proportion of existing CYTA brand advertising spend (on the basis that absent the USO, this spend would need to increase). It is also not clear why the ubiquity benefit takes into account fixed penetration when calculating the "base lines". Again, this benefit could be calculated by considering:

- *Churn between uneconomic and economic areas;*
- *The average margin earned by the USP in economic areas; and*
- *The likelihood that a customer churning from an uneconomic to an economic area will remain with the USP, as a result of having taken service from the USP in an uneconomic area.*

MTN expects OCECPR to provide a fuller explanation of its approach to calculating indirect benefits as part of a subsequent consultation and before any estimate of the NCUS is finalised so as to establish if there is a need for any contribution."

Primetel's concerns

"Συμφωνούμε."

Cablenet's concerns

"Συμφωνούμε."

CallSat's concerns

"No comment or objection."

OCECPR's response

Firstly, OCECPR acknowledges the editorial error in the presentation of question 32 box, and clarifies that the formulas presented there should not be considered by the operators.

At the same time, OCECPR welcomes the overall agreement reached on the overall approach towards the calculation of indirect benefits.

Regarding the estimation of the indirect benefits related to brand value and ubiquity, OCECPR acknowledges the following:

- While there are multiple methodologies that can be defined for the estimation of the indirect benefits, including those outlined by MTN, OCECPR is focused on ensuring:
  - *The approach may be implemented with the available information*
  - *The approach is aligned with international best practice*
- Regarding the use of the "fixed market penetration" in the calculation of the ubiquity component, OCECPR notes that, as pointed out by MTN, it should not have been included in the equation.

3.4.10. Other questions regarding NCUS Model

Cyta's concerns

"The quote from Article 9 of OCECPR's Decree 140/2005 implies the use of current costs and LRIC (since the method has to be consistent with that used for the calculation of the costs of interconnection charges). The following paragraph of the same Decree actually stipulates this explicitly:

> *(2) Οι παροχείς Καθολικής Τηλεπικοινωνιακής Υπηρεσίας οφείλουν να υπολογίζουν το κόστος παροχής Καθολικής Τηλεπικοινωνιακής Υπηρεσίας με βάση την λογιστική καταγραφή τρέχοντος κόστους και την μέθοδο μακροπρόθεσμου μέσου αυξανόμενου κόστους.*

However, the final sentence of section 6.1.1 states that Fully Distributed Historic Costs will be used – in clear violation of the Decree. On that basis Cyta insists that the NCUS model utilises current costs."

MTN's concerns

"Overall, MTN broadly supports the OCECPR's proposals. However, it notes that the proposed approach to determining the NCUS does not consider whether such a net cost actually creates an unfair burden on the USP. MTN would therefore expect OCECPR to go through this additional step before determining that the USP should receive compensation for its NCUS. Missing out this step would be inconsistent with European precedent (e.g., Ireland) and would risk creating a situation where a USP is able to claim funding, despite still earning supernormal profits as a result of it still having a dominant position in many markets, or a situation whereby the costs of managing any universal service fund are excessive, when compared to the actual net cost."

OCECPR's response

As outlined in question 30, OCECPR is in the process of updating the Decree and therefore, the approach to be adopted in these calculations may differ from what it is stated in the reference outlined by Cyta. Therefore, OCECPR sticks to the approach of using the FDC-HCA based data for the extraction of cost-related information.

OCECPR acknowledges MTN's concerns, and is fully aligned on the need of determining whether the net cost creates an unfair burden on the USP, which will be assessed throughout its works on the calculation of the NCUS.