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Sultanate of Oman

هيئة تنظيم الاتصالات
Telecommunications Regulatory Authority

Development of Bottom-Up LRIC Models in the Sultanate of Oman

Position Statement

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1. Introduction

The Telecommunications Regulatory Authority of the Sultanate of Oman ('the TRA') is empowered under The Telecommunications Regulatory Act, issued by Royal Decree No. 30/2002 (and subsequent amendments thereto), to make decisions in relation to the regulatory remedies that may be required to address the risks that arise for consumers and competition as a consequence.

On November 6th, 2013, the TRA issued, with the support of Axon Partners Group Consulting, the Public Consultation on Bottom-Up Long Run Incremental Cost ("BULRIC") Modelling to gather the views and comments of all interested stakeholders in regards to the broad methodological options to be followed in the development of BULRIC Models for fixed and mobile networks.

As a result of this process, the TRA has received comments to the Consultation Document (CD) from Omantel, Nawras and Haya Water. The TRA appreciates the time and efforts dedicated by these stakeholders to elaborate their responses, which will surely contribute to improve the robustness of the methodology to be applied to the BULRIC models.

This statement illustrates TRA's position on the questions and recommendations raised by the stakeholders. 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 TRA's answers to stakeholders' concerns on the overall process.
- **Responses to specific questions in CD,** which includes a summary of the stakeholders' responses on the specific questions raised in the CD, counter-arguments if applicable and the conclusions and position of the TRA.

2. Responses to specific concerns on the Process

During the public consultation process, Omantel and Nawras expressed a number of concerns related to the general process concerning the development of the Bottom-Up LRIC models which do not fall into any of the specific questions outlined in the Consultation Document. The TRA is glad to provide a deeper description of the role of this project, providing an answer to each specific question raised by the stakeholders.

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

2.1.1. Concern 1: Strategic aims, perspective and context of the Project

This section discusses Operators' concerns regarding the strategic aims, perspective and context of the Project.

Nawras' concerns

Nawras suggests that "*at the end of this exercise, the Authority issues a framework for LRIC which describes the objective and purpose, the process, type of LRIC models to be used and time horizon for submission. Currently there is no clear procedure Licensees follow in submitting LRIC information. The purpose for review of interconnection rates and the reasonable timeframe for review are not clear*".

Omantel's concerns

Omantel considers that the "*strategic aims and purpose of the BU LRIC are not articulated and explained and this makes the BU consultation deficient because this wider context is vital to enable the BU solutions to be evaluated. Without appropriate perspective and context, Omantel and other stakeholder cannot constructively comment".*

The TRA's response

TRA is empowered under the Act to determine the charges for interconnection and access services. As per the Executive Regulations and license conditions of Class I licensees, Long Run Incremental Cost (LRIC) is to be used as a basis to estimate the interconnection charges whereas charges for access services, leased circuits, co-location etc. of dominant operator are required to be cost-based as per the Executive Regulations. In 2005, TRA developed a BU-LRIC model in order to determine interconnection charges for selected interconnection services. However, quite significant changes in technology, networks and geographic/population coverage have taken place in Oman telecom sector since 2005. Based on this, the need was felt to undertake fresh review of the methodologies to review and set charges for regulated fixed and mobile wholesale services.

TRA is also required to review and approve the retail tariffs of dominant telecom operators. To discharge this task effectively, TRA has to ensure that these tariffs are competitive and increase consumer welfare. This is only possible if true costs of services is known to TRA so that the services are not over or under-priced. Moreover, TRA often has to conduct investigations relating to possible anti-competitive practices by dominant operators for which knowledge of services costs is a pre-requisite. For taking better regulatory decisions, TRA also wishes to conduct various kinds of sensitivity analysis to see their impact on the outcome for which flexible models are quite helpful.

TRA views that BU-LRIC models, being based on efficient network and able to cost services close to their true economic costs, provide a good basis to meet different regulatory requirements.

Through BU-LRIC models to be developed as a result of industry consultation, TRA intends to meet following objectives:

1. Reviewing and determining charges for regulated wholesale (interconnection and access) services for both fixed and mobile networks;

2. Reviewing dominant operators' retail tariffs;

3. Conducting investigations for anti-competitive behaviour; and

4. Conducting various sensitivity analyses.

It may be noted that the development of BULRIC Models as a tool to undertake different regulatory tasks is a practice increasingly being adopted by NRAs around the world including Arab countries (such as KSA, Bahrain and Jordan).

It is also to be noted that it is not an objective of this project to establish regulatory obligations regarding the provision of wholesale services to dominant operators. On the contrary, the TRA remarks that there is currently an on-going separate regulatory initiative for the discussion of such matters, and more in particular about the review of regulated reference offers and other wholesale-related regulatory issues. Questions and comments regarding the definition of regulatory obligations about wholesale services should therefore be addressed in the context of that initiative.

The TRA observes that, should the above mentioned regulatory initiative result in the need to establish LRIC based wholesale prices for services other than interconnection services, the TRA may resort to the use of the results of the BULRIC models along with the models developed by operators, if any, as basis for such decision. In any case, the inclusion or exclusion of a given service within the BULRIC models does not imply or preclude in any manner a position by TRA about whether such service should or should not be regulated.

2.1.2. Concern 2: Connection with Competition Framework

This section discusses Operators' concerns regarding the connection of this project with the Competition Framework.

Omantel's concerns

Omantel outlines that the "*The CD lacks appropriate linkage with the Competition Framework which is surprising because the finalization of Market Definitions and Dominance (MDD) study and decision on Competition Framework alter a series of public consultations with the Operators and approved by the Authority in August 2013. Ex-Ante Regulation, MDD Study and competition framework approved by the Authority gives clear recommendations on market definitions, remedies against dominance and regulatory accounting including LRIC based price controls.*"

The TRA's response

In 2013, TRA issued its Decision on Market Definition and Dominance (MDD) where different retail and wholesale markets were defined and respective operators were designated as dominant operators. Appropriate remedies were also placed on the dominant operators including requirement to publish reference offers and price control obligation.

Specifically, for wholesale voice call origination on fixed networks, wholesale voice call termination on fixed networks, wholesale voice call termination on mobile networks and wholesale transit (Markets 10, 11 17 and 20 respectively), the TRA stated that dominant operators would be "*subject to price control obligations based on LRIC in the manner determined by the TRA*".

For other wholesale services including access services, leased circuits, co-location etc., although the Executive Regulations prescribe the use of cost-based principle, however, this principle would be further refined through the other on-going project undertaken by TRA i.e. development of access and interconnection regulations.

The dominant operators will also be required to submit their Reference Offers including the proposed prices for different wholesale services. TRA expects such prices to be supported with operators' cost models, and while reviewing the same TRA will also make reference to BU LRIC models to determine charges for regulated wholesale services.

In light of the above, the TRA has found the development of BULRIC Models is the right step needed to be taken to support the decisions taken in the Competition Framework project.

2.1.3. Concern 3: Connection with existing Top-down accounting work

This section discusses Operators' concerns regarding the connection of this project with existing Top-down accounting separation work.

Omantel's concerns

Omantel considers that the "*The lack of linkage to existing Top-down (TD) accounting work and other cost data is also not understood and requires cogent discussion, analysis and explanation; this is important because this TD work was developed with extensive consultation and is in compliance with TRA's requirements.*"

Additionally, Omantel states *"Under the Accounting Separation Regulation, clear requirements for TD cost data, Separated Regulatory Accounts (SRA), TD LRIC and regulatory audit thereof have been issued and are being evolved with experience and mutual interaction by the TRA and Omantel. Despite all that, the SRA information is not being used and not even being linked to the BU LRIC consultation and to the development of BU calculation model for the fixed and mobile services"*

The TRA's response

While it is true that some of the inputs and cost data employed in the development of Top-Down LRIC models for SRA can be re-used in the development of the Bottom-Up LRIC models, it should be noticed that both models have different objectives. That is, while one of the objective of BULRIC Models is to assist TRA in reviewing and determining the charges for fixed and mobile wholesale services, whereas the Top-Down LRIC model, referred by Omantel, is mainly used for monitoring the compliance of the non-discrimination and transparency principles under Accounting Separation framework.

However, as mentioned above, any TD model submitted by dominant operators in support of proposed prices for different wholesale services in their Reference Offers will be duly considered by TRA, along with the results of BU LRIC models, before determining the charges for regulated wholesale services.

It may be noted that the development of both Bottom-Up and Top-Down models is aligned with the international practice, as regulators tend to consider that these models can provide them supplementary information about the markets/services that will help them to accomplish their regulatory objectives. In fact, this practice is extended among Middle East countries (for example UAE and Bahrain) as well as in many European countries (such as France, UK, Italy, Spain, Norway and Sweden).

Finally, regarding the specific uses of the information derived from SRA systems, as it has already been agreed with Operators, these details will be consulted with them in the next phase of the project, which will consist in the review of the BULRIC Models for fixed and mobile networks by the Operators. Hence, although the TRA does recognize that Top-Down model developed by Omantel may support the development of the BULRIC Models to some extent, it will not be until the next phase that the specific treatment given to Top-Down derived information will be discussed with the stakeholders.

2.1.4. Concern 4: Appropriateness of BULRIC Models

This section discusses Operators' concerns regarding the appropriateness of the BULRIC Models.

Omantel's concerns

Omantel outlines that the "*TRA has not justified why a BU model is inherently a better basis for any decision than the information produced by the regulatory cost accounting system developed by the TRA and Omantel under TD framework.*"

The TRA's response

In the first place, it should be noticed that nowhere in the Consultation Document the TRA has stated that BULRIC Models are a better basis for any decision than the information derived from Top-Down Models. However, TRA is of the view that BU LRIC models would provide a better reflection of true economic costs of services based on the cost of efficient networks.

Because of its effectiveness in meeting different regulatory objectives, the development of BULRIC Models is a practice increasingly being adopted by NRAs around the world including GCC countries. For further details, please refer to section 2.1.1.

2.1.5. Concern 5: Model description and methodological details

This section discusses Operators' concerns regarding the description of the model and the methodological details provided so far.

Nawras' concerns

Nawras states that the "*TRA does not specify (except for licenses, spectrum fees and characteristics of the reference operator) how it plans to treat different values received from the operators. It is important for the TRA to clarify whether it intends to use average figures, Omantel's as base, or a different methodology".*

Omantel's concerns

Omantel states that "*The model description and methodology details discussed in the CD are too scant and inadequate in a number of cases, e.g., demand analysis and inputs, cost-volume relationship (CVR) applications to products and services, required rate of ROI (WACC) calculation parameters, network design parameters, network services delineations and costing algorithms, routing factors modelling, identification of capitalized and operationalized one-off long term costs, annualisation of long term expenses, services costing & mark-ups assignment algorithms, parameters & assumptions for redundant/obligatory/ emergency services costing etc.".*

The TRA's response

The project plan proposed by the TRA has a subsequent phase, which starts after the draft version of the Models are available based on methodology adopted by TRA. Resultantly, based on consultation with stakeholders, the draft models and their documentation will be reviewed bearing in mind confidentiality of cost data submitted. It will not be until this phase of the project that the TRA will be able to share the specific details on the practical implementation of the approaches proposed in the Public Consultation as well as the details regarding the inputs employed with the Operators.

It should be reinstated that the objective of the Public Consultation was to gather the views of the Operators on the broad methodological options to be implemented in the BULRIC Models, not to discuss the specific details of their application in the Models.

2.1.6. Concern 6: New remedies and price controls being implied in the Consultation Document

This section discusses Operators' concerns regarding the introduction of new remedies and price controls in the Consultation Document

Omantel's concerns

Omantel states that "*new remedies and price controls are implied in the CD for BU LRIC modelling methodology, which contradict with other existing regulations and competition framework.*"

The TRA's response

Omantel has not substantiated its observation with specific references. It is not possible for TRA to address general assertions. TRA understands that there is no contradiction among the approach proposed in CD and other regulatory instruments that are in place.

2.1.7. Concern 7: Relationship of the Project with other regulatory initiatives

This section discusses Operators' concerns regarding the relationship of the project with other regulatory initiatives carried out by the TRA.

Omantel's concerns

Omantel states that "*Competition Framework, Accounting Separation, past consultations and regulatory initiatives are in the initial stages of implementation and still need to be followed up and matured into a proper regulatory system. The BU modelling process seems to be moving towards new solution before the existing solutions (such as price caps, retail minus, TD FDC HCA/CCA, TD LRIC+) have effectively been implemented, matured with experience and utilized for pricing and competition management in Oman.*"

The TRA's response

It should be outlined the development of this project comes as a result of:

- The need to update the methodologies for development of BULRIC Model due to significant changes in technology, networks and geographic/population coverage that have taken place in the Omani telecom sector.
- The imposition of price control obligations in the interconnection market for mobile and fixed networks based on the LRIC standard.
- MDD Decision issued in 2013, putting appropriate remedies on dominant operators including price control remedy, and requirement of Executive Regulations on the use of cost-based principle for wholesale services including access services, leased circuits, co-location etc.
- On-going project undertaken by TRA i.e. development of access and interconnection regulations, which will provide further detail on the use of cost-based principle for other wholesale services including access services, leased circuits, co-location etc.

Hence, the introduction of this project addresses different regulatory objectives as compared to the other regulatory initiative mentioned by Omantel. Additionally, it is worth remarking that, as previously outlined, one of the main objectives of this project is to build BU LRIC models that will help TRA in reviewing the proposed charges of regulated wholesale services as covered in dominant operators' Reference Offers, which is a logical follow-up step after the MDD Decision.

2.1.8. Concern 8: Existence of contradictions

This section discusses Operators' concerns regarding the existence of contradictions between different regulatory papers.

Omantel's concerns

Omantel states that "*Without constructive comments in proper context, the due process is lacking. Different regulatory papers and directions seem to have contradictions. This means the overall process is non-transparent and it implies that regulation is not being implemented in a joined-up manner".*

The TRA's response

Although the comments from Omantel are vague on the issue of contradictions and non-transparency, TRA would like to highlight that it has been very transparent with the stakeholders on this project. The objectives, time plans and activities of this project were shared and consulted with Omantel during initial meetings. TRA will ensure that such transparency and consultative approach will remain there till the conclusion of the said project. To achieve this objective, TRA expects that operators would also cooperate with TRA and provide their rationale comments to address any area of concern. TRA also feels that there is no contradiction in the process and other initiatives.

2.1.9. Concern 9: Project phases

This section discusses Operators' concerns regarding the project phases.

Omantel's concerns

Omantel states that "*Project phases have not been provided sufficient time for consultation, data gathering and clarification processes. This implies the BU model may not be sufficiently robust for more than general insights. A model that is used to provide number for price controls needs to be thoroughly developed with full comparisons and linkage to TD and actual Omani costs - costs that already exist".*

The TRA's response

As indicated above, the objectives, time plans and activities of this project were shared and consulted with Omantel during initial meetings. During these meetings, Omantel did not raise particular issues with the overall structure of the process and with the definition of the project phases in particular. For data gathering, TRA first advised the operators in May 2013, before starting this project, to prepare themselves and start arranging all the data needed for building such models and then for the data request sent in September 2013, TRA gave a final deadline of 13th February 2014. This has provided quite an adequate time to operators, by any standard, for provision of data.

Therefore, TRA does not share the views of Omantel. On the contrary, the TRA is of the opinion that the project phases are adequate, provide sufficient room for consultation and data gathering and adhere to international best practice for the implementation of BULRIC models.

2.1.10. Concern 10: Project sequence

This section discusses Operators' concerns regarding the project sequence.

Omantel's concerns

Omantel states that "*it is very important that the entire competition framework train of ex-ante regulatory regime (i.e., market study > definitions > dominance identification> remedies> obligations of SMP> price control regulation> cost accounting regulation> interconnection (RIO etc.) regulation> price squeeze testing and regulations are all joined up properly in appropriate sequence as well as in perfect sync with an overarching national policy & regulatory objectives of the Sultanate of Oman*"

The TRA's response

The TRA agrees with Omantel in the logical order for the application of the regulatory actions carried out by the TRA. As TRA intends to use BU LRIC models to review the charges for regulated wholesale services as proposed under dominant operators' Reference Offers, it would be useful to provide more clarity to industry on the tentative future road-map which is given below:

1. Development of BU LRIC models for fixed and mobile networks in consultation with industry. This tool will assist TRA to achieve the objectives as mentioned in section 2.1.1.

2. Development of Access and Interconnection Regulations.

3. Submission of Reference Offers by dominant operators along with supporting models for proposed prices in line with Access and Interconnection Regulations.

4. Review of Reference Offers by TRA to check compliance with law and the review of proposed prices after taking into account operators' TD models, if provided, and TRA's BU LRIC models.

Notwithstanding the above, the TRA would also like to note that such logical order of steps does not necessarily need to coincide with the timing of different activities and initiatives by TRA. TRA observes that Omantel's intended sequence of activities may result in considerable delays in execution of several regulatory tasks. For instance, as properly indicated by Omantel itself, the development of BULRIC models is a lengthy process which requires sufficient time for consultation and data gathering activities. Thus, the TRA is of the view that in order to accomplish an effective regulatory regime, it needs to retain a certain degree of flexibility on the scheduling of its regulatory activities and initiatives.

3. Responses to Contributions

This section includes the operators' contributions to specific methodological approaches outlined in the CD and the TRA's position. This has been divided in the following subsections:

- **Responses to specific questions**: Addressing the comments provided in regards to each of the 13 questions included in the CD.
- **Responses to other methodological aspects**: considering the contributions provided to other methodological approaches for which no specific questions were included.

3.1. Responses to specific questions

This section presents a summary of TRA's understanding on the Operators' comments on specific questions outlined in the CD on the methodology for BULRIC Modelling and details the TRA's position. This has been divided according to the 13 questions asked in the document.

3.1.1. Question 1: Do you agree that Network CapEx, Network OpEx, License and spectrum fees, G&A Expenses, royalty fees and cost of capital should be included in the cost base of the BULRIC Models in the manner indicated by TRA?

The following answers were provided by the operators to the 1st question of the CD:

Haya's answer

Haya agrees with the approach proposed by the TRA.

Nawras' answer

Nawras agrees with the cost categories that are included in the model. However, it considers that license costs should not be averaged because Nawras is actually paying a significantly higher amount for them than Omantel.

Additionally, Nawras requests further detail on how spectrum fees will be allocated to services.

Omantel's answer

Omantel generally agrees with the cost elements that were to be included in the BULRIC Models. Additionally, it raises a number of questions regarding the included cost elements, which are outlined below:

- Working capital should be included in the cost base
- In certain cases, other G&A costs, apart from the chairman's office, group legal and audit costs, could also be relevant
- License costs and spectrum fees should be separately identified and treated differently
- There are some direct sale costs that relate to wholesale customers and their services that are relevant and need to be included in the model. Although small compared to retail costs of sale, these are still necessary and relevant which need to be included.
- More information should be provided on the WACC figures to be employed in the model, as the consultation on the WACC methodology and calculations is still inconclusive

The TRA's response

In light of the contributions provided by the operators, the TRA considers it appropriate to introduce the following modifications in the Methodological Document (MD):

- The MD will include a specific category for working capital, however the cost will only be considered when operators justified that it is material and efficiently incurred

- The MD will be updated to detail the specific cost items that are to be considered as part of G&A expenses

Additionally, the TRA agrees that License costs and spectrum fees should be separately identified and treated differently. This view is consistent with the methodology described in the CD. In particular, the TRA stated in the CD that license costs are considered "a non-network common cost" and spectrum fees are "a network common cost" that is needed to operate Radio Access Nodes and backhaul network.

On the other hand, the TRA does not agree with the following Operators' views:

- **Consideration of sale costs:** As stated in the CD, the TRA considers that the retail costs are of no relevance for modelling wholesale services. This position is supported by the international benchmark included in the Supporting Annex of the MD. Regarding other sale costs related to wholesale services, the TRA agrees with Omantel that these costs will be small. These costs may be incorporated in the case they have sufficient level of materiality and enough information is available.

- **Licence costs:** The TRA is of the opinion that license costs should be averaged to comply with the specifications of a generic reference operator

Finally, regarding the requested details on the WACC figures and the detailed allocations rules to be applied to the spectrum fees, they will be subject to consultation in the second phase of the project (consultation on the models).

3.1.2. Question 2: Do you agree with the TRA's proposal on the treatment of OpEx in the BULRIC models?

The following answers were provided by the operators to the 2nd question of the CD:

Haya's answers

Haya agrees with the calculation of OpEx using a bottom-up approach. However, it suggests the following modifications in how this methodology should be implemented in the BULRIC Models:

- It stated that the calculation of OpEx as a percentage over CapEx should be analysed on a case-by-case basis, instead of using it only in special cases. It also proposed to compare the use of these alternatives with other mature markets in Europe
- It outlined that when defining the 10% limit on the G&A expenses, it should be considered that the percentage of G&A costs may vary from organisation to organisation, depending on the size and the nature of their operation

Nawras' answer

Nawras agrees that the OpEx should be calculated using a bottom-up approach whenever possible. Additionally, when calculating it as a percentage of CapEx it states that adjustments would be needed because of the overall decrease in equipment prices, whereas at the same time OpEx continue to increase.

Additionally, Nawras requests further information that justifies that G&A expenses cannot amount to more than 10% of the total costs base of the operator.

Omantel's answer

Omantel does not agree with the use of a bottom-up calculation to estimate OpEx because of the following:

- Inadequate description of the bottom-up calculation to be used
- Lack of clarity as to why any top-down information is not relevant
- No explanation of when a bottom-up calculation or a percentage over CapEx will be used
- It is unclear how G&A expenses are defined

The Operator adds that the TRA should clarify how the 10% cap of total costs imposed to G&A expenses has been calculated.

The TRA's response

The TRA agrees with the operators that:

- The specific method to be applied will be analysed on a case-by-case basis. The specific methods used will be subject to consultation during the second phase (consultation on the models).
- Adjustment should be made when applying percentages over CapEx to reflect the different cost trends of OpEx and CapEx
- International benchmarks will support the approaches used, as explained in the section 2.1.8 of the CD

Additionally, TRA considers that Omantel's views are not misaligned with the description of the bottom-up calculation for obtaining OpEx outlined in the CD.

The TRA does not intend to ignore the information that could be extracted from top-down systems. The information from top-down systems may be used to calculate of OpEx as a percentage over CapEx or by extracting other relevant information for applying a bottom-up approach.

In order to better illustrate this point, specific examples will be included in the MD regarding the specific use of these approaches in the BULRIC Models. More specifically, the following examples will be included in the MD:

- It is preferred to calculate electricity costs based on average consumption per equipment element and average price per kWh (bottom-up approach). This method is preferable because the unitary costs of the electricity are not strictly correlated to the CapEx and because this methodology allows the application of different cost trends for CapEx and electricity prices transparently.

- The costs associated to personnel in charge of maintaining the core network is expected to be calculated based on percentages over CapEx. In this case, the benefits that may be obtained from a bottom-up approach may not be worth the effort of gathering the required information (it may not be available or may be difficult to obtain). For example, average technician time dedicated to repair a failure and average failures per year. Nevertheless, in this case, the model will consider different cost trends in OpEx and CapEx to ensure the accuracy of the results.

Regarding the cap to G&A expenses, the TRA outlines that the 10% proposed was an initial estimation and operators had the opportunity to provide additional information in their responses to the CD. It may be observed that this 10% cap is above the percentage of G&A expenses included in the BULRIC Models developed by the NRAs in other countries such as France[1] (5%), Belgium[2] (7%), or Sweden[3] (6%).

However, the TRA notes that the final value employed will be checked against other available information and operators will be consulted on this value in the next phase of the Project.

3.1.3. Question 3: Do you agree with the TRA's view about how assets should be valued and the proposed application of the modern equivalent assets?

The following answers were provided by the operators to the 3rd question of the CD:

Haya's answer

Haya agrees with the methodology outlined in the CD.

[1] ARCEP mobile LRIC Model release 5, March 2011
[2] Bottom-up fixed network cost model for BIPT version 1.0, December 2011
[3] PTS mobile LRIC model, version 2, updated in June 2013

Nawras' answer

Nawras does not agree with the use of historical prices for the valuation of the civil infrastructure and considers that it should be valued at current costs, in line with other network equipment.

Omantel's answer

Omantel requires the TRA to outline the existing relationship between the cash flow method suggested for the valuation of assets and the use of the adjusted tilted annuities methodology for the annualisation of their costs.

The TRA's response

Regarding Nawras' contributions, the TRA believes that the Operator has misinterpreted the objective of the proposed approach. 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. "make or buy"), 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 would not consider the deployment of copper access networks, the regulatory actions performed by the TRA should not be based on the premise of deciding between "make or buy" alternatives. Instead, they should be focused on accurately reflecting the real cost incurred by the Incumbent providing these services. Based on this rationale, the TRA considers that civil infrastructure assets acquired before 2011 should be valued according to the Historical Cost Accounting standard. This vision is, for instance, shared by the French NRA (ARCEP), which outlined that[4]:

"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"

[4] Public consultation on the "Criteria for choosing an investment cost annualisation methodology and the transition from copper to fibre". March 2011

Regarding Omantel's contributions, the TRA feels that it misunderstood the cash-flow approach proposed as it does not refer to the Discounted Cash Flow valuation methodology applied in finance but to the yearly valuation of assets. In order to avoid any potential doubt regarding this issue, the section in the MD will be rephrased accordingly.

3.1.4. Question 4: Do you agree with the TRA's view to implement tilted annuities as the preferred annualisation method, and adjusted tilted annuities in the BULRIC cost models? In the case that you have a different view, please support with rationale.

The following answers were provided by the operators to the 4th question of the CD:

Haya's answer

Haya agrees with the methodology proposed and wonders how this will be applied in the case of assets built considering the social benefit of the communities.

Nawras' answer

Nawras agrees with the use of tilted annuities for the annualisation of CapEx. Additionally, Nawras states that there would not be a need to employ adjusted tilted annuities for LTE and FTTH technologies, as there is already a high take-up of these services in the areas where they have been deployed.

Omantel's answer

Omantel considers that the TRA must provide proof that the annualisation methods used are economically sound and it must show how they are to be applied correctly.

Regarding the tilted annuities methodology it outlines that the TRA has not described how costs and volumes from different years are to be combined in the calculation. In regards to the adjusted tilted annuities approach, it considered that the adjustment proposed is not robust and it does not agree with its use.

The TRA's response

The TRA is fully aware of the deployment of network assets with the aim of improving the social benefit of the communities, and encourages such initiatives. However, such intangibles will not be considered in the BULRIC models. This approach is consistent with international best practice.

Regarding the use of the adjusted tilted annuities approach, the TRA recognises its merits when considering the roll-out of new technologies. Therefore, the TRA considers that this methodology shall be implemented to calculate the annualisation charges of the assets associated with providing new services (e.g. FTTH, LTE). In any case, the Models should also be able to apply a tilted annuities approach to annualise the costs of these assets so as to understand the impact of the choice of annualisation methodology on the unit costs of services.

Additionally, and with the objective of increasing the transparency of the methodologies that will be used, the MD will include the formulae that will be implemented. In particular, the following detail will be included:

Tilted annuities: The application of the tilted annuities approach to an asset will obey the formula outlined 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:

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

Adjusted tilted annuities: The BULRIC Models will calculate the adjusted tilted annuities of an asset based on the following formula:

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

Where O_i reflects the production factor of the asset.

3.1.5. Question 5: Do you agree with the TRA that only Network OpEx Working Capital should be considered in BULRIC Models, provided it is relevant and has been efficiently incurred?

The following answers were provided by the operators to the 5th question of the CD:

Haya's answer

Haya agrees with the approach proposed by the TRA

Nawras' answer

Nawras agrees with the approach proposed by the TRA

Omantel's answer

Omantel agrees with the incorporation of working capital in the models. However, it requires the TRA to define the specific percentages of OpEx that shall be used to estimate the working capital.

The TRA's response

As stated in the CD, Operators will have to justify that the working capital associated to network OpEx has been efficiently incurred and presents a certain level of materiality in order to incorporate it into the models. As no information has been provided by operators so far, the TRA is not in a position to specify the percentage of working capital (if any) that will be included.

3.1.6. Question 6: Do you agree with the suggested definition and application of the pure LRIC and LRIC+ cost standards in the BULRIC models?

The following answers were provided by the operators to the 6th question of the CD:

Haya's answer

Haya agrees with the approach proposed by the TRA

Nawras' answer

Nawras agrees with the use of a LRIC+ approach for the calculation of the services' cost and considers that it should be the only cost allocation methodology applied in the model. It states that using a pure LRIC approach for estimating the costs of two-way interconnect voice services would distort the equilibrium of on-net and off-net traffic, and hence a LRIC+ approach should be employed for the calculation of the costs of all the services modelled.

Omantel's answer

Omantel considers that there is no evidence that setting the mobile termination rates below LRIC+ costs would be beneficial for the Omani market. Additionally, regarding the EC recommendation on the use of a pure LRIC approach for the calculation of these costs, it states that the history of the telecommunications market in Europe is considerably different to that in Oman, and the same logic could not be applied in the Sultanate.

The TRA's response

The TRA recognises the merits of a pure LRIC costing approach to set the regulated tariffs of two-way interconnection services. However, the TRA for the time being agrees with the Operators' views to use LRIC+ approach.

3.1.7. Question 7: Do you agree with the TRA that a reference operator should be modelled in the BULRIC Model for mobile networks, with the characteristics (e.g. demand, spectrum, coverage) described above?

The following answers were provided by the operators to the 7th question of the CD:

Haya's answer

Haya agrees with the approach proposed by the TRA

Nawras' answer

Nawras agrees with the approach proposed by the TRA

Omantel's answer

Omantel states that the methodological approach proposed by the TRA considers two identical operators. However, as there are differences among the two MNOs operating in the Sultanate, it considers that the model should only consider the costs of the smallest operator so that this operator is not disadvantaged by having below-cost prices.

The TRA's response

The TRA notes that the approach proposed by Omantel is not aligned with international best practice. Additionally, the implementation of this approach is not considered appropriate for the Omani market, given the comparatively high degree of similarity in terms of market share between the two MNOs. Hence, the TRA does not consider it necessary to introduce any modifications to the specifications of the reference operator presented in the CD.

3.1.8. Question 8: Do you agree with the proposed list of services and the grouping of services into increments for the BULRIC model for mobile networks?

The following answers were provided by the operators to the 8th question of the CD:

Haya's answer

Haya agrees with the approach proposed by the TRA

Nawras' answer

Nawras does not agree with the separation of mobile services based on the radio access technology. It states that given that all operators price a service irrespective of the technology employed, it makes no sense to introduce this disaggregation in the model. Additionally, it also refers to the lack of available data within the operators' systems required to implement such disaggregation.

Additionally, Nawras states that it does not agree with the proposed increments as it considers that including mobile voice and data services in two different increments would result in a very low proportion of incremental costs and a very high proportion of common costs as many high value network assets are used by both voice and data services.

Omantel's answer

Omantel considers the disaggregation of MVNO services irrelevant, as their costs will be essentially the same as their equivalent retail services. Additionally, in case they are disaggregated, it considers that the different types of MVNOs considered should be defined.

Finally, it also states that it is unusual to have regulatory intervention in the relationships between a mobile operator and a MVNO, as the prices are set based on

commercial negotiations and are not related to costs – they are usually tied to the retail prices.

The TRA's response:

The TRA agrees with some of the operators' contributions regarding the mobile services to be modelled. Namely:

- Regarding the technological disaggregation of services (e.g. GSM, UMTS, LTE), it is true that the existing operators price the services irrespective of the technology. Therefore, the TRA will not disaggregate the services by technology[5]. Instead, this disaggregation will be implemented internally to properly model the different networks.

- The TRA agrees with Omantel that the network costs of MVNO services are essentially the same as their retail equivalent. Therefore, the MVNO services will not be modelled separately to avoid excessive complexity and to minimise the data requirements from the operators.

On the other hand, the TRA considers that Nawras' concerns regarding the high level of common costs that would exist by using the two increments defined would be addressed after the adoption of a LRIC+ costing approach for all the services modelled.

3.1.9. Question 9: Do you agree with the TRA's approach for Mobile Network Modelling?

The following answers were provided by the operators to the 9th question of the CD:

Haya's answer

Haya agrees with the approach proposed by the TRA

Nawras' answer

Nawras agrees with the proposed approach for mobile network modelling. Additionally, it provides the following remarks:

[5] Unless the subscriber may perceive the different technologies as different services (for example, the subscriber may differentiate between narrowband, broadband and ultra-broadband data connections).

- The TRA can be reassured that operators do not intend to build any site which is not necessary for network operation
- The model should consider sites placed for road coverage precisely, and the consideration of municipalities should also take into account the empty areas (e.g. unpopulated areas)
- Given that Nawras historically paid different values for the leased lines than what will be extracted from the fixed model, it does not consider it appropriate to extract the costs from this model for past years. It reinforces its disconformity with the modelling of past years

Omantel's answer

Omantel considers that there would be no need to introduce a modified scorched node, either in the access or core networks, as operators deploy only the network elements that are strictly required to fulfil their traffic requirements.

Additionally, it states that the high level of complexity inherent to the calculation of the leased lines' costs because of the different types of leased lines available may negatively affect the accuracy of the calculations. Moreover, it adds that the use of the costs from the fixed BULRIC model as an input to the mobile business is against normal/sensible practices.

The TRA's response:

In line with the considerations outlined by the two MNOs, the TRA is also of the initial view that there are no relevant structural inefficiencies in Omani mobile networks. As such, and as it was stated in the CD, efficiency adjustments will only be introduced in the case that "clearly detectable inefficiencies" exist.

Additionally, the TRA outlines that a scorched node approach, suggested by Omantel, is incompatible with the choice of the reference operator, as the premise of this approach consists in using the location of the existing network nodes (which would not be available for a reference operator defined as the average of the two existing MNOs). Nevertheless, the models will be properly calibrated to represent accurately the reality of the mobile network operations in the Sultanate, according to the information provided by the existing MNOs.

Regarding the geotypes to be considered in the model, the TRA states that the current definition of geotypes takes into consideration the surrounding unpopulated areas. Additionally, the TRA agrees with Nawras that the roads that are covered specifically should be included in the model and, therefore, a new geotype will be added in the MD.

On the other hand, given that past years will not be used for regulatory purposes, the costs paid by Nawras in the past will not have any impact on the regulatory actions carried out by the TRA.

3.1.10. Question 10: Do you agree with the TRA that the BULRIC model for fixed networks should consider a reference operator with the characteristics described above?

The following answers were provided by the operators to the 10th question of the CD:

Haya's answer

Haya agrees with the approach proposed by the TRA. However, it questions how the passive infrastructure providers will be covered within the Model.

Nawras' answer

Nawras does not agree with the consideration of a reference operator in the BULRIC Model for fixed networks and considers that both operators should be modelled with the aim of establishing asymmetrical tariffs between them due to the following reasons:

- The economies of scale achieved by Omantel allow much lower unit costs
- Nawras paid significantly higher license fees for its fixed operations than Omantel
- Nawras is building its fixed network now, which has higher costs for civil infrastructure than what Omantel paid during the construction of its network

Omantel's answer

Omantel agrees with the use of the existing copper network as the basis for the access network modelling. However, it adds that the NGA network must consider economies of scale, and using the largest operator may give costs that cannot be matched by the smaller players.

The TRA's response

As it was originally outlined in the CD, passive infrastructure providers (i.e. Haya) will be considered in the model and specific FTTH wholesale rental services will be disaggregated. Additionally, the model will be able to consider the topologies used for the development of open access networks.

With regards to Nawras' request for the modelling of two different fixed networks (one for Omantel and the other for Nawras) the TRA does not consider its implementation appropriate.

Finally, the TRA believes that the economics behind the deployment of fibre networks are more closely related to the density (penetration) rather than scale. This means that smaller operators can have similar level of costs than bigger operators if they achieve a similar services' penetration in the areas where they are present. Hence, the TRA understands that there would be no need to include further considerations regarding the economies of scale.

3.1.11. Question 11: Do you agree with the proposed list of services and the grouping of services into increments for the BULRIC model for fixed networks?

The following answers were provided by the operators to the 11th question of the CD:

Haya's answer

Haya partially agrees with the proposed approach. It outlines that the description of the passive infrastructure services is not clear. Furthermore, it requires the TRA to specify how the access rental to the FTTH will be classified as there might be different products associated to this technology.

Haya also proposes that the TRA contemplates the possibility of modelling a Point-to-Point (P2P) topology for NGA networks in the CD.

Nawras' answer

Nawras agrees with the approach proposed by the TRA

Omantel's answer

Omantel has outlined that there seems to be a typographical error in the question that stated "for the BULRIC model for mobile networks".

Omantel specifies the service lists mixes technologies and services, and FTTC/FTTX options may need to be added.

The TRA's response:

Firstly, the TRA acknowledges the typographical error pointed out by Omantel. The question referred to the "BULRIC model for fixed networks", as the operators has correctly assumed.

The TRA is of the opinion that FTTH access rental services should be included in the BULRIC model. This service would represent the rental of a PON (P2M) or a P2P connection from the ODF to the subscriber.

Finally, according to the information provided by the operators, there is no evidence that FTTC or FTTx (other than FTTH) technologies will have a relevant role in Oman. Therefore, the TRA does not see a need for its consideration in the methodology.

3.1.12. Question 12: Do you agree with the TRA's approach for Fixed Network Modelling?

The following answers were provided by the operators to the 12th question of the CD:

Haya's answer

Haya has asked if the question was meant to say "TRA's approach for Fixed Network Modelling" instead of the text presented in the CD ("TRA's approach for Mobile Network Modelling")

Haya partially agrees with TRA's approach, and specifies that it is not clear how the model will distinguish between the fixed and FTTx networks from the Access Network perspective. In particular, it asks for a justification on why the starting point of the access network will be the MDFs instead of the MSANs or OLTs.

Nawras' answer

Nawras agrees with the approach proposed by the TRA.

Omantel's answer

Omantel has pointed out that there may be a typographical error in the question, since it referred to the model for Mobile Networks instead to the model for Fixed Networks.

Omantel also considers that additional details should be provided in regards to the technical implementation of the modelling of the fixed network.

Finally, Omantel questions if it is the intention of the TRA to have a mixed access network or one that can be all copper or all fibre based, and whether any transitions will be modelled.

The TRA's response

Firstly, the TRA acknowledges the typographical error pointed out by Haya and Omantel. The question referred to the "BULRIC model for fixed networks", as the operators have correctly assumed.

Secondly, the TRA's selection of the starting point of the access network (MDF) was only for definition purposes. It has no impact in the results of the model. Thus the TRA does not consider it necessary to introduce any modification.

Thirdly, the TRA states that it is its intention to model an operator with both access technologies (copper and fibre), as stated in the section 2.3.1 of the CD.

Finally, the operators will be consulted on the details of the specific modelling approach employed in the next phase of the project (consultation on the models).

3.1.13. Question 13: Do you agree with the TRA's approach for costing ancillary, one-off and non-material services?

The following answers were provided by the operators to the 13th question of the CD:

Haya's answer

Haya agrees with the approach proposed by the TRA

Nawras' answer

Nawras agrees with the approach proposed by the TRA

Omantel's answer

Omantel notes that many of the calculations involved in this section may already derive from Top-Down analysis. Additionally, it requires the TRA to clarify how and where ABC-derived information is to be used to help develop this additional bottom-up model.

Additionally, Omantel asked about the details of some of the ancillary services listed in the CD.

The TRA's response

The TRA agrees with Omantel that the results from top-down models will be of great importance for the calculation of the costs of these services and they will be used where possible. The specific details about which ABC information is to be used for this purpose will be consulted in the next phase of the project.

Regarding the services listed in the CD, the TRA outlines that some of the services were based on Omantel's public reference offers. The listed included in the CD has only illustrative purposes and the final list to be modelled will be finalized during the model consultation phase.

3.2. **Responses to other methodological aspects**

This section presents a summary of the Operators' comments according to the TRA's understanding and details the TRA's position.

3.2.1. Period of Time Modelled

Both Nawras and Omantel made contributions regarding the time frame that should be considered in the BULRIC Models, as outlined below:

Nawras' contributions

Nawras has indicated that given the introduction of the yearly approach for the modelling of fixed and mobile networks, there would be no need to include up to five years of history into the models.

Omantel's contributions

Omantel requires the TRA to justify how considering a period of multiple years would fit the yearly approach defined in the network modelling.

The TRA's response

The TRA agrees with Nawras in the fact that, having approved the use of a yearly approach for the modelling of fixed and mobile networks, there would not be a need to consider up to five years of historical data (as this data would not have a direct impact on the network status in future years). Accordingly, the MD will be modified to state that only two years of historical data (i.e. from 2011) will be considered in the BULRIC Models for the purpose of calibration.

Regarding Omantel's contribution, the TRA outlines that the use of a yearly approach consists of modelling the optimal network for each year, irrespective of the network modelled in previous years. Thus, this approach would be compatible with the consideration of multiple years. Nevertheless, this issue will be rephrased in the MD to avoid confusion.

3.2.2. Allocation of common costs

Omantel made some questions regarding the proposed methodology for the allocation of common costs, as outlined below.

Omantel's contributions

Omantel has asked how the "efficient capacity method" allocates common costs that are not related to network busy hour.

Additionally, Omantel has asked how common and joint costs are allocated to services that are costed using pure LRIC methodology.

The TRA's response

The "efficient capacity method" is based on the definition of allocation rules that relates the common costs with the consumption of the services. The allocation rules should be related to the capacity requirements of each service to ensure the causality of the allocation.

The capacity is commonly associated to the busy hour (that determines the equipment requirements) for traffic related items. In the case of items that are not related to the traffic, the capacity should be related with the average use that each service does of the item.

The specific allocations rules will be subject to consultation in the second phase (consultation on the models) as stated in the section 2.1.5.

Regarding allocation under pure LRIC, this methodology will not finally be used, as described in section 3.1.6, and therefore the allocation of common and joint costs under this standard is not relevant.

3.2.3. The forward looking filtering tool

As explained in the CD, the TRA envisages the introduction of a forward looking filtering tool that will ensure that in the event that there is a sharp decline in traffic

demand in a specific year, which is expected to recover in a foreseeable future, the number resources will be preserved. Omantel presented some questions regarding this mechanism, as outlined below.

Omantel's contributions

Omantel asked for additional information about the forward looking filtering methodology to be used. Additionally, the operator notes that assets that were efficiently incurred to meet the demand in a specific year are purchased with the expectation of recovering them over certain lifetime. If the volume then drops in a shorter period, the capital investment should be fully recovered.

The TRA's response

The use of the yearly approach described in the CD implies that a dip in the demand results in lower resources requirements for satisfying the demand. In the case that the demand increases shortly after this, would imply the re-installation of these resources. The forward looking filtering tool will take into account the future demand. Additionally, the models will ensure the full recovery of the capital investment in the defined useful life.

3.2.4. Costing by time of day or day of week

Omantel presented some comments regarding the method to be used for costing by time of day or day of week, as outlined below.

Omantel's contributions

Omantel stated that the calculation of average costs of the services over the year is a normal practice in both TD and BU models. Additionally, the operator asked for more information about the potential costing by time of day or day of week and the use of gradients.

The TRA's response

The TRA agrees with Omantel that BULRIC models commonly obtain average unit costs over the year, without differentiation by time of the day (e.g. peak/off-peak) or day of the week. This is, in general, the expected approach to be followed, unless such differentiation is deemed relevant for regulatory purposes.

In the case that such differentiation is finally implemented, the final method to be used will be subject to consultation in the second phase (consultation on models), as described in section 2.1.5.

3.2.5. Data sources

Omantel presented some comments regarding the information sources to be used, as outlined below:

Omantel's contributions

The operator asked how international data will be obtained and adapted to Omani market. Additionally Omantel asked how the industry will be able to check this information.

Finally, Omantel notes that the operators should have enough time to respond the data requirements.

The TRA's response

The international data that will be used for the revision of operators' data is expected to be obtained mainly from public sources (e.g. BULRIC models made public by other NRAs, manufacturers' datasheets, etc.). Any adaptation to the Omani market that is required will be defined on a case-by-case basis.

In case any of these sources are finally used in the model, the sources and any adaptations done will be subject to review by the Operators in the second phase (consultation on the models) as described in the section 2.1.5.

Regarding the time left to the operators for responding to the data requests, as described in section 2.1.9, the operators were notified before starting this project and the TRA considers to have provided enough time for data gathering.