سلطنة عُمان
Sultanate of Oman

هيئة تنظيم الاتصالات
Telecommunications Regulatory Authority

Annex - 2

Decision on Omantel's RAIO (Price Terms)

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1. Introduction

The Telecommunications Regulatory Authority (the "TRA") is empowered under the Telecommunications Regulatory Act (the "Act") to regulate the provision of Access and Interconnection ("A&I") services which must be offered by public telecommunications licensees in the Sultanate of Oman (the "Sultanate"). In this respect, the Act allows the TRA to develop specific rules and procedures regulating the provision of A&I services in the Sultanate, including rules and procedures relating to the resolution of any disputes arising in connection with the provision of A&I. The powers granted to the TRA in this regard apply (albeit to varying degrees) with respect to both public telecommunications licensees designated with dominance as well as all other public telecommunications licensees.

Over the last few years the telecommunications market in the Sultanate of Oman has been expanding; new players have entered the market, bringing competition and new products and services for customers. The TRA works to ensure the development of competition within this sector to benefit the end customer in Oman.

In order to promote competition and ensure that dominant operators in the Sultanate of Oman treat new entrants fairly, the TRA regulates both retail and wholesale services in the telecommunication sector.

As part of such an important duty, the TRA issued the Access & Interconnection Regulation in April 2016, aimed at ensuring that both Omantel and Ooredoo (being dominant operators) implement the corresponding Reference Access & Interconnection Offers (the "RAIOs"). The first milestone of this process was materialised with the publication of the Public Consultation on Omantel's and Ooredoo's First Draft RAIOs on 4th August 2016 that were originally submitted to the TRA on 29th May 2016 for its review.

Under Chapter Six of the Act, a Public Telecommunication Services Licensee, who is designated by the TRA as having dominance in a specific public telecommunications market, shall advertise a Reference Offer after the approval of the TRA. The Act provides that if the TRA views that the offered prices and conditions by the dominant licensee as unreasonable or unjustified, it may determine the prices and conditions it deems suitable.

Article 48 of the A&I Regulation requires that *"The First Draft RAIO shall include proposed charges for the Regulated A&I Services subject to the RAIO obligation, and shall be supported with sufficient information such as service cost models and associated documentation, demonstrating the Dominant Operator's compliance with the pricing related requirements of this Regulation and its Annexes."*

The A&I Regulation requires that the charges of Regulated A&I Services (with the exception of Broadband Resale Service, National Roaming Service and Mobile Access Service) *"shall be fair, reasonable and based on forward looking long run incremental cost (LRIC) of efficient service provision"*. Whereas the charges of Broadband Resale Service, National Roaming Service and Mobile Access Service are required to be based on Retail-Minus approach.

The A&I Regulation also states that in reviewing and determining the prices for A&I Services, the TRA may choose to:

i. *"Use the top-down LRIC model prepared by the Operator after making necessary changes, if required; or*

ii. *Use both the Operator top-down LRIC and its own bottom-up LRIC models in the manner it deems appropriate; or*

iii. *Use its own bottom-up LRIC models in case no charge is proposed or no top-down LRIC model is provided by the Operator."*

Since Omantel submitted its Top-Down LRIC model to the TRA (in addition to two RAIO Excel-based models namely 'Bit Stream Model' and 'Costing & Pricing Model for RAIO') in support of its proposed charges and considering the fact that the TRA had earlier finalized its Bottom-Up LRIC models in 2015 in consultation with the industry, the TRA decided to proceed with approach (ii) above, subject to necessary modifications and update of these models. The TRA properly shared its suggested modifications in Omantel's RAIO models and TD-LRIC model, which will set the grounds of the top-down related outputs to be considered in this Decision.

Having completed the update of its Bottom-Up LRIC model based on fresh data received from operators and having concluded the review of Omantel's RAIO models and TD-LRIC model, this Decision outlines TRA's final views on the wholesale charges to be set in Omantel's Final Draft RAIO by analysing the rates suggested by Omantel, the results of the Top-Down and Bottom-Up LRIC models and, where applicable, international benchmarks.

1.1. Structure of the Decision

This Decision has been structured following the same scheme adopted in Omantel's Second Draft RAIO. For ease of understanding, the different RAIO sections have been grouped depending on the segment they belong to, namely fixed segment (section 3), mobile segment (section 4) and other (section 5).

In each of these sections, the cost of the different services included in Omantel's RAIO is assessed in detail.

All sections of this Decision are aligned with the set of services presented in Omantel's Second Draft RAIO. Any changes that may take place on the service definition (e.g. removal or addition of services) would have a direct impact on the structure and outcomes of this Decision.

2. The Review Process

On 19th January 2016, Omantel while updating the TRA on the progress of its draft RAIO development indicated that it is in the process of incorporating 2015 data to update its TDLRIC model and this will be provided to the TRA as part of 2015 Separated Regulatory Accounts (SRA) submission on 30th June 2016. Addressing this letter, the TRA advised Omantel on 25th January 2016 to use the cost model which enables it to submit the First Draft RAIO by the deadline provided in the A&I Regulation once issued.

The TRA issued the A&I Regulation (Decision 25/2016) on 17th April 2016. On 18th April 2016, the licensees were informed of the issuance of the said Regulation and Omantel, along with Ooredoo, was required to submit its First Draft RAIO by 29th May 2016.

On 28th April 2016, Omantel indicated in its letter that it has decided to revamp its 2015 TDLRIC cost model based on the latest top-down data of wholesale network infrastructure of fixed and mobile. It also indicated that since SRA 2015 is required to be submitted on 30th June 2016, the cost models for A&I services are expected to be ready by 30th July 2016 and requested the TRA for an extension to submit its First Draft RAIO by 30th July 2016.

On 8th May 2016, the TRA directed Omantel to stick to the original deadline of 29th May 2016 and to use the 2014 TDLRIC model as it is already available and audited as well. The TRA also indicated that if Omantel is able to submit its 2015 TDLRIC results and models to the TRA during the consultation phase on its draft RAIO, then the TRA may consider the same, provided Omantel obtains TRA's approval on its revised TDLRIC methodology and explains material differences between 2015 and 2014 TDLRIC results, since Omantel has significantly changed its 2015 TDLRIC model.

Omantel submitted on 19th May 2016 that significant changes have occurred in 2015 TDLRIC model since its last submission in 2014 to the TRA which include significant changes in Capex investments, new technologies and customer demands and requested an extension for submitting the First Draft RAIO until 30th July 2016 based on 2015 TDLRIC model. The TRA vide its letter dated 24th May 2016 noted that Omantel has neither brought such changes to the TRA' attention before nor provided details of such changes and as to how such changes will affect the TDLRIC results. The TRA advised Omantel to commit to the original deadline for submitting its draft RAIO by using its 2014 TDLRIC model with the possibility that if Omantel is able to submit its 2015 TDLRIC model to the TRA during the consultation phase on its draft RAIO, then the TRA may consider the same, provided Omantel meet the requirements earlier conveyed by the TRA.

On 26th May 2016, Omantel along with Ooredoo submitted a joint request to the TRA for extension of deadline to submit the First Draft RAIOs until 30th July 2016 in the interest of telecom industry of Oman. The said request was submitted by Omantel through email after the TRA's working hours on 26th May 2016 (Thursday). On 29th May 2016, the TRA, after considering that the delay in RAIO submission will

not be in the interest of telecom industry and noting that the joint request may indicate possible collusion between dominant licensees on which the TRA reserves the right to take legal action, directed Omantel to submit its First Draft RAIO by the given deadline.

Omantel submitted its First Draft RAIO on 29th May 2016. The TRA, while assessing the compliance of the First Draft RAIO with the A&I Regulation, observed that neither the pricing annex (i.e. Annex M) nor the cost models were provided by Omantel contrary to the requirement of Articles 47 and 48 of the A&I Regulation. In addition, Omantel's First Draft RAIO was not accompanied with a letter signed by its CEO attesting that it fully meets the minimum scope, content and format requirements of the A&I Regulation which is a requirement of Article 49 of the A&I Regulation. The TRA directed Omantel on 30th May 2016 to submit the proposed charges and cost models along with the required attestation by 5th June 2016.

2.1. Review of Omantel's Proposed Prices in the Draft RAIO

On 5th June 2016, Omantel submitted Annex M of its RAIO (containing the proposed charges) and indicated that prices are based on 2015 TDLRIC model and any difference with 2014 will be provided during the consultation phase on its First Draft RAIO. Omantel also argued that based on Articles 6 and 7 of the A&I Regulation, it should be allowed to offer access to its submarine cable landing station at commercially negotiated rates instead of regulated prices.

The TRA vide its letter dated 8th June 2016 highlighted that Omantel has not met the conditions of acceptance of its 2015 TDLRIC model as conveyed by the TRA on 8th May 2016 and 24th May 2016. The TRA also corrected the misunderstanding on the part of Omantel with regards to Articles 6 and 7 of the Regulation and clarified that access to landing station is a regulated A&I service and as such is required to be included in Omantel's RAIO at LRIC prices instead of offering on commercial basis.

2.2. Review of Omantel's RAIO Models

Omantel, in support of its proposed charges, provided two Excel-based RAIO models i.e. Bitstream model and Costing and Pricing model. While the Bitstream model focuses on Bitstream services, the Costing and Pricing Model contained proposed prices for all regulated A&I services using either the results of Omantel's TDLRIC model (e.g. for recurring charges) or calculating the non-recurring cost for one-off services on a stand-alone basis.

The TRA, after conducting the review of Omantel's RAIO models, observed the following issues, amongst others:

i. LRIC unit costs in RAIO models were not matching with TD LRIC model submitted to the TRA with 2015 SRA.
ii. Non-recurring charges are calculated by applying a factor of 1.43 taking into account the royalty, proposed margin and taxation without providing any justification for inclusion of margin and taxation in the calculation.
iii. For all non-recurring services that entail work from Omantel staff, no supporting evidences were provided for average hours and hourly rates.

iv. For services regulated under a retail-minus approach, Omantel proposed the application of 12% as percentage without providing any evidence and explanation.

Omantel was required on 4th August 2016 to address these concerns and clarifications latest by 14th August 2016, failing which TRA would have to rely on other information to review and approve the RAIO charges.

Omantel provided its response on 14th August 2016, however, the issues remained unaddressed. The TRA on 17th August 2016 responded to Omantel that its response was of limited help as it was very brief and did not provide the information requested by the TRA. The TRA noted the explanation from Omantel that RAIO cost model used the unit cost from unaudited TD LRIC 2015 which in TRA's views cannot be considered reliable. Omantel was again requested to address TRA's observations by 25th August 2016.

On 21st August 2016, Omantel requested to have a meeting with the TRA along with Omantel's consultants on call conference during the last week of August 2016 and claimed that call conference session with its consultants could not be arranged earlier in July 2016. Omantel also submitted that in view of the complexity of cost models and the need to enhance understanding, extension should be granted to submit its comments until 7th September 2016.

A meeting was held on 22nd August 2016 on the request of Omantel where the issues were discussed in detail. Omantel requested to have interactive session with TRA's consultant to explain Omantel's TDLRIC model. Considering Omantel's request, the TRA extended the deadline for submitting clarifications from 25th August 2016 to 30th August 2016. With regards to meeting with Omantel's consultants, the TRA indicated in its letter dated 22nd August 2016 that it neither agreed nor requested to have a call conference with Omantel's' consultants in July 2016 as the TD LRIC model was only provided to the TRA on 13th July 2016. Omantel was also requested to arrange face-to-face meetings with its consultants, instead of call conferences, keeping in view the complexity of the issues.

Omantel responded on 30th August 2016 and provided its explanation on the issues highlighted by the TRA. With regards to average hourly rates, Omantel claimed that it is based on a cost model of its HR Unit and argued that person-level details cannot be shared with the TRA due to confidentiality reasons. Omantel did not provide any supporting calculations for its proposed 'minus' of 12% and claimed that it is set as a guideline benchmark. A meeting was again held on 1st September 2016 where Omantel's submission was discussed with relation to the requirements of the TRA.

Omantel provided further explanations on these issues on 5th September 2016. In its letter, Omantel admitted that corporate tax should not be included in its 1.43 factor calculations. However, it did not explain why the margin of 20% should be added in this calculation. Omantel also submitted an Excel sheet containing the calculation of its effective hourly rates but without any reference to the source and justification for the calculation. In particular, no supporting evidences were provided for the uplift factor (in the range of 2 to 3, depending on the staff category) which was used to calculate the effective hourly rate.

Considering the failure of Omantel in providing the required information to the TRA, it was considered appropriate to escalate the matter. Accordingly, a letter was written to the CEO of Omantel on 6th September 2016 highlighting the difficulties in getting the required information and clarifications from Omantel. It was emphasised that although the TRA under the A&I Regulation can use its BULRIC models in finalizing Omantel's proposed charges, it is however willing to provide another opportunity to Omantel to submit the required information.

Omantel's CEO responded on 19th September 2016 and assured that Omantel will extend all cooperation in supplying the relevant data to the maximum extent possible with the available resources.

2.3. Review of Omantel's TDLRIC Model

Omantel shared its TDLRIC model along with FAC-HCA and FAC-CCA models on 13th July 2016 as part of its submission of its 2015 SRA although it was required under the Accounting Separation Regulation to share such models by 30th June 2016. Based on its initial review, the TRA shared its observations on TDLRIC model with Omantel on 27th July 2016. These observations were mainly related to reliability, transparency and flexibility of the model. Omantel was requested to address these observations by 4th August 2016.

Omantel in its letter dated 21st August 2016 claimed that no deviations have been adopted in TDLRIC modelling methodology and the new updates were recommended by its regulatory auditor as a result of SRA 2014 audit. Omantel also argued that an explanation of differences between 2015 and 2014 is not possible since considerable enhancements have been made in its TDLRIC model.

Omantel responded to TRA's observations on 16th August 2016 and submitted comments from its regulatory auditor (M/s KPMG) and its consultant (M/s JJK Associates). Omantel also offered that meetings with its consultant can be arranged where the functionality of the model can be explained to satisfy the concerns of the TRA on the transparency and flexibility of the model. The TRA vide its letter date 24th August 2016 accepted few comments from Omantel and directed Omantel to respond the unresolved issues by 4th September 2016. For the issues relating to transparency and flexibility of the model, the TRA required Omantel to arrange face-to-face meetings with its consultants.

Having reviewed Omantel's response, the TRA shared its concerns with Omantel on 24th August 2016 that the deadline was extended in good faith and with the spirit of facilitating the submission from Omantel but this time period was only used by Omantel in providing the reasons as to why the information cannot be provided. The TRA noted the commitment made by Omantel on 5th June 2016 where it promised that differences with 2014 results will be provided to the TRA. The TRA also provided its point-wise views on Omantel's submission and provided yet another opportunity to Omantel to submit the requested information by 4th September 2016.

On 25th August 2016, the TRA invited Omantel, its consultants and its regulatory auditors for a meeting on 1st September 2016. Omantel indicated that its consultants can only participate through call conference. During the meeting, Omantel's

regulatory auditors explained their approach in auditing the SRA 2015 including the TDLRIC model. Omantel's consultants also explained the functionality of the revamped TDLRIC model.

On 4th September 2016, Omantel provided its explanation on the changes that have been made in the 2015 TDLRIC model along with the clarifications from its consultants with regards to differences between 2015 and 2014 TDLRIC results. Omantel requested the TRA to use its 2015 TDLRIC for the purpose of review of its RAIO charges.

2.4. TRA's Comments on Omantel's Proposed Charges and TRA's Proposed Changes in TDLRIC Model

The TRA vide its letter dated 15th December 2016 indicated to Omantel that it will proceed to finalize the RAIO charges by using TRA's BULRIC models and Omantel's TDLRIC model subject to necessary modifications and updates. The TRA, vide this letter, also shared its:

(i) comments on Omantel's proposed charges in the First Draft RAIO;
(ii) comments on Omantel's RAIO models; and
(iii) proposed changes in Omantel's TDLRIC model.

The comments at point (i) above were mainly related to the failure of Omantel to provide any evidence or supporting calculations for the proposed charges for a list of services (40 in total). The TRA also noted that Omantel's proposed 'minus' of 12% for services to be priced on retail-minus approach was not supported with any calculations. The TRA notified that it will calculate the minus % based on information available in Omantel's cost models.

The comments at point (ii) above related to the uplift factors used by Omantel for calculating its non-recurring charges and staff hourly rates. The comments at point (iii) broadly related to four issues namely:

i. Allocation factors
ii. CCA valuations
iii. Implementation of TDLRIC
iv. Definition of CVRs

The TRA required Omantel to provide its views by 29th December 2016. The TRA also shared the redacted version of its comments on Omantel's proposed charges/RAIO models and its proposed changes in Omantel's TDLRIC model with the industry on 18th December 2016 keeping in view the confidentiality of data[1].

On 19th December 2016, Omantel requested to extend the deadline of 29th December 2016 to 31st March 2017. The TRA vide its letter dated 27th December 2016 clarified to Omantel that it is only required to provide its comments on TRA's comments and proposed changes (which were 20 in total) and not to work or modify its RAIO

[1] Available at https://www.tra.gov.om/pdf/tra_comments_on_omantels_proposed_charges.pdf

Annexes, RAIO models or TDLRIC model. Although the proposed extension of 3 months was not justified, the TRA agreed to grant extension until 13th January 2017.

Omantel again approached the TRA on 2nd January 2017 to grant extension until 31st March 2017. The TRA vide its letter dated 4th January 2017 indicated that the proposed extension will unduly delay the approval of RAIO which is not in the interest of the sector and maintained its deadline of 13th January 2017.

On 8th January 2017, Omantel again requested the TRA to extend the deadline until 9th February 2017. The TRA agreed to extend the deadline to 29th January 2017 vide its letter dated 12th January 2017. In parallel, the TRA also raised few queries (12 in total) to Omantel on its RAIO models vide its letter dated 18th January 2017 mainly seeking justifications and evidences from Omantel for the input figures used in its models for IPLC, trunk segment of leased lines, IP international bandwidth, access to landing station, access to earth station, non-recurring charges, other services and for mapping of services between RAIO and TDLRIC model to be submitted by 1st February 2017.

Omantel finally provided its views on TRA's comments on Omantel's proposed charges/RAIO models and its proposed changes in Omantel's TDLRIC model on 29th January 2017 and highlighted that its proposed prices were based on 7% Royalty which has been increased by the Government and the same should be used in Omantel's RAIO charges. Omantel also requested to extend the deadline of 1st February 2017 to provide its replies on TRA's queries to 9th February 2017. After reviewing the submission of Omantel, the TRA while accepting the extension request of Omantel, noted in its letter dated 2nd February 2017 that Omantel did not provide any additional quantitative data despite granting of extension by the TRA from 29th December 2016 to 13th January 2017 and then to 29th January 2017 on Omantel's own request. The TRA agreed to incorporate new Royalty rates in the models and noted that again Omantel did not provide any supporting documentation to justify its uplift factor applied in staff hourly rates. The TRA also clarified the issues where Omantel differed from TRA's proposed amendments in Omantel's TDLRIC model.

Omantel provided its replies to TRA's queries on 9th February 2017 and indicated that issues highlighted by the TRA in its letter dated 2nd February 2017 are under review by Omantel's consultant and it may revert back with its feedback before the industry meeting. However, no such submission was made by Omantel before the industry meeting and thus considered settled by the TRA.

With regards to Omantel's replies, the TRA observed in its letter dated 15th February 2017 that despite a number of data collection rounds, Omantel failed to provide any evidence to justify the inputs employed by Omantel for a number of services. The inputs employed by Omantel in the supporting Excel files provided by Omantel along with its submission were again not supported by means of contracts, invoices, technical registers or other. Considering the fact that sufficient time has been provided by the TRA to Omantel to provide supporting evidences, in the absence of which the TRA cannot accept such submissions as reliable, the TRA concluded the data collection process which was initiated in June 2016 (i.e. almost 8-months period).

Omantel vide its letter dated 22nd February 2017 indicated that it will not accept any changes in its cost models by the TRA as in Omantel' views it has duly responded all queries of the TRA with supporting evidences. Omantel also requested a meeting with the TRA's consultants to resolve the differences in understanding of evidences.

The TRA in its letter dated 27th February 2017 notified its disagreement with Omantel's claim that it has duly responded all queries of the TRA with supporting evidences. The TRA while listing a number of examples where Omantel failed to submit any supporting evidences, clarified that it will consider all charges which are justified by Omantel with supporting information and evidences. The TRA also agreed to arrange a meeting between Omantel and TRA's consultants.

Even though the TRA had originally concluded the data collection process on 15th February 2017, it decided to give one last chance to Omantel to provide the evidences pending for the determination of the RAIO wholesale charges. A letter was sent to Omantel on 4th April 2017 detailing the process carried out so far, the answers provided by Omantel to the different data requests issued by the TRA and the information still pending.

Omantel provided its answers on 20th April 2017, along with a collection of evidences (contracts, email quotes, price lists, etc.) in hard copy. On 7th June 2017, the TRA held a meeting with Omantel to clarify TRA's queries on the evidences on RAIO prices submitted by Omantel on 20th April 2017. Following this meeting, a letter was sent by Omantel on 18th June 2017 with the objective of sharing with the TRA several points that it reckoned should be taken into account while finalizing the determination of RAIO charges.

2.5. Update of TRA's BU-LRIC Models

The TRA initiated the process of developing its BULRIC models for fixed and mobile networks with the assistance of an international consulting firm in 2013. In this regard, the TRA issued its consultation document on BULRIC methodology on 6th November 2013. After getting responses from the stakeholders, the TRA issued its Position Statement on 13th April 2014 and the 'Methodology Document on BULRIC Modelling' was finally issued on 22nd April 2014.

Subsequently, on 24th June 2014, the TRA commenced the consultation process on the BULRIC models (both fixed and mobile) with Omantel, Ooredoo and OBC owing to the confidentiality of the data involved. The TRA, following a transparent approach, shared the draft models, description of models, user manuals and WACC model with the consulting parties. The TRA also arranged a meeting in August 2014 to provide opportunity to stakeholders to discuss their thoughts, comments and questions on the draft models and supporting documentation. Omantel and Ooredoo provided detailed comments and proposed improvements in the models. All these comments were analysed by the TRA and the Position Statement in this regard was issued in January 2015. To make the process fair and transparent, the TRA shared fully flexible models along with supporting documentations with the stakeholders so that the same can be updated and amended by the parties as and when required.

In reviewing and determining the Omantel's RAIO charges, the A&I Regulation empowers the TRA to use its BULRIC models. The TRA noted that its fixed BULRIC model used actual data for years 2010-2014 and estimated the data for years 2015-2018, whereas the mobile BULRIC model used actual data for years 2011-2014 and estimated the data for years 2015-2018. Although the models provided the results for year 2015, which is required for setting Omantel's RAIO charges, the TRA considered it prudent to update the models with latest data for 2015 so as to capture the actual realities to the extent possible. Few services were also added in the BULRIC models to match the services provided in the A&I Regulation and Omantel's RAIO in addition to minor formula adjustments without changing the model methodology that was issued on 22nd April 2014. The details of such updates and modifications are provided in Annex D of this Decision.

For such updates, the TRA requested Omantel on 3rd August 2016 to provide requested data by 21st August 2016. Omantel submitted some data on 24th and 25th August 2016. Having noted the deficiencies in Omantel's data submission, the TRA sent an invitation to Omantel on 25th August 2016, to have an interactive discussion with TRA's consultant on 1st September 2016 where the issues can be discussed in detail. Later, Omantel submitted the data for update of BULRIC models on 4th September 2016.

2.6. Margin-Squeeze Test

In order to ensure that the applicable RAIO charges do not result in margin squeeze, the TRA also conducted a margin-squeeze test based on Omantel's retail prices. With the exception of very few services, all other services passed this test. The details of such services and their implications on the applicable prices are provided in section 3 of this Decision.

2.7. Industry Meetings

Considering the request of Omantel to have a meeting with TRA's consultants and having completed the review of Omantel's proposed charges along with supporting models and documentations, the TRA on 5th March 2017 invited all licensees (including Omantel) for meetings on 14th and 15th March 2017. This was to ensure transparency and fairness of the review process. During these meetings, the TRA briefed the participants about the review process of Omantel's proposed RAIO charges and the approach it intends to follow in determining Omantel's RAIO charges.

2.7.1. *Submission from Licensees*

During these meetings, all the participants (including Omantel) appreciated the transparent approach followed by the TRA throughout the review process and requested that the TRA's draft position on the RAIO charges may be shared by the TRA with the industry for consultation before issuing the final decision. The industry also provided its views on the approach which the TRA intends to follow in determining RAIO charges. Considering the views of the industry and to remain consistent with the requirements of the A&I Regulation, the TRA amended its

approach in determining Omantel's RAIO charges which is provided in section 2.8 of this Decision.

Omantel, during the meeting, again claimed that it has supported all charges with evidences backed by audited financial statements and audited SRA. Omantel indicated its few disagreements with the changes that TRA has made in its TDLRIC model and requested that list of adjustments in its TDLRIC model along with rationale be shared by the TRA. Omantel also requested that updated BULRIC models should be shared by the TRA before finalizing the charges, besides sharing the draft results. Omantel reiterated these points in its letter dated 15th March 2017.

Ooredoo questioned the use of BULRIC models by the TRA in setting the RAIO prices as, in its views, TDLRIC model of Omantel is already available. Ooredoo also indicated that it has not accepted the BULRIC models.

TeO requested that it may be provided with further understanding of calculating the retail-minus and LRIC pricing. TeO also requested the TRA to share the price determination before finalizing the RAIOs. TeO reiterated these points in its letter dated 15th March 2017.

Friendi Mobile and Renna Mobile also requested the draft decision on RAIO prices for consultation. Friendi Mobile and Renna Mobile sought clarity on how the 'minus' in retail-minus formula will be calculated and how this will be used in deriving the wholesale charges. Friendi Mobile and Renna Mobile shared their list of questions and comments vide letter dated 15th March 2017 and 19th March 2017 respectively.

2.7.2. *TRA's Views on Licensees' Submissions*

The TRA noted the comments of all licensees with regards to transparency of the review process. At the same time, the TRA does not agree with the requests from Omantel and Ooredoo to share TRA's BULRIC models due to following reason:

i. The Regulation does not require the TRA to share its BULRIC models to be used in reviewing the RAIO charges;
ii. The aim of this review is Omantel's RAIO charges and not to reopen the consultation on TRA's BULRIC models which may unduly delay the RAIO approval process;
iii. The TRA has not changed the methodology in BULRIC models as compared to the one finalized in 2015 with industry consultation;
iv. Omantel and Ooredoo, in 2015, have been provided with TRA's BULRIC models along with supporting documentation and user manual to help enable the update and amendments to these models;
v. The details of updates and modifications by the TRA are provided in Annex B of this Decision, in case the licensees want to implement the same.

The TRA does not agree with Ooredoo's argument with regards to its non-acceptance of BULRIC models. Firstly, the TRA never sought acceptance of its BULRIC models from the licensees as such. In fact, the TRA consulted the licensees and sought their views and comments in improving these models. Secondly, the TRA made a number

of amendments to these models based on comments from the licensees (especially Ooredoo) and shared the final models in 2015 on which the TRA did not receive any further comments or concerns from Ooredoo until during the RAIO review process in 2016.

The TRA also does not agree with Omantel's claim that it has supported all charges with evidences as the TRA has been requesting for such evidences from Omantel all along the process. Although the TRA concluded the data collection process on 15th February 2017, yet it prefers to use Omantel's data in determining its RAIO charges to the maximum possible extent. In this regard, the TRA considered the possibility of giving one last possibility to Omantel to provide the pending information.

With regards to Omantel's request to share the list of adjustments in its TDLRIC model along with rationale, the TRA is of the view that the same have been already provided to Omantel vide TRA's letters dated 15th December 2016 and 2nd February 2017. Nevertheless, the list of adjustments in Omantel's TDLRIC model are again provided in Section B.4 of Annex B.

Addressing the query from Friendi Mobile and Renna Mobile as to how the 'minus' in retail-minus formula is calculated, the TRA clarifies that the calculation is based on Omantel's costing information. On the issue of how the discount will be used in deriving the wholesale charges, the TRA notes that such methodology should have been part of Omantel's RAIO as required by the A&I Regulation.

2.8. The Methodology Used

The TRA considers that the charges for A&I services are a significant proportion of end-user retail tariffs and that the setting of such charges at a fair level is not only critical to enhance competition in the sector but at the same time encourage efficient infrastructure investment. The TRA is also conscious of the fact that where charges for A&I services are set at levels that are not based on economic costs, it can send incorrect signals to potential entrants for build/buy decisions. This may result in market entry that leads to wasted investment or may deter entry in markets where competition is actually required.

The TRA also realizes that there is a potential for a dominant licensee (like Omantel) to reduce prices for its retail services as compared to the wholesale prices it offers to its competitors, which would result in margin squeeze.

The TRA is of the view that the above issues are well addressed by the A&I Regulation which requires that charges for A&I services *"shall be fair, reasonable and based on forward looking long run incremental cost (LRIC) of efficient service provision"*. In implementing this, the TRA has decided to *"Use both the Operator top-down LRIC and its own bottom-up LRIC models in the manner it deems appropriate"* [Emphasis added].

Keeping in view the non-availability of information in Omantel's TD-LRIC model or TRA's BU LRIC models for some services, the following methodology has been used by the TRA in setting Omantel's wholesale charges, unless otherwise stated for a specific charge:

(i) When there is information available in Omantel's RAIO models, the charges have been properly justified by Omantel and they are aligned with other references, these are accepted.

If the information presented by Omantel is not acceptable or has not been duly justified by Omantel:

(ii) Where the information is available in both Omantel's TDLRIC model and TRA's BULRIC model and they are aligned, the average of both figures is considered.

(iii) Where the information is available in both Omantel's TDLRIC model and TRA's BULRIC model but they are not aligned, either the results from Omantel's TDLRIC model or TRA's BULRIC model are used, and the reasons for its selection are properly explained.

(iv) Where the information is available only in Omantel's TDLRIC model but not in TRA's BULRIC model, Omantel's TDLRIC model results are used.

(v) Where the information is available only in TRA's BULRIC model but not in Omantel's TDLRIC model, TRA's BULRIC model results are used.

(vi) Where there is no valid information from either the TDLRIC or BULRIC models, and Omantel's RAIO figures could be adjusted, these figures were adjusted to correct any potential mistakes that could exist.

(vii) Where there is no valid information from either the TDLRIC or BULRIC models, and Omantel's RAIO figures could not be adjusted, the TRA resorted to international benchmarks in order to come up with a reference that could help it estimate the LRIC and efficient wholesale charge to be applied.

(viii) In all of the above cases, the TRA also assessed that the applicable wholesale charges do not result in margin squeeze using Omantel's retail prices and that they are set on the principle of economic replicability as required by the A&I Regulation. If this was not the case, the values extracted from either of the point (i) to (vii) above have been adjusted.

3. TRA's Final Determination on Omantel's RAIO Charges for Fixed Services

This section includes TRA's analysis of proposed charges for fixed services included in Omantel's Second Draft RAIO and TRA's decision on the same.

3.1. C-FA 01. Local Loop Unbundling

3.1.1. Initial Service setup fee Per MSAN - NRC

Omantel proposed an initial service setup fee per MSAN for the Local Loop Unbundling of 1,387 OMR based on the product of the man-hours needed to provide the service (q) and the price per man-hour (p). The paragraphs below provide further indications on the treatment of each of these two variables:

- The review of the man-hour rates (p) conducted by the TRA has led to some adjustments in the figures reported by Omantel. Annex B of this Decision provides further detail on the figures reported by Omantel and the adjustments introduced by the TRA.
- The average number of hours required to provide the service (q) are presented below and have been accepted by the TRA:

Activity	Average hours
Engineering Work for front & Back office	8
Technician work to Survey, implementation and commission	4
Billing Implementation	1
Wholesale Admin	2

Table 3.1: Man-hour dedication in the provision of the initial setup service for the Local Loop Unbundling [Source: Omantel]

At the same time, Omantel applied an overhead factor of 1.43 (coping with the royalty fee, its expected margin and taxation) on top of the pxq calculation. As outlined in Section B.3 of Annex B of this Decision, the overhead factor has been adjusted to consider only the admin overhead expenses and the 10% royalty fee, leading to an adjusted factor of 1.16.

Considering the adjustments introduced in the man-hour rates and in the overhead factor (alternative (vi) identified in section 2.8), the TRA comes up with a wholesale charge of **385 OMR** for the service, which is aligned with the charge registered in France at 424 OMR.

3.1.2. Per Customer loop charges – NRC

Omantel proposed a NRC charge per customer loop of 72 OMR based on the product of the man-hours needed to provide the service (q) and the price per man-hour (p). The paragraphs below provide further indications on the treatment of each of these two variables:

- The review of the man-hour rates (p) conducted by the TRA has led to some adjustments in the figures reported by Omantel. 0provides further detail on the figures reported by Omantel and the adjustments introduced by the TRA.
- The average number of hours required to provide the service (q) are presented below and have been accepted by the TRA:

Activity	Average hours
Technician work to implement the connectivity, commission, test the service	1

Table 3.2: Man-hour dedication in the activation per customer for the Local Loop Unbundling [Source: Omantel]

At the same time, Omantel applied an overhead factor of 1.43 (coping with the royalty fee, its expected margin and taxation) on top of the pxq calculation. As outlined in Section B.3 of Annex B this Decision, the overhead factor has been adjusted to consider only the admin overhead expenses and the 10% royalty fee, leading to an adjusted factor of 1.16.

Considering the adjustments introduced in the man-hour rates and in the overhead factor (alternative (vi) identified in section 2.8), the TRA comes up with a wholesale charge of **15 OMR** for the service, which is aligned with the average of figures registered in other countries as represented below:

Country	Charge in OMR
Bahrain	25.88
Mexico	9.28
Portugal	16.19
France	21.30
Ireland	8.52
United Kingdom	23.10
Greece	16.54
Average	**17.26**

Table 3.3: International benchmark on NRC charges per customer loop [Source: TRA's benchmark, see Annex C]

3.1.3. Per Customer loop charges – MRC

Omantel proposed a monthly charge per customer for Local Loop Unbundling of 15.51 OMR, obtained by applying the old 7% royalty fee to the value extracted from its TD-LRIC model. The TRA first notes that the royalty fee is already included in the TD-LRIC results and should consequently not be added to the TD-LRIC output.

Secondly, when assessing this charge, it is essential to take into consideration the retail market dynamics. Specifically, Omantel offers its entry-level tariff to fixed telephony services at 2.9 OMR/month. Therefore, if that retail service is to be replicated by an

alternative operator, the monthly charge for either the LLU or the WLR should be below 2.9 OMR/month.

However, this would not be the case with any of the two services. Indeed, as the results of the BU-LRIC and TD-LRIC models suggest, and as Omantel indicates in its proposed wholesale charges, the cost of both services would be over 10 OMR/month:

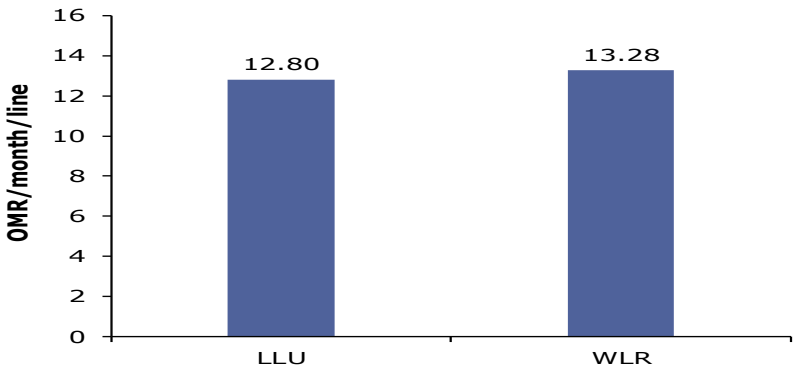

Exhibit 3.1: LLU and WLR monthly recurring costs, as the average of TD-LRIC and BU-LRIC models [Source: TRA, Omantel's TD-LRIC]

Based on the above, the comparison between the BU-LRIC and TD-LRIC models' results for the PSTN access (12.80 OMR/month for LLU or 13.28 OMR/month for WLR) and retail market prices for the service (2.9 OMR/month) suggests that the price of the service could not be oriented to its underlying costs.

The TRA also recognises that, while Omantel's costs could be considered to fall above international benchmarks, as illustrated in Table 3.4 below, they could be justified due to the specific geographical characteristics of the country and the lower-than-average take-up ratios.

Country	Charge in OMR
Bahrain	4.14
Mexico	1.36
Portugal	3.83
France	4.03
Spain	3.66
Ireland	3.98
Denmark	4.63
United Kingdom	3.80
Greece	3.25
Average	**3.63**

Table 3.4: International benchmark on monthly local loop charges per customer [Source: TRA's benchmark, see Annex C]

Given the situation presented above, it could be inferred from the exhibit below that Omantel's price recovery strategy could be focused on recovering most of the network common costs through broadband rather than access:

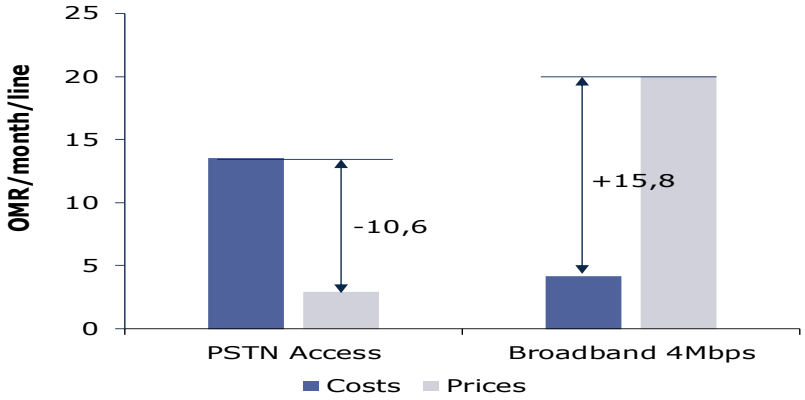

Exhibit 3.2: Comparison of costs[2] and prices[3] for PSTN Access and Broadband 4 Mbps retail products [Source: TRA, Omantel's website]

The TRA observes that this situation leads to important challenges in the definition of the applicable wholesale charges for access-related services. In order to overcome this situation and respect to the maximum extent the compliance of the cost-recovery and replicability principles, the TRA has identified three alternatives presented below for the regulation of the wholesale access network:

	Description of the solution
ALTERNATIVE 1 Full alignment with LRIC costs	▸ Adopt the LRIC cost orientation in the definition of the charges for each wholesale service. ▸ LLU would be priced at 12.80OMR/month. ▸ No replicability in single play tariffs
ALTERNATIVE 2 Set an LLU charge based on retail minus	▸ Differently, from the previous solution, in this case the LLU charge would be set based on a retail minus approach. ▸ Retail tariffs replicability would be guaranteed in single, double and triple play retail tariffs.
ALTERNATIVE 3 Set LLU at cost, WLR at retail price	▸ The LLU would be set at its LRIC cost (12.80 OMR/month), while the WLR would be set based on a retail minus approach (2.9 OMR/month x (1-minus)). ▸ Alternative operators would be able to compete in all markets, and Omantel would only lose money in those cases in which single-play customers move to alternative operators*.

* Something that is already happening with its existing Single Play customers

Exhibit 3.3: Alternatives for the regulation of the wholesale access network [Source: TRA]

[2] Source: TRA's Bottom-Up model.
[3] Source: Omantel's website.

Considering the alternatives above, the TRA is of the opinion that Alternative 3 would be the most suitable to comply with all of its regulatory objectives. Under this situation, the wholesale monthly charges of the different access services are as follows:

- *Local Loop Unbundling*: **12.80 OMR/line/month**, extracted as the average from Omantel's TD-LRIC (11.86 OMR/line/month) and TRA's BU-LRIC model (13.74 OMR/line/month) (alternative (ii) identified in section 2.8), which ensures the service can be effectively used by alternative operators to provide broadband double-play retail tariffs profitably.
- *Local Loop Unbundling – Line Sharing*: **11.19 OMR/line/month** extracted from TRA's BU-LRIC model (alternative (v) identified in section 2.8) since no information was found in the TD-LRIC system for this service (*see section 3.2.3).*
- *Local Loop Unbundling – Sub Loop Unbundling*: **7.16 OMR/line/month** extracted from TRA's BU-LRIC model (alternative (v) identified in section 2.8) since no information was found in the TD-LRIC system for this service (*see section 3.3.3).*
- *Wholesale Line Rental*: **1.97 OMR/line/month** (retail minus of 32%, alternative (viii) identified in section 2.8), a level which is expected to allow the replicability of Omantel's single-play voice-only retail tariffs (*see section 3.5.3).*

3.2. C-FA 02. Local Loop Unbundling -Line sharing

3.2.1. Initial Service setup fee Per MSAN - NRC

Refer to section 3.1.1. Same considerations apply here. The applicable wholesale charge is **385 OMR**, obtained using alternative (vi) identified in section 2.8.

3.2.2. Per Customer loop charges – NRC

Refer to section 3.1.2. Same considerations apply here. The applicable wholesale charge is **15 OMR**, obtained using alternative (vi) identified in section 2.8.

3.2.3. Per Customer loop charges – MRC

Omantel proposed a monthly charge per customer for Line Sharing in Local Loop Unbundling of 12.41 OMR/line/month, calculated as 80% of the LLU monthly loop charge and applying the old 7% royalty fee. The TRA notes that the 80% factor has not been properly justified by Omantel and that the royalty fee is already included in the TD-LRIC results and should consequently not be added to the TD-LRIC output.

As outlined in Section 3.1.3, TRA's applicable rate is **11.19 OMR/line/month**, obtained using alternative (v) identified in section 2.8. Similar to LLU, the TRA recognises that, while Omantel's costs could be considered to fall above international benchmarks, as illustrated in Table 3.5 below, they could be justified due to the specific geographical characteristics of the country and the lower-than-average take-up ratios.

Country	Charge in OMR
Portugal	1.07
France	0.75
Ireland	0.33
United Kingdom	0.11
Greece	0.59
Average	**0.57**

Table 3.5: International benchmark on monthly loop charges per customer for shared LLU [Source: TRA's benchmark, see Annex C]

3.3. C-FA 03. Local Loop Unbundling-Sub Loop Unbundling

3.3.1. Initial Service setup fee Per MSAN - NRC

Refer to section 3.1.1. Same considerations apply here. The applicable wholesale charge is **385 OMR**, obtained using alternative (vi) identified in section 2.8.

3.3.2. Per Customer loop charges – NRC

Refer to section 3.1.2. Same considerations apply here. The applicable wholesale charge is **15 OMR**, obtained using alternative (vi) identified in section 2.8.

3.3.3. Per Customer loop charges – MRC

Omantel proposed a monthly charge per customer for Sub Local Loop Unbundling of 11.63 OMR/line/month, calculated as 75% of the LLU monthly loop charge and applying the old 7% royalty fee. The TRA notes that the 75% factor has not been properly justified by Omantel and that the royalty fee is already included in the TD-LRIC results and should consequently not be added to the TD-LRIC output.

As outlined in Section 3.1.3, TRA's applicable rate is **7.16 OMR/line/month**, obtained using alternative (v) identified in section 2.8. Similar to LLU, the TRA recognises that while Omantel's costs could be considered to fall above international benchmarks, as illustrated in Table 3.6 below, they could be justified due to the specific geographical characteristics of the country and the lower-than-average take-up ratios.

Country	Charge in OMR
France	4.03
Ireland	2.30
United Kingdom	4.07
Average	**3.47**

Table 3.6: International benchmark on monthly loop charges per customer for Sub-Loop Unbundling [Source: TRA's benchmark, see Annex C]

3.4. C-FA 04. Colocation: indoor in Omantel buildings

3.4.1. NRC

Omantel proposed a NRC for indoor colocation in Omantel buildings of 1,087 OMR based on the product of the man-hours needed to provide the service (q) and the price per man-hour (p). The paragraphs below provide further indications on the treatment of each of these two variables:

- The review of the man-hour rates (p) conducted by the TRA has led to some adjustments in the figures reported by Omantel.0 provides further detail on the figures reported by Omantel and the adjustments introduced by the TRA.
- The average number of hours required to provide the service (q) are presented below and have been accepted by the TRA:

Activity	Average hours
Engineering Work for front & Back office	5
Technician work to Survey, implementation and commission	4
Billing Implementation	1
Wholesale Admin	2

Table 3.7: Man-hour dedication in the provision of indoor colocation service in Omantel buildings [Source: Omantel]

At the same time, Omantel applied an overhead factor of 1.43 (coping with the royalty fee, its expected margin and taxation) on top of the pxq calculation. As outlined in Section B.3 of Annex B of this Decision, the overhead factor has been adjusted to consider only the admin overhead expenses and the 10% royalty fee, leading to an adjusted factor of 1.16.

Considering the adjustments introduced in the man-hour rates and in the overhead factor (alternative (vi) identified in section 2.8), the TRA comes up with a charge of **296 OMR** for the service.

3.4.2. MRC (Per SQR meter)

Omantel proposed a monthly charge for indoor colocation in Omantel's buildings of 100 OMR/sqm. Omantel indicated that this charge was based on a frame agreement, which it provided to the TRA. Having analysed the same, the TRA notes that the agreement reached does not represent the cost incurred by Omantel in providing indoor colocation to its buildings but the result of a commercial negotiation and, therefore, does not comply with the cost-orientation principles mandated.

At the same time, Ooredoo proposed a monthly charge of 51 OMR/sqm for colocation in its reference offer, which it extracted from Omantel's 2012 RAO. Recognising that this charge would be aligned with the upper range of the figures observed in the international practice and given that no information on this service is

available in the cost models, the TRA has decided to set an applicable wholesale charge of **51 OMR/month/sqm** for the service.

3.5. C-FA 05. Wholesale Line Rental

3.5.1. Initial Service setup fee – NRC

Omantel proposed an initial service setup fee (for a block of 10 customers) for Wholesale Line Rental of 4,047 OMR based on the product of the man-hours needed to provide the service (q) and the price per man-hour (p). This is equivalent to 404.70 OMR per customer. The paragraphs below provide further indications on the treatment of each of these two variables:

- The review of the man-hour rates (p) conducted by the TRA has led to some adjustments in the figures reported by Omantel. 0Annex B of this Decision provides further detail on the figures reported by Omantel and the adjustments introduced by the TRA.
- The average number of hours required to provide the service (q) are presented below and have been accepted by the TRA:

Activity	Average hours
Engineering Work for front & Back office	10
Project Manager Cost	5
Switching updates the switching routing tables, Configuration	10
Billing Implementation	6
Wholesale Admin	3

Table 3.8: Man-hour dedication in the provision of the initial service setup service for the Wholesale Line Rental [Source: Omantel]

At the same time, Omantel applied an overhead factor of 1.43 (coping with the royalty fee, its expected margin and taxation) on top of the pxq calculation. As outlined in Section B.3 of Annex B of this Decision, the overhead factor has been adjusted to consider only the admin overhead expenses and the 10% royalty fee, leading to an adjusted factor of 1.16.

Considering the adjustments introduced in the man-hour rates and the overhead factor (alternative (vi) identified in section 2.8), the TRA comes up with a corrected charge of 874 OMR for the service (for a block of 10 customers).

The equivalent charge for each customer shall be **87.40 OMR**.

3.5.2. Per Customer line charges – NRC

Omantel proposed a charge for the NRC per customer line for Wholesale Line Rental of 72 OMR, following the same calculation process as detailed in section 3.1.2.

Considering the adjustments introduced in the man-hour rates and the overhead factor, the TRA came up with a corrected charge of 15 OMR for the service. However, the TRA does not consider that the average number of hours required to provide this service should be the same as for other Local Loop Unbundling services as proposed by Omantel, keeping in view the nature of Wholesale Line Rental service. Resultantly, the value of 15 OMR would not be aligned with other references identified in the international practice as shown below:

Country	Charge in OMR
Portugal	1.63
Spain	1.06
Italy	2.27
Average	**1.65**

Table 3.9: International benchmark on NRC per customer line for WLR [Source: TRA's benchmark, see Annex C]

Consequently, and given that no information on this service is available in the cost models, the TRA has to resort to the international benchmark to estimate a reasonable charge. Given that the cost for the provision of this service should not depend heavily on Omani specificities, the use of international references is perceived as a valid reference. Applying the 10% royalty fee to the above average price, the TRA comes up with an applicable charge of **2 OMR** for the service (alternative (vii) identified in section 2.8).

3.5.3. Per Customer line charges – MRC

Omantel proposed a monthly charge per customer for Wholesale Line Rental of 18.55 OMR/line/month, obtained by applying the old 7% royalty fee to the sum of the LLU monthly loop charge and the cost of a switching port, both extracted from the TD-LRIC model. The TRA notes that the royalty fee is already included in the TD-LRIC results and should consequently not be added to the LRIC outputs.

As outlined in Section 3.1.3, TRA's applicable rate is **1.97 OMR/line/month**. This rate was obtained by applying a minus of 32%, calculated by assessing the percentage that retail costs represent on the fixed segment revenues of customers, considering the provisions laid out in Annex 4 of the A&I Regulation. This charge is expected to allow the replicability of Omantel's single-play voice-only retail tariffs (alternative (viii) identified in section 2.8).

3.5.4. Voice Call Charges – National Voice Calls to Omantel Fixed

Omantel proposed a charge for national voice calls of (in baiza/min):

Call origination + Call termination charges of the terminating party + Admin + Royalty + Tax

The TRA does not see the applicability of an additional Admin, Royalty and Tax charge to this service as the royalty fee and taxes would already be included in the call origination and termination tariffs, and adding them to the calculation would result in double counting of these terms. Further, the applicability of an additional Admin

charge to this service does not represent a common international practice in the regulation of the service.

Consequently, the TRA decided that the following approach is to be adopted in the definition of the applicable wholesale charge for the service:

Call origination + Call termination charges of the terminating party

As indicated in sections 3.18.2, 3.19.3 and 3.20.1, the applicable wholesale charge for call origination is 2.42 baiza/min.

At the same time, Omantel is expected to explain in its Final Draft RAIO how the termination party charges will be determined and justified to the Requesting Party.

3.5.5. Voice Call Charges – International Calls

Omantel proposed a charge for international voice calls of (in baiza/min):

Call origination + International Leg + The termination party charges + Admin + Royalty + Tax

The same comments as for the national voice calls service discussed in section 3.5.4 above apply with regards to the treatment of the admin, royalty and tax components of the formula.

Consequently, the TRA decided that the following approach is to be adopted in the definition of the applicable wholesale charge for the service:

Call origination + International Leg + The termination party charges

As indicated in sections 3.18.2, 3.19.3 and 3.20.1, the applicable wholesale charge for call origination is 2.42 baiza/min.

At the same time, Omantel is expected to explain in its Final Draft RAIO as to how the international leg charges and termination party charges will be determined and justified to the Requesting Party.

3.6. C-FA 06. Bitstream Layer 2

3.6.1. STM-1 on Metro Ring – NRC

Omantel proposed a NRC for the setup of an STM-1 link on the Metro Ring for Bitstream Layer 2 services of 5,534 OMR based on the product of the man-hours needed to provide the service (q) and the price per man-hour (p). The paragraphs below provide further indications on the treatment of each of these two variables:

- The review of the man-hour rates (p) conducted by the TRA has led to some adjustments in the figures reported by Omantel. 0Annex B of this Decision provides further detail on the figures reported by Omantel and the adjustments introduced by the TRA.
- The average number of hours required to provide the service (q) are presented below and have been accepted by the TRA:

Activity	Average hours
Engineering Work for front & Back office	30
Project Manager Cost	10
Billing Implementation	6
Wholesale Admin	5

Table 3.10: Man-hour dedication in the setup of an STM-1 link on the Metro Ring for Bitstream Layer 2 services [Source: Omantel]

At the same time, Omantel applied an overhead factor of 1.43 (coping with the royalty fee, its expected margin and taxation) on top of the pxq calculation. As outlined in Section B.3 of Annex B of this Decision, the overhead factor has been adjusted to consider only the admin overhead expenses and the 10% royalty fee, leading to an adjusted factor of 1.16.

Considering the adjustments introduced in the man-hour rates and in the overhead factor (alternative (vi) identified in section 2.8), the TRA comes up with an applicable wholesale charge of **1,421 OMR** for the service.

3.6.2. STM-1 on Northern Ring - NRC

Refer to section 3.6.1. Same considerations apply here. The applicable wholesale charge is **1,421 OMR**, obtained using alternative (vi) identified in section 2.8.

3.6.3. STM-1 on Eastern Ring - NRC

Refer to section 3.6.1. Same considerations apply here. The applicable wholesale charge is **1,421 OMR**, obtained using alternative (vi) identified in section 2.8.

3.6.4. STM-1 on Southern Ring - NRC

Refer to section 3.6.1. Same considerations apply here. The applicable wholesale charge is **1,421 OMR**, obtained using alternative (vi) identified in section 2.8.

3.6.5. Link fee per Customer - NRC

Refer to section 3.1.2. Same considerations apply here. The applicable wholesale charge is **15 OMR** (obtained using alternative (vi) identified in section 2.8), which is aligned with the figures registered in other countries as represented below:

Country	Charge in OMR
Spain	8.49
Ireland	11.50
Italy	34.29
Average	**18.10**

Table 3.11: International benchmark on one-off link fee per customer for Bitstream services [Source: TRA's benchmark, see Annex C]

3.6.6. Per MSAN Charges per Slot - NRC

Refer to section 3.1.2. Same considerations apply here. The applicable wholesale charge is **15 OMR**, obtained using alternative (vi) identified in section 2.8.

3.6.7. ADSL card per MSAN - NRC

The charge per ADSL card proposed by Omantel for the initial setup of Bitstream Layer 2 services in a MSAN amounts to 1,857 OMR. This figure is obtained by Omantel as the cost of an ADSL card (1,300 OMR) and the introduction of a 1.43 overhead factor.

With regards to the cost of the ADSL card, Omantel provided a price list from its supplier along with the items from this list used in the calculation of the ADSL card cost:

- Engineering services for installation and integration: 347 OMR
- Hardware cost of the card: 645 OMR
- Cost of licenses: 61 OMR

The calculation provided by Omantel indicates a total cost of 1,053 OMR for an ADSL card. At the same time and based on the indications presented in Section B.3 of Annex B of this Decision, the overhead factor applied to this cost should be adjusted from the 1.43 originally presented by Omantel to 1.16.

Based on the corrections presented above (alternative (vi) identified in section 2.8), the TRA has decided to set an applicable wholesale charge for the service of **1,217 OMR**.

The TRA also notes that the approach used by Omantel of requiring the requesting party to purchase the line card is subject to approval by the TRA.

3.6.8. SDSL card per MSAN - NRC

The charge per SDSL card proposed by Omantel for the initial setup of Bitstream Layer 2 services in a MSAN amounts to 1,429 OMR. This figure is obtained by Omantel as the cost of an SDSL card (1,000 OMR) and the introduction of a 1.43 overhead factor.

With regards to the cost of the SDSL card, Omantel provided a price list from its supplier along with the items from this list used in the calculation of the SDSL card cost:

- Engineering services for installation and integration: 347 OMR
- Hardware cost of the card: 400 OMR
- Cost of licenses: 254 OMR

The calculation provided by Omantel indicates a total cost of 1,001 OMR for an SDSL card. However, part of the licenses costs considered by Omantel relates to narrowband license cost of ISDN PRI port licenses (248 OMR), while POTS port licenses (2 OMR) would appear to be more appropriate. Consequently, the TRA

obtains an adjusted total cost for an SDSL card of 755 OMR, considering engineering services, hardware and adjusted licenses costs.

Moreover, based on the indications presented in Section B.3 of Annex B of this Decision, the overhead factor applied to the card cost should be adjusted from the 1.43 originally presented by Omantel to 1.16.

Based on the two corrections presented above (alternative (vi) identified in section 2.8), the TRA has decided to set an applicable wholesale charge for the service of **872 OMR**.

The TRA also notes that the approach used by Omantel of requiring the requesting party to purchase the line card is subject to approval by the TRA.

3.6.9. STM-1 on Metro Ring - MRC

Omantel proposed a monthly charge for a STM-1 link on the Metro Ring of 14,531 OMR, obtained following the steps described below which were shared with the TRA:

1. A breakdown of the rings in their different network components is used to calculate the total CAPEX costs of the different rings. Total CAPEX prices for the NMS (Network Management System) and ODF (Optical fibre Distribution Frame) are also computed.
2. The total cost of each ring is calculated by considering both the annualised CAPEX and the WACC in the calculation.
3. The total annualised costs (including WACC) of routers, switches and fibre for access rings are calculated.
4. Using information about the number of equipment in Omantel's network and the costs calculated previously, the total cost per STM-1 on each ring is obtained.

As part of the review of Omantel's calculations, the TRA has identified three issues in this calculation which are detailed below along with the way they should be corrected:

1. Omantel used a WACC of 12.40% which was replaced by 12.07% to ensure it is aligned with the figure employed by Omantel in its TD-LRIC model.
2. Omantel used an overhead factor of 1.43 which was adjusted to 1.16 following the indications outlined in Section B.3 of Annex B of this Decision.
3. Omantel applied the WACC to the GBV of the assets, which implicitly considers that these assets would not be depreciated at all (GBV=NBV) as the WACC needs to be applied to the NBV of the assets. Considering a linear replacement of the assets and full alignment with its useful lives, the resulting average NBV should be equal to ½ of the GBV. Consequently, Omantel's calculation has been adjusted to ensure the WACC is only applied to ½ of the GBV (theoretical level of the NBV).

Considering the above improvements on Omantel's calculations, the adjusted charge that would have been presented by Omantel would be 8,956 OMR/month.

Given the complexity behind the proper representation of the different rings, the TRA does not consider the results stemming from its Bottom-Up model to be as

precise as Omantel's calculations in this case. At the same time, no information on this service is available in Omantel's TD-LRIC system.

Considering the above, the TRA comes up with an applicable wholesale charge for the service of **8,956 OMR/month** (alternative (vi) identified in section 2.8).

3.6.10. STM-1 on Northern Ring - MRC

Omantel proposed a monthly charge for a STM-1 link on the Northern Ring of 19,259 OMR which, after implementing the improvements outlined in section 3.6.9, is adjusted to a value of 11,913 OMR.

Applying the same considerations as in section 3.6.9, the TRA comes up with an applicable wholesale charge of **11,913 OMR/month** for the service (alternative (vi) identified in section 2.8).

3.6.11. STM-1 on Eastern Ring - MRC

Omantel proposed a monthly charge for a STM-1 link on the Eastern Ring of 10,837 OMR which, after implementing the improvements outlined in section 3.6.9, is adjusted to a value of 6,752 OMR.

Applying the same considerations as in section 3.6.9, the TRA comes up with an applicable wholesale charge of **6,752 OMR/month** for the service (alternative (vi) identified in section 2.8).

3.6.12. STM-1 on Southern Ring - MRC

Omantel proposed a monthly charge for a STM-1 link on the Southern Ring of 14,603 OMR which, after implementing the improvements outlined in section 3.6.9, is adjusted to a value of 8,948 OMR.

Applying the same considerations as in section 3.6.9, the TRA comes up with an applicable wholesale charge of **8,948 OMR/month** for the service (alternative (vi) identified in section 2.8).

3.6.13. Link fee per Customer - MRC

Omantel proposed a monthly link fee per customer for Bitstream Layer 2 services of 12.41 OMR, obtained from the monthly loop charge for local loop sharing (see section 3.2.3). This figure is aligned with the cost of 12.01 OMR extracted from the Bottom-Up LRIC Model.

Consequently, the TRA has decided to accept the charge proposed by Omantel of **12.41 OMR/month** (alternative (i) identified in section 2.8).

3.6.14. Per MSAN Charges per Slot - MRC

Omantel proposed a monthly charge per MSAN slot for Bitstream Layer 2 services of 138 OMR, which is below the cost of 182 OMR extracted from the Bottom-Up LRIC Model.

Consequently, the TRA has decided to accept the charge proposed by Omantel of **138 OMR/month** (alternative (i) identified in section 2.8).

3.7. C-FA 07. Bitstream Layer 3

3.7.1. STM-1 on Metro Ring – NRC

Refer to section 3.6.1. Same considerations apply here. The applicable wholesale charge is **1,421 OMR**, obtained using alternative (vi) identified in section 2.8.

3.7.2. STM-1 on Northern Ring - NRC

Refer to section 3.6.2. Same considerations apply here. The applicable wholesale charge is **1,421 OMR**, obtained using alternative (vi) identified in section 2.8.

3.7.3. STM-1 on Eastern Ring - NRC

Refer to section 3.6.3. Same considerations apply here. The applicable wholesale charge is **1,421 OMR**, obtained using alternative (vi) identified in section 2.8.

3.7.4. STM-1 on Southern Ring - NRC

Refer to section 3.6.4. Same considerations apply here. The applicable wholesale charge is **1,421 OMR**, obtained using alternative (vi) identified in section 2.8.

3.7.5. Link fee per Customer - NRC

Refer to section 3.6.5. Same considerations apply here. The applicable wholesale charge is **15 OMR**, obtained using alternative (vi) identified in section 2.8.

3.7.6. Per MSAN Charges per Slot - NRC

Refer to section 3.6.6. Same considerations apply here. The applicable wholesale charge is **15 OMR**, obtained using alternative (vi) identified in section 2.8.

3.7.7. ADSL card per MSAN - NRC

Refer to section 3.6.7. Same considerations apply here. The applicable wholesale charge is **1,217 OMR**, obtained using alternative (vi) identified in section 2.8.

The TRA also notes that the approach used by Omantel of requiring the requesting party to purchase the line card is subject to approval by the TRA.

3.7.8. SDSL card per MSAN - NRC

Refer to section 3.6.8. Same considerations apply here. The applicable wholesale charge is **872 OMR**, obtained using alternative (vi) identified in section 2.8.

The TRA also notes that the approach used by Omantel of requiring the requesting party to purchase the line card is subject to approval by the TRA.

3.7.9. STM-1 on Metro Ring - MRC

Refer to section 3.6.9. Same considerations apply here. The applicable wholesale charge is **8,956 OMR/month**, obtained using alternative (vi) identified in section 2.8.

3.7.10. STM-1 on Northern Ring - MRC

Refer to section 3.6.10. Same considerations apply here. The applicable wholesale charge is **11,913 OMR/month**, obtained using alternative (vi) identified in section 2.8.

3.7.11. STM-1 on Eastern Ring - MRC

Refer to section 3.6.11. Same considerations apply here. The applicable wholesale charge is **6,752 OMR/month**, obtained using alternative (vi) identified in section 2.8.

3.7.12. STM-1 on Southern Ring - MRC

Refer to section 3.6.12. Same considerations apply here. The applicable wholesale charge is **8,948 OMR/month**, obtained using alternative (vi) identified in section 2.8.

3.7.13. Link fee per Customer - MRC

Refer to section 3.6.13. Same considerations apply here. The applicable wholesale charge is **12.41 OMR/month**, obtained using alternative (i) identified in section 2.8.

3.7.14. Per MSAN Charges per Slot - MRC

Refer to section 3.6.14. Same considerations apply here. The applicable wholesale charge is **138 OMR/month**, obtained using alternative (i) identified in section 2.8.

3.8. C-FA 08. Wholesale Transmission

3.8.1. Wholesale Transmission

The Wholesale Trunk Segment of Leased Lines prices will be applicable for wholesale transmission.

3.9. C-FA 09. Internet Broadband Resale Service

3.9.1. Internet Broadband Resale Service

The charges for internet broadband resale services are calculated on the basis of the retail-minus pricing methodology, as indicated in the Access and Interconnection Regulation. Omantel proposed a minus of 12%.

After several requests, Omantel did not provide any valid arguments that would justify the figure presented. At the same time, the information presented by Omantel was not aligned with the service-level disaggregation mandated in the Access and Interconnection Regulation, as the same discount was proposed for all services priced under the retail minus methodology.

The retail minus discount has been adjusted by the TRA using information from Omantel's Top-Down system and following the methodology laid out in the Access and Interconnection Regulation. As described in Annex 4 of the A&I Regulation, the discount (minus) is calculated as:

$$Discount = \left(1 - \frac{avoidable\ cost\ per\ subscriber}{average\ revenue\ per\ retail\ subscriber}\right)$$

As stated in Article 2.1 (iii) of the same Annex 4 of the A&I Regulation, for Internet Broadband Resale Services, the average revenue per retail subscriber shall take account of all retail broadband subscribers served by the Providing Party. The total annual retail revenues were calculated from Omantel's Top-Down system taking account of line rental, connections and data usage. As per Article 2.2 of Annex 4 of the A&I Regulation, the calculation has excluded any services not related to the services that are provided to the Requesting Party, such as anti-spam services or

mailboxes. Using the total number of broadband subscribers, the average revenue per retail subscriber was finally obtained.

As stated in Article 2.3 of Annex 4 of the A&I Regulation, avoidable costs shall be calculated on a per subscriber basis for the past year. These shall be based on the costs incurred by the Providing Party and shall take account only of the subscribers included in calculation of the average revenue per retail subscriber calculations. The avoidable costs were calculated for each service and include costs components such as customer acquisition, sales, distribution, marketing, billing and customer care. Using the total number of broadband subscribers, the avoidable cost per retail subscriber was obtained.

Finally, the retail minus discount was calculated as per the formula mentioned above.

Using the adjusted retail minus calculation, the TRA comes up with a minus of **21%** (or equivalently, a discount of 79%) for Internet Broadband Resale services in the consumer segment and **17%** (or equivalently, a discount of 83%) for Internet Broadband Resale services in the corporate segment.

The TRA notes that the minus indicated in this Decision are a minimum and could be renegotiated between operators upon contract agreement subject to non-discrimination obligation.

This discount shall be used to calculate the applicable wholesale unit prices in accordance with the formula below:

$$Wholesale\ unit\ price = average\ retail\ revenue\ per\ unit\ \times\ discount$$

The average retail revenue per unit shall be calculated on a quarterly backward-looking basis. For each retail broadband service, there shall be a corresponding Broadband Resale Service. For each retail service, the Providing Party shall calculate an average revenue per unit (per line, per Mb). This shall take account of retail promotions including discounts and special offers. This shall be done in an objective and transparent way. The calculation of average revenue per unit shall be specific to each retail tariff plan.

As stated in the A&I Regulation, the calculation of wholesale prices shall be updated on a quarterly basis and does not need to be included in the RAIO, although the detailed methodology for calculating the prices for wholesale services shall be included and shall be subject to approval by the TRA. Omantel is, therefore, required to include a detailed methodology for calculating the prices for wholesale services in its Final Draft RAIO, after discussions and agreements with the licensees, for approval of the TRA. In case the agreement is not reached with the licensees, Omantel shall submit its proposed methodology for calculating the prices for wholesale services in its Final Draft RAIO, along with dissenting views of concerned licensees and Omantel's comments on such views.

3.10. C-FA 10. Wholesale Terminating Segment of Leased Line

3.10.1. Maximum distance 3KM (2Mb/s) – NRC

Refer to section 3.1.2. Same considerations apply here. The applicable wholesale charge is **15 OMR**, obtained using alternative (vi) identified in section 2.8.

3.10.2. Maximum distance 3KM (34Mb/s) - NRC

Refer to section 3.1.2. Same considerations apply here. The applicable wholesale charge is **15 OMR**, obtained using alternative (vi) identified in section 2.8.

3.10.3. Maximum distance 3KM (155Mb/s) - NRC

Refer to section 3.1.2. Same considerations apply here. The applicable wholesale charge is **15 OMR**, obtained using alternative (vi) identified in section 2.8.

3.10.4. Maximum distance 3KM (2Mb/s) - MRC

Omantel proposed a monthly charge for a 2Mb/s leased line (terminating segment) of 19 OMR, which is aligned with the cost of 20 OMR extracted from the TRA's Bottom-Up Model.

Considering the above, the TRA accepts the charge of **19 OMR/month** presented by Omantel (alternative (i) identified in section 2.8).

3.10.5. Maximum distance 3KM (34Mb/s) - MRC

Omantel proposed a monthly charge for a 34Mb/s leased line (terminating segment) of 86 OMR, which is below the cost of 119 OMR extracted from the TRA's Bottom-Up Model.

Considering the above, the TRA accepts the charge of **86 OMR/month** presented by Omantel (alternative (i) identified in section 2.8).

3.10.6. Maximum distance 3KM (155Mb/s) - MRC

Omantel proposed a monthly charge for a 155Mb/s leased line (terminating segment) of 86 OMR, which is below the cost of 131 OMR extracted from the TRA's Bottom-Up Model.

Considering the above, the TRA accepts the charge of **86 OMR/month** presented by Omantel (alternative (i) identified in section 2.8).

3.11. C-FA 11. Wholesale Trunk Segment of Leased Line (National)

3.11.1. Terrestrial Link Within exchange (2Mb/s) - NRC

Omantel proposed a NRC for a 2Mb/s terrestrial link within exchange of 100 OMR, although it did not provide any valid documentation to support its calculation.

Despite the lack of supporting documentation provided by Omantel, the TRA has been able to verify that the charge suggested by Omantel was actually aligned with the wholesale charges applicable in other countries, as outlined below:

Country	Charge in OMR
United Arab Emirates	248.43
Mexico	78.55
Ireland	200.58
Average	**175.85**

Table 3.12: International benchmark on NRC for the trunk segment of a 2Mb/s terrestrial link [Source: TRA's benchmark, see Annex C]

Consequently, the TRA agrees with Omantel on an applicable charge of **100 OMR** for the service (alternative (i) identified in section 2.8).

3.11.2. Terrestrial Link Within exchange (34Mb/s) - NRC

Omantel proposed a NRC for a 34Mb/s terrestrial link within exchange of 200 OMR. Similar to the case above, although Omantel did not justify this figure, its alignment with international references was validated by the TRA.

Consequently, the TRA agrees with Omantel on an applicable charge of **200 OMR** for the service (alternative (i) identified in section 2.8).

3.11.3. Terrestrial Link Within exchange (155Mb/s) - NRC

Omantel proposed a NRC for a 155Mb/s terrestrial link within exchange of 200 OMR. Similar to the case above, although Omantel did not justify this figure, its alignment with international references was validated by the TRA.

Consequently, the TRA agrees with Omantel on an applicable charge of **200 OMR** for the service (alternative (i) identified in section 2.8).

3.11.4. Terrestrial Link < 100 km (2Mb/s) - NRC

Refer to section 3.11.1. Same considerations apply here. The applicable wholesale charge is **100 OMR**, obtained using alternative (i) identified in section 2.8.

3.11.5. Terrestrial Link < 100 km (34Mb/s) - NRC

Refer to section 3.11.2. Same considerations apply here. The applicable wholesale charge is **200 OMR**, obtained using alternative (i) identified in section 2.8.

3.11.6. Terrestrial Link < 100 km (155Mb/s) - NRC

Refer to section 3.11.3. Same considerations apply here. The applicable wholesale charge is **200 OMR**, obtained using alternative (i) identified in section 2.8.

3.11.7. Terrestrial Link 101-300 km (2Mb/s) - NRC

Refer to section 3.11.1. Same considerations apply here. The applicable wholesale charge is **100 OMR**, obtained using alternative (i) identified in section 2.8.

3.11.8. Terrestrial Link 101-300 km (34Mb/s) - NRC

Refer to section 3.11.2. Same considerations apply here. The applicable wholesale charge is **200 OMR**, obtained using alternative (i) identified in section 2.8.

3.11.9. Terrestrial Link 101-300 km (155Mb/s) - NRC

Refer to section 3.11.3. Same considerations apply here. The applicable wholesale charge is **200 OMR**, obtained using alternative (i) identified in section 2.8.

3.11.10. Terrestrial Link 301-400 km (2Mb/s) - NRC

Refer to section 3.11.1. Same considerations apply here. The applicable wholesale charge is **100 OMR**, obtained using alternative (i) identified in section 2.8.

3.11.11. Terrestrial Link 301-400 km (34Mb/s) - NRC

Refer to section 3.11.2. Same considerations apply here. The applicable wholesale charge is **200 OMR**, obtained using alternative (i) identified in section 2.8.

3.11.12. Terrestrial Link 301-400 km (155Mb/s) - NRC

Refer to section 3.11.3. Same considerations apply here. The applicable wholesale charge is **200 OMR**, obtained using alternative (i) identified in section 2.8.

3.11.13. Terrestrial Link > 400 km (2Mb/s) - NRC

Refer to section 3.11.1. Same considerations apply here. The applicable wholesale charge is **100 OMR**, obtained using alternative (i) identified in section 2.8.

3.11.14. Terrestrial Link > 400 km (34Mb/s) - NRC

Refer to section 3.11.2. Same considerations apply here. The applicable wholesale charge is **200 OMR**, obtained using alternative (i) identified in section 2.8.

3.11.15. Terrestrial Link > 400 km (155Mb/s) - NRC

Refer to section 3.11.3. Same considerations apply here. The applicable wholesale charge is **200 OMR**, obtained using alternative (i) identified in section 2.8.

3.11.16. Terrestrial Links - MRC

Omantel proposed different wholesale charges for terrestrial links based on their capacity and length, as presented below:

Capacity	Within exchange	<100 km	101-300 km	301-400 km	>400 km
2 Mb/s	192	296	450	605	799
34 Mb/s	1,316	1,334	1,410	1,708	1,826
155 Mb/s	2,313	2,331	2,407	2,981	3,098

Table 3.13: Omantel's proposed charges for the trunk segment of terrestrial links [Source: Omantel]

Omantel indicated that these values were extracted from its TD-LRIC system. However, the information from Omantel's Top-Down LRIC system does not present the same granularity (in terms of speeds and lengths) as reflected in the RAIO. Omantel indicated that it used a "*mapping of Network Services (NS) to Basic Products and Services (BPSs) services along with driver percentage*" to calculate the cost per speed and "*these*

LRIC costs have been extrapolated on distance-wise prices". However, it failed to provide any valid evidences to support such claims.

Alternatively, the costs of the same services obtained from the BULRIC model are presented below:

Capacity	Within exchange	<100 km	101-300 km	301-400 km	>400 km
2 Mb/s	19	32	46	66	73
34 Mb/s	36	268	500	848	964
155 Mb/s	162	1,220	2,277	3,864	4,393

Table 3.14: Results from the BULRIC model for the trunk segment of terrestrial links [Source: TRA]

While the charges proposed by Omantel appear to be much high than the figures obtained from the BULRIC model (with the exception of 155 Mb/s links longer than 100 km), the TRA was able to verify the alignment of Omantel's proposed charges with the upper range of the figures registered in the international benchmark. Consequently, the TRA has decided to accept the charges proposed by Omantel:

Service (OMR/month)	Within exchange	<100 km	101-300 km	301-400 km	>400 km
2 Mb/s	**192**	**296**	**450**	**605**	**799**
34 Mb/s	**1,316**	**1,334**	**1,410**	**1,708**	**1,826**
155 Mb/s	**2,313**	**2,331**	**2,407**	**2,981**	**3,098**

Table 3.15: TRA's applicable wholesale charges for the trunk segment of terrestrial links [Source: TRA]

3.11.17. Submarine Cable (National) Bandwidth (2Mb/s) - NRC

Omantel proposed a NRC for the setup of a 2Mb/s leased submarine cable of 3,532 OMR based on the product of the man-hours needed to provide the service (q) and the price per man-hour (p). The paragraphs below provide further indications on the treatment of each of these two variables:

- The review of the man-hour rates (p) conducted by the TRA has led to some adjustments in the figures reported by Omantel. 0Annex B of this Decision provides further detail on the figures reported by Omantel and the adjustments introduced by the TRA.
- The average number of hours required to provide the service (q) are presented below and have been preliminarily accepted by the TRA:

Activity	Average hours
Engineering Work for front & Back office	16
Project Manager	6
Technician work for coordinating with the submarine owner for the availability, implementation, testing and commissioning	8
Billing Implementation	3
Wholesale Admin	2

Table.3.16: Man-hour dedication in the setup of a 2Mb/s leased submarine cable [Source: Omantel]

At the same time, Omantel applied an overhead factor of 1.43 (coping with the royalty fee, its expected margin and taxation) on top of the pxq calculation. As outlined in Section B.3 of Annex B of this Decision, the overhead factor has been adjusted to consider only the admin overhead expenses and the 10% royalty fee, leading to an adjusted factor of 1.16.

Considering the adjustments introduced in the man-hour rates and in the overhead factor (alternative (vi) identified in section 2.8), the TRA comes up with an applicable charge of **865 OMR/month** for the service.

3.11.18. Submarine Cable (National) Bandwidth (34Mb/s) - NRC

Refer to section 3.11.16. Same considerations apply here. The applicable wholesale charge is **865 OMR/month**, obtained using alternative (vi) identified in section 2.8.

3.11.19. Submarine Cable (National) Bandwidth (155Mb/s) - NRC

Refer to section 3.11.16. Same considerations apply here. The applicable wholesale charge is **865 OMR/month**, obtained using alternative (vi) identified in section 2.8.

3.11.20. Submarine Cable (National) Bandwidth (2Mb/s) - MRC

Omantel proposed a monthly charge for a 2Mb/s leased submarine cable of 1,587 OMR, obtained as the division of the monthly rate of a STM1 submarine cable link by 7. Refer to section 3.11.22 for the detailed calculation of the monthly rate of a STM1 submarine cable, and the necessary adjustments considered by the TRA in that case.

Applying the factor of 7 to the adjusted monthly charge for a STM1 submarine cable of 5,830 OMR, the TRA comes up with an applicable charge of **833 OMR/month** for the service (alternative (vi) identified in section 2.8).

3.11.21. Submarine Cable (National) Bandwidth (34Mb/s) - MRC

Omantel proposed a monthly charge for a 34Mb/s leased submarine cable of 5,555 OMR, obtained as the division of the monthly rate of a STM1 submarine cable link

by 2. Refer to section 3.11.22 for the detailed calculation of the monthly rate of a STM1 submarine cable, and the necessary adjustments considered by the TRA in that case.

Applying the factor of 2 to the adjusted monthly charge for a STM1 submarine cable of 5,830 OMR, the TRA comes up with an applicable charge of **2,915 OMR/month** for the service (alternative (vi) identified in section 2.8).

3.11.22. Submarine Cable (National) Bandwidth (155Mb/s) - MRC

Omantel proposed a monthly charge for a 155Mb/s leased submarine cable of 11,110 OMR, obtained following the steps presented below which were shared with the TRA:

1. The total investment for the service is calculated, taking into account the investments for the landing station, for the submarine system and for special projects in Khasab.
2. The investment is annualized over the useful life of the asset, considered to be 10 years by Omantel.
3. The cost of capital is obtained as the product of the total investment and a WACC of 12.39%.
4. The annual costs are calculated as the sum of the annualized investments and the cost of capital.
5. Operations & Marketing expenses are calculated as a percentage of the annual costs, taking into account O&M, Administration, Marketing & Sales and Vendor O&M costs. Additionally, a "total O&M" component is added to the previously calculated O&M costs.
6. The total annual costs are calculated as the sum of the annual costs from point 4 and the O&M costs.
7. The cost per STM1 cable is calculated taking into account the number of STM1 cables currently used in the landing station.
8. Finally, an overhead factor of 1.43 accounting for taxation, royalty and margin is applied to obtain the suggested charge per STM1 cable

As part of the review of Omantel's calculations, the TRA has identified six issues in this calculation, detailed below along with the way they should be corrected:

1. The investment for the landing station proposed by Omantel was not aligned with the price indicated in the contract provided by Omantel for the Blue City landing station and has been corrected.
2. Omantel applied the WACC to the GBV of the assets, which implicitly considers that these assets would not be depreciated at all (GBV=NBV) as the WACC needs to be applied to the NBV of the assets. Considering a linear replacement of the assets and full alignment with its useful lives, the resulting average NBV should be equal to ½ of the GBV. Consequently, Omantel's calculation has been adjusted to ensure the WACC is only applied to ½ of the GBV (theoretical level of the NBV)
3. The WACC value has been updated to 12.07%, to ensure its alignment with the value considered by Omantel in its TD-LRIC Model.

4. For the calculation of the total O&M costs, marketing costs should not be considered as they are not relevant for the provision of wholesale services. At the same time, vendor O&M should not be calculated as a percentage of the investment, but instead the exact value from the contract between Omantel and the vendor should be used. Finally, administrative costs are already included in the overhead factor and should not be considered at this stage.
5. The "total O&M" component of the calculation has not been duly justified by Omantel and the TRA is of view that it should not been considered, as O&M costs have already been calculated as detailed in point 4 above.
6. Finally, the overhead factor has been adjusted to 1.16, as detailed in Section B.3 of Annex B of this Decision.

Having implemented the necessary adjustments into Omantel's calculations, the TRA has come up with an applicable charge of **5,830 OMR/month** for the rental of a STM1 submarine cable (alternative (vi) identified in section 2.8).

3.12. C-FA 12. Wholesale Trunk Segment of Leased Line (IPLC)

3.12.1. ME Countries E1 - NRC

Omantel proposed a NRC for the setup of an E1 leased line for IPLC in ME countries of 7,822 OMR based on a fixed charge by the B Party of 3,000 OMR plus the product of the man-hours needed to provide the service (q) and the price per man-hour (p). The paragraphs below provide further indications on the treatment of each of these two variables:

- The review of the man-hour rates (p) conducted by the TRA has led to some adjustments in the figures reported by Omantel. Annex B of this Decision provides further detail on the figures reported by Omantel and the adjustments introduced by the TRA.
- The average number of hours required to provide the service (q) are presented below and have been accepted by the TRA:

Activity	Average hours
Engineering Work for front & Back office	16
Project Manager	6
Technician work for coordinating with the B party for the availability, implementation, testing and commissioning	8
Billing Implementation	3
Wholesale Admin	2

Table 3.17: Man-hour dedication in the setup of an E1 leased line for IPLC [Source: Omantel]

At the same time, Omantel applied an overhead factor of 1.43 (coping with the royalty fee, its expected margin and taxation) on top of the pxq calculation. As outlined in Section B.3 of Annex B of this Decision, the overhead factor has been adjusted to consider only the admin overhead expenses and the 10% royalty fee, leading to an adjusted factor of 1.16.

The fixed charge of 3,000 OMR was obtained by Omantel as an estimated average of prices to multiple locations, to which it applied a 30% markup. The TRA recognises that the B-party charge would vary from one location to another and, consequently, only an estimate of the cost can be obtained. At the same time, the TRA was able to validate the alignment of Omantel's estimate with confidential quotes from various suppliers provided by Omantel. However, the TRA does not see the rationale for the 30% markup and is of view that it should be removed. This leads to a fixed charge of 2,308 OMR.

Considering a fixed charge of 2,308 OMR, the adjustments introduced in the man-hour rates and in the overhead factor (alternative (vi) identified in section 2.8), the TRA comes up with an applicable wholesale charge of **3,531 OMR** for the service.

3.12.2. Non-ME Countries E1 - NRC

Refer to section 3.12.1. Same considerations apply here. The applicable wholesale charge is **3,531 OMR**, obtained using alternative (vi) identified in section 2.8.

3.12.3. ME Countries DS3 - NRC

Omantel proposed a NRC for the setup of a DS3 leased line for IPLC in ME countries of 10,682 OMR based on a fixed charge by the B Party of 5,000 OMR and the product of the man-hours needed to provide the service (q) and the price per man-hour (p). The paragraphs below provide further indications on the treatment of each of these two variables:

- The review of the man-hour rates (p) conducted by the TRA has led to some adjustments in the figures reported by Omantel. Annex B of this Decision provides further detail on the figures reported by Omantel and the adjustments introduced by the TRA.
- The average number of hours required to provide the service (q) are presented below and have been accepted by the TRA:

Activity	Average hours
Engineering Work for front & Back office	16
Project Manager	6
Technician work for coordinating with the B party for the availability, implementation, testing and commissioning	8
Billing Implementation	3
Wholesale Admin	2

Table 3.18: Man-hour dedication in the setup of a DS3 leased line for IPLC [Source: Omantel]

At the same time, Omantel applied an overhead factor of 1.43 (coping with the royalty fee, its expected margin and taxation) on top of the pxq calculation. As outlined in Section B.3 of Annex B of this Decision, the overhead factor has been adjusted to consider only the admin overhead expenses and the 10% royalty fee, leading to an adjusted factor of 1.16.

The fixed charge of 5,000 OMR was obtained by Omantel as an estimated average of prices to multiple locations, to which it applied a 30% markup. The TRA recognises that the B-party charge would vary from one location to another and, consequently, only an estimate of the cost can be obtained. At the same time, the TRA was able to validate the alignment of Omantel's estimate with confidential quotes from various suppliers provided by Omantel. However, the TRA does not see the rationale for the 30% markup and is of view that it should be removed. This leads to a fixed charge of 3,846 OMR.

Considering a fixed charge of 3,846 OMR, the adjustments introduced in the man-hour rates and in the overhead factor (alternative (vi) identified in section 2.8), the TRA comes up with an applicable wholesale charge of **5,309 OMR** for the service.

3.12.4. Non-ME Countries DS3 - NRC

Refer to section 3.12.3. Same considerations apply here. The applicable wholesale charge is **5,309 OMR**, obtained using alternative (vi) identified in section 2.8.

3.12.5. ME Countries STM1 - NRC

Omantel proposed a NRC for the setup of a STM1 leased line for IPLC in ME countries of 13,542 OMR based on a fixed charge by the B Party of 7,000 OMR and the product of the man-hours needed to provide the service (q) and the price per man-hour (p). The paragraphs below provide further indications on the treatment of each of these two variables:

- The review of the man-hour rates (p) conducted by the TRA has led to some adjustments in the figures reported by Omantel. 0Annex B of this Decision

provides further detail on the figures reported by Omantel and the adjustments introduced by the TRA.

- The average number of hours required to provide the service (q) are presented below and have been accepted by the TRA:

Activity	Average hours
Engineering Work for front & Back office	16
Project Manager	6
Technician work for coordinating with the B party for the availability, implementation, testing and commissioning	8
Billing Implementation	3
Wholesale Admin	2

Table 3.19: Man-hour dedication in the setup of a STM1 leased line for IPLC [Source: Omantel]

At the same time, Omantel applied an overhead factor of 1.43 (coping with the royalty fee, its expected margin and taxation) on top of the pxq calculation. As outlined in Section B.3 of Annex B of this Decision, the overhead factor has been adjusted to consider only the admin overhead expenses and the 10% royalty fee, leading to an adjusted factor of 1.16.

The fixed charge of 7,000 OMR was obtained by Omantel as an estimated average of prices to multiple locations, to which it applied a 30% markup. The TRA recognises that the B-party charge would vary from one location to another and, consequently, only an estimate of the cost can be obtained. At the same time, the TRA was able to validate the alignment of Omantel's estimate with confidential quotes from various suppliers provided by Omantel. However, the TRA does not see the rationale for the 30% markup and is of view that it should be removed. This leads to a fixed charge of 5,385 OMR.

Considering a fixed charge of 5,385 OMR, the adjustments introduced in the man-hour rates and in the overhead factor (alternative (vi) identified in section 2.8), the TRA comes up with an applicable wholesale charge of **7,087 OMR** for the service.

3.12.6. Non-ME Countries STM1 - NRC

Refer to section 3.12.5. Same considerations apply here. The applicable wholesale charge is **7,087 OMR**, obtained using alternative (vi) identified in section 2.8.

3.12.7. ME Countries E1 - MRC

Omantel proposed a monthly charge for an E1 link for IPLC to ME countries of 7,410 OMR. This charge is calculated by Omantel as the sum of two components:

1. The cost of the international tail. The TRA validated that this figure was extracted by Omantel from agreements reached with other ME operators, applying a 30% mark-up.
2. The cost of the international bandwidth capacity provided by Omantel, obtained from the cost of a STM1 submarine cable following the same calculations outlined in section 3.11.22 but for the Seeb landing station. Given that the cost of the ME tail is for half a circuit (i.e. including half the international bandwidth capacity), only half of the cost of Omantel's international bandwidth capacity is considered. The cost for an E1 link is estimated by Omantel by dividing the cost for a STM1 link by 10.

Having reviewed the calculation presented by Omantel, the TRA has deemed it appropriate to perform a series of modifications to better represent the cost effectively incurred by Omantel and which are described below:

1. The mark-up of 30% applied by Omantel to the international tail has not been justified and should be removed.
2. The cost of the international bandwidth capacity provided by Omantel should be adjusted following the same corrections indicated in section 3.11.22.

Having implemented the necessary adjustments into Omantel's calculations, the TRA has come up with an applicable charge of **5,205 OMR/month** for the rental of an E1 link for IPLC to ME countries (alternative (vi) identified in section 2.8).

3.12.8. Non-ME Countries E1 - MRC

Omantel proposed a monthly charge for an E1 link for IPLC to non-ME countries of 6,311 OMR. This charge is calculated by Omantel as the sum of two components:

1. The cost of the international tail. The TRA validated that this figure was extracted by Omantel from agreements reached with other ME operators, applying a 30% mark-up.
2. The cost of the international bandwidth capacity provided by Omantel, obtained from the cost of a STM1 submarine cable following the same calculations outlined in section 3.11.22 but for the Seeb landing station. Given that the cost of the non-ME tail typically does not include any international bandwidth capacity, the full cost of Omantel's international bandwidth capacity is considered. The cost for an E1 link is estimated by Omantel by dividing the cost for a STM1 link by 10.

Having reviewed the calculation presented by Omantel, the TRA has deemed it appropriate to perform a series of modifications to better represent the cost effectively incurred by Omantel and which are described below:

1. The mark-up of 30% applied by Omantel to the international tail has not been justified and should be removed.
2. The cost of the international bandwidth capacity provided by Omantel should be adjusted following the same corrections indicated in section 3.11.22.

Having implemented the necessary adjustments into Omantel's calculations, the TRA has come up with an applicable charge of **3,866 OMR/month** for the rental of an E1 link for IPLC to non-ME countries (alternative (vi) identified in section 2.8).

3.12.9. ME Countries DS3 - MRC

Omantel proposed a monthly charge for a DS3 link for IPLC to ME countries of 32,044 OMR. This charge is calculated by Omantel as the sum of two components:

1. The cost of the international tail. The TRA validated that this figure was extracted by Omantel from agreements reached with other ME operators, applying a 30% mark-up
2. The cost of the international bandwidth capacity provided by Omantel, obtained from the cost of a STM1 submarine cable following the same calculations outlined in section 3.11.22 but for the Seeb landing station. Given that the cost of the ME tail is for a half-circuit (i.e. including half the international bandwidth capacity), only half of the cost of Omantel's international bandwidth capacity is considered. The cost for a DS3 link is estimated by Omantel by dividing the cost for a STM1 link by 2.

Having reviewed the calculation presented by Omantel, the TRA has deemed it appropriate to perform a series of modifications to better represent the cost effectively incurred by Omantel and which are described below:

1. The mark-up of 30% applied by Omantel to the international tail has not been justified and should be removed.
2. The cost of the international bandwidth capacity provided by Omantel should be adjusted following the same corrections indicated in section 3.11.22.

Having implemented the necessary adjustments into Omantel's calculations, the TRA has come up with an applicable charge of **22,177 OMR/month** for the rental of a DS3 link for IPLC to ME countries (alternative (vi) identified in section 2.8).

3.12.10. Non-ME Countries DS3 - MRC

Omantel proposed a monthly charge for a DS3 link for IPLC to non-ME countries of 27,552 OMR. This charge is calculated by Omantel as the sum of two components:

1. The cost of the international tail. The TRA validated that this figure was extracted by Omantel from agreements reached with other ME operators, applying a 30% mark-up.
2. The cost of the international bandwidth capacity provided by Omantel, obtained from the cost of a STM1 submarine cable following the same calculations outlined in section 3.11.22 but for the Seeb landing station. Given that the cost of the non-ME tail typically does not include any international bandwidth capacity, the full cost of Omantel's international bandwidth capacity is considered. The cost for a DS3 link is estimated by Omantel by dividing the cost for a STM1 link by 2.

Having reviewed the calculation presented by Omantel, the TRA has deemed it appropriate to perform a series of modifications to better represent the cost effectively incurred by Omantel and which are described below:

1. The mark-up of 30% applied by Omantel to the international tail has not been justified and should be removed.
2. The cost of the international bandwidth capacity provided by Omantel should be adjusted following the same corrections indicated in section 3.11.22.

Having implemented the necessary adjustments into Omantel's calculations, the TRA has come up with an applicable charge of **16,250 OMR/month** for the rental of a DS3 link for IPLC to non-ME countries (alternative (vi) identified in section 2.8).

3.12.11. ME Countries STM1 - MRC

Omantel proposed a monthly charge for a STM1 link for IPLC to ME countries of 58,483 OMR. This charge is calculated by Omantel as the sum of two components:

1. The cost of the international tail. The TRA validated that this figure was extracted by Omantel from agreements reached with other ME operators, applying a 30% mark-up.
2. The cost of the international bandwidth capacity provided by Omantel, obtained from the cost of a STM1 submarine cable following the same calculations outlined in section 3.11.22 but for the Seeb landing station. Given that the cost of the ME tail is for a half-circuit (i.e. including half the international bandwidth capacity), only half of the cost of Omantel's international bandwidth capacity is considered.

Having reviewed the calculation presented by Omantel, the TRA has deemed it appropriate to perform a series of modifications to better represent the cost effectively incurred by Omantel and which are described below:

1. The mark-up of 30% applied by Omantel to the international tail has not been justified and should be removed.
2. The cost of the international bandwidth capacity provided by Omantel should be adjusted following the same corrections indicated in section 3.11.22.

Having implemented the necessary adjustments into Omantel's calculations, the TRA has come up with an applicable charge of **40,043 OMR/month** for the rental of a STM1 link for IPLC to ME countries (alternative (vi) identified in section 2.8).

3.12.12. Non-ME Countries STM1 - MRC

Omantel proposed a monthly charge for a STM1 link for IPLC to non-ME countries of 54,102 OMR. This charge is calculated by Omantel as the sum of two components:

1. The cost of the international tail. The TRA validated that this figure was extracted by Omantel from agreements reached with other ME operators, applying a 30% mark-up.
2. The cost of the international bandwidth capacity provided by Omantel, obtained from the cost of a STM1 submarine cable following the same calculations outlined in section 3.11.22 but for the Seeb landing station. Given that the cost of the non-ME tail typically does not include any international bandwidth capacity, the full cost of Omantel's international bandwidth capacity is considered.

Having reviewed the calculation presented by Omantel, the TRA has deemed it appropriate to perform a series of modifications to better represent the cost effectively incurred by Omantel and which are described below:

1. The mark-up of 30% applied by Omantel to the international tail has not been justified and should be removed.
2. The cost of the international bandwidth capacity provided by Omantel should be adjusted following the same corrections indicated in section 3.11.22.

Having implemented the necessary adjustments into Omantel's calculations, the TRA has come up with an applicable charge of **31,730 OMR/month** for the rental of a STM1 link for IPLC to non-ME countries (alternative (vi) identified in section 2.8).

3.13. C-FA 13. IP International Bandwidth Capacity

3.13.1. Bandwidth (155Mb/s) – NRC

Omantel proposed a NRC for the setup of IP international bandwidth capacity (155Mb/s) of 1,902 OMR based on the product of the man-hours needed to provide the service (q) and the price per man-hour (p). The paragraphs below provide further indications on the treatment of each of these two variables:

- The review of the man-hour rates (p) conducted by the TRA has led to some adjustments in the figures reported by Omantel. 0Annex B of this Decision provides further detail on the figures reported by Omantel and the adjustments introduced by the TRA.
- The average number of hours required to provide the service (q) are presented below and have been accepted by the TRA:

Activity	Average hours
Project Manager	2
Technician work, implementation, testing and commissioning	4
Coordinating with the other International Party for the availability, implementation, testing and commissioning	6
Billing Implementation	1
Wholesale Admin	2

Table 3.20: Man-hour dedication in the setup of IP international bandwidth capacity (155Mb/s) [Source: Omantel]

At the same time, Omantel applied an overhead factor of 1.43 (coping with the royalty fee, its expected margin and taxation) on top of the pxq calculation. As outlined in Section B.3 of Annex B of this Decision, the overhead factor has been adjusted to consider only the admin overhead expenses and the 10% royalty fee, leading to an adjusted factor of 1.16.

Considering the adjustments introduced in the man-hour rates and in the overhead factor (alternative (vi) identified in section 2.8), the TRA comes up with an applicable charge of **397 OMR**. At the same time, the TRA notes that if multiple STM-1 equivalents are purchased at the same time (in the same purchase order) by an alternative operator, this fee should apply only once.

3.13.2. Bandwidth (155Mb/s) - MRC

Omantel proposed a monthly charge for IP international bandwidth capacity (155Mb/s) of 63,405 OMR. However, while Omantel has provided the calculations employed in order to come up with this figure, several discrepancies have been observed with regards to the calculation process adopted. At the same time (as outlined below) the value reported by Omantel was found to be outside the expected range as inferred from other international references.

The TRA also considers the report of National Broadband Strategy (NBS) issued in May 2013 which notes that if broadband take-up is to grow, end-users will require access to fast Internet services at low prices. The NBS report raised concerns on Omantel's prices at which it offers capacity on international submarine cable to operators which were found to be substantially above the competitive international rates.

Consequently, the TRA has carried out the following steps in order to come up with a representative wholesale charge for this service:

- Omantel's Top-Down information has been used to determine a potential cost per Mbps for the international bandwidth capacity. Considering the information contained in its 'H-OT-WS-IPT-N-RNT-LL-ILL-N-10G-N' and 'H-OT-WS-IPT-N-RNT-LL-ILL-SEEB-10G-N' accounts, it comes up with a cost of 10.51 OMR/Mbps and 16.96 OMR/Mbps respectively.
- Contracts for the provision of the service in Oman have been analysed, which provide an average charge of 4.52 OMR/Mbps.
- International references have been assessed, coming up with the results presented below:

Country	Charge in OMR/Mbps
Confidential (Europe)	3.07
Confidential (Middle East)	1.12
Confidential (Americas)	4.69
India	1.30
Average	**2.55**

Table 3.21: International costing references for the International Bandwidth capacity service [Source: TRA's benchmark]

At the same time, the TRA notes that this service is not available in its Bottom-Up model.

Considering the multiple references the TRA has, the average resulting figure is equal to 8.64 OMR/Mbps which corresponds to an applicable charge of **1,338 OMR/STM1/month**. The TRA is of the view that Omantel's proposed prices are not aligned with the goals of National Broadband Strategy of the Government, as

these are significantly higher than the reference international prices without any justifications provided by Omantel.

The reasonability of the value obtained by the TRA is further validated by Telegeography's 2015 report on International IP Capacity prices as presented below:

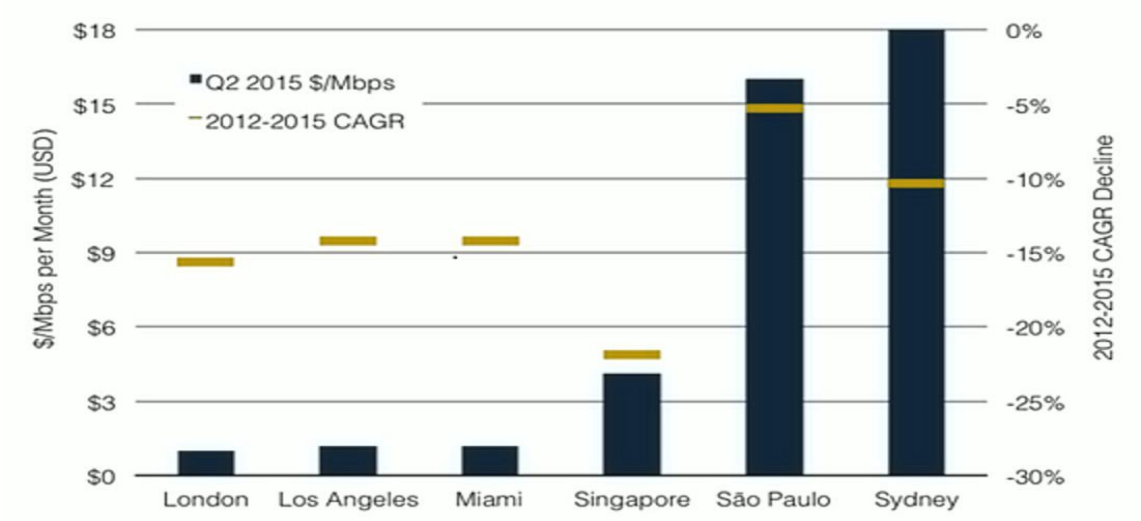

Exhibit 3.4: Average costs per Mbps for the International IP Capacity service, 2015 [Source: Telegeography[4]]

The adjusted figure of 8.64 OMR/Mbps (equivalent to 22.43 USD/Mbps) would thus be closer to the figures observed in Säo Paulo or Sydney, while still above them as Muscat is not an international hub comparable to the other references. For capacities other than STM1, Omantel shall use the ceiling charge of 8.64 OMR/Mbps.

3.14. C-FA 14. Access to Landing Station

3.14.1. Access to Landing Station – NRC

Omantel proposed a NRC for the setup of the access to a Landing Station of 8,180 OMR based on the product of the man-hours needed to provide the service (q) and the price per man-hour (p). The paragraphs below provide further indications on the treatment of each of these two variables:

- The review of the man-hour rates (p) conducted by the TRA has led to some adjustments in the figures reported by Omantel. 0 Annex B of this Decision provides further detail on the figures reported by Omantel and the adjustments introduced by the TRA.
- The average number of hours required to provide the service (q) are presented below and have been accepted by the TRA:

[4] "*IP Transit Prices Continue Falling, Major Discrepancies Remain*", September 9, 2015.

Activity	Average hours
VP discussion with the team, reviewing the order, etc.	2
Site Survey with GM, SM & PM:	-
GM	4
Senior M	4
Engineer (Elec, Trans, Cooling)	12
Project M	4
Engineering Work for front & Back office	4
Staff presence during co-location:	-
Engineer	16
PM	16

Table 3.22: Man-hour dedication in the setup of the access to a Landing Station [Source: Omantel]

At the same time, Omantel applied an overhead factor of 1.43 (coping with the royalty fee, its expected margin and taxation) on top of the pxq calculation. As outlined in Section B.3 of Annex B of this Decision, the overhead factor has been adjusted to consider only the admin overhead expenses and the 10% royalty fee, leading to an adjusted factor of 1.16.

Considering the adjustments introduced in the man-hour rates and in the overhead factor (alternative (vi) identified in section 2.8), the TRA comes up with an applicable charge of **1,915 OMR**.

3.14.2. Access to Landing Station - MRC (Per SQR meter)

Omantel proposed a monthly charge per sqm for the access to landing stations of 999 OMR, which was calculated following the steps described below that were shared with the TRA:

1. The investment for Omantel's landing station in Barka was taken as a reference for the calculation of the colocation cost. Omantel's justification for the use of this station is that it was built the most recently and with newer technologies and, consequently, would be the most representative of the cost incurred today. The investment costs were justified by Omantel through contracts provided to the TRA.
2. The investment was annualized considering a useful life of 10 years.
3. The cost of capital was extracted as the product of the WACC (considered at 12.40%) and the investment.
4. The total annualised cost was obtained as the sum of the annualised investment and the cost of capital.
5. The effective colocation area was used to obtain a monthly cost per sqm.

6. Marketing, administrative and O&M costs were added as a mark-up over the cost per sqm obtained in the previous step.
7. Finally, an overhead factor of 1.43 was applied to obtain the final monthly cost per sqm.

Having reviewed the calculation presented by Omantel, the TRA has deemed it appropriate to perform a series of modifications to better represent the cost effectively incurred by Omantel and which are described below:

1. Omantel applied the WACC to the GBV of the assets, which implicitly considers that these assets would not be depreciated at all (GBV=NBV) as the WACC needs to be applied to the NBV of the assets. Considering a linear replacement of the assets and full alignment with its useful lives, the resulting average NBV should be equal to ½ of the GBV. Consequently, Omantel's calculation has been adjusted to ensure the WACC is only applied to ½ of the GBV (theoretical level of the NBV)
2. The WACC value has been updated to 12.07%, to ensure its alignment with the value considered by Omantel in its TD-LRIC Model.
3. Marketing and vendor O&M expenses are not considered to be applicable for the calculation of the cost of this service. Additionally, administration costs are already considered in the overhead factor and should not be considered twice.
4. The TRA included other costs (electricity, water, cleaning, etc.) that had not been considered by Omantel by relying on the information provided by Omantel for the Earth Station.
5. Finally, the overhead factor has been adjusted to 1.16, as detailed in Section B.3 of Annex B of this Decision.

Applying the adjustments detailed above, the TRA comes up with an applicable charge for the service of **729 OMR/month/sqm** (alternative (vi) identified in section 2.8).

3.15. C-FA 15. Access to Earth Station

3.15.1. Access to Earth Station – NRC

Omantel proposed a NRC for the setup of the access to an Earth Station of 6,750 OMR based on the product of the man-hours needed to provide the service (q) and the price per man-hour (p). The paragraphs below provide further indications on the treatment of each of these two variables:

- The review of the man-hour rates (p) conducted by the TRA has led to some adjustments in the figures reported by Omantel. Annex B of this Decision provides further detail on the figures reported by Omantel and the adjustments introduced by the TRA.
- The average number of hours required to provide the service (q) are presented below and have been accepted by the TRA:

Activity	Average hours
Site Survey with GM, SM & PM:	-
Senior M	4
Engineer (Elec, Trans, Cooling)	12
Project M	4
Engineering Work for front & Back office	4
Staff presence during co-location:	-
Engineer	16
PM	16

Table 3.23: Man-hour dedication in the setup of the access to an Earth Station [Source: Omantel]

At the same time, Omantel applied an overhead factor of 1.43 (coping with the royalty fee, its expected margin and taxation) on top of the pxq calculation. As outlined in Section B.3 of Annex B of this Decision, the overhead factor has been adjusted to consider only the admin overhead expenses and the 10% royalty fee, leading to an adjusted factor of 1.16.

Considering the adjustments introduced in the man-hour rates and in the overhead factor (alternative (vi) identified in section 2.8), the TRA comes up with an applicable charge of **1,500 OMR**.

3.15.2. Access to Earth Station - MRC (Per SQR meter)

Omantel proposed a monthly charge per sqm for the access to Earth Station of 510 OMR which was calculated following the steps described below that were shared with the TRA:

1. The total CAPEX for the Earth Station was used as starting point for the calculation.
2. The investment was annualized considering a useful life of 6 years.
3. The cost of capital was extracted as the product of the WACC (considered at 12.40%) and the investment.
4. The total annualised cost is obtained as the sum of the annualised investment and the cost of capital.
5. An OPEX component is calculated by computing the costs represented by marketing, administrative and O&M functions as a percentage of the annualized cost. At the same time, other costs such electricity, water, cleaning, power, maintenance, are also taken into consideration.
6. The total cost per year is obtained as the sum of the annualized CAPEX and the OPEX.
7. An overhead factor of 1.32 is applied, taking account of the 7% royalty fee, a 15% margin and 15% of taxation.
8. The effective colocation area is used to obtain a monthly charge per sqm.

The TRA has adjusted this calculation, introducing the following modifications:

1. Omantel applied the WACC to the GBV of the assets, which implicitly considers that these assets would not be depreciated at all (GBV=NBV) as the WACC needs to be applied to the NBV of the assets. Considering a linear replacement of the assets and full alignment with its useful lives, the resulting average NBV should be equal to ½ of the GBV. Consequently, Omantel's calculation has been adjusted to ensure the WACC is only applied to ½ of the GBV (theoretical level of the NBV)
2. The WACC value has been updated to 12.07%, to ensure its alignment with the value considered by Omantel in its TD-LRIC Model.
3. Marketing and sales expenses should not be included in the calculation of any sort of wholesale charges. Additionally, administration costs are already considered in the overhead factor and should not be considered twice.
4. The OPEX costs reported by Omantel have been adjusted according to the contracts provided by Omantel.
5. Finally, the overhead factor has been adjusted to 1.16, as detailed in Section B.3 of Annex B of this Decision.

After applying the adjustments detailed above, the TRA comes up with an applicable charge for the service of **302 OMR/month/sqm** (alternative (vi) identified in section 2.8).

3.16. C-FA 16. Access to Data Center

3.16.1. Access to Data Station – NRC

Refer to section 3.15.1. Same considerations apply here. The applicable wholesale charge is **1,500 OMR**, obtained using alternative (vi) identified in section 2.8.

3.16.2. Access to Data Station - MRC (Per SQR meter)

Refer to section 3.15.2. Same considerations apply here. The applicable wholesale charge is **302 OMR**, obtained using alternative (vi) identified in section 2.8.

3.17. C-FI 01. Fixed Ancillary Services

3.17.1. Establishment of a Point of Interconnection - Price Once

Omantel proposed a NRC for the establishment of a point of interconnection of 3,500 OMR, although it did not provide any valid documentation to support its calculation.

Alternatively, the TRA notes that the charge proposed by Omantel seems to be high compared with the figures registered in other countries, as represented below:

Country	Charge in OMR
Romania	246.20
France	638.94
Average	**442.57**

Table 3.24: International benchmark on charge for establishment of a point of interconnection [Source: TRA's benchmark, see Annex C]

Consequently, and given that no information on this service is available in the cost models, the TRA has to resort to the international benchmark to estimate a reasonable charge. Given that the cost for the provision of this service should not depend heavily on Omani specificities, the use of international references is perceived as a valid reference. Applying the 10% royalty fee to the above average price, the TRA comes up with an applicable charge of **492 OMR** for the service (alternative (vii) identified in section 2.8).

3.17.2. Maintenance of a Point of Interconnection - Annually up front

Omantel proposed an annual charge for the maintenance of a point of interconnection of 700 OMR.

This charge was obtained by Omantel from the annual O&M cost of the equipment at a point of interconnection, which it divided between four (4) operators. Omantel provided the relevant price list from its supplier to the TRA, which validated the O&M cost used by Omantel in its calculation.

Consequently, the TRA agrees with an applicable charge of **700 OMR/year** for the service (alternative (i) identified in section 2.8).

3.17.3. Fixed Port Capacity (2 Mb/s) - NRC per port

Omantel proposed a NRC per 2 Mb/s port of 100 OMR, although it did not provide any valid documentation to support its calculation.

The TRA however notes that the charge of 100 OMR proposed by Omantel would be aligned with the applicable fee in other countries such as Romania (121 OMR).

Consequently, the TRA agrees with an applicable charge of **100 OMR/port** for the service (alternative (i) identified in section 2.8).

3.17.4. Fixed Port Capacity (2 Mb/s) - MRC per port

Omantel proposed a monthly charge per 2 Mb/s port of 15 OMR which was calculated following the steps described below that were shared with the TRA:

1. The total cost of equipment maintenance in Omantel's network for the period 2016-2019 is used to obtain the annual cost of the network maintenance. Contracts from Omantel's suppliers were provided to the TRA in order to validate this maintenance cost.
2. The cost of maintenance associated to E1 links is taken to be 2% of the total maintenance cost.

3. The total cost of maintenance associated to E1 links is finally divided by the number of E1 links to obtain a cost per E1 per month.

Even though Omantel provided contracts to justify the total maintenance cost, it failed to justify the 2% factor used as well as the number of E1 links. The TRA was however able to verify that the charge proposed by Omantel would be aligned with the applicable fee in other countries such as Romania (16.61 OMR).

Consequently, the TRA agrees with an applicable charge of **15 OMR/month/port** for the service (alternative (i) identified in section 2.8).

3.17.5. Fixed Port Capacity (2 Mb/s) - Disconnection fee per port

Omantel proposed a disconnection fee per 2 Mb/s port of 70 OMR, although it did not provide any valid documentation to support its calculation.

The TRA considers this charge to be unreasonably high for the provision of a simple service. At the same time, it is of view that the amount of work required for the provision of the service should be similar to that of the activation of a line for wholesale line rental (section 3.5.2).

Considering the NRC per line for WLR, the TRA comes up with an applicable charge of **15 OMR** for the service.

3.17.6. Basic Block and Expansion Colocation

Omantel proposed the monthly charges presented in the table below for basic blocks and expansion blocks, without any supporting documentation or calculation justifying these values.

Category	Service	Charge in OMR
Basic Block and Expansion Colocation	Basic Block 63 x 2 Mb/s Customer Interface	400
	Basic Block 1 x STM-1 Customer Interface	500
	Expansion Block 63 x 2 Mb/s Customer Interface	250
	Expansion Block 1 x STM-1 Customer Interface	320

Table 3.25: Omantel's proposed charges for basic blocks and expansion blocks colocation [Source: Omantel]

At the same time, given the reduced materiality of these services it was not feasible for the TRA to either (i) conduct a benchmark, given that these services are not found in other reference offers or (ii) perform a robust and accurate calculation of the cost of these services.

However, the TRA deems the charges proposed by Omantel reasonable and, given the reduced materiality of these services, has decided to accept the charges proposed by Omantel.

3.17.7. Number Ranges Implementation within a time frame - NRC per order

Omantel proposed a NRC for number implementation within a time frame of 480 OMR, although it did not provide any valid documentation to support its calculation.

At the same time, given the reduced materiality of these services it was not feasible for the TRA to either (i) conduct a benchmark, given that these services are not found in other reference offers or (ii) perform a robust and accurate calculation of the cost of these services.

The TRA however deems this charge to be reasonable and consequently, accepts the charge of **480 OMR** proposed by Omantel for the service.

3.17.8. Number Ranges Implementation at a specified time - NRC per order

Omantel proposed a NRC for number implementation at a specified time of 960 OMR, although it did not provide any valid documentation to support its calculation.

At the same time, given the reduced materiality of these services it was not feasible for the TRA to either (i) conduct a benchmark, given that these services are not found in other reference offers or (ii) perform a robust and accurate calculation of the cost of these services.

The TRA however deems this charge to be reasonable and consequently, accepts the charge of **960 OMR** proposed by Omantel for the service.

3.18. C-FI 02. Fixed Call-by-Call Carrier Selection

3.18.1. Setup Fee-Fixed Call by Call Carrier selection - Setup Fee

Omantel proposed a setup fee for Fixed Call-by-Call Carrier Selection of 2,989 OMR based on the product of the man-hours needed to provide the service (q) and the price per man-hour (p). The paragraphs below provide further indications on the treatment of each of these two variables:

- The review of the man-hour rates (p) conducted by the TRA has led to some adjustments in the figures reported by Omantel. 0 Annex B of this Decision provides further detail on the figures reported by Omantel and the adjustments introduced by the TRA.
- The average number of hours required to provide the service (q) are presented below and have been accepted by the TRA:

Activity	Average hours
Front & Back office	4
Technician/ Engineer work on programming, commissioning of the Soft switch	-
Technician	6
Engineer	6
Network assessment, development of routing tables	6
Billing Implementation	5
Wholesale Admin	2

Table 3.26: Man-hour dedication in the provision of Fixed Call-by-Call Carrier Selection service [Source: Omantel]

At the same time, Omantel applied an overhead factor of 1.43 (coping with the royalty fee, its expected margin and taxation) on top of the pxq calculation. As outlined in Section B.3 of Annex B of this Decision, the overhead factor has been adjusted to consider only the admin overhead expenses and the 10% royalty fee, leading to an adjusted factor of 1.16.

Considering the adjustments introduced in the man-hour rates and in the overhead factor (alternative (vi) identified in section 2.8), the TRA comes up with an applicable rate of **717 OMR**.

3.18.2. Call origination (Baiza/Min)

Omantel proposed a call origination charge of 2.53 baiza/min. Omantel obtained this figure by applying the old 7% royalty fee to a cost of 2.34 baiza/min extracted from its TD-LRIC system. However, the results of the TD-LRIC system already include the royalty fee component, which should consequently not be added to the LRIC output.

Adjusting the TDLRIC charge by applying the additional 3% fee (from 7% to 10%) which was not reflected in the cost of 2.34 baiza/min, the TRA comes up with an applicable charge of **2.42 baiza/min** (alternative (vi) identified in section 2.8).

3.19. C-FI 03. Fixed Carrier Pre Selection

3.19.1. Setup Fee-Fixed CPS Setup - Setup Fee

Refer to section 3.18.1. Same considerations apply here. The applicable wholesale charge is **717 OMR** (obtained using alternative (vi) identified in section 2.8), which is aligned with the figures registered in other countries as represented below:

Country	Charge in OMR
Bahrain	2,304.29
Poland	1,172.20
France	252.34
Jordan	943.68
Pakistan	1,102.50
Average	**1,155.00**

Table 3.27: International benchmark on setup fee for fixed carrier pre-selection [Source: TRA's benchmark, see Annex C]

3.19.2. Setup Fee-Fixed CPS Setup - Change fee per subscriber

Omantel proposed a change fee per subscriber for Fixed Carrier Pre-Selection of 72 OMR, following the same calculation process as detailed in section 3.1.2.

Considering the adjustments introduced in the man-hour rates and the overhead factor, the TRA came up with a corrected charge of 15 OMR for the service. However, this value would not be aligned with the charges registered in other countries, as presented below:

Country	Charge in OMR
Bahrain	2.57
Poland	0.63
Average	**1.60**

Table 3.28: International benchmark on change fee per subscriber for fixed carrier pre-selection [Source: TRA's benchmark, see Annex C]

At the same time, the TRA understands that the amount of time required to perform this activity should actually be lower than the 1 hour reported by Omantel, given the simplicity of the task to be performed.

Consequently, and given that no information on this service is available in the cost models, the TRA has to resort to the international benchmark to estimate a reasonable charge. Given that the cost for the provision of this service should not depend heavily on Omani specificities, the use of international references is perceived as a valid alternative. Applying the 10% royalty fee to the above average price, the TRA comes up with an applicable charge of **2 OMR** for the service (alternative (vii) identified in section 2.8).

3.19.3. Call origination (Baiza/Min)

Refer to section 3.18.2. Same considerations apply here. The applicable wholesale charge is **2.42 baiza/min**, obtained using alternative (vi) identified in section 2.8.

3.20. C-FI 04. Call Origination for Non-Geographic Calls

3.20.1. Call origination (Baiza/Min)

Refer to section 3.18.2. Same considerations apply here. The applicable wholesale charge is **2.42 baiza/min**, obtained using alternative (vi) identified in section 2.8.

3.21. C-FI 05. Outgoing International Calls

3.21.1. International Outgoing Transit (Baiza/Min)

Omantel proposed an international outgoing transit fee of (in baiza/min):

1.75 + International leg + Termination party charges + Admin + Royalty + Tax

The TRA recognises that the 1.75 figure is aligned with the results it extracts from its own BU-LRIC model. However, the TRA does not see the applicability of an additional Admin, Royalty and tax charge to this service as explained in section 3.5.4.

Consequently, the TRA decided that the following approach is to be adopted in the definition of the applicable wholesale charge for the service:

1.75 baiza/min + International leg + Termination party charges

At the same time, Omantel is expected to explain in its Final Draft RAIO how the international leg charges and termination party charges will be determined and justified to the Requesting Party.

3.22. C-FI 06. Call to special fixed services

3.22.1. Emergency Services

Omantel proposed a charge for calls to emergency services of 2.24 bz/min. Omantel obtained this figure by applying the old 7% royalty fee to a cost of 2.07 baiza/min extracted from its TD-LRIC system. However, the results of the TD-LRIC system already include the royalty component, which should consequently not be added to the LRIC charge.

Alternatively, the TRA extracted the cost of this service from the BU-LRIC (1.58 baiza/min) and the TD-LRIC models (3.10 baiza/min). These figures fall within the expectable range extracted from the international benchmark, as it may be inferred from the table below:

Country	Charge in baiza/min
Bahrain	5.47
Italy	0.55
Jordan	4.24
Average	**3.42**

Table 3.29: International benchmark on charge for calls to emergency services [Source: TRA's benchmark, see Annex C]

Considering the above, the TRA has decided to set the wholesale charge based on the average of the BULRIC and TD-LRIC figures. This leads to an applicable wholesale charge of **2.34 baiza/min** for the service (alternative (ii) identified in section 2.8).

3.22.2. Directory Enquiry Services

Omantel proposed a charge for calls to directory enquiry services of 2.24 bz/min + 185.9 baiza/call.

While the 2.24 bz/min has already been adjusted to 2.34 bz/min in section 3.22.1 above, the amount to be charged per call needs to be analysed in detail in this case.

This fixed charge per call is based, as indicated by Omantel, on a subcontract reached with a third party for which Omantel pays 130 bz/call. The frame contract was provided to the TRA and properly validated.

On top of this 130 bz/call, Omantel applied an overhead factor of 1.43 which resulted in the 185.9 bz/call presented.

As outlined in Section B.3 of Annex B of this Decision, the TRA considers that an overhead factor of 1.16 should have been applied instead of the 1.43 mark-up. The consideration of this alternative overhead factor leads to a wholesale charge for the service of 150 bz/call.

Consequently, the applicable wholesale charge is **2.34 baiza/min + 150 baiza/call** (alternative (vi) identified in section 2.8).

3.22.3. Local Time Enquiry Services Local Number Enquiries

Refer to section 3.22.2. Same considerations apply here. The applicable wholesale charge is **2.34 baiza/min + 150 baiza/call**, obtained using alternative (vi) identified in section 2.8.

3.22.4. Local Time Enquiry Services International Number Enquiries

Refer to section 3.22.2. Same considerations apply here. The applicable wholesale charge is **2.34 baiza/min + 150 baiza/call**, obtained using alternative (vi) identified in section 2.8.

3.22.5. Local Time Enquiry Services Time in English and Arabic

Refer to section 3.22.2. Same considerations apply here. The applicable wholesale charge is **2.34 baiza/min + 150 baiza/call**, obtained using alternative (vi) identified in section 2.8.

3.22.6. Service Center Local Number Enquiries

Refer to section 3.22.2. Same considerations apply here. The applicable wholesale charge is **2.34 baiza/min + 150 baiza/call**, obtained using alternative (vi) identified in section 2.8.

3.23. C-FI 07. Pre-Paid Calling Cards Access Type 1

3.23.1. Pre-Paid Calling Cards Access Type 1 – NRC

Refer to section 3.18.1. Same considerations apply here. The applicable wholesale charge is **717 OMR**, obtained using alternative (vi) identified in section 2.8.

3.23.2. Call origination (Baiza/Min)

Omantel proposed a call origination charge for prepaid calling cards access - Type 1 of 138.35 baiza/min, which it extracted from its TD-FDC system. The TRA notes that according to the A&I regulation, TD-LRIC should have been used by Omantel.

At the same time, the TRA observed that Omantel is selling its retail voice services with pre-paid calling cards at 0.01-0.04 OMR/min (10-40 baiza/min). Considering an average applicable retail fee of 25 baiza/min and a minus of 32%, the TRA comes up with an applicable charge of **17 baiza/min**, which would allow the replicability of Omantel's retail tariffs (alternative (viii) identified in section 2.8).

3.24. C-FI 08. Pre-Paid Calling Cards Access Type 2

3.24.1. Setup Fee-Pre-Paid Calling Cards Access Type 2 – NRC

Refer to section 3.18.1. Same considerations apply here. The applicable wholesale charge is **717 OMR**, obtained using alternative (vi) identified in section 2.8.

3.24.2. Call origination (Baiza/Min)

Refer to section 3.18.2. Same considerations apply here. The applicable wholesale charge is **2.42 baiza/min**, obtained using alternative (vi) identified in section 2.8.

3.25. C-FI 09. Fixed Call Termination Service

3.25.1. Fixed call termination - National (Baiza/Min)

Omantel proposed a call termination tariff for Fixed Interconnection Services of 2.24 baiza/min.

Omantel obtained this figure by applying the old 7% royalty fee to a cost of 2.07 baiza/min extracted from its TD-LRIC system. However, the results of the TD-LRIC system already include the royalty component, which should consequently not be added to the LRIC charge.

At the same time, Omantel did not include the level of disaggregation required in Annex 3.1 of the A&I Regulation, which indicates that fixed termination charges should be sub-divided by tandem count and length.

Given the lack of valid information on that respect, the TRA resorted to the BU-LRIC and TD-LRIC models to extract fixed termination charges with the proper disaggregation. The results obtained from both sources are presented below:

Tandem count	BU-LRIC	TD-LRIC	Average
Single	1.57	3.06	**2.31**
Double	1.59	3.14	**2.36**
Long	1.64	3.47	**2.55**

Table 3.30: Fixed termination costs extracted from the BU-LRIC and TD-LRIC models [Source: TRA]

Given the reasonability of the results obtained from both sources and their alignment with the charge proposed by Omantel, the TRA considers the average figures above as the most suitable solution for this exercise.

Considering the above, the TRA has decided to set the following charges for the service (alternative (ii) identified in section 2.8):

- Single: **2.31 baiza/min**
- Double: **2.36 baiza/min**
- Long: **2.55 baiza/min**

3.25.2. Fixed call termination - International (Baiza/Min)

Omantel proposed a termination tariff for fixed international calls of 22.30 baiza/min without any supporting documentation to justify this rate.

At the same time, the TRA understands that this service would correspond to the termination in Omantel's network of a call brought from an international operator by the Requesting Party. As such, there would be no use of Omantel's international gateway and the charge for this service should be the same as national termination.

Based on the situation outlined above and considering the comments laid out in section 3.25.1, the TRA has decided to set the same wholesale rates as in section 3.25.1:

- Single: **2.31 baiza/min**
- Double: **2.36 baiza/min**
- Long: **2.55 baiza/min**

3.26. C-FI 10. Fixed Call Transit Service

3.26.1. Fixed call transit (Baiza/Min)

Omantel proposed a fixed call transit charge of 2.73 baiza/min, although it did not provide any valid documentation to support its calculation.

Omantel obtained this figure by applying the old 7% royalty fee to a cost of 2.53 baiza/min extracted from its TD-LRIC system. However, the results of the TD-LRIC system already include the royalty component, which should consequently not be added to the LRIC charge. The TRA also notes that the mapping between the TD and RAIO services used by Omantel for fixed transit has not been shared by Omantel.

At the same time, Omantel did not include the level of disaggregation required in Annex 3.1 of the A&I Regulation, which indicates that call transit charges should be sub-divided by tandem count and length.

The table below outlines the costs for Single and Double modalities of the fixed call transit service as extracted from the TRA's Bottom-Up LRIC model:

Tandem count	Baiza/min
Single	1.89
Double	1.95

Table 3.31: Fixed transit costs [Source: TRA's Bottom-Up LRIC Model]

Given that no information on this service could be extracted from Omantel's TD-LRIC system[5], the TRA decided to set the charge for the service based on the results of the Bottom-Up LRIC model (alternative (v) identified in section 2.8). That is, the charge of the Single Transit service is set at **1.89 baiza/min** and the charge of the Double Transit service is set at **1.95 baiza/min**.

[5] Omantel did not share its mapping between TD and RAIO services for fixed transit and the TRA was unable to find an equivalent service in Omantel's TD-LRIC.

4. TRA's Final Determination on Omantel's RAIO Charges for Mobile Services

This section includes TRA's analysis of proposed charges for mobile services included in Omantel's Second Draft RAIO and TRA's decision on the same.

4.1. C-MA 01. National Roaming Service

4.1.1. Setup Fee-National Roaming Services - NRC per Site

Omantel proposed an initial setup fee per site for National Roaming services of 2,031 OMR based on the product of the man-hours needed to provide the service (q) and the price per man-hour (p). The paragraphs below provide further indications on the treatment of each of these two variables:

- The review of the man-hour rates (p) conducted by the TRA has led to some adjustments in the figures reported by Omantel. Annex B of this Decision provides further detail on the figures reported by Omantel and the adjustments introduced by the TRA.
- The average number of hours required to provide the service (q) are presented below and have been accepted by the TRA:

Activity	Average hours
Front & Back office	3
Technician/ Engineer work on programming, commissioning of the Soft switch	-
Technician	3
Engineer	3
Network assessment, development of routing tables	5
Billing Implementation	3
Wholesale Admin	2

Table 4.1: Man-hour dedication per site in the setup of national roaming services [Source: Omantel]

At the same time, Omantel applied an overhead factor of 1.43 (coping with the royalty fee, its expected margin and taxation) on top of the pxq calculation. As outlined in Section B.3 of Annex B of this Decision, the overhead factor has been adjusted to consider only the admin overhead expenses and the 12% royalty fee, leading to an adjusted factor of 1.18.

Considering the adjustments introduced in the man-hour rates and in the overhead factor (alternative (vi) identified in section 2.8), the TRA comes up with an applicable wholesale charge of **485 OMR** for the service.

4.1.2. Services charges

The charges for national roaming services are calculated on the basis of the retail-minus pricing methodology as indicated in the A&I Regulation. Omantel proposed a minus of 12%.

After several requests, Omantel did not provide any valid arguments that would justify the figure presented. At the same time, the figure presented by Omantel was not aligned with the service-level disaggregation mandated in the A&I Regulation, as the same discount was proposed for all services priced under the retail minus methodology.

The retail minus discount has been adjusted by the TRA using information from Omantel's Top-Down system and following the methodology laid out in Annex 4 of the A&I Regulation which outlines that the applicable discount shall be calculated as follows:

$$Discount = \left(1 - \frac{avoidable\ cost\ per\ subscriber}{average\ revenue\ per\ retail\ subscriber}\right)$$

As stated in Article 2.1.(iii) of Annex 4 of the A&I Regulation for National Roaming Services, the average revenue per retail subscriber shall take account of both prepaid and post-paid subscribers. The total annual retail revenues were calculated from Omantel's Top-Down taking account of call services, SMS/MMS services and mobile data services. As per Article 2.2. of Annex 4 of the A&I Regulation, the calculation excluded any services not related to the ones provided to the Requesting Party, such as handset costs. Using the total number of prepaid and post-paid connections, the average revenue per retail subscriber was finally obtained.

As stated in Article 2.3 of Annex 4 of the A&I Regulation, avoidable costs shall be calculated on a per subscriber basis for the past year. These shall be based on the costs incurred by the Providing Party and shall take account only of the subscribers included in the calculation of the average revenue per retail subscriber. Consequently, avoidable costs have been calculated based on the same set of services considered in the revenue calculation, and has included cost components such as customer acquisition, sales, distribution, marketing, billing or customer care.

Considering the above, the retail-minus discount was calculated as per the formula laid out in the A&I regulation, which has led to a minus of **26%** (or equivalently, a discount of 74%) for National Roaming services in the consumer segment and **25%** (or equivalently, a discount of 75%) for National Roaming services in the corporate segment.

The TRA notes that the minus indicated above are a minimum discount and could be renegotiated between operators upon contract agreement subject to non-discrimination obligation.

In a second step, this discount shall be used to calculate the wholesale unit charges of each resale services in accordance with the formula below:

$$Wholesale\ unit\ price = average\ retail\ revenue\ per\ unit\ \times discount$$

The average retail revenue per unit shall be calculated on a quarterly backward-looking basis. In the post-paid sector, the revenues for product bundles shall be allocated to the component services in an objective and transparent way. In the prepaid sector, discounts and special offers should be allocated to services in an objective and transparent way. Ad hoc adjustments to retail prices shall also be reflected in the calculation of the average retail revenue per minute.

As stated in the A&I Regulation, the calculation of wholesale prices shall be updated on a quarterly basis and does not need to be included in the RAIO, although the detailed methodology for calculating the prices for wholesale services shall be subject to approval by the TRA. Omantel is, therefore, required to include a detailed methodology for calculating the prices for wholesale services in its Final Draft RAIO, after discussions and agreements with the licensees, for approval of the TRA. In case the agreement is not reached with the licensees, Omantel shall submit its proposed methodology for calculating the prices for wholesale services in its Final Draft RAIO, along with dissenting views of concerned licensees and Omantel's comments on such views.

4.2. C-MA 02. Mobile Access Services

4.2.1. Setup Fee-Mobile Access Services – NRC

Omantel proposed a setup fee for Mobile Access Services of 150,000 OMR, although it did not provide any valid documentation to support its calculation.

The set-up fee for mobile access services mainly involves reprogramming the main technical elements of an operators' network as well as the administrative tasks surrounding the process. Given the lack of documentation provided by Omantel, the TRA is impeded to perform a reasonable calculation which may lead it to achieve a reasonable charge for the service. Consequently, and as the only alternative available, the TRA has resorted to a benchmark to retrieve an estimate of the cost of the service. This benchmark is presented in Table 4.2 below.

Country	Charge (OMR)
Cyprus	41,565
Austria	85,192
Average	**63,378**

Table 4.2: International benchmark on setup fee for Mobile Access services [Source: Cyta's reference offer, Case No COMP/M.6497 – HUTCHISON 3G AUSTRIA/ORANGE AUSTRIA]

Given that the cost for the provision of this service should not depend heavily on Omani specificities, the use of international references is perceived as a valid alternative. Applying the 12% royalty fee to the average of the two references available in the public domain leads to an applicable wholesale charge for the service of **72,020 OMR** (alternative (vii) identified in section 2.8).

4.2.2. Services charges (National services and International Roaming)

The charges for Mobile Access services are calculated on the basis of the retail-minus pricing methodology, as indicated in the A&I Regulation. Omantel proposed a minus of 12% for national service and 2% for international roaming.

After several requests, Omantel did not provide any valid arguments that would justify the figures presented. At the same time, the figures presented by Omantel were not aligned with the service-level disaggregation mandated in the A&I Regulation, as the same discount was proposed for all services priced under the retail minus methodology (except for international roaming).

The retail minus discount has been adjusted by the TRA using information from Omantel's Top-Down system and following the methodology laid out in Annex 4 of the A&I Regulation which outlines that the applicable discount shall be calculated as follows:

$$Discount = \left(1 - \frac{avoidable\ cost\ per\ subscriber}{average\ revenue\ per\ retail\ subscriber}\right)$$

As stated in Article 2.1.(iii) of Annex 4 of the A&I Regulation for Mobile Access Services, the average revenue per retail subscriber shall take account of only prepaid subscribers. The total annual retail revenues were calculated from Omantel's Top-Down taking account of prepaid call services, prepaid SMS/MMS services and prepaid mobile data services. As per Article 2.2. of Annex 4 of the A&I Regulation, the calculation excluded any services not related to the ones provided to the Requesting Party, such as handset costs. Using the total number of prepaid connections, the average revenue per retail subscriber was finally obtained.

As stated in Article 2.3 of Annex 4 of the A&I Regulation, avoidable costs shall be calculated on a per subscriber basis for the past year. These shall be based on the costs incurred by the Providing Party and shall take account only of the subscribers included in the calculation of the average revenue per retail subscriber. Consequently, avoidable costs have been calculated based on the same set of services considered in the revenue calculation, and has included cost components such as customer acquisition, sales, distribution, marketing, billing or customer care.

Considering the above, the retail-minus discount was calculated as per the formula laid out in the A&I regulation, which has led to a minus of **23% for Resellers** (or equivalently, a discount of 77%) and **26% for Mobile Providers other than Resellers** (or equivalently, a discount of 74%) for national Mobile Access services in the consumer segment. Given that no prepaid customers exist in the corporate segment of Omantel's TD system, a specific minus could not be obtained for the corporate segment and the same minus as in the consumer segment shall apply.

For international roaming, the TRA was not able to obtain a separate minus given the low relevance of the service in the TDLRIC system. At the same time, the TRA deems Omantel's proposed figure reasonable and agrees on a minus for international roaming of **2% for Resellers and for Mobile Providers other than Resellers**.

The TRA notes that the minus indicated above are a minimum discount and could be renegotiated between operators upon contract agreement subject to non-discrimination obligation.

In a second step, this discount shall be used to calculate the wholesale unit charges of each resale services in accordance with the formula below:

$$Wholesale\ unit\ price = average\ retail\ revenue\ per\ unit\ \times discount$$

The average retail revenue per unit shall be calculated on a quarterly backward-looking basis.

As stated in the A&I Regulation, the calculation of wholesale charges shall be updated on a quarterly basis and does not need to be included in the RAIO, although the detailed methodology for calculating the prices for wholesale services shall be subject to approval by the TRA. Omantel is, therefore, required to include a detailed methodology for calculating the prices for wholesale services in its Final Draft RAIO, after discussions and agreements with the licensees, for approval of the TRA. In case the agreement is not reached with the licensees, Omantel shall submit its proposed methodology for calculating the prices for wholesale services in its Final Draft RAIO, along with dissenting views of concerned licensees and Omantel's comments on such views.

4.3. C-MI 01. Mobile Ancillary Services

4.3.1. Establishment of a Point of Interconnection - Price Once

Refer to section 3.17.1. Same considerations apply here, with the exception of the royalty fee which amounts to 12% for mobile services. The applicable wholesale charge is **503 OMR** for the service, obtained using alternative (vii) identified in section 2.8.

4.3.2. Maintenance of a Point of Interconnection - Annually up front

Refer to section 3.17.2. Same considerations apply here. The applicable wholesale charge is **700 OMR** for the service, obtained using alternative (i) identified in section 2.8.

4.3.3. Fixed Port Capacity (2 Mb/s) - NRC per port

Refer to section 3.17.3. Same considerations apply here. The applicable wholesale charge is **100 OMR/port** for the service, obtained using alternative (i) identified in section 2.8.

4.3.4. Fixed Port Capacity (2 Mb/s) - MRC per port

Refer to section 3.17.4. Same considerations apply here. The applicable wholesale charge is **15 OMR/month/port** for the service, obtained using alternative (i) identified in section 2.8.

4.3.5. Fixed Port Capacity (2 Mb/s) - Disconnection fee per port

Refer to section 3.17.5. Same considerations apply here. The applicable wholesale charge is **15 OMR** for the service.

4.3.6. Basic Block and Expansion Colocation

Refer to section 3.17.6. Same considerations apply here. The applicable wholesale charges are **400 OMR** for a basic block 63x2Mb/s, **500 OMR** for a basic block 1xSTM1, **250 OMR** for an expansion block 63x2Mb/s and **320 OMR** for an expansion block 1xSTM1.

4.3.7. Number Ranges Implementation within a time frame - NRC per order

Refer to section 3.17.7. Same considerations apply here. The applicable wholesale charge is **480 OMR** for the service.

4.3.8. Number Ranges Implementation at a specified time - NRC per order

Refer to section 3.17.8. Same considerations apply here. The applicable wholesale charge is **960 OMR** for the service.

4.4. C-MI 02. Mobile Interconnection Services

4.4.1. Call termination (Baiza/Min)

Omantel proposed a call termination tariff for Mobile Interconnection Services of 10.51 baiza/min.

Omantel obtained this figure by applying the old 7% royalty fee to a cost of 9.73 baiza/min extracted from its TD-LRIC system. However, the results of the TD-LRIC system already include the royalty component, which should consequently not be added to the LRIC charge.

The TRA notes that wholesale charge for mobile call termination in its BU-LRIC model is 4.0 baiza/min. The TRA also notes that the use of BU-LRIC model for determination of mobile termination rates is being practiced in many jurisdictions. For instance, Body of European Regulators for Electronic Communications (BEREC) in its report *"Termination rates at European level – January 2017"* [BoR (17) 101] indicated that in majority of countries BU-LRIC models are used to calculate mobile termination rates. In fact, these countries are applying the Pure BU-LRIC approach in determining the mobile termination rates. The TRA further notes that it has concluded in its 'Methodology Document on BU-LRIC Modelling' issued in April 2014 that currently there is no strong evidence that Pure LRIC levels are appropriate for the Omani market and thus it established the adoption of LRIC+ cost method for relevant wholesale services.

The adoption of a BU-LRIC model, instead of TD-LRIC model, is also essential to maximise the level of efficiency of the results obtained. Indeed, as laid out by the European Commission in its Recommendation on "Regulatory Treatment of Fixed and Mobile Termination Rates in the EU" [C(2009) 3359], "*The implementation of a bottom-up model is consistent with the concept of developing a network for an efficient operator whereby an economic/engineering model of an efficient network is constructed using current costs. It reflects the equipment quantity needed rather than that actually provided and it ignores legacy costs*".

The TRA also notes that by using the BU-LRIC model, the resultant charge of 4.0 baiza/min falls within the range registered in other nearby countries:

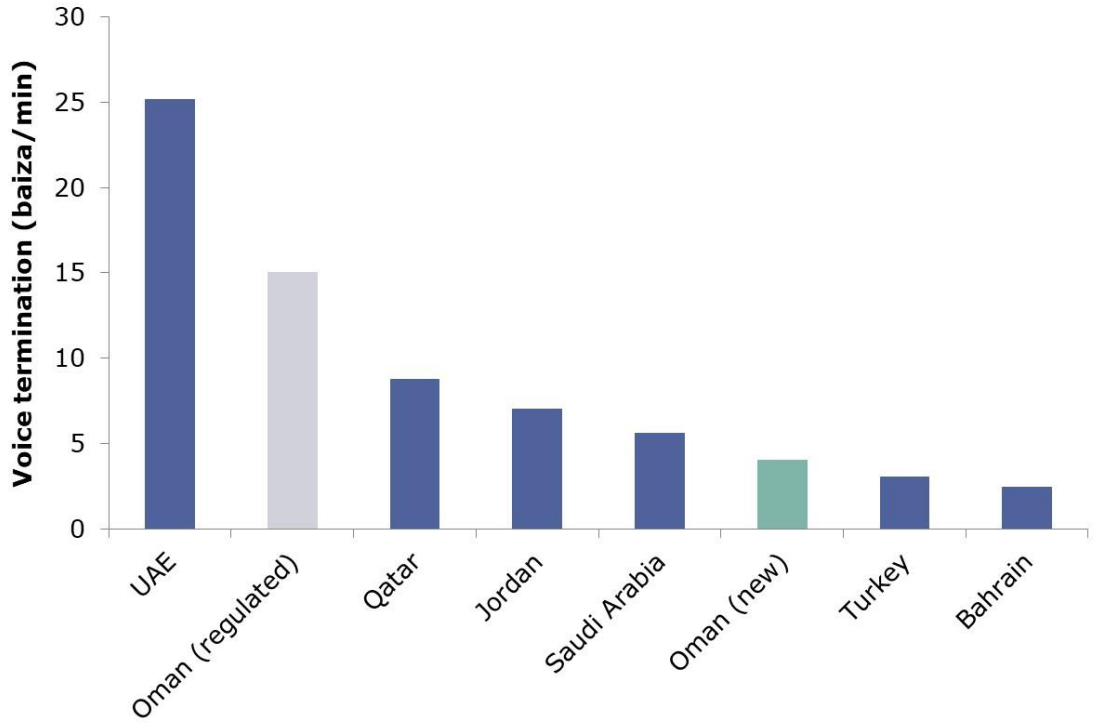

Exhibit 4.1: Comparison of the mobile voice termination rates applicable in other nearby countries [Source: TRA's internal MTR benchmark]

On the other hand, the results extracted from Omantel's TD-LRIC (i.e. 10.57 baiza/minute) fell above all the references considered except UAE (which is not a representative figure as it has not been updated the mobile termination rate since 2006).

Considering the above, the TRA has decided to set a mobile termination charge of 4.0 baiza/min using its BU-LRIC model (alternative (iii) identified in section 2.8).

At the same time, however, the TRA recognises that the new charge calculated for the service would be 73% below the currently applicable rate of 15 baiza/min. Therefore, in order to avoid any undesired impacts of this regulatory decision (e.g. waterbed effect), a glide path leads to the following charges for the service:

- Till 31st December 2018: **10.0 baiza/min**
- Till 31st December 2019: **8.0 baiza/min**
- Till 31st December 2020: **6.0 baiza/min**
- From 1st January 2021 onwards: **4.0 baiza/min**

4.4.2. SMS termination (Baiza/SMS)

Omantel proposed a SMS termination tariff of 0.83 baiza/SMS.

Omantel obtained this figure by applying the old 7% royalty fee to a cost of 0.77 baiza/min extracted from its TD-LRIC system. However, the results of the TD-LRIC system already include the royalty component, which should consequently not be added to the LRIC charge.

The TRA has decided to use the average of the results extracted from its own Bottom-Up model (0.59 baiza/SMS) and the TD-LRIC system (0.88 baiza/SMS), leading to an applicable charge for the service of **0.74 baiza/SMS** (alternative (ii) identified in section 2.8).

4.4.3. MMS termination (Baiza/MMS)

Omantel proposed a MMS termination tariff for Mobile Interconnection Services of 6.64 baiza/MMS, obtained by applying the old 7% royalty fee to a cost of 6.15 baiza/min extracted from its TD-LRIC system. However, the TRA notes that the results of the TD-LRIC system already include the royalty component, which should consequently not be added to the LRIC charge.

Alternatively, the TRA has decided to use the average of the results extracted from its Bottom-Up model (0.78 baiza/MMS) and the TD-LRIC system (7.26 baiza/MMS), leading to an applicable wholesale charge of **4.02 baiza/MMS** for the service (alternative (ii) identified in section 2.8).

4.5. C-MI 03. Mobile Call-by-Call Carrier Selection

4.5.1. Setup Fee-Mobile Call-by-Call Carrier selection – NRC

Refer to section 3.18.1. Same considerations apply here, with the exception of the overhead factor that should be adjusted to 1.18 considering the 12% royalty fee on mobile services. The applicable wholesale charge for the service is **733 OMR**, obtained using alternative (vi) identified in section 2.8.

4.5.2. Call origination (Baiza/Min)

Omantel proposed an origination tariff for Mobile Call-by-Call Carrier Selection of 12.42 baiza/min.

Omantel obtained this figure by applying the old 7% royalty fee to a cost of 11.5 baiza/min extracted from its TD-LRIC system. However, the results of the TD-LRIC system already include the royalty component, which should consequently not be added to the LRIC charge.

Alternatively, the TRA has decided to use the same ratio between origination and termination charges as for the equivalent fixed services. Extracting those charges from sections 3.18.2 (2.42 baiza/min) and 3.25.1 (2.31 baiza/min), the TRA comes up with a ratio of 1.048.

Applying this ratio to the termination charge of 4.00 baiza/min determined in section 4.4.1, the TRA comes up with an applicable charge of 4.20 baiza/min for this service.

As for voice termination, a glide path leads to the following charges for the service:

- Till 31st December 2018: **10.50 baiza/min**
- Till 31st December 2019: **8.40 baiza/min**
- Till 31st December 2020: **6.30 baiza/min**
- From 1st January 2021 onwards: **4.20 baiza/min**

4.6. C-MI 04. Mobile Carrier Pre Selection

4.6.1. Setup Fee-Mobile CPS Setup - Setup Fee

Refer to section 3.18.1. Same considerations apply here, with the exception of the overhead factor that should be adjusted to 1.18 considering the 12% royalty fee on mobile services. The applicable wholesale charge is **733 OMR** for the service, obtained using alternative (vi) identified in section 2.8.

4.6.2. Setup Fee-Change fee per subscriber - Setup Fee

Refer to section 3.19.2. Same considerations apply here, with the exception of the overhead factor that should be adjusted to 1.18 considering the 12% royalty fee on mobile services. The applicable wholesale charge is **2 OMR**, obtained using alternative (vii) identified in section 2.8.

The TRA notes that the charge of 2 OMR obtained from the international benchmark would be equal to the Mobile Number Portability fee applicable in Oman, which also amounts to 2 OMR. This result further reinforces the validity of the charge set by the TRA, as such relationships between CPS change fee and MNP fees can also be observed in the international practice.

4.6.3. Call origination (Baiza/Min)

Refer to section 4.5.2. Same considerations apply here. The applicable wholesale charge is **4.23 baiza/min**. As for voice termination, a glide path leads to the following charges for the service:

- Till 31st December 2018: **10.50 baiza/min**
- Till 31st December 2019: **8.40 baiza/min**
- Till 31st December 2020: **6.30 baiza/min**
- From 1st January 2021 onwards: **4.20 baiza/min**

5. TRA's Final Determination on Omantel's RAIO Charges for Other Services

This section includes TRA's analysis of proposed charges for 'Other Services' included in Omantel's Second Draft RAIO (section 35 of Annex M) and TRA's decision on the same.

5.1. Infrastructure services

The charges proposed by Omantel are presented in Table 5.1 below.

Service	Charge in OMR
Electrical Power - Installation Charges	2,000
Electrical Power - AC Power Charges (OMR/kWh)	0.033
UPS protected power - Installation Charges	2,000
UPS protected power - Protected Power UPS monthly charge (OMR/kVA)	24
Cable Pulling (100 meter) along with Ducts - NRC	2,975
Cable Pulling (100 meter) along with Ducts - MRC	446
Communication Earth (new Pit) - NRC	7,000
Communication Earth (new Pit) - MRC	275
Power Earth (new Pit) - NRC	7,000
Power Earth (new Pit) - MRC	275
MDF/DDF/Patch Panel Patching - NRC	2,083
MDF/DDF/Patch Panel Patching - MRC	275

Table 5.1: Omantel's proposed charge for other services [Source: Omantel]

Omantel obtained the proposed installation charge of 2,000 OMR for electrical power based on a contract for the supply and installation of a 460 kVA UPS system, from which it calculated the cost for the installation of a 9 kVA system (corresponding to the typical power for a rack) using the ratio of the power capacities. Omantel then applied an overhead factor of 1.43, resulting in a cost of 1,718 OMR (rounded up to 2,000 OMR).

The contract for the 460 kVA system has been provided by Omantel and its cost was validated by the TRA. At the same time, the overhead factor should be adjusted to 1.16 as described in Section B.3 of Annex B of this Decision. Introducing this modification in Omantel's calculation, the TRA comes up with an applicable charge of **1,394 OMR** for the service.

With the exception of the installation charges for power, Omantel did not provide any valid evidence to support its proposed charges. While Omantel provided some contracts in order to justify the charges for communication earth and power earth new pits and cable pulling, these were not matching with the charges proposed. At

the same time, given the reduced materiality of these services it was not feasible for the TRA to either (i) conduct a benchmark, given that these services were not found in other reference offers or (ii) perform a robust and accurate calculation of the cost of these services.

The TRA however deemed these charges reasonable and, consequently, has decided to accept the charges proposed by Omantel for the services other than power installation.

5.2. Man-hour rates for visits

Section B.1 of Annex B of this Decision provides detailed calculation for the adjusted hourly rates. These adjusted rates are presented in Table 5.2 below.

Employee	OMR/hour – Business hours[6]	OMR/hour – Non-business hours[7]
VP	77	92
General Manager	51	62
Senior Manager	30	36
Manager	18	22
Engineer/ Senior Expert	26	31
Technician	13	15

Table 5.2: TRA's applicable man-hour rates [Source: TRA]

These adjusted rates would also apply in the determination of the unfounded fault investigation charges presented in clause 9.10 of Annex H "*Ordering, Delivery, Fault Handling & Service Levels*" of Omantel's RAIO.

[6] Business hours: Sunday to Thursday (07.30 – 15.30), except public holidays
[7] Non-business hours: Sunday to Thursday after 15.30, full day on week-ends and public holidays

Annex A

Summary of the Applicable RAIO Charges

Based on TRA's views laid out in the different sections of this Decision, the table below provides a summarised vision of the new applicable charges for each of the RAIO services, in comparison with the charges proposed by Omantel:

Service Category	Service Name	Unit	Omantel Proposed Charge	TRA's Determined Charge
C-FA 01. Local Loop Unbundling	Initial Service setup fee Per MSAN	OMR/MSAN	1,387	385
	Per Customer loop charges - NRC	OMR/customer	72	15
	Per Customer loop charges - MRC	OMR/month/customer	15.51	12.80
C-FA 02. Local Loop Unbundling - Line sharing	Initial Service setup fee Per MSAN	OMR/MSAN	1,387	385
	Per Customer loop charges - NRC	OMR/customer	72	15
	Per Customer loop charges - MRC	OMR/month/customer	12.41	11.19
C-FA 03. Local Loop Unbundling- Sub Loop Unbundling	Initial Service setup fee Per MSAN	OMR/MSAN	1,387	385
	Per Customer loop charges - NRC	OMR/customer	72	15
	Per Customer loop charges - MRC	OMR/month/customer	11.63	7.16
C-FA 04. Colocation: indoor in Omantel buildings	NRC	OMR	1,087	296
	MRC	OMR/month/sqm	100	51
C-FA 05. Wholesale Line Rental	Initial Service setup fee	OMR/costumers	404.70	87.40
	Per Customer line charges - NRC	OMR/line	72	2
	Per Customer line charges - MRC	OMR/month/line	18.55	1.97

Service Category	Service Name	Unit	Omantel Proposed Charge	TRA's Determined Charge
	Voice call charges – National Voice Calls to Omantel Fixed	Baiza/min	Call origination + Call termination charges of the term. party + Admin + Royalty + Tax	Call origination + Call termination charges of the terminating party
	Voice call charges – International Calls	Baiza/min	Call origination + International Leg + The termination party charges + Admin + Royalty + Tax	Call origination + International Leg + The termination party charges
C-FA 06. Bitstream Layer 2	STM-1 on Metro Ring - NRC	OMR	5,534	1,421
	STM-1 on Northern Ring - NRC	OMR	5,534	1,421
	STM-1 on Eastern Ring - NRC	OMR	5,534	1,421
	STM-1 on Southern Ring - NRC	OMR	5,534	1,421
	Link fee per Customer	OMR/customer	72	15
	Per MSAN Charges per Slot	OMR/MSAN slot	72	15
	ADSL card per MSAN	OMR/card	1,857	1,217
	SDSL card per MSAN	OMR/card	1,429	872
	STM-1 on Metro Ring - MRC	OMR/month	14,531	8,956

Service Category	Service Name	Unit	Omantel Proposed Charge	TRA's Determined Charge
	STM-1 on Northern Ring - MRC	OMR/month	19,259	11,913
	STM-1 on Eastern Ring - MRC	OMR/month	10,837	6,752
	STM-1 on Southern Ring - MRC	OMR/month	14,603	8,948
	Link fee per Customer	OMR/month/customer	12.41	12.41
	Per MSAN Charges per Slot	OMR/month/slot	138	138
C-FA 07. Bitstream Layer 3	STM-1 on Metro Ring - NRC	OMR	5,534	1,421
	STM-1 on Northern Ring - NRC	OMR	5,534	1,421
	STM-1 on Eastern Ring - NRC	OMR	5,534	1,421
	STM-1 on Southern Ring - NRC	OMR	5,534	1,421
	Link fee per Customer	OMR/customer	72	15
	Per MSAN Charges per Slot	OMR/MSAN slot	72	15
	ADSL card per MSAN	OMR/card	1,857	1,217
	SDSL card per MSAN	OMR/card	1,429	872
	STM-1 on Metro Ring - MRC	OMR/month	14,531	8,956
	STM-1 on Northern Ring - MRC	OMR/month	19,259	11,913
	STM-1 on Eastern Ring - MRC	OMR/month	10,837	6,752
	STM-1 on Southern Ring - MRC	OMR/month	14,603	8,948
	Link fee per Customer	OMR/month/customer	12.41	12.41

Service Category	Service Name	Unit	Omantel Proposed Charge	TRA's Determined Charge
	Per MSAN Charges per Slot	OMR/month/slot	138	138
C-FA 08.	Wholesale Transmission		The Wholesale Trunk Segment of Leased Lines prices will be applicable	
C-FA 09	Internet Broadband Resale Service	Retail minus	12%	CON:21% COR:17%
C-FA 10. Wholesale Terminating Segment of Leased Line	Maximum distance 3KM (2Mb/s) - NRC	OMR/line	72	15
	Maximum distance 3KM (34Mb/s) - NRC	OMR/line	72	15
	Maximum distance 3KM (155Mb/s) - NRC	OMR/line	72	15
	Maximum distance 3KM (2Mb/s) - MRC	OMR/month/line	19	19
	Maximum distance 3KM (34Mb/s) - MRC	OMR/month/line	86	86
	Maximum distance 3KM (155Mb/s) - MRC	OMR/month/line	86	86
C-FA 11. Wholesale Trunk Segment of Leased Line (National)	Terrestrial Link Within exchange (2Mb/s) - NRC	OMR/line	100	100
	Terrestrial Link Within exchange (34Mb/s) - NRC	OMR/line	200	200
	Terrestrial Link Within exchange (155Mb/s) - NRC	OMR/line	200	200
	Terrestrial Link < 100 km (2Mb/s) - NRC	OMR/line	100	100
	Terrestrial Link < 100 km (34Mb/s) - NRC	OMR/line	200	200
	Terrestrial Link < 100 km (155Mb/s) - NRC	OMR/line	200	200

Service Category	Service Name	Unit	Omantel Proposed Charge	TRA's Determined Charge
	Terrestrial Link 101-300 km (2Mb/s) - NRC	OMR/line	100	100
	Terrestrial Link 101-300 km (34Mb/s) - NRC	OMR/line	200	200
	Terrestrial Link 101-300 km (155Mb/s) - NRC	OMR/line	200	200
	Terrestrial Link 301-400 km (2Mb/s) - NRC	OMR/line	100	100
	Terrestrial Link 301-400 km (34Mb/s) - NRC	OMR/line	200	200
	Terrestrial Link 301-400 km (155Mb/s) - NRC	OMR/line	200	200
	Terrestrial Link > 400 km (2Mb/s) - NRC	OMR/line	100	100
	Terrestrial Link > 400 km (34Mb/s) - NRC	OMR/line	200	200
	Terrestrial Link > 400 km (155Mb/s) - NRC	OMR/line	200	200
	Terrestrial Link Within exchange (2Mb/s) - MRC	OMR/month/line	192	192
	Terrestrial Link Within exchange (34Mb/s) - MRC	OMR/month/line	1,316	1,316
	Terrestrial Link Within exchange (155Mb/s) - MRC	OMR/month/line	2,313	2,313
	Terrestrial Link < 100 km (2Mb/s) - MRC	OMR/month/line	296	296
	Terrestrial Link < 100 km (34Mb/s) - MRC	OMR/month/line	1,334	1,334
	Terrestrial Link < 100 km (155Mb/s) - MRC	OMR/month/line	2,331	2,331
	Terrestrial Link 101-300 km (2Mb/s) - MRC	OMR/month/line	450	450

Service Category	Service Name	Unit	Omantel Proposed Charge	TRA's Determined Charge
	Terrestrial Link 101-300 km (34Mb/s) - MRC	OMR/month/line	1,410	1,410
	Terrestrial Link 101-300 km (155Mb/s) - MRC	OMR/month/line	2,407	2,407
	Terrestrial Link 301-400 km (2Mb/s) - MRC	OMR/month/line	605	605
	Terrestrial Link 301-400 km (34Mb/s) - MRC	OMR/month/line	1,708	1,708
	Terrestrial Link 301-400 km (155Mb/s) - MRC	OMR/month/line	2,981	2,981
	Terrestrial Link > 400 km (2Mb/s) - MRC	OMR/month/line	799	799
	Terrestrial Link > 400 km (34Mb/s) - MRC	OMR/month/line	1,826	1,826
	Terrestrial Link > 400 km (155Mb/s) - MRC	OMR/month/line	3,098	3,098
	Submarine Cable (National) Bandwidth (2Mb/s) - NRC	OMR/2 Mb/s	3,532	865
	Submarine Cable (National) Bandwidth (34Mb/s) - NRC	OMR/34 Mb/s	3,532	865
	Submarine Cable (National) Bandwidth (155Mb/s) - NRC	OMR/155 Mb/s	3,532	865
	Submarine Cable (National) Bandwidth (2Mb/s) - MRC	OMR/month/2 Mb/s	1,587	833
	Submarine Cable (National) Bandwidth (34Mb/s) - MRC	OMR/month/34 Mb/s	5,555	2,915
	Submarine Cable (National) Bandwidth (155Mb/s) - MRC	OMR/month/155 Mb/s	11,110	5,830
	ME Countries E1 - NRC	OMR/line	7,822	3,531

Service Category	Service Name	Unit	Omantel Proposed Charge	TRA's Determined Charge
C-FA 12. Wholesale Trunk Segment of Leased Line (IPLC)	Non-ME Countries E1 – NRC	OMR/line	7,822	3,531
	ME Countries DS3 – NRC	OMR/line	10,682	5,309
	Non-ME Countries DS3 – NRC	OMR/line	10,682	5,309
	ME Countries STM1 – NRC	OMR/line	13,542	7,087
	Non-ME Countries STM1 - NRC	OMR/line	13,542	7,087
	ME Countries E1 - MRC	OMR/month/line	7,410	5,205
	Non-ME Countries E1 - MRC	OMR/month/line	6,311	3,866
	ME Countries DS3 - MRC	OMR/month/line	32,044	22,177
	Non-ME Countries DS3 - MRC	OMR/month/line	27,552	16,250
	ME Countries STM1 - MRC	OMR/month/line	58,483	40,043
	Non-ME Countries STM1 - MRC	OMR/month/line	54,102	31,730
C-FA 13. IP International Bandwidth Capacity	Bandwidth (155Mb/s) - NRC	OMR	1,902	397
	Bandwidth (155Mb/s) - MRC	OMR/month	63,405	1,338
C-FA 14. Access to Landing Station	Landing to Landing Station - NRC	OMR	8,180	1,915
	Landing to Landing Station - MRC	OMR/month/sqm	999	729
C-FA 15. Access to Earth Station	Access to Earth Station - NRC	OMR	6,750	1,500
	Access to Earth Station - MRC	OMR/month/sqm	510	302
C-FA 16. Access to Data Center	Access to Data Station - NRC	OMR	6,750	1,500

Service Category	Service Name	Unit	Omantel Proposed Charge	TRA's Determined Charge
	Access to Data Station - MRC	OMR/month/sqm	510	302
C-FI 01. Fixed Ancillary Services	Point of Interconnection-Establishment of a Point of Interconnection	OMR	3,500	492
	Point of Interconnection-Maintenance of a Point of Interconnection	OMR/year	700	700
	Fixed Port Capacity Service (2Mb/s) - NRC	OMR/port	100	100
	Fixed Port Capacity Service (2Mb/s) - MRC	OMR/month/port	15	15
	Fixed Port Capacity Service (2Mb/s) - Disconnection fee per port	OMR/port	70	15
	Basic Block 63 x 2 Mb/s Customer Interface	OMR/month/block	400	400
	Basic Block 1 x STM-1 Customer Interface	OMR/month/block	500	500
	Expansion Block 63 x 2 Mb/s Customer Interface	OMR/month/block	250	250
	Expansion Block 1 x STM-1 Customer Interface	OMR/month/block	320	320
	Number Ranges Implementation-Number implementation within a time frame - NRC per order	OMR/order	480	480
	Number Ranges Implementation-Number implementation at a specified time - NRC per order	OMR/order	960	960

Service Category	Service Name	Unit	Omantel Proposed Charge	TRA's Determined Charge
C-FI 02. Fixed Call-by-Call Carrier Selection	Setup Fee-Fixed Call by Call Carrier selection - Setup Fee	OMR	2,989	717
	Call origination	Baiza/min	2.53	2.42
C-FI 03. Fixed Carrier Pre Selection	Setup Fee-Fixed CPS Setup - Setup Fee	OMR	2,989	717
	Setup Fee-Fixed CPS Setup - Change fee per subscriber	OMR/subscriber	72	2
	Call origination	Baiza/min	2.53	2.42
C-FI 04. Call Origination for Non-Geographic Calls	Call origination	Baiza/min	2.53	2.42
C-FI 05. Outgoing International Calls	International Outgoing Transit	Baiza/min	1.75 + International leg + the termination party charges + Admin + Royalty + Tax	1.75 + International leg + the termination party charges
C-FI 06. Call to special fixed services	Emergency Services	Baiza/min	2.24 Bz/min	2.34 Bz/min
	Directory Enquiry Services	Baiza/min + baiza/call	2.24 Bz/min + 185.9 Bz/call	2.34 Bz/min + 150 Bz/call
	Local Time Enquiry Services Local Number Enquiries	Baiza/min + baiza/call	2.24 Bz/min + 185.9 Bz/call	2.34 Bz/min + 150 Bz/call
	Local Time Enquiry Services International Number Enquiries	Baiza/min + baiza/call	2.24 Bz/min + 185.9 Bz/call	2.34 Bz/min + 150 Bz/call

Service Category	Service Name	Unit	Omantel Proposed Charge	TRA's Determined Charge
	Local Time Enquiry Services Time in English and Arabic	Baiza/min + baiza/call	2.24 Bz/min + 185.9 Bz/call	2.34 Bz/min + 150 Bz/call
	Service Center Local Number Enquiries	Baiza/min + baiza/call	2.24 Bz/min + 185.9 Bz/call	2.34 Bz/min + 150 Bz/call
C-FI 07. Pre-Paid Calling Cards Acces Type 1	Pre-Paid Calling Cards Acces Type 1 - NRC	OMR	2,989	717
	Call origination	Baiza/min	138.35	17
C-FI 08. Pre-Paid Calling Cards Access Type 2	Setup Fee-Pre-Paid Calling Cards Access Type 2 - NRC	OMR	2,989	717
	Call origination	Baiza/min	2.53	2.42
C-FI 09. Fixed Call Termination Service	Fixed termination - Single	Baiza/min	2.24	2.31
	Fixed termination - Double	Baiza/min		2.36
	Fixed termination - Long	Baiza/min		2.55
	Fixed Call Termination - International	Baiza/min	22.3	Single:2.31 Double: 2.36 Long: 2.55
C-FI 10. Fixed Call Transit Service	Fixed call transit - Single	Baiza/min	2.73	1.89
	Fixed call transit - Double	Baiza/min		1.95
C-MA 01. National Roaming Service	Setup Fee-National Roaming Services - NRC per Site	OMR/site	2,031	485
	Services charges	Retail minus	12%	CON:26% COR:25%
C-MA 02. Mobile Access Services	Setup Fee-Mobile Access Services - NRC	OMR	150,000	72,020

Service Category	Service Name	Unit	Omantel Proposed Charge	TRA's Determined Charge
	Services charges (National services and International Roaming)	Retail minus	12%	*National:* 23% for Resellers and 26% for other Mobile Providers *Internat.:* 2% for Resellers and for other Mobile Providers
C-MI 01. Mobile Ancilary Services	Point of Interconnection-Establishment of a Point of Interconnection	OMR	3,500	503
	Point of Interconnection-Maintenance of a Point of Interconnection	OMR/year	700	700
	Fixed Port Capacity Service (2Mb/s) - NRC per Port	OMR/port	100	100
	Fixed Port Capacity Service (2Mb/s) - MRC per Port	OMR/month/port	15	15
	Fixed Port Capacity Service (2Mb/s) - Disconnection fee per port	OMR/port	70	15
	Basic Block 63 x 2 Mb/s Customer Interface	OMR/month/block	400	400
	Basic Block 1 x STM-1 Customer Interface	OMR/month/block	500	500
	Expansion Block 63 x 2 Mb/s Customer Interface	OMR/month/block	250	250
	Expansion Block 1 x STM-1 Customer Interface	OMR/month/block	320	320

Service Category	Service Name	Unit	Omantel Proposed Charge	TRA's Determined Charge
	Number Ranges Implementation-Number implementation within a time frame - NRC per Level	OMR/level	480	480
	Number Ranges Implementation-Number implementation at a specified time - NRC per Level	OMR/level	960	960
C-MI 02. Mobile Interconnection Services	Call termination	Baiza/min	10.51	2018: 10.0 2019: 8.0 2020: 6.0 2021: 4.0
	SMS termination	Baiza/SMS	0.83	0.74
	MMS termination	Baiza/MMS	6.64	4.02
C-MI 03. Mobile Call by Call Carrier Selection	Setup Fee-Mobile Call by Call Carrier selection - NRC	OMR	2,989	733
	Call origination	Baiza/min	12.42	2018: 10.5 2019: 8.4 2020: 6.3 2021: 4.2
C-MI 04. Mobile Carrier Pre Selection	Setup Fee-Fixed CPS Setup - Setup Fee	OMR	2,989	733
	Setup Fee-Change fee per subscriber	OMR/subscriber	72	2
	Call origination	Baiza/min	12.42	2018: 10.5 2019: 8.4 2020: 6.3 2021: 4.2
Other services	Electrical Power - Installation Charges	OMR	2,000	1,394

Service Category	Service Name	Unit	Omantel Proposed Charge	TRA's Determined Charge
Other services	Electrical Power - AC Power Charges	OMR/kWh	0.033	0.033
Other services	UPS protected power – Installation Charges	OMR	2,000	1,394
Other services	UPS protected power - Protected Power UPS	OMR/kVA	24	24
Other services	Cable Pulling (100 meter) along with Ducts - NRC	OMR	2,975	2,975
Other services	Cable Pulling (100 meter) along with Ducts - MRC	OMR/month	446	446
Other services	Communication Earth (new Pit) - NRC	OMR	7,000	7,000
Other services	Communication Earth (new Pit) - MRC	OMR/month	275	275
Other services	Power Earth (new Pit) - NRC	OMR	7,000	7,000
Other services	Power Earth (new Pit) - MRC	OMR/month	275	275
Other services	MDF/DDF/Patch Panel Patching - NRC	OMR	2,083	2,083
Other services	MDF/DDF/Patch Panel Patching - MRC	OMR/month	275	275
Other services	Visit - Technician - Sunday to Thursday (07.30 - 15.30)	OMR/hour	50	13
Other services	Visit - Engineer - Sunday to Thursday (07.30 - 15.30)	OMR/hour	70	26
Other services	Visit - Project Manager - Sunday to Thursday (07.30 - 15.30)	OMR/hour	100	18
Other services	Visit - Senior Manager - Sunday to Thursday (07.30 - 15.30)	OMR/hour	120	30

Service Category	Service Name	Unit	Omantel Proposed Charge	TRA's Determined Charge
Other services	Visit - GM - Sunday to Thursday (07.30 - 15.30)	OMR/hour	150	51
Other services	Visit - VP - Sunday to Thursday (07.30 - 15.30)	OMR/hour	200	77
Other services	Visit - Technician - Sunday to Thursday (After 15.30, week-ends and Public Holidays)	OMR/hour	60	15
Other services	Visit - Engineer - Sunday to Thursday (After 15.30, week-ends and Public Holidays)	OMR/hour	85	31
Other services	Visit - Project Manager - Sunday to Thursday (After 15.30, week-ends and Public Holidays)	OMR/hour	120	22
Other services	Visit - Senior Manager - Sunday to Thursday (After 15.30, week-ends and Public Holidays)	OMR/hour	145	36
Other services	Visit - GM - Sunday to Thursday (After 15.30, week-ends and Public Holidays)	OMR/hour	180	62
Other services	Visit - VP - Sunday to Thursday (After 15.30, week-ends and Public Holidays)	OMR/hour	240	92

Table A.1: TRA's determined wholesale charges [Source: TRA]

Annex B

Adjustments to Omantel's Input Values

B.1 Man-hour rates

Omantel calculated the effective man-hour rates based on staff's gross monthly salary – including benefits applicable – and number of working hours per month, according to their position in the company.

Omantel also applied a so-called "uplift factor" onto the man-hour rates to cope with supporting administrative tasks and supporting activities that would be required on top of the effective work-time to perform the task and rounded it to somewhat higher figures. The result of this process is presented below, where the "*Rounded adjusted Man-Hour rate*" would represent the ones employed by Omantel in its calculations:

Employee	Man-hour rate	Uplift factor	Adjusted Man-Hour Rate	Rounded adjusted Man-Hour rate
VP	85	2.50	213	200
General Manager	57	2.00	114	150
Senior Manager	33	2.50	83	120
Manager	20	3.00	60	100
Engineer/ Senior Expert	28	2.33	66	70
Technician	14	3.00	43	50

Table B.1: Man-hour rates proposed by Omantel during business hours [Source: Omantel]

The hourly rates for visits after 15.30, on week-ends or public holidays include a 20% mark-up on top of the rates previously calculated for business hours.

The TRA considers that Omantel, while calculating the staff hourly rates, assumed the number of working days in a month at 20 which should have been 21.43 (calculated as 30 x 5/7). The TRA also considers that neither the uplift factor, nor the rounding introduced by Omantel have been duly justified and understands that the man-hours reported to perform the relevant activities would already include all the sub-tasks required to provide the service.

Taking the above into consideration, the table below lays out the man-hour rates that would have been obtained:

Employee	Man-hour rate proposed by Omantel	Man-hour rate determined by TRA
VP	200.00	76.88
General Manager	150.00	51.25
Senior Manager	120.00	29.90
Manager	100.00	17.94
Engineer/ Senior Expert	70.00	25.63
Technician	50.00	12.81

Table B.2: Adjusted man-hour rates [Source: Omantel, TRA]

B.2 Number of Man-hours

The Non-Recurrent Charges (NRCs) suggested by Omantel in its draft RAIO are based on the product of the man-hours needed to provide the service and the price per man-hour. Omantel provided two different submissions for these charges; one related to the values presented in its draft RAIO, and a different one upon TRA's requests for clarifications.

Omantel first submitted its RAIO model in Excel format, which contained the details of the man-hours and associated rates used to calculate the NRCs suggested in its draft RAIO, per service. However, two main issues were raised by the TRA concerning the calculations performed by Omantel:

- Firstly, the man-hour rates included 'rounding' and so-called 'uplift factors', which were not duly justified by Omantel (see B.1 above).
- Secondly, the activities listed did not include enough details to be able to assess the applicability and validity of the number of man-hours presented.

Consequently, the TRA requested Omantel to provide additional justifications on the inputs used.

In its answer to TRA's request, Omantel provided an annex which contained a more detailed list of the activities required for each service. Due to the list of activities being considered exhaustive in this second submission, Omantel indicated that it had removed the uplift factor and rounding and had used the effective man-hour rates. While the information in this second submission was more detailed than in the previous one, new concerns were raised by the TRA:

- Omantel changed its approach towards the pricing of the services, resulting in one-off charges which were not matching with and generally higher than the charges proposed in Omantel's draft RAIO.

- Omantel included a wide number of sub-activities to provide most of the one-off services along with the number of man-hours required for each of them, without providing justifications on their applicability and validity. Moreover, many of these sub-activities and their associated number of man-hours appeared to be hardly justifiable.
- While Omantel removed the 'rounding' and uplift factors in the man-hour costs, these appeared to be around 50% higher than the actual man-hour rates provided previously in its RAIO model. Omantel did not provide any justification concerning the increased man-hour rates.

Considering the above, the TRA has decided to use the original NRCs presented by Omantel in its draft RAIO along with any required adjustments, as it would not be legitimate to change the originally reported figures outside the due process. This approach also allows the TRA to be fair with all the stakeholders involved in the process. This decision was accentuated by the relevant drawbacks that would derive from the adoption of the second alternative set of NRCs presented by Omantel.

B.3 Overhead factor for overhead costs

Omantel calculated an overhead factor to cope for different kinds of overheads which was generally applied on top of the services' calculated costs. This overhead factor was calculated as follows:

$$Factor = \frac{1}{1 - (Royalty + Margin \cdot (1 + taxation))}$$

Taking into account a 7% royalty fee, a proposed margin of 20% and a taxation of 15%, Omantel came up with an overhead factor of 1.43.

The TRA recognises that the '*Margin*' can't be applied as such in the determination of wholesale charges, given that it should be replaced by the consideration of the applicable WACC which, additionally, applies only to capital-related costs. At the same time, recognising that most of the costing information should come from TD-LRIC and/or BU-LRIC models, which would already cope for this component, its consideration as part of this calculation would only result in a double-counting of these costs.

At the same time, given that the WACC applied in the models is before taxes, no taxation overheads need to be included in this sort of calculations.

Despite the above, the TRA does recognise that an "*Admin Cost*" component accounting for overhead costs linked to the provision of wholesale services to the requesting party, such as contracting or invoicing, should be taken into consideration. The percentage of these costs over the total cost base was reported by Omantel to be 4%, a figure which has been deemed appropriate by the TRA.

Considering the previous indications, the TRA adjusted the way in which this overhead factor was calculated by adopting the formula presented below:

$$OverheadExpensesFactor = \frac{1 + Admin\ Cost}{1 - Royalty}$$

Taking into account the new 10% royalty fee on fixed services and 12% royalty fee on mobile services and the percentage of administrative expenses provided by Omantel (4%), the TRA comes up with a value for the overhead factor of **1.16** for fixed services and **1.18** for mobile services.

B.4 TRA's adjustments to Omantel's TD-LRIC system

Omantel based some of its suggested RAIO charges on the results of its updated TD-LRIC model for 2015. In order to be able to assess the validity of Omantel's proposed RAIO charges, the TRA reviewed Omantel's 2015 TD-LRIC model.

As a result of this review, the TRA concluded that the TD model developed by Omantel was overall compliant with the cost accounting principles, directives and methodologies mandated by the TRA in its Accounting Separation Framework. Notwithstanding the above, in the course of the review certain discrepancies were identified between the procedures used by Omantel and the guidelines set out in TRA's Accounting Separation Framework, which made it necessary to introduce adjustments to Omantel's TD model. These issues were related to the following areas:

(i) Allocation factors:

- Inaccurate drivers for the allocation of mobile network elements
- Oversimplified driver for the allocation of mobile radio equipment
- Incorrect on-net traffic for allocations at stage F
- Missing royalty fee allocation at stage G

(ii) CCA valuations:

- Misalignment of eNodeBs' unit costs with their HCA valuation
- Misalignment of SRANs 2G's unit costs with their HCA valuation
- Non-representative towers' unit costs with respect to their associated height range
- Inappropriate index for PC terminals revaluation
- Non-representative MW links' valuation with respect to the actual network
- Misalignment of NodeBs' unit cost with their HCA valuation

(iii) Implementation of TD-LRIC:

- Consideration of CVRs as straight lines
- Arbitrary allocation of common costs

(iv) Definition of CVRs:

- Non-representative minimum point for SDH DWDM CVR
- Non-representative minimum point for Microwave Transmission CVR
- Imprecise points definition for IP Equipment CVR

Consequently and as a result of these adjustments, the TD-LRIC values extracted by the TRA will differ from those originally presented by Omantel when TD-LRIC sources are used as a reference to set the applicable wholesale charge.

The TRA also notes that while Omantel shared a mapping between TD-LRIC services and RAIO services as part of its last data submission, only a subset of the services for which Omantel claimed to have extracted costs from its TD-LRIC system were included. In those cases where the TRA could not identify by itself the corresponding service in the TD-LRIC system, other sources were used (e.g. BULRIC model).

Annex C

List of International References Considered

In line with the methodology followed by the TRA in its determination of the wholesale charges, it has made use of international benchmarks to assess the reasonability of Omantel's proposed charges. As part of this approach, the TRA has reviewed the applicable rates in a number of countries.

The countries covered in the benchmark have been included so as to achieve a sufficient representation of countries considered best practice (covering GCC, Middle East, American, Asian and European countries). The table below shows the list of countries that have been used for this analysis:

Region	Country
GCC and Middle East	Bahrain
	United Arab Emirates
	Jordan
Europe	Ireland
	Spain
	Romania
	Poland
	France
	United Kingdom
	Cyprus
	Italy
	Greece
	Portugal
Americas	Mexico
Asia	India
	Pakistan
TOTAL	**16**

Table C.1: List of countries included in the benchmark [Source: TRA]

The table below describes the specific sources that have been employed in each case, including the links to the relevant websites:

Country	Services	Reference Offer document	Date Released
Bahrain[8]	Fixed Access and Interconnection	Batelco's reference offer – Schedule 3	17/10/2016
	Mobile termination	Reference Offer Orders on Bahrain Telecommunications Company B.S.C., Viva Bahrain B.S.C, and Zain Bahrain B.S.C. setting the regulated call termination rates	17/09/2015
United Arab Emirates	Fixed Interconnection	Interconnection prices issued on TRA UAE's website	01/10/2015
Jordan	Fixed Interconnection	Regulatory decision on charges for fixed interconnection services based on TSLRIC+ models	16/11/2011
Ireland	LLU and Leased Lines	eircom Network Price List	01/01/2017
	Fixed Access	open eir Access Reference Offer	October 2016
	Bitstream	open eir Bistream Service Price List	February 2017
	Fixed Interconnection	open eir Reference Interconnect Offer	30/01/2017
Spain	Fixed Interconnection	Oferta De Interconexión De Referencia Sobre La Red Telefónica Conmutada De Telefónica De España	2016
	Leased Lines	Oferta De Referencia De Líneas Alquiladas De Telefónica De España	2012
	WLR	Oferta de Acceso Mayorista a la Línea Telefónica (AMLT)	June 2015
	LLU	Oferta de Acceso al Bucle de Abonado De Telefónica De España	November 2014
Romania	Fixed Interconnection	Oferta de Referință pentru Interconectare a Telekom Romania Communications S.A	March 2016
Poland	Fixed Interconnection	TP Access Reference Offer Concerning Interconnection	23/11/2012

[8] The annual turnover based royalty fee of 0.8% applicable in Bahrain has been subtracted for all Bahraini figures presented in this Decision.

Country	Services	Reference Offer document	Date Released
France	Fixed Interconnection	Offre de référence d'interconnexion d'Orange Téléphonie Fixe	21/09/2016
	Mobile Interconnection	Offre de référence d'interconnexion sur le réseau mobile métropolitain d'Orange	01/01/2017
	LLU	Offre d'accès à la boucle locale d'Orange	30/09/2016
United Kingdom	WLR	Openreach's website – WLR pricing	23/01/2017
	LLU	Openreach's website – Local Loop Unbundling pricing	23/01/2017
Cyprus	Mobile Access	Reference Offer for Access to the Mobile Network of Cyta	08/01/2016
Italy	Mobile Termination	Offerta Di Riferimento Di Telecom Italia - Servizio di terminazione delle chiamate vocali su rete mobile	28/10/2016
	Bitstream	Offerta Di Riferimento Di Telecom Italia - Servizi Bitstream e relativi servizi accessori	22/02/2016
	Leased Lines	Offerta Di Riferimento Di Telecom Italia - Servizi trasmissivi a capacità dedicata	30/10/2015
	Fixed Interconnection	Offerta Di Riferimento Di Telecom Italia - Servizi Di Raccolta, Terminazione E Transito Delle Chiamate Nella Rete Telefonica Pubblica Fissa	23/11/2016
	WLR	Offerta Di Riferimento Di Telecom Italia - Servizio Wholesale Line Rental	22/02/2016
Greece	LLU	OTE's Local Loop Unbundling Pricelist	05/10/2016
	Leased Lines	OTE's Wholesale Leased Lines Pricelist	05/10/2016
	WLR	OTE's Wholesale Line Rental Pricelist	05/10/2016
	Fixed Interconnection	OTE's Interconnection Pricelist	05/10/2016

Country	Services	Reference Offer document	Date Released
Portugal	LLU	PT - Oferta de Referência para Acesso ao Lacete Local (ORALL)	31/08/2016
	Leased Lines	PT - Oferta De Referência De Circuitos Alugados (Orca)	03/10/2016
	Fixed Interconnection	PT - Oferta de Referência de Interligação	04/01/2017
Mexico	Fixed and Mobile Interconnection	Acuerdo de tarifas de interconexión DOF – TelCel y TelMex	2016
	Leased Lines	Acuerdo mediante la cual el pleno del Instituto Federal de Telecomunicaciones aprueba el modelo de costos del servicio mayorista de arrendamiento de enlaces dedicados locales, entre localidades y de larga distancia internacional que prestará Teléfonos de México S.A.B. de C.V. y Teléfonos del Noroeste S.A. de C.V.	13/06/2016
	LLU	Oferta de Referencia para la Desagregación del Bucle Local (Telmex)	2016
India	Submarine Cable Interconnect	Submarine Cable Landing Station-Reference Interconnect Offer For the Cable Landing Station at LVSB, Prabhadevi, Mumbai (Tata Communications)	2007
Pakistan	Fixed Access and Interconnection	Pak Telecom's Reference Interconnect Offer for Fixed-Line Operators	2007

Table C.2: Description of the sources considered in the benchmark [Source: TRA]

Given the wide range of countries included in the benchmark analysis, multiple different currencies are registered in the definition of the wholesale charges applicable which need to be converted to OMR. In doing so, the average 2016 exchange rate between each pair of currencies has been extracted from Oanda as presented below:

Country	Currency	Exchange Rate (OMR/local currency)
Bahrain	Bahraini Dinar	1.021
United Arab Emirates	Emirati Dirham	0.105
Jordan	Jordanian Dinar	0.543
Ireland	Euro	0.426
Spain	Euro	0.426
Romania	Euro	0.426
Poland	Polish złoty	0.098
France	Euro	0.426
United Kingdom	British Pound	0.520
Cyprus	Euro	0.426
Italy	Euro	0.426
Greece	Euro	0.426
Portugal	Euro	0.426
Mexico	Mexican Peso	0.021
India	Indian Rupee	0.006
Pakistan	Pakistani Rupee	0.004

Table C.3: Exchange rates considered in the determination of the equivalent OMRs of the regulated charges observed internationally [Source: Oanda]

The TRA notes that the benchmark tables presented throughout this Decision have extracted all the valid information from the benchmarked countries presented above. However, it is likely that in several occasions only a reduced subset of countries was reported in the benchmark tables. This could be the result of the benchmarked service's cost not being reported in the other countries analysed.

Annex D

List of Modifications Introduced in BULRIC Models

This Annex lists the modifications introduced when updating the BULRIC models for fixed and mobile networks with latest data for 2015 so as to capture the actual realities of the market to the extent possible.

A.1. Model for mobile networks

The modifications introduced are:

(i) Inputs update based on the information provided by Omantel and Ooredoo, including:

- Demand
- Coverage
- Spectrum
- 2G/3G/4G technological split
- Royalty fees

(ii) Calculation of MVNO services' costs

(iii) Introduction of the dimensioning algorithms for the following resources: CCS/CPS Software and International Gateway (IGW)

(iv) Introduction of the relationships between BU model's services and RAIO services

A.2. Model for fixed networks

The modifications introduced are:

(i) Introduction of new RAIO services:

- Sub-loop unbundling
- Voice origination for prepaid calling cards
- Voice termination for international incoming calls
- MSAN charges per slot
- Split for the voice domestic transit between single and double

(ii) Inputs update based on the information provided by Omantel, including:

- Demand
- Royalty fees

(iii) Minor formula adjustments in worksheets "10H CALC SERVICES COST" and "6C CALC DIM CIVIL INFRAS"

(iv) Introduction of the dimensioning algorithms for the following resources: CCS/CPS Software, International Gateway (IGW) and Calling Card Platform (CCP)

(v) Introduction of the relationships between BULRIC model's services and RAIO services