The Hashemite Kingdom of Jordan

TELECOMMUNICATIONS REGULATORY COMMISSION

REPORT ON COMMENTS RECEIVED FOR THE CONSULTATION REGARDING THE CONSTRUCTION OF TSLRIC+ MODELS FOR THE COSTS OF INTERCONNECTION SERVICES

27 September 2009

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1 Introduction

The Telecommunications Regulatory Commission (TRC) has foreshadowed since 2005 its intent to move to a new cost basis for setting the rates for interconnection services. This cost basis is referred to as "Total Service Long-Run Incremental Cost Plus" (TSLRIC+). TSLRIC+ represents international best practice in setting interconnection rates.

On 11 June 2009, the TRC published a consultation document entitled "Notice Requesting Comments on the Construction of TSLRIC+ Models for the Costs of Interconnection Services".[1] This document outlined an approach to be adopted by the TRC in developing hybrid TSLRIC+ models for fixed and mobile operators in Jordan. It described the initial positions adopted by the TRC and indicated the TRC's preferences in respect of the most important issues to be addressed in the process of setting LRIC-based interconnection rates. It solicited comments about this approach from the industry.

Also on 11 June 2009, the TRC held an industry briefing and workshop to describe the TSLRIC+ project and the issues raised in the consultation document. The workshop was well attended by the industry.

The commentary period ran to 11 July 2009. The responses received were then published on the TRC website and operators were invited to provide further comments up to 3 August 2009.

In the initial period to 11 July 2009, responses were received from:

- Jordan Telecom Company ("Orange Fixed");
- Petra Jordan Mobile Telecommunication Company ("Orange Mobile");
- Umniah Mobile Company ("Umniah");
- Jordan Mobile Telephone Services Company ("Zain").

In the "comments on comments" period to 3 August 2009, two further responses were received from:

- Umniah Mobile Company;
- Zain Jordan.

In the consultation document, the TRC asked for responses, in particular, to 13 questions regarding the models and modelling process. This report summarises the answers to these questions and indicates the TRC's positions in response.

In addition, respondents took the opportunity to comment on other process matters and to raise issues that they believed should be acted upon by the TRC. While some of these issues are peripheral to the TSLRIC+ modelling process, they are reported here for completeness and to indicate the TRC's position in each case.

This report is structured as follows:

- Introduction
- Consultation and Modelling Process – reports the responses on the general consultation and modelling process and indicates the TRC's position;

[1] Telecommunications Regulatory Commission, "Notice Requesting Comments on the Construction of TSLRIC+ Models for the Costs of Interconnection Services", 11 June 2009; published on TRC website.

- Responses to Consultation Questions – summarises the answers to each consultation question and indicates the TRC's responses;
- Other Issues – reports on other issues raised by the operators and indicates the TRC's response in each case.

2 The Consultation and Modelling Process

The TRC has begun the process of constructing TSLRIC+ models for the calculation of interconnection rates. The consultation in June-August 2009 was an early step in this process and the TRC recognises that close co-operation with the industry will be required throughout.

While the project briefing on 11 June 2009 outlined a broad schedule for the project and emphasised the desire to work closely with industry, there were some process concerns raised by the respondents. These concerns are summarised in the following table.

Orange Fixed	Orange Mobile	Umniah	Zain
Revaluing assets to modern equivalent assets will take at least 8 months from the time the TRC requests this revaluation.	Revaluing assets to modern equivalent assets will take at least 6 months from the time the TRC requests this revaluation.	Need for further rounds of consultation on cost models and results. Outlines four stages of consultation. Seeks clarity on how interconnection rates will be set from models.	Need for further consultations on assumptions, details and setting of rates. TRC should only intervene *ex-post*. The results of the market review are required first. Timetable for production of models should be made public.

The TRC notes these concerns and reiterates its intention to consult with industry at each key stage of model development. In response to Orange's comments, it should be noted that the proposed hybrid modelling approach requires only the input of modern equivalent equipment prices, which can be completed in less than 6 months. The TRC is proposing the following schedule of stages for the development of the models, with specific consultation arrangements noted at each stage:

- Week of 27 September 2009: Issue of data requests;
- 18-22 October 2009: Discussion of data requests with operators (if required);
- 5 November 2009: Last date for submission of data;
- Week beginning 22 November 2009: Industry workshop to review data submitted and agree on treatment of missing data;
- Week beginning 31 January 2010: Industry workshop to present models and preliminary results;
- Week beginning 21 March 2010: Industry workshop to present final results, interconnection tariffs and implementation decisions.

The TRC also notes the concern that it should regulate interconnection rates only where there is evidence of market failure or the lack of effective competition. However, the legal basis for introducing LRIC already exists and has been detailed in the consultation document. Also, the TRC is undertaking a market review, at the conclusion of which it will enact the necessary revision of the current *ex-ante* obligations, including those related to interconnection. The models will provide estimates of interconnection costs for all interconnection services. For those services whose tariffs are not set by *ex-ante* regulation, the models will provide guidance on costs that can be used by the TRC in other ways including in *ex-post* regulation.

The TRC has outlined, in the consultation document, the considerations to be taken into account in setting tariffs from the model results. These include, in particular, the setting of glide paths from current rates to fully LRIC rates. Consideration of these matters will depend on the actual values determined by the models and their relationship with current values. The full details will therefore only be known once the models are complete.

3 Responses to Consultation Questions

The consultation document outlined the TRC's proposed position on TSLRIC+ modelling and solicited answers to 13 questions. This chapter lists each question in turn, summarises the responses received and describes the TRC's final position after consideration of the responses.

For details of the discussion leading to each question, the reader is referred to the consultation document.

Q2.1 It is proposed that, while the TRC decisions will be transparent and fully explained to licensees, the TRC's models would not be made public nor shared with the licensees. Do you agree with this proposal? If not, please give your reasoning.

Orange Fixed	Orange Mobile	Umniah	Zain
Stresses the importance of sharing all developed cost models with the relevant operator. Believes fixed model should be shared with Orange Fixed and emphasises detailed role in development. Quotes Law, ICT Policy and Instructions in support of sharing policy and transparency. Agrees that models should not be published.	Stresses the importance of sharing all developed cost models with the relevant operator. Believes relevant mobile model should be shared with Orange Mobile and emphasises detailed role in development. Quotes Law, ICT Policy and Instructions in support of sharing policy and transparency. Agrees that models should not be published.	Efficient operator models should be publicly available. Hybrid models of each operator should be shared with relevant operator. Further public consultations should also be held when models are built and when rates are proposed.	Efficient operator models may at TRC discretion be made public, but generic versions without confidential data. Efficient operator models with populated data should be disclosed to operators under non-disclosure agreements. Each operator should be provided with its populated hybrid model. Further public consultations should also be held on detailed assumptions and modelling approach.

After due consideration of the responses, the TRC concludes that transparency requires a more open approach to the models. The TRC concludes the following:

- The model for each operator will be disclosed to and fully discussed with that operator. The TRC will maintain ownership and control of the models, but each operator will have an opportunity to comment in detail on its model. Any data in the model that comes from a source other than the operator's own data may be omitted in order to maintain commercial confidentiality.
- The models of efficient fixed and mobile operators will be published on the TRC's website with any confidential data omitted. The TRC will ensure that no confidential operator data may be determined or inferred from the publication of these models.

The TRC notes that this approach fully complies with the Telecommunications Law and the TRC's procedures.

Q3.1 Do you see any continuing role for FAC models in the determination of charges for interconnection services? Please explain your view.

Orange Fixed	Orange Mobile	Umniah	Zain
Supports ongoing FAC models as source of top-down data for hybrid models.	Supports ongoing FAC models as source of top-down data for hybrid models. Ancillary services should use FAC model with MEAs.	Supports ongoing FAC models for wholesale services. Considers this proportionate: on-going costs small compared with benefits of using a stable system.	Supports retention of FAC models as check on TSLRIC models until such time as TSLRIC models are fully established and supported by operators

The TRC notes that the operators can continue to maintain their own FAC models should they wish. The TRC will be pleased to receive these models, if they are made available, and agrees that they could be a source of continuing top-down data.

The TRC, however, will not require operators to maintain their FAC models. The TRC will instead publish a template of top-down data required each year and require each operator to provide the relevant data. The operators will be asked to justify the values they report. Operators may therefore wish to maintain FAC models as a source of the top-down data.

The costing of ancillary interconnection services will depend to a large extent on the top-down data provided by the operators but will also include calculations from the bottom-up features of the models. Hence, all services will be costed in a hybrid model, with the influence of bottom-up calculations and top-down data varying between services.

Q4.1 Do you agree with the TRC's preliminary view that a Hybrid TSLRIC+ Model is the best approach in Jordan? Please justify your choice.

Orange Fixed	Orange Mobile	Umniah	Zain
Prefers TRC bottom-up TSLRIC+ model reconciled with operator top-down TSLRIC+ models. Supports hybrid model approach in terms of efficiency provided models are shared with operators.	Prefers TRC bottom-up TSLRIC+ model reconciled with operator top-down TSLRIC+ models. Supports hybrid model approach in terms of efficiency provided models are shared with operators.	Prefers bottom-up TSLRIC without mark-ups. Cites evidence from EU and FCC. Notes TRC references to avoidable costs only.	Supports hybrid model approach but cautions that agreement on efficient operator model may take some time. Seeks clarity on setting of rates from hybrid model.

The TRC notes the general support for the hybrid-model approach and confirms that it will proceed to build hybrid models in close consultation with the industry. If an operator wishes to construct a top-down TSLRIC+ model of its operations and to share it with the TRC, this will provide a further level of reconciliation. The TRC will not require any operator to provide a top-down LRIC model.

The TRC notes the comments from Umniah on the removal of mark-ups and its evidence from the EU and the USA. However, a decision has already been taken on this matter as determined in the LRIC Instructions of June 2005. The TRC maintains that the situation in Jordan is currently somewhat different from the EU and the USA. It notes, for example, that the general economic situation in Jordan is such that continuing substantial investment in telecommunications

infrastructure will be required. For this reason, the TRC believes that the charges for interconnection should continue to include mark-ups for fixed and common costs. These costs remain "avoidable" in the long term and are driven in part by interconnection activities.

Q4.2 What is your opinion of the proposal that, in order to create a Hybrid Model, the TRC constructs bottom-up LRIC models and then reconciles and calibrates them against top-down data provided by the operators?

Orange Fixed	Orange Mobile	Umniah	Zain
Supports bottom-up construction of model; believes top-down data should be obtained from ongoing FAC models. Preference should be given to the top-down model that covers all fixed services.	Supports bottom-up construction of model; believes top-down data should be obtained from ongoing FAC models. Close co-operation between TRC and operators required in constructing the bottom-up model.	Supports TRC proposal – but suggests that efficient operator model is bottom-up, not hybrid.	Supports the TRC proposal.

The TRC notes the general support for its hybrid model approach. The TRC will work closely with operators in the construction of the hybrid models. The TRC agrees that an operator top-down model could be a source of top-down data and welcomes any such models; but the TRC will not require any operator to construct a top-down model.

The TRC notes the Umniah comment about the efficient-operator model. The TRC agrees that an efficient-operator model could be purely bottom up, but has concluded that some top-down data – for example, on spectrum fees and operational costs – is required in setting appropriate parameters and mark-ups. Therefore, the efficient-operator model remains a hybrid even though there is a stronger bottom-up basis than in the individual operator models.

Q4.3 What do you consider the best way for the TRC to obtain the top-down data necessary for future updates of the TSLRIC+ models?

Orange Fixed	Orange Mobile	Umniah	Zain
Supports ongoing FAC models with some cross-checking for operational expenditure. These could be upgraded to TD-LRIC models in a minimum of 8 months.	Supports ongoing FAC models with some cross-checking for operational expenditure. These could be upgraded to TD-LRIC models in a minimum of 6 months.	Supports ongoing FAC models for efficiency reasons.	Proposes the use of a generic template of top-down data, to be provided annually by operators.

The TRC agrees that top-down models, either ongoing FAC models or upgraded top-down LRIC models, could be used by the operators to determine the top-down data required by the TRC for its hybrid models. The TRC, however, will not require any operator to build a top-down model.

Instead, the TRC will publish a data template for the required top-down data and this template will be re-issued on an annual basis to be used in future model updates. Each operator will be asked to justify the values provided in its response. Operators may therefore wish to maintain FAC models as a source of the top-down data.

Q4.4 The TRC proposes that certain ancillary and access services are costed from simplified LRIC models based on specific top-down data. Do you agree with this proposal and, if not, which of the alternatives do you prefer?

Orange Fixed	Orange Mobile	Umniah	Zain
Prefers one reference model for all interconnection services. Believes Instructions support only one costing methodology to be used by TRC. Believes top-down FAC model with MEAs (or TD-LRIC) can be used for ancillary services. TRC's BU-LRIC model should only be used as cross-check.	Prefers one reference model for all interconnection services. Believes Instructions support only one costing methodology to be used by TRC. Believes top-down FAC model with MEAs can be used for ancillary services.	Believes that access services, broadband in particular, are of strategic importance to Jordan and should be given as much emphasis as voice termination. Supports the development of bottom-up models for fixed access, co-location and infrastructure sharing. Suggests benchmarking as simplest for costing operator services and billing & collection services.	Believes that infrastructure and site-sharing services are commercial matters and are cost-based. Believes TRC should only intervene in them if market review finds dominance in the relevant markets. Proposes each operator develops its own business model for infrastructure and site-sharing services.

The TRC's position is that a hybrid model will be used to assess *all* interconnection costs. It has noted, however, that the relative influence of top-down data and bottom-up calculations varies with services. For most interconnection services the majority of costs are core network costs that can be modelled bottom-up. However, for some ancillary services, such as operator-assisted services, bitstream and collocation, a high proportion of costs are access network and operational costs, so there is a need to rely more on top-down information.

The TRC supports the Umniah view that the development of broadband fixed access in Jordan is a significant issue for the future. However, the present exercise concerns interconnection rates and the TRC believes that the proposed hybrid models will provide suitable cost estimates.

The TRC notes Zain's comments concerning collocation and infrastructure sharing services and is heartened by Zain's view that these are fully commercial and competitive areas. The project on market assessment will determine if the tariffs for these services should be regulated. The hybrid models will permit the TRC to determine suitable cost-based tariffs if they are required.

Q5.1 Please comment on each of the proposals on hybrid model design shown in Figure 3.

The following table reproduces "Figure 3" from the consultation document and adds both the responses from the industry and the TRC's decision on what changes will now be applied as a result of these responses.

Issue	Response to the design of individual operator LRIC models	Response to the design of efficient operator LRIC model	Decision on design of individual operator LRIC models	Decision on design of efficient operator LRIC model
Conceptual network design	**Orange Fixed:** Scorched node approach to be applied. Replacing historical operator asset with current asset if still available. Otherwise use MEAs. **Orange Mobile:** Scorched node approach to be applied. Replacing historical operator asset with current asset if still available. Otherwise use MEAs. **Umniah:** Broadly agrees. **Zain:** Agreed.	**Orange Fixed:** Agreed. **Orange Mobile:** Agreed. **Umniah:** Use TSLRIC without mark-ups for common costs. Supports capacity-based charging in addition to current per-minute charging. Believes capacity-based charging more nearly reflects true cost of termination. **Zain:** Model needs to take into account actual time to build a network.	Scorched node / modern equivalent assets ***No change***	Scorched node / modern equivalent assets ***No change:*** mark-ups will still be required. (See response to Q4.1 above.)
Fixed network technology	**Orange Fixed:** Agreed. **Orange Mobile:** Agreed. **Umniah:** Broadly agrees. **Zain:** Agreed.	**Orange Fixed:** Agreed. **Orange Mobile:** Agreed. **Umniah:** Broadly agrees. **Zain:** Suggests inclusion of packet technology for voice.	Actual switching technology in Orange fixed network ***Change:*** WiMAX and IP operators will be treated as equivalent to Orange Fixed for originating and terminating charges.	Circuit-switched technology for voice; IP technology for data ***No change:*** the TRC believes that it is too early to treat packet voice separately from PSTN voice, as there have been few packet voice deployments in Jordan to date.
Mobile technology	**Orange Fixed:** Agreed. **Orange Mobile:** Agreed. **Umniah:** Broadly agrees.	**Orange Fixed:** Agreed but 3G must be included. **Orange Mobile:** Agreed. **Umniah:** 2G as current basis, but	2G and 2.5G networks using the actual spectrum assignments ***No change***	2G with capability for 3G overlay, particularly for data services. 900/1800 spectrum. ***No change***

Issue	Response to the design of individual operator LRIC models	Response to the design of efficient operator LRIC model	Decision on design of individual operator LRIC models	Decision on design of efficient operator LRIC model
	Zain: Agreed.	TRC should specify how 3G will be treated in the future. **Zain:** Agreed.		
Spectrum assignment	**Orange Fixed:** Agreed. **Orange Mobile:** Agreed. **Umniah:** Setting termination rates for Zain and Orange based on 900MHz efficient operator, and for Umniah on 1800MHz efficient operator model. **Zain:** Cost differences in spectrum allocations needs to be taken into account in the model.	**Orange Fixed:** Agreed. **Orange Mobile:** Agreed. **Umniah:** Modelling efficient operator with 900 and 1800 MHz spectrum only, to reflect current situation in Jordan. **Zain:** Agreed.	Actual spectrum assignment in 900 or 1800MHz bands ***No change***	Mixed 900/1800 spectrum – to be reviewed in case of significant cost differentials. ***Change:*** TRC will separately model costs for 900 and 1800 MHz operators. If there is a significant cost differential, the TRC will consider different termination rates.
Network dimensioning	**Orange Fixed:** Agreed. **Orange Mobile:** Agreed. **Umniah:** Broadly agrees. **Zain:** Operator's actual or projected network design parameters as for best-practice network design parameters.	**Orange Fixed:** Agreed. **Orange Mobile:** Agreed. **Umniah:** Efficient operator with 33% market share and with highest traffic forecast. (Increasing) traffic growth trend should be taken into account in the long term. Zain One Network raises issues of cost modelling. Zain One Network roaming should be modelled. Costs of establishing and operating Zain One Network should be excluded.	Actual subscribers/traffic and best practice network design parameters, reconciled against actual equipment volumes ***Clarification:*** TRC will consider actual design parameters if supplied by operators. All roaming traffic to be included in forecasts.	Average subscribers/traffic and best practice network design parameters ***Clarification:*** TRC agrees that mobile market should be assessed with one-third market share for each operator.

Issue	Response to the design of individual operator LRIC models	Response to the design of efficient operator LRIC model	Decision on design of individual operator LRIC models	Decision on design of efficient operator LRIC model
		Zain: Agreed.		
WACC	**Orange Fixed:** Agreed. **Orange Mobile:** Agreed. **Umniah:** Broadly agrees. **Zain:** Agreed.	**Orange Fixed:** Agreed and accepts TRC using Orange Fixed's WACC for efficient operator model. **Orange Mobile:** Agreed and accepts TRC using Orange Mobile's WACC for efficient operator model. **Umniah:** Broadly agrees. **Zain:** Agreed.	TRC approved WACC for each operator ***No change***	Efficient operator WACC to be derived from the TRC approved WACCs ***Clarification:*** WACC values may be recalculated with 2009 data before being used in the LRIC models.
Depreciation	**Orange Fixed:** Using annuity depreciation for Orange Fixed's individual operator model. **Orange Mobile:** Using annuity depreciation for Orange Mobile's individual operator model. **Umniah:** Implementing tilted annuity method for mobile operators in a way to closely approximate economic depreciation. **Zain:** Agreed.	**Orange Fixed:** Using tilted annuity for the efficient operator model. **Orange Mobile:** Using tilted annuity for the efficient operator model. **Umniah:** Broadly agrees, but tilted annuity needs to be carefully constructed to mimic economic depreciation when volumes are rising. **Zain:** Agreed.	Tilted annuity, but other options may be used for reconciliation with top-down data. ***No change***	Tilted annuity ***No change***
Asset values	**Orange Fixed:** Agreed. **Orange Mobile:** Agreed. **Umniah:** Broadly agrees.	**Orange Fixed:** Agreed. **Orange Mobile:** Agreed. **Umniah:** Broadly agrees.	Current costs of operator assets ***No change***	Modern equivalent asset prices for efficient operator scale ***No change***

Issue	Response to the design of individual operator LRIC models	Response to the design of efficient operator LRIC model	Decision on design of individual operator LRIC models	Decision on design of efficient operator LRIC model
	Zain: Agreed.	**Zain:** Agreed.		
Asset price trends	**Orange Fixed:** Agreed. **Orange Mobile:** Agreed. **Umniah:** Broadly agrees. **Zain:** Using operator data without reference to international benchmarks.	**Orange Fixed:** Agreed. **Orange Mobile:** Agreed. **Umniah:** Costs in the efficient operator model should be based on lowest cost operator in Jordan in order to minimise inefficiencies. **Zain:** Agreed.	Operator data cross-checked against international benchmarks ***Change:*** TRC will use operator data, subject to reasonableness checks.	Operator data cross-checked against international benchmarks ***Clarification:*** TRC will consider submissions from operators, but will not necessarily use lowest cost data only. International benchmarks may indicate other values.
Asset lives	**Orange Fixed:** Economic life to be applied. **Orange Mobile:** Economic life to be applied. **Umniah:** Broadly agrees. **Zain:** Economic lives instead of accounting lives.	**Orange Fixed:** Economic life to be applied. **Orange Mobile:** Economic life to be applied. **Umniah:** Broadly agrees. **Zain:** Agreed.	Operator actual (accounting lives) ***Change:*** TRC will use economic lives indicated by operators, subject to reasonableness checks.	Operator data and international benchmarks (economic lives) ***No change***
Capitalised installation	**Orange Fixed:** Agreed and suggests considering the Jordanian market as an importer for the technology to be applied. **Orange Mobile:** Agreed and suggests considering the Jordanian market as an importer for the technology to be applied.	**Orange Fixed:** Agreed and suggests considering the Jordanian market as an importer for the technology to be applied. **Orange Mobile:** Agreed and suggests considering the Jordanian market as an importer for the technology to be applied.	Operator data cross-checked against international benchmarks ***Change:*** TRC will use operator data, subject to reasonableness checks.	Operator data cross-checked against international benchmarks ***Clarification:*** TRC will consider submissions from operators. TRC will take into account landed prices in Jordan, where they are available.

Issue	Response to the design of individual operator LRIC models	Response to the design of efficient operator LRIC model	Decision on design of individual operator LRIC models	Decision on design of efficient operator LRIC model
	Umniah: Broadly agrees. **Zain:** Using operator data without reference to international benchmarks.	**Umniah:** Broadly agrees. **Zain:** Agreed.		
License and spectrum fees	**Orange Fixed:** Actual license fees to be applied for individual operator model. **Orange Mobile:** Actual license fees to be applied for individual operator model. **Umniah:** Broadly agrees. **Zain:** Agreed.	**Orange Fixed:** Actual license fees to be applied for efficient operator model. **Orange Mobile:** Actual license fees to be applied for efficient operator model. **Umniah:** Actual fees preferred. Does not support MFLOC in Jordan as MFLOC methodology only applicable when spectrum is awarded by using market mechanism (auction) and is tradable. No allowance to simply recover license costs through termination rates. **Zain:** MFLOC methodology applied equally to all operators. 3G licence fee as a proxy for calculating the MFLOC no longer applicable due to recent cancelation of 3G licence award process.	Operator actuals ***No change***	MFLOC + actual/projected annual fees ***Change:*** TRC will use a weighted average of actual and projected licence fees for 2G and 3G operations. It will not specifically use the MFLOC methodology. Annual fees to be included.

Issue	Response to the design of individual operator LRIC models	Response to the design of efficient operator LRIC model	Decision on design of individual operator LRIC models	Decision on design of efficient operator LRIC model
		TRC to provide an in-depth explanation of the proposed approach.		
Operational expenditure	**Orange Fixed:** Agreed and supports actual numbers taken from its own top-down FAC model. **Orange Mobile:** Agreed and supports actual numbers taken from its own top-down FAC model. **Umniah:** Broadly agrees. **Zain:** Mark-up for business overheads.	**Orange Fixed:** Agreed and supports actual numbers taken from its own top-down FAC model**.** **Orange Mobile:** Agreed and supports actual numbers taken from its own top-down FAC model. **Umniah:** Broadly agrees. **Zain:** Agreed.	Operator actuals ***No change***	Operator data cross-checked against international benchmarks ***No change***

Q5.2 Please comment in particular on whether you agree that circuit switched technology is appropriate for the fixed network model and 2G radio-network equipment for the mobile model, and on the proposed treatment of WiMAX operators and IP telephony operators.

Orange Fixed	Orange Mobile	Umniah	Zain
Supports TRC proposal that the fixed network model should continue to be based on circuit switched platforms for the provision of voice services. Does not accept 2G or 2.5G costs only to be considered for the initial model because 3G operations may commence within the first year of the new LRIC-based rates and those rates will last for five years, so the model should be designed based on 3G. Differences in mobile in annual spectrum charges should be considered too. Supports TRC proposal that the WiMAX operators should offer the same terminating and originating interconnection rates as determined for Orange Fixed network.	Supports TRC proposal that the fixed network model should continue to be based on circuit switched platforms for the provision of voice services. Accepts TRC's proposed approach to consider 2G or 2.5G costs for the initial model since 3G licenses have not been awarded yet. Supports TRC proposal that the WiMAX operators should offer the same terminating and originating interconnection rates as determined for Orange Fixed network and not as the commercial preferences of those operators.	Any conclusion with respect to a certain fixed technology should be reviewed in the near future to avoid supporting inefficient legacy technologies. 'Circuit-switched' termination rates for mobile VoIP regardless of last-mile technology. Therefore, the mobile termination rate applies to VoIP calls to a non-geographic number, and fixed termination rate for calls to a geographic number.	No modelling of more than one technology (WiMAX, IP telephony). Using proxies for parameters for changing technology (2G vs. 3G). Model (fixed) should take into account latest technology such as packet technology. No regulation of new services such as WiMAX.

For fixed network technology, the TRC continues to believe that it is too early to use packet technology for voice, as this is not yet common in Jordan. There is a substantial PSTN legacy. The TRC agrees, however, that this decision should be reviewed in light of circumstances at the major review point after approximately 3 years.

For mobile network technology, the TRC will include 3G elements in its models but believes that it is too early to obtain reliable forecasts of 3G services. The TRC will therefore continue to use 2G and 2.5G technologies for assessing interconnection rates in the first round. The TRC agrees, however, that this should be revisited after 3 years when it is expected that 3G technologies will have been established in Jordan.

With regard to the responses on WiMAX and IP operators, the TRC will continue the policy of setting originating and terminating voice rates for these operators based on the values for Orange Fixed.

Q6.1 Do you agree with the proposal to exclude any externality in the setting of interconnection rates? Please explain your answer.

Orange Fixed	Orange Mobile	Umniah	Zain
Believes access deficit (approx. 1.5 fils/min) should be added to the termination rates as an "externality".	Believes externality should be included, as in UK.	Supports exclusion of externality.	Supports exclusion of externality. Sees calculation as complex.

The TRC notes the view indicated by Orange Fixed that the access deficit is a network externality and should be included in termination rates. The TRC acknowledges that on fixed networks, partly as a result of the network externality, tariffs for the provision of access to the network are often set below cost. The access deficit may then be seen as an externality issue. However, the TRC considers that other operators should not have to subsidise an access deficit through higher interconnection charges.

The TRC reaffirms that it will exclude any externality calculation. This approach is consistent with international practice – the UK mobile termination rate appears to be the only exception to this general approach.

Q6.2 Is there any need to retain the current asymmetry in mobile termination rates, or to introduce asymmetry for fixed termination rates? If so, for how long should this asymmetry last? Please explain your answers.

Orange Fixed	Orange Mobile	Umniah	Zain
Supports continuing symmetry for fixed termination and introducing symmetry for mobile termination, starting from 2010.	Believes symmetry should begin from 2010. Notes that TSLRIC+ methodology supports symmetry.	Supports asymmetry based on objective cost models. Symmetry only justified if interconnection rates near zero. Asymmetry due to 1800 MHz only spectrum, leading to higher costs. Asymmetry also needed for WACC and to support late-entrant operators. Believes in move to symmetry but not yet.	Supports symmetry for mobile termination rates, as all operators have moved past start-up phase. Mobile and fixed termination rates will be different, based on cost.

Asymmetry occurs where a regulator sets different interconnection rates for the same service provided by different service providers. For the arguments for and against symmetry in setting interconnection tariffs, the reader is referred to the consultation document.

The TRC notes that, while it continues to prefer symmetry, there may be significant differences between mobile operators based on exogenous factors. For example, operators were issued licences at different times and have different spectrum assignments. The TRC will therefore assess the scale

of these differences in the final calculated interconnection costs. If there are significant differences in value, the TRC will consider continuing asymmetry in tariffs.

Q6.3 Do you agree with the proposal to set interconnection charges net of the revenue-sharing levy?

Orange Fixed	Orange Mobile	Umniah	Zain
Supports exclusion of revenue-sharing levy, starting immediately.	Supports inclusion of revenue-sharing levy for mobile rates. Supports exclusion of revenue-sharing levy for fixed rates.	Supports inclusion of revenue-sharing levy in all *termination* rates on which Government receives its levy.	Believes revenue-sharing levy should be removed. No opinion expressed on its inclusion in interconnection rates if it continues.

The TRC notes the operator responses but also notes that the revenue on which the levy is imposed is calculated net of interconnection charges, so that each operator can recover the levy from its own retail customers. In particular, the TRC re-iterates its view that, by including the levy on interconnection charges, the fixed network customers would be paying part of a levy that was originally intended only to apply to mobile subscribers. The TRC will therefore exclude the revenue-sharing levy from the interconnection charges.

Q6.4 In what circumstances do you consider a glide path to LRIC-based rates would be justified? How long should such a glide path be?

Orange Fixed	Orange Mobile	Umniah	Zain
Supports glide path of 4 years; estimates difference between FAC-based and LRIC-base rates of 25%.	Supports glide path of 4 years to minimise disruption of market.	Supports use of glide paths generally. Believes glide paths are not appropriate for costs of non-competitive, bottleneck facilities.	Supports the use of a glide path if the gap between current and future rates is significant, in order to minimise disruption. Believes length of glide path should be set once results are known.

The TRC will continue to consider a glide-path if there is a significant gap between the LRIC-based rates and the current FAC- based rates. However, different glide paths may apply to different services depending on the prevailing market conditions. The TRC will consider glide-paths no longer than 3 years in line with the proposed schedule for the review of the TSLRIC+ models.

Q6.5 Please comment on the TRC's proposal to set LRIC-based prices, at least provisionally, over a 5-year period, but with a significant review after 3 years.

Orange Fixed	Orange Mobile	Umniah	Zain
Supports using TSLRIC+ for interconnection rates	Supports using TSLRIC+ for interconnection rates	Supports decision for 5 years with review after 3 years.	Believes that 3 years is more appropriate, with annual reviews,

Orange Fixed	Orange Mobile	Umniah	Zain
for 2010 and beyond, but not retroactively. Supports 5-year view with review after 3 years. Emphasises need for consistent changes in any review.	for 2010 and beyond, but not retroactively. Supports 5-year view with review after 3 years. Emphasises need for consistent changes in any review.	Believes asymmetry due to late entry can be eliminated in 5 years.	given changing economic environment. Emphasises need for improved governance by TRC in conducting reviews.

The TRC notes that its intention is to set interconnection rates for future years only, not retroactively. The operator responses are generally supportive of a 5-year horizon but the TRC emphasises that it will continue to monitor market conditions and will undertake a review after 3 years, so that it can react if there are substantial market changes.

4 Other Issues

Other significant issues raised by respondents are reported here for completeness.

- **Orange Fixed:** Wants boundary between access and core network in the fixed model to be revisited. Sees line cards, tie cables and MDF as common cost between fixed and access.

The boundary between the access and core network should be set so that the access network consists of subscriber-driven items and the core network consists of traffic-driven items. The placements of line cards, tie cables and MDF capacity are driven by subscriber numbers and should therefore be classified as access. The TRC, therefore, will maintain its current definitions.

- **Umniah:** Supports comprehensive modelling of the fixed access network, avoiding top-down data from operators. Believes evidence of current Bitstream proposals from Orange Fixed shows that wholesale prices are not cost-based.

The TRC agrees that the costs of the fixed access network are a significant issue. The TRC believes that the hybrid TSLRIC+ model will provide a suitable basis for assessing interconnection costs.

- **Umniah:** Believes TRC needs to apply a "firm hand" to ensure competitive access to fixed network bottleneck facilities.

The TRC notes that it is currently undertaking an assessment of markets and dominance that will provide data on the state of competition and the identification of bottleneck facilities. At the conclusion of this market review the TRC will enact the necessary remedies, including the introduction of new *ex-ante* regulation if required, and will apply a "firm hand" where necessary.