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Dr. Alexander Serot
Director, Market and Competition
Telecommunications Regulatory Authority
P.O. Box 10353
Manama - Kingdom Of Bahrain

Zain Bahrain Response to draft Position paper on Development, implementation and use of bottom-up fixed and mobile network cost models in the Kingdom of Bahrain

Dear Dr. Alex,

With reference to the consultation document issued by the TRA, please find enclosed to this letter Zain Bahrain response.

Should the TRA require any clarification or information on Zain Bahrain response, Zain Bahrain welcomes having a meeting in this regards

Yours sincerely,

A handwritten signature in blue ink, appearing to read "Jaffar Abdulla", is written over the "Yours sincerely," text.

Jaffar Abdulla
Manager, Regulatory and Interconnection

P.O. Box 266
Manama, Kingdom of Bahrain

T: +973 3603 1000
F: +973 3603 1100

www.zain.com



Zain Bahrain's Reply Comments to the TRA's Consultation on the Development, Implementation and Use of Bottom-up Fixed and Mobile Network Cost Models in the Kingdom of Bahrain

P.O. Box 266
Manama, Kingdom of Bahrain

T: +973 3603 1000
F: +973 3603 1100

www.zain.com



Introduction

Zain Bahrain welcomes the TRA's consultation on the development, implementation and use of bottom-up network cost model, as complementary regulatory tools along with existing operators' cost models and in line with Article 58 of the Telecommunications Law that provides for tariffs charged by licensed operators to be "fair and equitable, non-discriminatory and based on forward-looking costs"

Zain Bahrain is glad to respond to the specific questions raised by the TRA in its non-binding position paper. However, there are a number of general points that Zain Bahrain wishes to raise:

- i) One of the main proposals in this Draft Position Paper is to include a pure LRIC module in the bottom-up cost models. This new concept of cost recovery is best suited for mature telecommunications markets with extensive historical experience in interconnect costing and where extensive network build out has been completed for quite some time. To date, this concept has been implemented primarily in developed European countries such as the UK, France, etc.. Its implementation in still growing and relatively immature markets could have counterproductive effects such as a decline in investment.

Given that the telecommunications market in Bahrain is still growing, Zain Bahrain does not have any objection if the proposed introduction of pure LRIC is confined to simulation or used for analysis purposes only. However, Zain Bahrain regards the introduction of pure LRIC at this stage to be totally inappropriate if it is to be used to set the cap of any rate setting glide path.

- ii) One of the proposed assumptions regarding the generic operator in the consultation paper is to retain Viva's network topology as the one of the generic efficient mobile operator to be modelled. Zain Bahrain's main concern lies with this rather surprising choice because the building and calibration of the generic



BU LRIC model should be based on the data provided by all mobile operators and in particular the network topology data, which represents the core inputs of any LRIC, cost model. It is therefore important that the network topology of the type of mobile operator to be modelled reflects all three mobile operators' network topology. This assumption will be a significant conceptual decision that will have serious costing implications for the other two operators (Batelco and Zain Bahrain).

- iii) The Cost of capital is an important parameter in any cost modelling exercise, as operators have to be able to recover the costs of investment financing through funds provided by shareholders or banks. In Paragraph 161 of the Position Paper, it is stated, *"While the cost of capital is an important financial parameter that is used in cost modelling, the estimation of the appropriate cost of capital (or WACC) is beyond the scope of the current modelling exercise. Discussion of the appropriate cost of capital is therefore not included in the following section"*. Zain Bahrain is of the view that the TRA has to make a decision regarding this crucial matter. Zain Bahrain strongly suggests the use of the regulated cost of capital of 9.50% (Cost of Capital Determination issued by the TRA on 3 November 2009, Ref: MCD/11/09/090) for all Bahraini operators including Viva.



Q1

Do respondents agree with the Authority's preliminary view to implement both pure LRIC and LRIC+ approaches for services handled by the fixed core and the mobile networks? Please elaborate.

R1

With all due respect, Zain Bahrain strongly disagrees with this preliminary view of the TRA. There are two fundamental issues with this proposal:

The first issue regards the implementation of both pure LRIC and LRIC+. Telecommunication operator runs a complex business using a various range of technologies to provide a portfolio of retail and wholesale services, through using the same networks elements in different proportions. The implementation and running of telecommunications incur a huge amount of fixed and variable costs, which can be broken in three categories:

- Directly attributable costs
- Joint costs (generated by a family of services or products)
- Common costs (shared by all the services or products)

The main challenge is to find the best cost allocation method to set cost-based rates or tariffs that enable both new players to enter the telecommunications market and incumbents to fully recover the costs of investing in their network.

The marginal cost approach has not really been used in telecommunications, because the marginal cost tends to be zero or negligible and therefore does not allow operators to fully recover the cost of investing.

So far, LRIC+ is typically used in most jurisdictions as it seems to be the middle ground for fair cost recovery between marginal cost and stand alone cost.

Zain Bahrain does not fully understand why the TRA wants to re-introduce the marginal cost allocation when this methodology has been deemed unsuitable for telecommunications markets since pure LRIC is a marginal version of LRIC, as the other name of the pure LRIC is ***Long-run marginal cost***.

Although the TRA vows to create an enabling environment where operators recover joint and common costs by other means, should the TRA be ready for an increase in retail



prices to allow operators to recover its costs, and how will this cost recovery be done without creating retail-pricing disputes between operators?

The second concern is the TRA's intention to implement pure LRIC for services handled by the fixed core and mobile networks but not for services handled by the fixed access network on the grounds that it could lead to cost recovery difficulties given that an access network is not easily replicable, please refer to paragraph 259.

This argument can also be applied for mobile networks. Presently and in the near future, competition in mobile markets would reach a level such that new entrants only would be MVNOs. In other words, it would not be economically viable to build a network from scratch.

Consequently, Zain Bahrain is of the view, based on the above, that only LRIC+ methodology can be used for the three types of networks to be modelled (i.e., fixed access, fixed core and mobile networks)

Q2

Do respondents agree with the Authority's preliminary view to implement both the required capacity and the Shapley-Shubik allocation methods for joint and common costs in the bottom-up models? Please elaborate.

R2

Zain Bahrain agrees with this proposal since the required capacity is commonly used and some regulators have used the Shapley-Shubik. However, the Shapley-Shubik should be incorporated in the models as an option and the underlying assumptions have to be discussed with operators prior to incorporation. Moreover, Zain Bahrain expects the Shapley-Shubik option to be used in setting the rates only if it yields better results than the required capacity method.

Q3

Do respondents agree with the Authority's preliminary view to allocate un-attributable costs (non-network common costs) on the basis of the EPMU approach? Please elaborate.

P.O. Box 266
Manama, Kingdom of Bahrain

T: +973 3603 1000
F: +973 3603 1100

www.zain.com



R3

Zain Bahrain agrees with this proposal to use Equi-proportionate mark-up (EPMU) to recover the non-network common costs. This is in line with practices in the LRIC approach and even the current FAC approach and taking into consideration the practical and empirical difficulties and issues with using Ramsey-Boiteux pricing (i.e., dynamic data on demand elasticity).

Q4

Do respondents agree with the choice of the scorched node approach for bottom-up cost models? Please elaborate.

R4

Zain Bahrain totally agrees with scorched node approach, because the scorched node approach keeps most of the network topology unchanged and partial optimization is done. LRIC models based on scorched node approach tend to give more realistic outputs than the scorched earth approach.

Q5

Do respondents agree with proposed approach for mobile network cost modelling, and in particular the generic operator? Please elaborate.

R5

Zain Bahrain agrees with the proposed modelling approach as it is a common approach in such a modelling exercise to build an operator specific model for each mobile operator considering that operators have different cost structures (and even network topology) and in order to derive a generic model for a hypothetical efficient mobile operator in the country. However, Zain Bahrain completely disagrees with the choice of Viva's network topology to be the one utilized and representing the generic operator. Zain Bahrain believes that the approach of choosing a generic operator has to be followed, as it has been done in many countries by adopting an average operator approach to reflect all mobile network



topologies. The argument that Viva is the last mobile operator to enter the market is simply not sustainable. As a third mobile operator, Viva has designed its network topology and commercial launch to capture a sizeable market share as quickly as possible at the lowest achievable cost, which means that Viva will have the lowest MTRs. This proposal to utilize Viva' network topology will have serious costing implications on both Zain Bahrain's and Batelco's financials.

Q6

Do respondents agree with the Authority preliminary position regarding the type of technologies (2G + 3G) to be modeled? Please elaborate.

R6

Zain Bahrain agrees with the TRA's position as the three mobile operators have deployed both technologies. Furthermore, the complexity of building a model with more than one technology is overcome by the fact that 3G-network equipment is using mainly 2G network infrastructure (Node B are located in the BTS sites).

Having the fact of the level of competition in the Bahraini market, where the mobile broadband is the main market driver, the three mobile operators are competing in delivering the best QoS through the 3G network, which its require more base-station deployments. Therefore, the choice of spectrum and number of base-station should be carefully studied.

Q7

Do respondents agree with the Authority's preliminary position regarding the spectrum to be considered when modelling the costs of mobile networks? Please elaborate.

R7

Zain Bahrain agrees with the average of spectrum allocated to three mobile operators to be considered for GSM900, GSM1800 and 3G. However, as the scorched node approach will be used for the modelling, Zain Bahrain is of the view that corrective factors have to be



taken in cases where there is a big gap between the current number of sites in the operators' models and the calculated number of sites in the generic model.

Q8

Do respondents agree with the Authority preliminary position regarding the treatment of licence costs and frequency usage fees? Please elaborate.

R8

Zain Bahrain totally agrees with the proposal to take into account licence costs and frequency usage fees because they usually represent an important portion of fixed costs and variable costs incurred by mobile operators.

Q9

Do respondents agree with the Authority preliminary view regarding the type of technologies to be considered when modelling the costs of the fixed core network? Please elaborate.

R9

Zain Bahrain totally agrees as the Packet technology utilization in fixed core network is increasing and is over-taking the legacy PSTN.

Q10

What is the respondents' view on the type of fibre architecture and technology that should be modelled for the NGA? Please elaborate and formulate substantiated alternative proposal if necessary.

R10

No comments.



Q11

Do respondents agree with the Authority's preliminary view on proposed 'yearly approach' to network dimensioning optimization? Please elaborate.

R11

Zain Bahrain agrees with the use of the 'yearly approach' to network dimensioning optimization only in cases where there is difficulty in gathering historical full time-series data as the 'historical approach' has more benefits than the 'yearly approach'.

With the 'historical approach', the bottom-up models will be able to:

- Calculate costs in current years like the 'yearly approach'
- Give the greatest understanding of cost evolution
- Generate accurate forecasts

Therefore, Zain Bahrain recommends using 'historical approach'.

Q12

Do respondents agree with the list of services to be considered in the bottom-up cost models? If there is any service requiring significant capacity that is not listed above, please specify it.

R12

We agree with the list of services but the service called 'Mobile Broadband' needs to be explained in a more detailed (Internet access, PUSH-EMAIL, video, etc.). Regarding the 'International inbound calls to Batelco mobile telephones', Zain Bahrain would like to highlight that this service is still under examination by the Authority, we refer to TRA 2010 RO Order, 25 January 2011 (Ref: MCD/01/11/006), paragraph 622, and TRA letter to Zain Bahrain dated 6 June 2011 (Ref: MCD/06/11/082). Therefore, Zain Bahrain is in the view that this service should not be included at this stage and to wait till TRA final position on this service.



Q13

Do respondents agree with the Authority's preliminary view on the treatment of OPEX in the bottom-up cost models? Please elaborate.

R13

Operational expenditures (OPEX) are typically estimated in bottom-up cost models as a percentage of the asset value or the annual capital expenditure that corresponds to the approach of paragraph 155 (c). Zain Bahrain suggests that this process to be used but with the percentages derived from the operators' accounting systems. Those OPEX related percentages would be more accurate and more realistic than those taken from Benchmarks or equipment suppliers as these can vary substantially to the point of not being at all suitable or representative.

Q14

Do respondents agree with the Authority's preliminary view to implement tilted annuities or adjusted tilted annuities in the bottom-up cost models? Please elaborate.

R14

Zain Bahrain agrees with the TRA's view to implement tilted annuities or adjusted tilted annuities because it is one of the best methods to obtain calculated depreciation that is close to economic depreciation which, in turn, is most suitable for bottom-up cost models.

Q15

Do respondents agree with the Authority's view that economic asset lives should be used in bottom-up models? Please elaborate.

R15

Zain Bahrain agrees with the TRA's view to use economic asset lives instead of accounting asset lives because of the fastest evolution trends of technology in the telecommunications sector.



Q16

Do respondents agree with the Authority’s preliminary view to exclude the working capital which is not related to the network activities or the provision of services?

R16

Zain Bahrain disagree with the TRA in **totally** taking out or excluding working capital, TRA needs to include the working capital while using a tilted annuity formula to consider the “time to build” incurred by any network roll-out, as stated in paragraph 193.

Q17

Do respondents agree with the Authority’s preliminary view that, except for working capital generated by CAPEX which is taken into account through depreciation formulas, the cost of working capital related to network OPEX should be excluded from the cost model unless operators can provide evidence of a significant and efficient level of such working capital? Please elaborate.

R17

Zain Bahrain requires a clarification on how the operator can provide evidence of a significant and efficient level of network OPEX working capital, if the operator is incurring such working capital and has only its accounting system to substantiate it. Zain Bahrain believes there should be a clear policy on this regards, however, Zain Bahrain generally agrees with the TRA’s point of view.

Q18

Do respondents agree with the Authority’s preliminary view that it may be appropriate in some cases to use gradients for the setting of regulated prices based on bottom-up models? Please elaborate.



R18

Zain Bahrain is of the view that the operators have to be involved in the drawing up of those gradients because the operators are well equipped for this task. Indeed, they have experience already in declining their tariff plans per time slots, per speed, per area or per quality of service. In general, Zain Bahrain agrees with the TRA.

Q19

Do you agree with the Authority's preliminary view to model annual costs over 4 to 5 year period notably to give visibility to operators and to enable the setting of regulated charges for multi-year periods? Please elaborate.

R19

Zain Bahrain does not have any objection on the multi-year modelling and establishment of a glide-path for regulated prices. The TRA is proposing a period of four (4) to five (5) years but a three (3) to five (5) years glide path is more common. So, even if the longest period could give visibility and stability to operators, we suggest that a forecast period of three (3) years would be more appropriate with a yearly review if needed.

Q20

Do respondents have any comments and suggestions regarding the overall potential structure of bottom-up models that the Authority intends to develop?

R20

The potential structure the TRA intends to use as a basis to develop the bottom-up models complies with the common structure of bottom-up models.

Zain Bahrain welcomes the TRA's decision to use Excel and Access (only in case of huge input amounts) as the format for the bottom-up models but the example of the model control panel provided in the Draft Position Paper is a bit confusing. It gives the impression that only one mobile model will be built with modules for each of the three operators and the generic operator.



Zain Bahrain suggests that the control panel to be reviewed to follow the outline (b, c, d and e) in paragraph 231 of the Position Paper, transparent and user-friendly; which will allow any user to check the model at any point in time.

Q21

Do respondents agree with the anticipated timeline for the development and implementation of the bottom-up cost models? Please elaborate.

R21

Zain Bahrain agrees with the proposed timeline of six (6) months; as it is an acceptable time frame to complete a bottom-up cost model exercise including data collection, model building, and model implementation with interactions between the Regulator and operators. However, Zain Bahrain recommends it to be between Q4 2011 and Q1 2012.

Q22

Do respondents agree with the key steps described in sections 6.1, 6.2, and 6.3 anticipated by the Authority for the development, implementation and validation of bottom-up cost models? Please elaborate.

R22

Zain Bahrain agrees with the key steps described in sections 6.1, 6.2 and 6.3, however, Zain Bahrain strongly believes that there should be an amendment to the implementation step (2) in figure 17 of section 6.2 to show interactions with industry, as there is no interaction with the operators while implementing the model, Zain Bahrain believes that the model implementation should be done transparently with the operators.

Q23

Do respondents agree with the proposed strategy to involve relevant operators (Batelco, Zain and Viva) in the development and validation of the models? Please elaborate.

P.O. Box 266
Manama, Kingdom of Bahrain

T: +973 3603 1000
F: +973 3603 1100

www.zain.com



R23

Zain Bahrain totally agrees with the proposed strategy to involve relevant operators in the development and validation of the models. Usually, in this kind of exercise, the involvement of operators is limited only to the provision of data. One of the key success factors for such an exercise is transparency. With transparency, the bottom-up models will be viewed as an industry useful tool and not to be as a black box used by the regulator to hinder operators' revenues. Transparency is essential. The most important element of transparency is the involvement of operators in each and every step of the model's development, and above all, in the implementation step. Zain Bahrain welcomes the TRA's willingness to fully involve relevant operators and it hopes that this involvement will not be limited to listening to operators and not taking into account their comments and views.

Q24

Do respondents have any comments regarding the above discussion? Please elaborate.

R24

Zain Bahrain has two main comments on this regard; the first comment is related to the common use of a Top-Down model in the case of no economically replicable network (Paragraph 259). In this Draft Position Paper, the fixed access network has been classified in that category by the TRA which shared the view to use Top-Down model at the same time, the TRA intends to build a LRIC+ Bottom-Up model for the fixed access network (Paragraph 78). The TRA final position is still unknown to Zain Bahrain, in which model will be used by the TRA.

The second comment concerns the TRA's intention to use the bottom-up models to assist in setting retail prices, as mentioned in paragraph 246 (b). Zain Bahrain is in the view that the scope of this assistance should be limited to regulated retail services or to cases of alleged price squeezes. Zain Bahrain is at the view that this tool should be mainly used for wholesales services tariffs.



Q25

Do respondents agree that consideration should be given to setting access and interconnection prices over a medium-term time horizon such as 3 years?

R25

Zain Bahrain agrees with rate setting over three years time period, as it gives both stability and visibility to operators and is not too long to cope with future economic uncertainties. We suggest a yearly review if needed in the event of economic environment changes (e.g., severe recession, downturn, inflation, etc.). However, if the gap is too high, Zain Bahrain believes that the glide-path should be extended to five (5) years time period.

Q26

Do respondents agree that in some cases, when there is a significant gap between service costs calculated today and before (due for example to the move from a top-down cost model to a bottom-up cost model), the use of a glide path might be appropriate to move from existing prices to the appropriate cost-based level? Please elaborate.

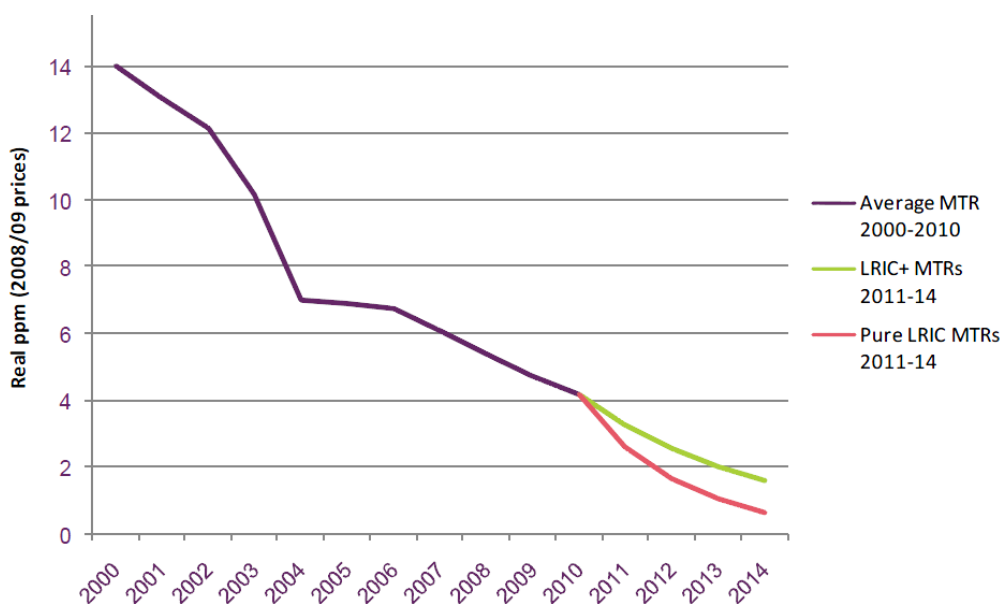
R26

Zain Bahrain agrees with the use of a glide path in that case given that an immediate change to a substantially lower rate compared to the current rate could create severe uncertainty for operators and potentially disrupt their business. As already mentioned, Zain Bahrain suggests three (3) year glide path, and five (5) years if the gap is huge.

That being said, however, Zain Bahrain is of the view that the cap of the glide path or the appropriate cost-based level as referred to above should be calculated using LRIC+ instead of the pure LRIC used in the European countries. Pure LRIC is best suited for fully mature and evolved markets and is completely unsuitable for markets still in the growing mode like Bahrain. By taken the example of the glide path set by OFCOM in United Kingdom based on pure LRIC as shown in the table and the figure (Source: OFCOM) below, its implementation in Bahrain would surely disrupt the operators' business and hinder future investments.



		Year 1	Year2	Year 3	Year 4
	1 April 2010 to 31 March 2011 (TAC)	1 April 2011 to 31 March 2012	1 April 2012 to 31 March 2013	1 April 2013 to 31 March 2014	1 April 2014 to 31 March 2015
2G/3G Operators					
X Value	NA	-37.4%	-37.4%	-37.4%	-37.4%
Real Cap (08/09 Prices)	4.180	2.664	1.698	1.083	0.690



Source: Ofcom, Competition Appeals Tribunal, Competition Commission

The above graph shows that the regulator can achieve its price regulations goal through LRIC+ in a smooth manner in which consumers' rights are protected and the operators' business is not disrupted.


Jaffar Abdulla
 Manager, Regulatory & Interconnection