LIME's Response to the OUR's "Cost Model for Fixed Termination Rates – Principles and Methodology"

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A. Introduction

- **a.** LIME welcomes the opportunity to respond to the OUR's proposed approach to costing fixed network interconnection services in Jamaica.
- **b.** LIME finds that the approach put forward by the OUR in this Consultation Document in many ways provides a reasonable framework for the long-run incremental cost modeling for the fixed interconnection services in Jamaica. However, in LIME's view, there are several aspects that should be improved upon.
- **c.** The content and structure of the questions in the Consultation Document provide adequate scope to address our concerns, and they have been addressed below.
- d. Please direct any questions you may have to Charles Douglas at <u>charles.douglas@lime.com</u>.

LIME's Response to the OUR's Consultation Questions

1. Question 1: Do you agree with the proposal to use a bottom-up model? Please explain your views.

- **1.1.** LIME agrees with the OUR's proposal to use a bottom-up model and acknowledges that the OUR has identified benefits of using a bottom-up model. As indicated in the Consultation Document, bottom-up models are more amenable to sensitivity analysis and offer greater transparency. We also agree that there is little practical alternative to the bottom-up approach in Jamaica, as fixed operators do not have in place cost accounting systems necessary for a top-down approach.
- **1.2.** However, LIME also believes that the OUR has not adequately highlighted the weaknesses of bottom-up modeling and therewith neglected to discuss or propose measures to mitigate the risks associated with the approach. Accordingly we consider it necessary to point them out in our response.
- **1.3.** First, we wish to qualify the characterization that the "European Commission's Recommendation" states that bottom-up models are "state of the art" as the OUR puts it. The Consultation Document unfortunately does not say to which of the many EC recommendations related to costing the OUR refers. We suspect it may be "Commission Recommendation of 11.9.2013 on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment", which contains the statement:

"The bottom-up long-run incremental costs plus (BU LRIC+) costing methodology best meets [the] objectives for setting prices of the regulated wholesale access services. This methodology models the incremental capital (including sunk) and operating costs borne by a hypothetically efficient operator in providing all access services and adds a mark-up for strict recovery of common costs. Therefore, the BU LRIC+ methodology allows for recovery of the total efficiently incurred costs."

1.4. But, of course, this unambiguously positive statement deals with broadband access and not termination. We would argue that the more relevant "state of the art" view of EC on the interconnection service costing derives from its recommendation on 7 May 2009 on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU. We note that it emphasizes the potential disconnect between theory and reality in bottom-up modeling:

"Given the fact that a bottom-up model is based largely on derived data, e.g. network costs are computed using information from equipment vendors, regulators may wish to reconcile the results of a bottom-up model with the results of a top-down model in order to produce as robust results as possible and to avoid large discrepancies in operating cost, capital cost and cost allocation between a bypothetical and a real operator. In order to identify and improve possible shortcomings of the bottom-up model, such as information asymmetry, the NRA may compare the results of the bottom-up model which uses audited data."

- **1.5.** The weaknesses of bottom-up models are widely recognized, i.e., that they are very poor at estimating of operating costs, ignore the "organic" nature of network growth and tend to underestimate or omit costs because the network design function never has to leave the spreadsheet and be tested by real-world implementation.
- **1.6.** The Consultation Document underplays these weaknesses. Moreover, Jamaican circumstances increase the odds that costs will be omitted in a bottom up approach. In particular:

- i. in the absence of disaggregated financials, there is less of a chance that poor estimations and cost omissions will be caught; and
- ii. as opposed to the mobile case, there is only one operator who may be able to offer insight into the actual reality of a new rollout of a national telco network—LIME Jamaica. It is true that there is another fixed line operator, but as we will discuss later that information from that operator's network is unlikely to be relevant or may indeed cause more cost omission and distortion, rather than less.
- **1.7.** Finally, the OUR appears predisposed to throw out cost. The Consultation Document makes many statements that certain types of costs will be disregarded on the basis that it assumes they are insignificant, e.g., spectrum fees for microwave transmission costs and way fees for core network construction. Thus, costs often are therefore presumed "guilty" of being inefficient or insignificant.
- **1.8.** In summary, although we acknowledge that there is little choice but to undertake a bottom-up approach, the OUR must make extra effort to ensure that costs are not omitted given both the tendency towards omission in the bottom-up and the particular context in which the modeling is being implemented.

2. Questions 2: Do you agree with the decision of covering the period 2013-2020 with interconnection rates set for 2016 to 2020, i.e., setting rates for five years? Please explain your views.

2.1. LIME agrees with the proposal to model a period of 2013-2020 and set interconnection rates for 2016-2020. Setting rate for a period of 4-5 years is consistent with international practice and strikes a balance between the need to track the cost-base but avoid overly frequent rate-setting proceedings. Furthermore, given the proceeding timeline, 2016 is

the earliest that the rates could be introduced. With these considerations in mind and, given the latest full year period of financial results available today is 2013, the model timeframe of 2013-2020 makes sense.

3. Question 3: Do you agree with the proposed data sources to be used? Please explain your views.

- **3.1.** LIME agrees that information provided by relevant operators in Jamaica should be the primary and preferential source of data to populate and calibrate the BULRIC model. However, the OUR must be very careful about the appropriateness of the information from operators for certain facets of the modeling. As we have alluded to above and will speak in more detail below, just because an operator offers a fixed voice service, for example, does not necessarily qualify its inputs as appropriate for this exercise. There will be certain methodological underpinnings to this model that may make certain stakeholder information irrelevant or misleading.
- **3.2.** With respect to the process of data gathering, we can agree in a general sense with the need to adopt international benchmarks if data provided by the operators are not sufficiently reliable or simply cannot be provided by them. However, two important aspects should be added to the proposed process:
 - i. The time element--Stakeholders should be able to supply data throughout the modeling process as data needs are identified and sources become available; and
 - ii. Benchmark vetting—Stakeholders must be able to vet any international benchmarks proposed.

- 4. Question 4: Do you agree with including Pure LRIC, LRIC+ and SAC standards in the BULRIC model and the methodologies chosen for the allocation of common and joint costs? Please explain your views.
 - **4.1.** LIME agrees that it would be desirable to have a model that captures Pure LRIC, LRIC+ and SAC. However, we note that the approach described by the OUR will not provide the SAC of termination services. In order to do so, the model would have to include the access network as without the access network calls could not be terminated. That said, as the Act requires termination services to be provided at Pure LRIC and the OUR is proposing glide path rates at LRIC+, LIME does not consider the absence of a SAC standard for termination services a major issue.
 - **4.2.** With respect to the Pure LRIC requirement for termination services, LIME notes that the competitive circumstances in the retail market for fixed services is very different from that in the retail market for mobile services. Digicel's super-dominance and willingness to use such dominance to behave anti-competitively required an aggressive approach to mobile termination rate-setting. The anti-competitive distortions, such as cross-subsidization, ring fencing, and higher retail rates, which derive from above-cost termination rates required a move to Pure LRIC.
 - **4.3.** In the fixed market, the absence of this competitive distortion would suggest that a move to Pure LRIC is not necessary from a policy perspective. However, given that the standard is required by law, LIME acknowledges, the OUR has little choice but to apply Pure LRIC.
 - **4.4.** With respect to allocation of joint and common costs for the LRIC+ Standard, LIME agrees that network joint and common costs should be allocated according to the Shapley-Shubik approach. An Equi-Proportional Mark-up (EPMU) could lead to distorted results and would be highly unusual for network common cost allocation. Ramsey pricing

is, we agree, difficult to implement and, again, would be a highly unusual approach. Finally, of the two common practices—capacity or Shapley-Shubik—we agree that the latter should be used to retain consistency with the OUR's previous approach to network cost modeling.

- **4.5.** Finally, LIME agrees with the proposal to apply EPMU for the allocation of Non-network common costs, as this is a typical, straightforward approach and is consistent with the approach used in the OUR mobile LRIC modeling.
- 5. Question 5: Do you agree that Network CapEx, Network OpEx, License, Retail Costs, G&A Expenses and Cost of Capital should be included in the cost base of the BULRIC Model in the manner indicated? Please explain your views.
 - **5.1.** LIME can agree with much of what the OUR proposes in terms of what Network Capex, Network Opex, and G&A Costs and that license fees costs should be included. However, the devil is in the details, and we will not be able to understand the OUR's complete thinking on construction of the costs are until we see the actual model.
 - **5.2.** Furthermore, the OUR should confirm that Capex must include all the capitalized costs that go into installation and operationalizing the investments. So, it must include relevant transport, duties, capitalized labour (e.g., planning and installation) costs.
 - **5.3.** LIME believes that Spectrum fees should be included if they are significant.
 - **5.4.** LIME disagrees that any way fees should be disregarded because they are pertinent only to the access network. Any way fees for infrastructure deployment would relate to both access and core infrastructure, just as duct and trenching costs are. We therefore propose that any way fees be included in the model, but be subject to the same parameter or allocation

mechanism that splits duct and trenching costs between access and core networks.

- 5.5. With respect to Retail Costs, LIME generally agrees with the proposed approach to include them in the model. However, there is one aspect, which may or may not be problematic. The OUR's proposes using the percentage revenue associated to traffic services over the total revenues of fixed services to estimate retail costs associated with traffic services. While definitely an easily implementable rule, this approach may lead to Retail services that involve both an access and a traffic distortion. component-which represent the lion's share of all telecommunications service provided—are often provided along a cost structure that is different from the revenue structure. The classic example is any voice telephony product that involves an access and usage component. Those components, even if unregulated, are typically sold on a "two part" tariff basis, where access is often sold cost and usage above cost. In such as case, using the percentage revenue associated to traffic services over the total revenues of the fixed services to estimate retail costs associated with traffic services will over estimate those costs.
- **5.6.** That said, it is not clear that the approach would cause undue distortion and no better alternative may be found. From LIME's perspective, it is simply too early to say whether this is likely to be the case. We therefore suggest that the OUR use this approach unless a more accurate method can be determined during the model construction and review period.
- **5.7.** With respect to the cost of capital, we believe the OUR has little choice but to apply the nominal Pre-Tax WACC of 24.39%. In confirmation of its proposal to the analogous question in the mobile LRIC proceeding, the OUR stated¹:

¹ Cost Model for Mobile Termination Rates – The Decision on Rates Determination Notice Document No: TEL2013001_DET001 May 30, 2013.

"The Office agrees with both parties that the pre-tax nominal WACC should be used. However the Office disagrees with DIGICEL that the WACC value should be updated. The WACC has been set by the Determination Notice "Estimate of the Weighted Average Cost of Capital for Telecommunications Carriers" Document No. TEL2009005_DET001 published on December 9, 2010. It is clearly stated that the WACC value has been calculated to be an input of the cost model:

> "The estimated cost of capital will be used by the Office as an input into the next Price-Cap for LIME, the determination of interconnection charges between carriers, and any other tariffs that may need to be established by the Office."

6. Question 6: Do you agree with the proposal on the treatment of OpEx in the BULRIC models? Please explain your views.

- **6.1.** The OUR proposes that OpEx be based on "bottom-up calculations in those cases where such bottom-up determination of OpEx is feasible and adequate data is available." It is difficult to evaluate this proposal without a more concrete exposition of how the OUR proposes to implement a bottom-up calculation for network opex categories. LIME agrees that a bottom-up calculation, in theory, would be a more methodologically consistent aim. However, because it is not clear what a bottom-up calculation would look like--even where the OUR believes that it has "feasible" and has "adequate" data for such calculation--the results should be cross-checked with benchmark expense factors.
- **6.2.** The OUR proposes to divide up G&A costs on the basis of revenue. As indicated above, From LIME's perspective, it is simply too early to say whether this approach is likely to lead to undue distortion, and suggest that the OUR use this approach unless a more accurate method can be determined during the model review period.

7. Question 7: Do you agree with the OUR's view on how assets should be valued? Please explain your views.

7.1. LIME agrees that the static CCA approach is an appropriate choice for this modeling exercise as we are assuming the cost of network build today.

8. Question 8. Do you agree with the OUR's view in the application of MEA?

- **8.1.** While LIME generally agrees that modern equivalent assets be used in the modeling, we believe that, with respect to NGN technology and transmission, a hybrid approach is used in order to capture the state of the fixed network in the coming years. We discuss this hybrid approach in our response to Question 15 below.
- **8.2.** We note here that the OUR implies (at para 4.47) that a new entrant would not commonly install traditional switching nodes and thus it would not be appropriate to model traditional switching; however, the OUR also implies (at para 5.52) that the assumption of a new entrant operating a national network can be justified with a complementary assumption that a new entrant could gain a national scale through "purchase of wholesale [network] inputs". In the Jamaican case, were the new entrant to do so it would have to purchase a significant amount of traditional switching and TDM transmission from the incumbent as that is the predominant technology for fixed voice in the country.

9. Question 9: Do you agree with the OUR's view to implement tilted annuities in the BULRIC model?

9.1. LIME agrees that the tilted annuity approach strikes the best balance between economic appropriateness and ease of implementation. Based on the OUR's description, we assume that it would apply the following formula:

$$\frac{WACC - \Delta p}{1 - \left(\frac{1 + \Delta p}{1 + WACC}\right)^{Asset \, life}} \times Asset \, Value$$

where

- *WACC* = the weighted average cost of capital;
- $\Delta p = rate of price change ("tilt");$
- Asset Value = the current investment cost of the asset; and
- Asset Life = the useful life of the asset.
- 10. Question 10: Do you agree with the OUR that Network OpEx Working capital (and not CapEx related) should be considered in BULRIC Models, provided it is relevant and has been efficiently incurred? Please explain your views.
 - **10.1.**With respect to CapEx-related working capital, LIME believes that it should be included in the model. It also believes that the OUR is. in fact, proposing to incorporate CapEx-related working capital, but just not a separate calculation. However, LIME is not clear as to what the OUR

has in mind: its "planning-horizon" concept is neither well explained nor, in our experience, common terminology for this type of exercise.

- **10.2.** In any case, LIME believes that the OUR should apply the same approach as was implemented in the mobile LRIC modeling where annuities are effectively multiplied by an estimated period before an asset is put in service. The OUR should confirm that this is what it has in mind and how it intends to implement.
- **10.3.** Finally, LIME agrees with the proposed approach to Network OpEx Working Capital whereby if the information provided by the operators indicates a positive working capital, an efficient magnitude should be included in the model. It is not entirely clear from the Consultation Document how Network OpEx Working Capital will be introduced, we understand that it would be derived as a percentage of opex, but applied as a mark-up to Network Capex. The OUR should clarify this.

11. Question 11: Do you agree with the OUR that Retail Working Capital should be included in the retail costs considered? Please explain your views.

11.1. LIME agrees with the proposed approach to include an efficient amount of Retail Working Capital if the information provided by the operators indicates a positive working capital. As with the case of Network OpEx, it is not entirely clear from the Consultation Document how the OUR propose to introduce Retail Working Capital in the model, we assume that it would be derived as a percentage of opex, but applied as a mark-up to Retail Capex. The OUR should clarify this.

- 12. Question 12: Do you agree with the OUR that the BULRIC model for fixed interconnection should consider a reference operator with the characteristics described above? Please explain your views.
 - **12.1.**LIME agrees that the reference operator should be a fixed operator with demand similar to LIME. We concur that this is most common international practice. It also simplifies the assumptions for model implementation.
- 13. Question 13: Do you agree with the OUR that the BULRIC model should be based on a yearly approach and that the forward-looking filtering tool should be implemented? If not, please explain your views.
 - **13.1.**A "yearly approach" to dimensioning the network in the derivation of service costs for each year is consistent with the approach used in the mobile LRIC proceeding. Therefore LIME believes this is what the OUR should implement. However, LIME is concerned that the OUR never explains what it means by the "forward-looking filtering tool" that appears in Question 13. We trust that the OUR will provide an opportunity to stakeholders to comment on this "tool" and will modify its approach if it is determined to be inappropriate.
- 14. Question 14: Do you agree with the proposed list of services and the grouping of services into increments for the BULRIC model for fixed interconnection? In the case that you have a different view, please support with rationale.
 - 14.1.LIME agrees with the proposed list of services found in Annex A.
 - **14.2.** LIME agrees with the proposed increments.

- 15. Question 15: Do you agree with the OUR's approach for Fixed Network modeling? In case you have a different view, please support with rationale.
 - **15.1.** There are a number of points that LIME agrees with in the OUR's Fixed Network Design section; however, the OUR has also made some proposals that are not appropriate, could be improved upon or are underspecified. For ease of exposition, we break down the OUR's statements on Fixed Network Design into six discrete proposals, 15.1.1-15.6.1
 - **15.1.1. Proposal 15.1.1;** the OUR explains that a definition needs to be made between the access and core networks to ensure that "all resources required for the provision of traffic services are included in the model and those related to access services are not." LIME agrees that such a demarcation is needed so that costs that are driven by the number of subscriber access lines are not included in the derivation of costs of traffic services. However, as we describe below, the technology, configuration and manner of deployment of the access network influences the costs of the core network and therewith the costs of traffic services. Furthermore, we note that in Exhibit 6.1 the access network is termed "irrelevant" for fixed interconnection. We do not agree that the access network is irrelevant to core network costs. The type of access network will determine the number and type of access nodes required, which, in turn, will influence core network costs.
 - **15.1.2.** <u>Proposal 15.1.2.</u>; The OUR proposes to define the point of demarcation between the access and core network as line card in the access node, i.e., the access network would include the assets between the customer's premise up to and including the line card; the core network would include facilities "above" the line card. LIME agrees with this point of demarcation.
 - **15.1.3. Proposal 15.1.3 ;** the OUR proposes a "modified scorched node approach" in which it assumes that:

- i. "existing geographical locations of the main access nodes (for example, local exchanges) will be taken at the starting point"; and
- ii. "the geographical locations of the main access nodes may be altered only where clearly identified inefficiencies are detected".

Furthermore, the OUR is "inclined to consider"

- iii. the node topology "if LIME and FLOW's network were merged". The OUR caveats that in order to implement this, it must have "clear visibility of any merger plans, for instance the final list of nodes that would be operative if the merging process is closed and the final topology".
- 15.1.3.1. LIME finds the OUR's proposals problematic in a number of ways:
 - i. It is inconsistent with the core technology assumptions that the OUR proposes. If the OUR assumes that the access nodes are Multi-Service Access Nodes, as opposed to TDM access nodes, then, the number and location of its current access node will be inappropriate. Access nodes providing broadband services are required to be closer to subscribers than legacy remotes. Therefore, many more access nodes will be needed in the model than are currently deployed by LIME. We note that at least one of the benchmark modeling cases (Norway) employed--a factor within the model--for multiplying the locations for node deployment in the transition from TDM access nodes to MSANs.
 - ii. Relatedly, there is no recognition of that fact current penetration of modern access node in Jamaica is likely to

be far lower than the overwhelming majority of the benchmark countries cited in the Supporting Annex. In at least two of the benchmark countries (Cayman and ECTEL) provision had to be made for increasing the number of access nodes in acknowledgement that the transition to a converged voice and data network would require more access nodes than the transitional TDM + IP state.

- iii. the OUR's phrasing in its proposal is worrisome at points. For instance, it uses the example of "local exchanges" for "main access nodes" when local exchanges constitute only a small minority of the access nodes currently deployed. Also, what does the OUR mean by "main" access nodes? The OUR should consider all access nodes, and, in fact, it will have to project all access nodes necessary to be consistent with the technology assumed. For example, this year even without merger, LIME planned to deploy ##### MSANs, while decommissioning only one or two legacy nodes.
- iv. the use of FLOW access node data would be misleading. It is not entirely clear what the OUR is proposing with respect to consideration of FLOW's access network. It is important to keep in mind that comparing FLOW's network and LIME's network is like comparing apples and oranges.² It is true that the merger may impact the location of nodes, but it will not impact the number of

² For example, a cable TV network is almost entirely comprised of the access layer—the core network is relatively small. The access layer of a cable TV network is a shared medium, thus a) most of it is traffic sensitive and b) the demarcation point between traffic sensitive and non-traffic sensitive network elements is much closer to the customer than in a telco network.

nodes, which will have to be significantly greater than the number of nodes that LIME current operates.

- **15.1.4.** <u>**Proposal 15.1.4;**</u> for the "core network technology" the OUR proposes an all-IP network with media gateways to provide TDM connectivity for connection with traditional networks.
 - 15.1.4.1. LIME disagrees with the proposed approach for three reasons;
 - i. Jamaica is far from having an all-IP core network for voice carriage. As indicated from LIME's data submission TDM legacy network carries the majority of the fixed voice traffic in the country.
 - ii. There is no clear benchmark on this aspect of LRIC modelling. The OUR's own benchmarking shows that six out of fourteen benchmarked models used TDM legacy network for core network technology, and all of those cases are in countries with greater broadband penetration than Jamaica.
 - iii. The proposal is inconsistent with the approach taken in the Jamaican mobile LRIC model undertaken a short time ago. The assumption for that model was a hybrid of 2G and 3G technology reflecting the reality on the ground of 2G still carrying the majority of the traffic despite the fact that a new entrant would be unlikely deploy 2G technology.
 - 15.1.4.2. LIME proposes a forward-looking view of modeling of the Jamaica fixed network that is be more consistent with the realities of Jamaican deployment and the "migration approach" found in the mobile LRIC modeling conducted in Jamaica recently. The OUR should apply a TDM to NGN migration profile into the model. At a high-level, the approach would appear as in the diagram taken from the Analysis-Mason documentation in the Norwegian modeling.

Network design module • Demand conversion

High-level flow of the calculations in the network design module



Source: NPT's fixed long-incremental cost model: Core Model v1.4 documentation, 27 January 2011, p. 49. Analysys Mason.

15.1.4.3. In this approach, all traffic would end up in the NGN core, but more realistically a certain proportion of TDM access (remotes) and distribution nodes (local switches) would be retained linked to the IP core through media-gateways. This proportion would diminish over the modeling period. Again,

the logic is depicted with reference to the Norway model below.

Modelled PSTN topology



Source: NPT's fixed long-incremental cost model: Core Model v1.4 documentation, 27 January 2011, pg. 55. Analysys Mason.

15.1.4.4. All IP traffic originating and terminating at DSLAMs would be carried over an IP network as indicated in the diagram below. Data and voice converge in the core.



- Core routers (CR): deployed at a subset of core nodes
 - fully meshed using level 1 transmission
- Distribution routers (DR): deployed at a subset of distribution nodes, with one DR co-located at each CR
 - connects to 2 CR over level 2 transmission

- Edge routers (ER): deployed at a subset of access node hubs
 - connect to 2 DR over level 3 transmission
- DSLAM/MSAN: deployment dependent on number of activated exchanges and active lines per exchange

Source: NPT's fixed long-incremental cost model: Core Model v1.4 documentation, 27 January 2011, pg. 70. Analysys Mason.

- 15.1.4.5. The migration would be effected by replacement of the DSLAMs and Remotes (RSXs) with MSANs that would converge voice and data at the access layer.
- 15.1.4.6. The migration functionality is no more difficult to implement that the 2G to 3G migration implemented in the LRIC modeling for the mobile network by the OUR two years ago. In particular, the Norway model includes an MSAN

deployment profile³ indicating the percentages of access nodes (by size) that replaced by MSAN over the modeled period.

- 15.1.4.7. Total replacement across all nodes is assumed for the period 2011-2015. The OUR could apply a similar time frame for Jamaica: 2014-2020.
- **15.1.5. Proposal 15.1.5;** the OUR presents a preliminary list of network elements to be modeled for the core network.
 - 15.1.5.1. At this point LIME has only three general comments on the list of network elements in Annex B:
 - i. this list would naturally have to change were the assumptions regarding the core network and/or transmission technology to change;
 - ii. "the devil is in the details"--these components are not well defined and, if complete, would imply that they aggregate together sub-elements. We will have to be very careful to ensure that all relevant costs are captured by this list; and
 - iii. how these network components are to be articulated may depend heavily on what bill of sales and invoices are found.

³ Documentation and models found at <u>http://eng.nkom.no/market/market-regulation-smp/cost-model/lric-for-fixed-core-networks</u>. See Network Design workbook. Sheets "A2bNwDesIn", cells AH59:AL63and "A6_NwDes", cells AD246:AH250.

- **15.1.6. Proposal 15.1.6;** the OUR proposes "to consider Native Ethernet fibre transmission" and Ethernet over WDM technologies" and the microwave links should be "used for the connection of remote nodes for which this technology is more cost-efficient than fibre links."
 - 15.1.6.1. LIME disagrees with the proposed approach and many of our points mirror that made under Proposal 15.4 above:
 - i. Most of the core network transmission supporting voice traffic in Jamaica is SDH, not Ethernet or WDM;
 - ii. There is no clear benchmark on this score. In the OUR's own benchmarking many of benchmarked models used SDH fibre transmission in the core; and
 - iii. The proposal is inconsistent with the approach taken in the Jamaican mobile LRIC case. The assumption was a hybrid of 2G and 3G technology reflecting the reality on the ground of 2G still carrying the majority of the traffic despite the fact that a new entrant would be unlikely to deploy 2G technology.
 - iv. it is difficult to understand what the OUR is proposing exactly. For example, on what basis will it determine whether to assume Native Ethernet or Ethernet over WDM? How will it determine whether microwave links are more effective than fibre?
 - 15.1.6.2. We therefore propose that a hybrid approach is implemented whereby SDH fibre transmission is utilized between TDM access nodes and the Core, WDM or Ethernet for DSLAM and MSAN transmission to the edge and WDM rings for edge, distribution and core layers. As discussed

above, as TDM access nodes are migrated to MSANs, the transmission will migrate from SDH to the same transmission technology as the IP network.

- 15.1.6.3. Again this migration is not complex ⁴ and would be consistent with the 2G to 3G migration in the previous LRIC exercise
- 15.1.6.4. Finally, we note that there are some issues that we would have expected to find discussion of in the Fixed Network Design section of this Consultation Document, but did not. For example, the OUR does not discuss how it proposes to configure the core layer above the access nodes, nor how it proposes to derive duct and fibre lengths in the model. We assume that we will be given an opportunity to comment on all these methodological questions before model construction.
- 16. Question 16: Do you agree with the OUR's proposal to implement a glide path for adjusting the rates from the TLRIC termination rate to the pure LRIC termination rate if there is a significant dollar value difference between the rates? Please provide reasons for your response.
 - **16.1.**LIME disagrees with the approach proposed by the OUR with respect to the glidepath. It is first worth highlighting the three elements to the OUR's glidepath proposal on pages 44-45 of the Consultation Document:
 - i. "if the existing termination rate is above the TLRIC rate estimated by the model, then that means the operator has reaped significant benefit from having a termination rate which is above cost. In this case, the OUR proposes to immediately adjust the termination rate to its TLRIC rate."

⁴ Again for an example, see the Network Design workbook of the previously referred to Norwegian model, Sheets "A2bNwDesIn", "A6_NwDes", and "B1 FullNw".

- ii. the OUR will then "allow a glidepath from the TLRIC rate to the pure LRIC rate".
- iii. the OUR will decide on the "exact length of the glidepath after the model is developed and the fixed termination rate is calculated. However, the maximum period that will be considered for rates to adjust to cost is two (2) years."
- **16.2.** With respect to the first element, we disagree with the supposition that if the TLRIC rate is above the existing termination rate, LIME will have "reaped significant benefit". LIME reminds the OUR that the TLRIC derived through this proceeding is not a cost based on LIME networks, but an optimized network. One cannot assert that the existing termination rate generates above normal profits for LIME simply because it is higher than the TLRIC rate developed from a model of an optimized network. In this light, an immediate move to TLRIC would be unjustifiably punitive. We note that the situation with the fixed network is completely different from that that with the mobile networks where the rates implemented before the LRIC modeling were not cost-based and clearly far above the costs of termination.
- **16.3.** As a side note, we understand that the OUR's anticipates the termination rate that results from this process will not be "substantially different what exists now." It is interesting, then, that the OUR did not discuss the glidepath approach if opposite case resulted, i.e., if the existing termination rate is below the TLRIC. Would this imply that the LIME had incurred significant losses on its termination service? What would the glidepath look like in that case?
- **16.4.** With respect to the second element, we agree that the glidepath should follow from the existing rate to the TLRIC to the pure LRIC rate.
- **16.5.** However, with respect to the third element, we believe it is not fair to cap arbitrarily the glidepath period to two (2) years. The OUR's justification for the cap appears to be that is that the fixed termination rate is above the mobile termination rate. We do not believe this to be

the case (the average fixed termination rate is in fact above the moble termination rate); however, in any case, LIME fails to see the relevance. Finally, we note that the OUR in its July 24, 2012 Determination Notice indicated that the glidepath for the mobile termination rate would not exceed three (3) years. If the OUR feels that the glidepath adjustment period should be capped, three years is the more relevant timeframe.

- **16.6.** Thus, LIME believes that the glide path for fixed interconnection should follow the following timeline:
 - 2016: Existing rates
 - 2017: TLRIC rates
 - 2018: Reduction to half of the difference to the pure LRIC rate determined by model for 2019
 - 2019: pure LRIC rates determined by model for 2019
 - 2020: pure LRIC rates determined by model for 2020

17. Question 17: Do you agree with the OUR's proposal not to allow peak/off-peak price gradients for fixed interconnection rates? If not, please explain your views.

17.1.LIME disagrees with the OUR's proposal to remove the gradient of peak and off-peak pricing. Firstly, such pricing encourages a more economic use of the network. Higher peak price encourages customers with flexibility of usage to shift the usage to off peak time where there is excess capacity available. Secondly, modeling for a single price point is problematic as debatable assumptions on busy hour voice traffic would have to be developed to reflect what would have been case if the price gradient had not existed. Retaining the existing gradient would allow us to use observed busy hour traffic level. Finally, such a gradient is very often found in interconnection pricing. Retaining the status quo structure would be consistent with international best practice.

- 18. Question 18: Do you agree with the proposal to charge for fixed interconnection using only duration per minute billed on a per second basis? If not, please explain and propose alternatives.
 - **18.1.**LIME does not have an issue with transitioning to a charge basis that is only duration based. However, we must ensure that all the cost components included in the derivation of the current interconnection specific, calls set-up and call duration charge are covered in the new duration charge.
- 19. Questions 19: Do you agree with the proposal to define two charges depending on the interconnection level? If not, please explain your views.
 - **19.1.**LIME does not oppose moving to a two-level set of charges from the current three levels so long as the new structure of the charges does not disadvantage the interconnection service provider. For example, a simple average of the current regional and national rates multiplied by the total traffic of regional and national rates would provide unjustifiably less revenue than the current structure and associated traffic levels. A blended rate would be possible but it would need to reflect the relative volumes of different traffic types.

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