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LIME

Our Ref: 15.19

30 June, 2010

Mr. David Archbold
Managing Director
Information and Communication Technology Authority,
P.O. Box 2502GT,
3rd Floor Alissta Towers,
Grand Cayman.

Dear Mr. Archbold,

Re: Second Round Interrogatories Regarding LIME's FLLRIC Phase 3 Submissions – LIME's Response to Interrogatories

Cable and Wireless (Cayman Islands) Limited, trading as LIME ("LIME") is submitting the attached responses to the Authority's 13 May 2010 interrogatories, as modified by the Authority's 27 May 2010 email, on the above-noted subject. Some of the company's interrogatory responses are being submitted in confidence, and redacted versions of the responses will be provided for the public record.

Also attached are confidential revised versions of the fixed, 2G mobile, and 3G mobile modules, and revised confidential versions of Appendix I, part I and Appendix V. Redacted versions of the revised modules and Appendix V will be provided for the public record.

Please do not hesitate to contact the undersigned if you should have any questions.

Sincerely yours,

Cable and Wireless (Cayman Islands) Ltd. d.b.a. LIME

'Signed'

Anthony Ritch
General Manager, LIME (Cayman Islands)

c.c. Donald Austin, EVP Legal Regulatory and Corporate Affairs
Frans Vandendries, VP Legal Regulatory and Corporate Affairs (Central)
FLLRIC distribution list

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1. In the first round interrogatory no. 1 the Authority noted that the Duct Unit Cost section of the 'Cost Assumptions' sheet (cells A16:I78) contained various jointing box input costs, but that none of these costs were used in the costing of duct. In its response LIME acknowledged this omission and that it had included Jointing Box costs in its calculation of the cost of duct. The Authority has reviewed the relevant section of the 'Cost Assumptions' sheet and the 'Duct Calculations' sheet and has been unable to identify how Jointing Box costs have been included in the fixed module ('CYM fixed - updated 09_11_16 Conf.xls'). Provide a detailed explanation including cell references of how Jointing Box costs have been included.

RESPONSE

LIME acknowledges the omission of Jointing Box costs in the costing of duct. The attached revised fixed module corrects this oversight. See, CYM fixed – updated 10_06_30 Conf.xls, "Duct Calculations" sheet, cells H5:K12.

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2. In the Access Cost part of the 'Cost Assumptions' sheet, Aerial Copper wire 1200 pair (cell C109) is more costly than 1800 pair (cell C110). Confirm the accuracy of these inputs.

RESPONSE

LIME has determined that the cost inputs for Aerial Copper wire 1200 pair and 1800 pair were not accurate. The figures were transposed. The attached revised fixed module corrects this error. See, CYM fixed – updated 10_06_30 Conf.xls, "Cost Assumptions" sheet, C109:C110.

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3. LIME has provided an input for the island-wide media mix and an entrant specific media mix in the 'Cost Assumptions' sheet (cells C136:C138 and C142:C144 respectively). Only the island-wide media mix is used. Explain the relevance and purpose of the entrant specific mix.

RESPONSE

The entrant-specific media inputs have been determined to be no longer relevant to the cost model and have been removed from the fixed module. See, CYM fixed – updated 10_06_30 Conf.xls, "Cost Assumptions" sheet, rows 141:144.

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4. In response to first round interrogatory no. 18 LIME noted that the cost of payphones (cell E281 of the 'Cost Assumptions' sheet) was obtained from the Company's fixed asset register 2008 (recently purchased and installed) which was submitted to the Authority under Appendix III of LIME's response to the ICT Decision 2008-2. The Authority notes that Appendix III part 1 sheet 'Assumptions and Drivers' and 'Cay assets up to 3yrs old v3' contains numerous costs related to payphones. However, the Authority has not been able to identify how the cost in the 'Other Cost Assumptions' section of the 'Cost Assumptions' sheet (cell E281) has been developed based on the data in Appendix III part 1. Provide a detailed explanation of the of how the payphone cost estimate in cell E281 of the 'Cost Assumptions' sheet was developed using the information available in Appendix III part 1.

RESPONSE

The per unit, gross book value of Public Pay Phone Equipment is \$### and is reported in Appendix III Part I, "Cay assets up to 3yrs old v3" sheet, cells AE1334:AE1526. This amount now corresponds to the Payphone Equipment Unit Cost reported in the "Cost Assumptions" sheet in the attached revised fixed module. See, CYM fixed – updated 10_06_30 Conf.xls, "Cost Assumptions" sheet, cell E281.

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5. In the 'Cost Assumptions' sheet, the Authority notes that duty is not consistently applied to spares. For example, no duty is applied to E87 and H87 while duty is applied to E192 and E285. Review the calculations in 'Cost Assumptions' sheet to ensure that duty on spares is included where this is relevant. Provide a detailed rationale for why duty is sometimes applied to only equipment purchase price and other times to equipment purchase price and spares.

RESPONSE

LIME acknowledges the omission of import duty applied to spares in cells E19:E181. The attached revised fixed module corrects this oversight. See, CYM fixed – updated 10_06_30 Conf.xls, "Cost Assumptions" sheet, E19:E181.

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6. The 'Reval_Assets' sheet would appear to contain links to an older version of the 2G module, see for example cell AU1. Ensure all links are appropriately updated.

RESPONSE

LIME acknowledges links contained in the "Reval_Assets" sheet, cells AU1:CD1 were directed to an older, now obsolete, version of the 2G module. The attached revised fixed module corrects this oversight. See, CYM fixed – updated 10_06_30 Conf.xls, "Reval_Assets" sheet, cells AU1:CD1.

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7. The 'FAC_Input' sheet contains links to Appendix IV whose full worksheet name does not match the one submitted on 16 November 2009. Update the link to refer to the most recently submitted version of the Appendix and ensure all links work as intended.

RESPONSE

Links in the "FAC Input" sheet of the attached revised fixed module have been updated to refer to the current Appendix IV (09_11_16 Appendix IV-FAC-TD Values 07-04-09 conf_revised (int 120).xls) and work as intended. See, CYM fixed – updated 10_06_30 Conf.xls, "FAC Input" sheet, various cells.

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8. The 'International TX Costs' sheet contains links to a version of the mobile module named '06-11-09-CYM Mobile 07-04-09 conf.xls' in cell C36. The Authority has not received a version of the mobile module named as stated. Ensure all links are appropriately updated.

RESPONSE

Link found in the fixed module, "International TX Costs" sheet, cell C36 has been corrected. See, CYM fixed – updated 10_06_30 Conf.xls, "International TX Costs" sheet, cell C36.

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9. In cable cost section of the 'Access Cost' sheet LIME relies on a trend calculation using cable size 25, 50 and 100 pair and their respective costs. The Excel TREND function is used to perform Linear Regression. A least squares criterion is used and TREND tries to find the best fit under that criterion. Provide a justification for this approach, specifically why it is appropriate to use three data points to estimate cable size costs not included in the model. In addition, confirm the technical availability of cable sizes used in those cases where cost are estimated using the TREND function.

RESPONSE

LIME has adjusted the calculations found in the "Access Cost" sheet, cells G7:H89 as follows:

- LIME has interpolated the unobserved cost of cable that lie between cable with observed cost. For instance, the costs of UG cable size 75 (in cells G18:H18) are estimated based on an interpolation of the observed costs of UG cable 50 and 100 (in cells G17:H17 and G19:H19). A similar procedure is employed to interpolate the costs of aerial cable and joints.
- LIME has extrapolated the unobserved cost of cable that lie beyond cable with observed cost. For instance, the cost of UG cable sizes 2150, 2400 and 2800 (in cells G30:H32) are estimated using the TREND function on a sample of 11 observations of the following cable sizes (and their respective costs): 25, 50, 100, 150, 200, 300, 400, 600, 800, 1200, and 1800. A similar procedure is employed to extrapolate the costs of aerial cable and joints.

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10. In the 'Access Cost' sheet, LIME calculates a weighted average cost of drop wire using the km length of 5 pair UG D-side wire and 6 pair Aerial D-side wire. Explain the adequacy of the this approach considering the model also includes 2 and 6 pair UG D-side wire and 5 pair Aerial D-side wire.

RESPONSE

LIME has modified the calculation of the weighted average cost of drop wire to be based on a weighted average of 5 pair UG D-side wire and 5 pair Aerial D-side wire. See, CYM fixed – updated 10_06_30 Conf.xls, "Access Cost" sheet, cell I127.

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11. During the first round of interrogatories, the Authority queried the calculation of the number of joints for various fibre sizes and types in the 'Core Fibre Costs' sheet (interrogatory no. 50). In particular, the Authority asked LIME to explain the addition of 0.5 in the formula. LIME responded that the intention of adding 0.5 to the calculation is to round to the nearest whole number, noting however, that the formula was missing a key component, namely the Excel 'ROUND' formula. The Authority notes that by using the ROUND formula and adding 0.5, LIME is always rounding up to the nearest integer except in the cases where the number to be rounded itself is a whole number. For example, the LIME methodology will round the number 1 up to 2 or the number 0 up to 1. This is contrary to the purpose expressed by LIME. An alternative to LIME's approach would be to use the Excel formula ROUNDUP without adding 0.5. If LIME agrees with this alternative approach, provide a revised module with the appropriate changes or provide comments on why the alternative approach would not be suitable.

RESPONSE

LIME agrees with the alternative approach proposed by the Authority and has revised the "Core Fibre Costs" sheet accordingly. See, CYM fixed – updated 10_06_30 Conf.xls, "Core Fibre Costs" sheet, cells E12:L12.

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12. In LIME's response to the Authority's first round interrogatory no. 59: *"The allocation in the 'Cost Summary & Mapping' sheet of annualized duct cost to 'Host-Host' and 'Host-Remote' (cells F33:G33) is a pro-rata allocation based upon the annualized cost of fibre and joints. The costs assigned to 'Host-Remote' include the pole costs. Explain why the rental costs of poles should be included when estimating an allocation key for splitting the annualized cost of duct into 'Host-Host' and 'Host-Remote'"*, it explains that it has been unable to find the reference to the application of pole cost to Host-Remote annualized cost. In the Authority's letter for the first round of interrogatories, it was indicated that LIME should contact Authority staff if it had any questions about the contents of the interrogatories. To ensure a swift and efficient interrogatory process the Authority continues to encourage LIME to contact the Authority should it have difficulty in the interpretation of any interrogatory. With regard to first round interrogatory no. 59 the Authority refers LIME to cell E21 in the 'Cost Summary & Mapping' sheet where the following formula is used: $\text{="(1-'Access Costs'!\$I\$109)*'Access Costs'!\$N\$107+(C21*3/4)"}$, where 'Access Costs'!\\$I\\$109 is the percentage of pole costs allocated to Access and 'Access Costs'!\\$N\\$107 is the annualized cost of poles. The formula calculates the total annual cost allocated to Host-Remote transmission (fibre and joints) in the core network. This includes the cost of fibre and joints in ducts and fibre and joints on poles. Given the above, explain why the rental costs of poles should be included when estimating an allocation key for splitting the annualized cost of duct into 'Host-Host' and 'Host-Remote'.

RESPONSE

LIME has removed the rental costs of poles from the calculation identified in "Cost Summary & Mapping" sheet, cell E21, and has created a new cell in "Cost Summary & Mapping" sheet to account for these costs. See, CYM fixed – updated 10_06_30 Conf.xls, "Cost Summary & Mapping" sheet, cells F23.

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13. During the first round of interrogatories, the Authority asked LIME to provide a detailed description of how the fixed network module accounts for foreseeable future growth beyond the base year to which it relates (interrogatory no. 63). LIME replied: *"LIME understands that the model was not intended to be a multi horizon model but rather a single horizon model. Therefore, the values in cells L1:T37, growth factors, may represent growth over any number of years and as such is left up to the user to input its own growth assumptions beyond the base year assumptions used."* The Authority agrees that the model is a single horizon model in the sense that it models the cost of building a network today (not over several future periods). Growth and demand was dealt with in ICTA Decision 2008-2 paragraph 119 where the Authority directed LIME to *"explicitly show existing demand and forecasted demand for each service in both the fixed and mobile modules, i.e. a growth rate should be shown to each service and the relevant planning horizon provided."* While the module may allow users to input their own growth assumptions, growth factors used in the module should reflect LIME's view over an appropriate planning horizon. Confirm the appropriateness of the growth factors used or provide a revised model that uses appropriate levels of forecasted demand.

RESPONSE

LIME confirms that the growth factors found in the revised fixed module, "Volume Input for TD" sheet represent the company's current forecasts of demand growth.

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14. The 'Fixed Service Costs' sheet contains links to '09_04_08 Appendix V-TD LRIC Input 07-04-09 conf_v1.xls!ret_val' both with regards to wholesale bad debt (E46:P46) and retail costs (T46:AQ46). The latest version of Appendix V submitted to the Authority is named '09_11_16 Appendix V-TD LRIC Input 07-04-09 conf_revised [int 120]'. Ensure the latest version of Appendix V is used.

RESPONSE

LIME has updated the links in the fixed module, "Fixed Service Costs" sheet, to reference the current version of Appendix V, "Appendix V-TD LRIC Input 10-06-30 conf.xls." See, CYM fixed – updated 10_06_30 Conf.xls, "Fixed Service Costs" sheet, cells E46:P46 and T46:AQ46.

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15. In response to the Authority's first round interrogatory no. 91, LIME has made numerous changes to the latest version of the 2G mobile module ('CYM Mobile 2G - updated 09_11_16 conf.xls'). However, the network components defined in the 'Cost Assumptions' sheet do not flow through to the 'Network Costs' and 'Mobile Network Costs' sheets. In ICTA Decision 2008-2 paragraph 247 LIME was directed to reduce the amount of duplication by eliminating excessive or unnecessary entries. A further update to the modules is therefore required so that the allocation definitions input into the 'Cost Assumptions' sheet are used consistently throughout the modules. If the allocation definitions are used consistently through the modules they can be defined once in a primary location (as with the network element and services list) and all other references can be linked back the primary location. In this way changes need only be made once and they will automatically flow to all other references through-out the modules. As the modules stand now, changes would potentially have to be made in multiple locations throughout the modules, greatly increasing the chances of an error. Update the module to use the allocation definitions consistently throughout the sheets.

RESPONSE

The 2G module has been updated to link to the network elements identified in the "Costs Assumptions" sheet, cells B17:C34, consistently throughout the 2G module.

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16. The 'Cost Assumptions' sheet contains links to a version of the mobile module named '06-11-09-CYM Fixed 07-04-09 conf.xls' in cell E58. The Authority has not received a version of the fixed module named as stated. Ensure all links are appropriately updated.

RESPONSE

LIME has updated the links in the 2G mobile module, "Cost Assumptions" sheet, to reference the current version of the fixed module. See, CYM Mobile 2G - updated 10_06_30 conf.xls, "Cost Assumptions" sheet, cell E58.

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17. In the Authority's first round interrogatory no. 147, where LIME was required to provide detailed additional documentation to justify combining the HLR and VLR or alternatively revise the model to capture the cost of the VLR and HLR separately, LIME noted that it does not have the cost of the VLR separately identified as its supplier does not provide such for a single switch network. Further, LIME emphasized that splitting the cost of VLR and HLR is difficult given its single switch network and that any attempt to do so would be arbitrary at best and of immaterial benefit. Finally, LIME acknowledged that VLR processing takes place during an intra MSC cellsite hand-over.
- a. Provide detailed documentation (for example an invoice) to show the cost of the HLR cost element as indicated in cell E27 of the 'Cost assumptions' sheet. The Authority notes that it in ICTA Decision 2008-2 paragraph 361 directed LIME to document this and other cost inputs. LIME's response to this direction was to provide Appendix XVI, as well as Appendix X Part I. The Authority has reviewed this documentation and has been unable to derive the cost of the HLR as shown in the 2G module.
 - b. The Authority notes that the same or similar cost items would appear to be labeled differently in the 2G and 3G module. In the 2G module reference is only made to HLR in the 'Cost Assumptions' sheet, while the 3G module refers to a combination of HLR/VLR. Clarify the use of terms and update the module if relevant.
 - c. Given that all the routing factors associated with the network element 'HLR/VLR -traffic sensitive' in the 2G module are 1, explain in detail how the need for additional VLR processing during intra MSC cell-site handover is taken into account. Alternatively, update the routing factors to recognize the need for additional VLR processing during intra MSC cell-site handover.

RESPONSE

- a. The HLR cost dates back to a contract that is now several years old. Although we have discounted that value to account for the passage of time, something more recent would be more desirable. A recent figure for the equipment concerned was not available from our Cayman business, and we requested information from an affiliate company in the Eastern Caribbean. The figure obtained was drawn from a bill of materials (network components are

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generally not invoiced individually) dated April 2009. The list value for the HLR component is USD###.

The bill of materials was subject to a discount. The discount is not applied to specific component prices, but rather to the overall bill, which in this case contains a wide variety of network components. The percentage discount on this overall bill was ###%. We therefore applied the ###% discount to the list price for the component to derive the value that is entered into the model, CYM Mobile 2G - updated 10_06_30 conf.xls.

- b. LIME has modified the entry to the 2G module, "Cost Assumptions" sheet, to refer to a combination of HLR/VLR. See, CYM Mobile 2G - updated 10_06_30 conf.xls, "Cost Assumptions" sheet, cells C27, N27, C70, and C88.
- c. LIME has updated the routing factors to reflect additional VLR processing during intra MSC cell-site handover. We have done so using the following logic. A call will access the HLR/VLR once on initiation, and then an additional time for each "handover" between cell sites. We use an industry benchmark for the handover rate, i.e., the average number of handovers between cell-sites per call. It is well accepted that for the typical mobile call, each party remains covered by the same cell site for the duration of the call and, thus, the average handover rate is less than one. A number of public studies suggest that a per call handover rate of around the 0.3-0.4 is reasonable.¹ We, therefore, have assumed an average handover rate of 0.35 for the 2G module, and have changed the "1" in the routing table to "1.35" for the HLR/VLR - call sensitive routing factor. See, CYM Mobile 2G - updated 10_06_30 conf.xls, "Routing Factor Input" sheet, column O.

¹ See, for example, http://www.nt.tuwien.ac.at/mobile/theses_finished/PhD_Bratanov/paper.pdf and <http://adt.lib.swin.edu.au/uploads/approved/adt-VSWT20060119.093920/public/03chapter5-7.pdf>

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18. In the Authority's first round interrogatory no. 148, LIME was required to provide documentation to support the spares used in the mobile module. LIME noted that it was unable to obtain internally supporting documentation for some equipment and therefore relied upon an international benchmark of 5%. Provide documentation for the international benchmark.

RESPONSE

See, National IT and Telecom Agency (NITA) of Denmark, Memorandum Re: Report on consultation regarding the 1st draft of the Revised Hybrid LRAIC model," p. 24. The document is available online at:

<http://www.itst.dk/tele-og-internetregulering/smp-regulering/engrospriser/lraic-1/lraic-processer/lraic-fastnet/ending-af-lraic-prisfastsettelsesmetoden-2007-2009/revision-og-modellering-af-modellen-1/filarkiv/Horingsnotat%201%20modeludkast.pdf>

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19. The 'Reval_Assets' sheet appears to contain links to an older version of the fixed module, see for example cell G1. Ensure all links are appropriately updated.

RESPONSE

LIME has updated the links in the 2G mobile module, "Reval_Assets" sheet, to reference the current version of the fixed module. See, CYM Mobile 2G - updated 10_06_30 conf.xls, "Reval_Assets" sheet, cells G1:AT1.

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20. The 'FAC_Input' sheet contains links to Appendix IV whose full worksheet name does not match the one submitted on 16 November 2009. Update the link to refer to the most recently submitted version of the Appendix and ensure all links work as intended.

RESPONSE

LIME has updated the links in the 2G mobile module, "FAC_Input" sheet, to reference the current version of Appendix IV. See, CYM Mobile 2G - updated 10_06_30 conf.xls, "FAC_Input" sheet.

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21. During the first round of interrogatories, the Authority asked LIME to explain the use of cell C41 in the 'Demand Calculations' sheet and use of VBA code (interrogatory no. 75). Based on the Authority's interrogatory LIME revised the VBA code to update the correct cell. LIME's answer indicates that the macro based process is required to update this input. In order to test that macros are required the Authority replaced the pasted value in C41 with the adjacent formula (in cell D41) where it sources its value. The result appeared to be that the module continued to function as intended. In ICTA Decision 2008-2 paragraph 246 LIME was directed to eliminate the use of macros where possible. Remove the macro from the module or provide a detailed explanation for why it is needed for a correct functioning of the model.

RESPONSE

LIME has removed the macro from the 2G module, "Demand Calculations" sheet. See, CYM Mobile 2G - updated 10_06_30 conf.xls, "Demand Calculations" sheet, cell C41.

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22. The total Gross Replacement Value (based on a revaluation of the FAC) of the mobile network elements (sum of G4:V4 in the 'Expense Factors' sheet) is substantially less than the total Gross Replacement Cost based on the modeled forward-looking assets (sum of G5:V5 in the 'Expense Factors' sheet). Confirm the accuracy of the FAC revaluation exercise.

RESPONSE

The FAC Revalued Assets calculations have been determined by LIME to be accurate. The calculations are set forth in "Appendix III Fixed Assets Revaluation_20-09-09.xls." The method of revaluation is described in LIME's response to the Authority's 15 October 2009 Interrogatory #72.

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23. Provide the derivation of and supporting documentation for, the labour cost of a 'Mini Link MLE 6 GHz Radio System' in cell E42 in the 'Transmissions Links' sheet.

RESPONSE

The labour cost is an estimate based on the knowledge and expertise of LIME technicians and engineers. The current revised estimate of labour cost in cell E42 of the "Transmission Links" sheet is \$###. This estimate is based on an assumed 24 hours of labour and an hourly labour rate of \$###.

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24. The 'Transmission Links' sheet contains links to a version of the mobile module named '06-11-09-CYM Fixed 07-04-09 conf.xls' in cell J56. The Authority has not received a version of the mobile module named as stated. Ensure all links are appropriately updated.

RESPONSE

LIME has updated the link in the 2G mobile module, "Transmission Links" sheet, to reference the current version of the fixed module, CYM fixed - updated 10_06_30 Conf.xls. See, CYM Mobile 2G - updated 10_06_30 conf.xls, "Transmission Links" sheet, cell J56.

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25. During the first round of interrogatories, the Authority asked LIME to explain the use of copying and pasting of values using VBA code from cells F55:Q55 of the 'Network Costs' sheet to cells F56:Q56 (interrogatory no. 84). LIME submitted that this process is needed to avoid circular errors appearing in the module. To verify this statement the Authority linked cells F55:Q55 and F56:Q56 by replacing the values in F56:Q56 with formulas making them equal to F55:Q55 (e.g. by inserting "=F55" in F56 and "=G55" in G56 etc.) and manually forced the module to re-calculate. The result appeared to be that the model continued to function as intended without any circular errors. In ICTA Decision 2008-2 paragraph 246 LIME was directed to eliminate the use of macros where possible. Remove the macro from the module or provide a detailed explanation for why it is needed for a correct functioning of the model.

RESPONSE

LIME has removed the macro from the relevant cells of the 2G module, sheet "Network Costs." See, CYM Mobile 2G - updated 10_06_30 conf.xls, "Network Costs" sheet.

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26. During the first round of interrogatories, the Authority asked LIME to explain the relevance of cells G105, G110 and G115 in the 'Network Costs' sheet showing FAC operating costs for SMS platform, Prepay platform and roaming, respectively (interrogatory no. 86). In response, LIME submitted that it was confused by this query. In the letter for the first round of interrogatories, the Authority indicated that LIME should contact Authority staff if it had any questions about the contents of the interrogatories. To ensure a swift and efficient interrogatory process the Authority continues to encourage LIME to contact the Authority should it have difficulty in the interpretation of any interrogatory. Regarding interrogatory no. 86, the Authority notes that the labeling of otherwise identical cost items with FAC (cells G105, G110 and G115) and LRIC (cells G106, G111 and G116) would appear to be a left-over from previous versions of the module and no longer needed. Specifically, in ICTA Decision 2008-2 paragraph 94 LIME was directed to remove calculations related to zeroing out of demand in both fixed and mobile modules. Provide a detailed explanation for why the adjustment in cells G106, G111 and G116 is not redundant or provide a revised version of the module with the calculations removed and costs items labeled appropriately.

RESPONSE

LIME has revised the 2G Module, "Network Costs" sheet by labeling the cost items appropriately and modifying the formulas in cells G106, G111, and G116 to refer directly to the relevant cells of the "Cost Assumptions" sheet.

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27. The 'Mobile Service Costs' sheet contains links to '09_04_08 Appendix V-TD LRIC Input 07-04-09 conf_v1.xls!ret_val' both with regards to wholesale bad debt (E47:H47) and retail costs (I39:P39). The latest version of Appendix V submitted to the Authority is named '09_11_16 Appendix V-TD LRIC Input 07-04-09 conf_revised [int 120]'. Ensure the latest version of Appendix V is used.

RESPONSE

LIME has updated the links in the 2G module, "Mobile Service Costs" sheet, to reference the current version of Appendix V, "Appendix V-TD LRIC Input 10_06_30 conf.xls." See, CYM Mobile 2G - updated 10_06_30 conf.xls, "Mobile Service Costs" sheet, cells E47:H46 and I39:P39.

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28. Cells E31 and E33 of the 'Cost Assumptions' sheet contains a reference to a spreadsheet 'Capex for model.xls'. Provide the spreadsheet.

RESPONSE

We have been unable to find the spreadsheet referred to. However, we are of course well aware of source of the figure. A recent figure for the equipment concerned was not available from our Cayman business, and we had to request the information from an affiliate company in the Eastern Caribbean. The figure was drawn from a bill of materials (network components are generally not invoiced individually) dated April 2009. The list value for the SGSN component is USD###.

The bill of materials was subject to a discount. The discount is not applied to specific component prices, but rather to the overall bill, which in this case contains a wide variety of network components. The percentage discount on this overall bill was ###%. We therefore applied a ###% discount to the list price for the component to derive the value that is entered into the model.

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29. During the first round of interrogatories, the Authority asked LIME to explain the use of volume and wholesale discounts (cell K54 and K55 of the 'Cost Assumptions' sheet) to estimate the leased line costs, when no discounts are used in the 2G module (interrogatory no. 89). LIME submitted that the Leased Line costs used in Cells E51:E62 are taken from the LIME retail pricelist. LIME in effect buys from itself at wholesale prices with discount; hence price assumptions are modeled to reflect the actual situation faced by LIME. Provide an explanation for why the same approach was not used in the 2G module or revise the 2G module to accommodate this approach.

RESPONSE

LIME agrees that the same approach should be used in the 2G module and have revised the 2G module accordingly.

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30. In response to the Authority's first round interrogatory no. 91, LIME has made numerous changes to the latest version of the 3G mobile module ('CYM Mobile 3G - updated 10_03_11 conf.xls'). However, the network components defined in the 'Cost Assumptions' sheet do not flow through to the 'Network Costs' and 'Mobile Network Costs' sheets. In ICTA Decision 2008-2 paragraph 247 LIME was directed to reduce the amount of duplication by eliminating excessive or unnecessary entries. A further update to the modules is therefore required so that the allocation definitions input into the 'Cost Assumptions' sheet are used consistently throughout the modules. If the allocation definitions are used consistently through the modules they can be defined once in a primary location (as with the network element and services list) and all other references can be linked back the primary location. In this way changes need only be made once and they will automatically flow to all other references through out the modules. As the modules stand now, changes would potentially have to be made in multiple locations throughout the modules, greatly increasing the chances of an error. Update the module to use the allocation definitions consistently throughout the sheets.

RESPONSE

There may be a misunderstanding regarding the network components listed in the "Cost Assumptions" sheet and the Network Elements. There is not a one-to-one mapping between the two so they cannot directly flow through. In particular, the MSC network element is made up of the MSS, media gateway and TCU components. The IP Core network element is made up of the SGSN, GGSN and internet gateway components. The Node B network element is made up of CE cards, Node B unit, HSPDA upgrade and carrier upgrade.

However, in order to eliminate unnecessary entries we have deleted the following content and re-established more direct links in the "Network Costs" sheet:

- row 36
- total Node B site cost (and average asset life), in cells G41 and H41
- various redundant asset life references.

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31. In the 'Cost Assumptions' sheet cells C115:E136 spares as a percentage of total CAPEX are shown along with an indication of source. For each spare percentage LIME identifies the 2G module as the source. Explain the adequacy of 2G spare percentages for the 3G module. Further, explain the apparent discrepancy between the 2G module and 3G module (for example, HLR is 6.8% in the 2G module, while HLR/VLR/AUC is 5% in the 3G module).

RESPONSE

We have no reason to believe that the level of spares should differ between 2G and 3G models. We have therefore corrected the discrepancy between the two models and changed the 3G spare factor where necessary. In the interest of reducing unnecessary information we also eliminated the site cost spare cells at D116 and D117, as Cell site spares already appear in the table at cell D133.

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32. In the Authority's first round interrogatory no. 147, where LIME was required to provide detailed additional documentation to justify combining the HLR and VLR or alternatively revise the model to capture the cost of the VLR and HLR separately, LIME noted that it does not have the cost of the VLR separately identified as its supplier does not provide such for a single switch network. Further, LIME emphasized that splitting the cost of VLR and HLR is difficult given its single switch network and that any attempt to do so would be arbitrary at best and of immaterial benefit. Finally, LIME acknowledged that VLR processing takes place during an intra MSC cellsite hand-over.
- a. Provide detailed documentation (for example an invoice) to show the cost of the HLR/VLR cost element as indicated in cell E30 of the 'Cost assumptions' sheet.
 - b. The Authority notes that the same or similar cost items would appear to be labeled differently in the 2G and 3G module. In the 2G module reference is only made to HLR in the 'Cost Assumptions' sheet, while the 3G module refers to a combination of HLR/VLR. Clarify the use of terms and update the module if relevant.

RESPONSE

- a. Please see our response to interrogatory 17. The same HLR value has been used for the 3G module.
- b. The use of the terms "HLR/VLR/AUC" in the 3G module was intended to replicate the term being used in the 2G module. This is indicated in the 3G model documentation. Now that the single term "HLR" is being used in the 2G module, the term in the 3G should be adjusted as well. We have done so in "CYM Mobile 3G_10_06_30 conf.xls".

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33. In response to first round interrogatory no. 94, LIME updated the module to account for 'Total Annual Calls' rather than 'Annual Successful Calls'. However, the Authority's inspection of the module shows that the module applies the ratio of total/successful calls to minutes (cells F13:F43). Correct the module or provide a detailed explanation to justify the approach.

RESPONSE

We have corrected the module ("CYM Mobile 3G_10_06_30 conf.xls") as requested.

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34. Cell E135 of the 'Demand Assumptions' sheet shows the demand in number of minutes for the MSC. However, the driver for the MSC as indicated in cell E133 is number of calls. Provide a detailed explanation of this apparent mismatch or make the appropriate corrections to the module.

RESPONSE

The Demand Calculations sheet in "CYM Mobile 3G_10_06_30 conf.xls" has been changed for driver and network element consistency.

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35. In response to first round interrogatory no. 97, dealing the mismatch between the Max 3G cell radius in the 'Technical Assumptions' sheet, and the distances reported in Appendix I, Part I, LIME responded that the Appendix dealt specifically with the current LIME network, which is 2G, and that the 2G averages are used within the module to approximate the expected 3G cell radius given the same frequency. The Authority has reviewed Appendix, Part I and notes that some of the calculated averages appear to be incorrect. For example, the value in cell E18 (in 'Sheet1') is 0.57 whereas the average of the referenced cells is actually 1.11. Other cells that appear to be incorrect include G18, M18, D32, K32 and L38. These apparent errors arise where LIME has inputted a number value as a text value and the 'average' function cannot correctly calculate averages for values entered in text format. As a result, cells C101:103 which show GSM cell radii in the 'Technical Assumptions' sheet are inaccurate and, because they are also used to estimate 3G cell radii, these values are inaccurate as well. Correct the calculations or provide a detailed explanation to justify the existing approach.

RESPONSE

We believe there may be a misunderstanding regarding what Appendix 1, Part 1 is meant to illustrate. Appendix 1 is showing the distance between adjacent cell sites, not the average cell radius. In order to determine the estimated cell radius you must divide the distance by two. Thus, the longest estimated cell radius between two sites with a radial distance of 1.6 is 0.8.

It is true, as the Authority points out, that some of the average radial distances between sites of adjacent cells are incorrect. However, those averages are not overly important. The base data shows that in the urban area, the greatest distance between the sites is #### or an estimated cell radius of ####. This is quite close to the maximum cell radius assumption of 0.8. The averages help to indicate that the #### is an outlier, giving the assumption of 0.8 yet more validity.

Similarly, for the suburban area, the greatest distance is ####, which, divided by 2, yields an average cell radius of ####. This is close to the assumed maximum cell radius of 1.3.

Finally, for the rural area, the greatest distance is ####, which, divided by 2, yields an average cell radius of ####. It could be argued that this is quite

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significant different from the assumed 2.7. However, given the size of the geography concerned, it is not surprising that there may be some limits on how much spatial optimization can take place in the rural area.

With respect to the 3G model, there is a reduction factor reflecting, ceteris paribus, the shorter cell radii involved. This is discussed further in interrogatory 36.

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36. In the 'Technical Assumptions' sheet LIME lists an 850 MHz 3G data cell radius factor of 25% (cell C105). Explain the purpose of this assumption and provide supporting documentation for its value.

RESPONSE

It is an engineering fact that, for a given technology or frequency, in order to exploit the capabilities of a 3G network the cell radii must be shorter than for a 2G service. We believe that 25% is a reasonable assumption for this required reduction. As corroboration, we cite a recent Ofcom analysis which implies a cell range reduction of between 11% (for a shift from GSM900 to UMTS900 data) and 48% (for a shift from UMTS900 voice to UMTS900 data)². We note that the Ofcom figures are for rural geographies only. In terms of deployment in the current modeling exercise, if we assume that the network is rolled-out to a set of existing sites with infill only in the areas that most require it, then the reduction in cell radii would arguably be closer to the low end of the range (11%) than to the high end (48%).

² See page 173 of the Ofcom's 2007 spectrum liberalization consultation document at http://www.ofcom.org.uk/consult/condocs/liberalisation/lib_annex.pdf

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37. The routing factors for network element '400-3G: HLR/VLR/AUC' (cells M5:M35) are zero. This contrasts the routings found in the routing factor documentation 'CYM 3G Routing Factors 20091012.xls' where the element '400-3G: HLR/VLR/AUC' is split into a traffic and subscriber sensitive part with corresponding non-zero routing values for the relevant services. Provide a detailed explanation to justify the existing approach or align the documentation and module. The Authority notes that the 2G module splits the cost of the HLR/VLR into a traffic and subscriber sensitive part.

RESPONSE

We have corrected the routing in the 3G module ("CYM Mobile 3G_10_06_30 conf.xls") to correspond with the application in the 2G module.

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38. During the first round of interrogatories, the Authority asked LIME to explain the use of cell C42 in the 'Demand Calculations' sheet and use of VBA code (interrogatory no. 103). Based on the Authority's interrogatory LIME revised the VBA code to update the correct cell. LIME's answer indicates that the macro based process is required to update this input. In order to test this dependence on the macro the Authority replaced the pasted value in C42 with the adjacent formula (in cell D41) where it sources its value. The result appeared to be that the model continued to function as intended. In ICTA Decision 2008-2 paragraph 246 LIME was directed to eliminate the use of macros where possible. Remove the macro from the module or provide a detailed explanation for why it is needed for a correct functioning of the module.

RESPONSE

LIME agrees that the macro steps are unnecessary and has removed the macro in "CYM Mobile 3G_10_06_30 conf.xls".

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39. During the first round of interrogatories, the Authority asked LIME to explain the use of pasted values in cells F69:V69 in the 'Network Costs' sheet (interrogatory no. 111). LIME noted that the model was constructed to not fully update the outputs with assumption changes unless the macro 'update_fac()' is run and that this was developed during an earlier iteration of the model to prevent circular errors from occurring. In ICTA Decision 2008-2 paragraph 246 LIME was directed to eliminate the use of macros where possible. Remove the macro from the module or provide a detailed explanation for why any redundant calculations and code should be included in the module.

RESPONSE

LIME has removed the macro from the module ("CYM Mobile 3G_10_06_30 conf.xls").

2.

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40. During the first round of interrogatories, the Authority asked LIME to explain the relevance of cells G105, G110 and G115 in the 'Network Costs' sheet (interrogatory no. 113) showing FAC operating costs for SMS platform, Prepay platform and roaming, respectively. In response, LIME submitted that it was unsure what was meant by the question. The Authority, in the letter for the first round of interrogatories, indicated that LIME should contact Authority staff if it had any questions about the contents of the interrogatories. To ensure a swift and efficient interrogatory process the Authority continues to encourage LIME to contact the Authority should it have difficulty in the interpretation of any interrogatory. Regarding interrogatory no. 113, the Authority notes that use of the term FAC suggests that the costs are from the FAC model. It is unclear to the Authority whether this is the case. Further, an adjustment is made in the cells below each "FAC" value which is termed "LRIC". This adjustment would appear to be redundant. Clarify the source of the cells and relevance of the adjustment. If the adjustment is not needed it should be removed.

RESPONSE

LIME has revised the 3G Module ("CYM Mobile 3G_10_06_30 conf.xls"), "Network Costs" sheet by labeling the cost items appropriately and modifying the formulas in cells G106, G111 and G116 to refer directly to the relevant cells of the "Cost Assumptions" sheet.

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41. The Authority has compared the volumes in the 'drivers' sheet of '09_11_16 Appendix V-TD LRIC Input 07-04-09 conf_revised (int 120).xls' with those used in the FLLRIC model and notes a number of discrepancies. These include:
- differences in the reported traffic for dialup internet usage in the Fixed module (C2 in the 'drivers' sheet versus X5 in the 'Volume input for TD' sheet in 'CYM fixed - updated 09_11_16 Conf.xls');
 - the lack of Fixed call to OLO traffic in the fixed module;
 - differences in the reported the number of national call retail calls in the fixed module (C27 in the 'drivers' sheet versus X33 in the 'Volume input for TD' sheet in 'CYM fixed - updated 09_11_16 Conf.xls'); and
 - differences in the reported the number of mobile on-net calls (C22 in the 'drivers' sheet versus X5 in the 'Volume input for TD' sheet in 'CYM Mobile 2G - updated 09_11_16 conf.xls' and X5 in the 'Volume input for TD' sheet in 'CYM Mobile 3G - updated 09_11_16 conf.xls').

Explain the differences or make the appropriate corrections.

RESPONSE

LIME has made the appropriate corrections to reported traffic for dialup Internet usage in the fixed module; reported number of national call retail calls in the fixed module; and reported number of mobile on-net calls in the 2G and 3G modules.

LIME notes that reported Fixed call to OLO traffic in the fixed module, "Volume input for TD" sheet, cell X31 matched the figure reported in Appendix V, "drivers" sheet, cell C9.

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42. The spreadsheet 'CYM 3G Routing Factors 20091012.xls' contains separate routing factors for MSC call and duration sensitive costs, while the 3G module only contains routing factors for a single MSC network element. Revise the documentation and 3G module to reflect the correct elements or provide a detailed explanation to justify the existing approach.

RESPONSE

We have revised the 3G module to reflect call and duration sensitive costs.

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43. The spreadsheet 'CYM 3G Routing Factors 20091012.xls' column G shows routings for network element '400-3G: Data Tx' which are blank. Further, this element is not used in the 3G module. Rather the 3G module contains a network element termed '400-3G: IP Core Network' (column I on the 'Routing Factors Input' sheet). However, the routings for this element are not shown in spreadsheet 'CYM 3G Routing Factors 20091012.xls' and hence are not documented. Revise the documentation and 3G module to reflect the correct elements or provide a detailed explanation to justify the existing approach.

RESPONSE

The Data Tx network element is not used in the 3G module. We have eliminated the network element from the network element list throughout the module.

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44. In the spreadsheet 'CYM 3G Routing Factors 20091012.xls' the routing factor indicating the Mobile Data service's use of the '400-3G:MSC-call sensitive' element is 0. The explanation given is "3G data will not pass through the MSC, it will be handled by the MGw". Provide an explanation of how the 3G data is delivered to the MGw and how associated expenses are accounted for.

RESPONSE

On reconsideration, we believe that, as the MGw is a component of the MSC, there should be an associated routing factor. We have therefore replaced the "0" with a "1" for the call sensitive element of the MSC. However, as processing is conducted with components of the IP core network, we believe that a "0" is appropriate for the call-duration element of the MSC.

45. In the spreadsheet 'CYM 3G Routing Factors 20091012.xls' the routing factors for indicating the use of Mobile On Net Call services use of network elements '400-3G:RNC' and '400-3G:MSC-call sensitive' are 1.5 and 1 respectively. The explanation given refers to the documentation in the 2G model. The 2G model has factors of 2 for both the BSC and the MSC-Call Sensitive network elements and provides explanations for both values reproduced below:

BSC: Mobile to Mobile on net calls utilise BSC resources twice that of an outgoing/incoming only call, one for the call originator and another for call termination. Therefore a routing of 2 is appropriate

MSC-call sensitive: Mobile to Mobile on net calls consumes MSC call sensitive resources two times that of an outgoing/incoming only call as the switch processor has to monitor and control the activities of two handsets, one for the call originator and another for call termination. Therefore a routing of 2 is appropriate)

Explain why the 3G routing factors related to the Mobile On Net Call service for network elements '400-3G:RNC' and '400-3G:MSC-call sensitive' are different from the equivalent 2G BSC and MSC-call sensitive routing factors.

RESPONSE

We have revised the routing of the Mobile On Net calling in the 3G module to be consistent with that in the 2G module.

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46. In the spreadsheet 'CYM 3G Routing Factors 20091012.xls' all the routing factors associated with the network element 'HLR/VLR/AUC - traffic sensitive' are 1. Explain in detail how the need for additional VLR processing during intra MSC cell-site handover is taken into account. Alternatively, update the routing factors to recognize the need for additional VLR processing during intra MSC cell-site handover.

RESPONSE

Please see our response to interrogatory 17. With respect to the 3G module. We believe that given the shorter cell radius there is an argument that the routing factor should be somewhat higher than in the 2G module. We propose that the routing factor for HLR call-sensitive be 1.45 (in contrast to 1.35 in the 2G module). We have introduced this figure in the current version of the model (CYM Mobile 3G_10_06_30 conf.xls).

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47. In the spreadsheet 'CYM 3G Routing Factors 20091012.xls' the routing factor for 'Video Calling – 400-3G:RNC' is 1.25. However, the routing factor for 'Video Calling – 400-3G: MSC-call sensitive' is 1.5. The explanations given for these two factors merely refer to the calculations on the 3G model 'Routing Factors Input' sheet. Provide an explanation for the difference in these two values.

RESPONSE

We concur that there should be consistency between the routing of these two elements. Considering the adjustments made to other calling discussed above, we believe that the correct routing factor should be 1.5 for both the RNC and call-sensitive MSC.

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48. In the spreadsheet 'CYM 3G Routing Factors 20091012.xls' the routing factor for 'Inbound Data Roaming – 400-3G:Roaming Platform' is 0 (zero) with no explanation provided. Provide an explanation for this value.

RESPONSE

This was done in error. We have now corrected the routing factor matrix accordingly.

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49. During the first set of interrogatory responses LIME provided different versions of the 2G and 3G cost modules. In the first batch received on 15 October 2009, LIME provided the following confidential versions of the modules:

- 3G Module: 09_10_15 CYM 3G Mobile Model 20091014 1432 (confidential).xls
- 2G Module: 09_10_15 -CYM Mobile 07-04-09 (confidential).xls

In the second batch received on 16 November 2009, LIME provided the following confidential versions of the modules:

- 3G Module: CYM Mobile 3G - updated 09_11_16 conf.xls
- 2G Module: CYM Mobile 2G - updated 09_11_16 conf.xls

While the later submissions were related to the update of previously submitted modules, LIME has also in parallel submitted separate MTR cost study modules where a number of assumptions regarding a sustainable forward-looking competitive mobile market in the Cayman Islands are made. As explained in ICTA Decision 2008-2 paragraph 77 LIME is directed to provide proposed MTRs using each of a 2G/2.5G module and 3G module. The Authority will select the technology to be used in the FLLRIC model based on which technology provides the lowest MTR. Provide one 2G/2.5G module and one 3G module or explain in detail the need for separate versions of the cost modules.

RESPONSE

LIME is providing a single 2G/2.5G module and a single 3G module in response to the current set of interrogatories.

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50. During the first round of interrogatories, the Authority asked LIME to identify any assumptions of fixed line subscribers moving completely to 3G wireless service for voice and how any such assumption has been reflected in the cost module (interrogatory no. 134). LIME responded (answer to interrogatory no. 131b) that this assumption was not separately modeled from the general growth that was incorporated into the 2G and 3G modules. This suggests that the impact of substitution must somehow already taken into account in the demand projections, but not explicitly modeled. Provide the underlying assumptions used to take substitution into account.

RESPONSE

We have calculated the implicit substitution as follows. First, we estimate the increase in fixed lines in a world without wireless. We assume fixed lines would have increased at the same rate as household formation.

Second, we take the difference between projected change in fixed lines (but for wireless) and actual change in fixed lines. This amount represents the number of new mobile subscribers that have gone completely wireless ("cord cutters").

Finally, the share of new mobile subs who are "cord cutters" is determined by dividing their number by total number of new mobile subs.

The calculation of this figure is set forth below:

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	LEVELS (FISCAL YEAR END)					
	Year 1	Year 2	Year 3	Year 4	Year 5	
	Households	21,818	21,958	22,098	22,239	22,382
	Estimated Total Market of Mobile Subs	###	###	###	###	###
	Estimated Total Market of Fixed Subs	###	###	###	###	###

GROWTH (ANNUAL % CHANGE)					
	Year 2	Year 3	Year 4	Year 5	Average
Households	0.64%	0.64%	0.64%	0.64%	0.64%
Mobile Subs	###	###	###	###	###
Fixed Subs	###	###	###	###	###

Reference	Value	Calculation
Change in fixed lines (without wireless substitution)	Row 1	### (Year 1 Fixed lines x household growth rate)
Change in fixed lines (with wireless substitution)	Row 2	### (Year 1 Fixed lines x actual growth rate)
Fixed lines that "cut the cord"	Row 3	### Row 1 - Row 2
Change in mobile subs	Row 4	### (Year 1 mobile subs x actual growth rate)
% of mobile subs who have "cut the cord"	19.04%	Row 3/Row 4

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51. In the latest version of the 3G module ('CYM Mobile 3G - updated 09_11_16 conf.xls') LIME provides retail costs in the 'Mobile Service Costs' sheet in cells L72:S72. These cells refer back to data range in 'C:\TransactionServices\ClientWork\FY'09Clients\71002000_TS\71002230_CWI Caribbean Limited\71002230_F001_Cayman 3G\Working Papers\Appendix V.xls!ret_val. This data range would appear to be from a version of Appendix V not previously submitted to the Authority. Provide the relevant appendix or update the reference appropriately.

RESPONSE

The data range has been updated appropriately.

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52. In all the modules LIME has replicated the FAC Input sheet. This sheet contains expense information related to all modules and includes overheads and retail costs. The sheet also contains an adjustment factor in row C which is colour coded blue to indicate a parameter that may be changed. For the model user wishing to adjust expense values related to wholesale services, changes flow through to the expense factor calculations and on to the final service costs. For retail costs, however, this is not the case as the apportionment of retail costs is performed in a separate spreadsheet and subsequently referenced in each module. Therefore, the replication of the retail costs components in the modules seems to be redundant. To improve transparency and functioning of the model, LIME is requested to either include the retail calculations directly in each module or alternatively provide a separate retail spreadsheet or module with consistent links between each module. Make the appropriate changes to the FLLRIC model or explain why the current information flow and linkages are appropriate.

RESPONSE

As requested by the Authority, LIME has added to each revised module the sheet "Retail Costs," which includes the retail calculations previously found in the "exp_alloc" sheet of Appendix V.

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53. The retail cost input in each module excludes the following retail cost categories: Fixed Retail Capital Cost of Support Assets, Mobile Retail Capital Cost of Support Assets, Fixed Retail Cost of Working Capital, Mobile Retail Cost of Working Capital. These categories and the underlying sub-categories are shown in 'Appendix V-TD LRIC Input 07-04-09 conf_revised [int 120].xls' row 76 to 117 and in each cost module. Explain the exclusion of these categories of retail cost.

RESPONSE

LIME has corrected the modules to include the excluded retail costs.

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54. The retail cost category '100-Retail Billing' (row 26 of 'Appendix V-TD LRIC Input 07-04-09 conf_revised [int 120].xls') is allocated to all retail services with volume as driver, i.e. costs are allocated in proportion to the calls made by each retail service. According to LIME this cost category contains the *"expenses associated with the collection and collating, printing and posting of all call data records for fixed voice and mobile retail customers including Prepaid Mobile calls which are captured on a different system called the COMverse system. No bills are generated for Prepaid customers however."* Provide a detailed rationale for why none of these costs should be allocated to non-call related services like, for example, retail ADSL, line rentals and other subscription services.

RESPONSE

We have modified the driver in Appendix V (as well as the corresponding Retail Cost sheets) of each model to allocate costs to all services on the basis of revenue.

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55. The retail cost category 'Respond to Customer Queries' (row 31 of 'Appendix V-TD LRIC Input 07-04-09 conf_revised [int 120].xls') is allocated to all retail services with volume as driver, i.e. costs are allocated in proportion to the calls made by each retail service. According to LIME this cost category contains the "*The initial response provided to customers in dealing with queries made by fixed and mobile retail customers*". Provide a detailed rationale for why none of these costs should be allocated to non-call related services like, for example, retail ADSL, line rentals and other subscription services.

RESPONSE

We have modified the driver in Appendix V (as well as the corresponding Retail Cost sheets) of each model to allocate costs to all services on the basis of revenue.

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56. The retail cost categories 'Retail Sales' and 'Prepare Quotations for Retail Sales' (row 33 and row 34 respectively of 'Appendix V-TD LRIC Input 07-04-09 conf_revised [int 120].xls') are allocated to what is termed "new customer sales" which includes the following services: 900-CPE, 900-PSTN ACCESS BUS, 900-PSTN ACCESS RES, 900-VOIP, 900-MOBILE DATA, 900-Mobile Subscriber. LIME provides the following description of the cost categories: "*Actual sale activities for fixed and mobile retail products*" and "*Preparing customer quotations*". Confirm the accuracy of the allocation to before mentioned services considering that other services such as 900-CARDS, 900-DOMESTIC LEASED CIRCUITS RETAIL, 900-INTERNATIONAL LEASED CIRCUITS RETAIL and 900-ISDN ACCESS RETAIL may consume sales activities.

RESPONSE

We have modified the driver in Appendix V (as well as the corresponding Retail Cost sheets) of each model to allocate costs to all services on the basis of revenue.

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57. On 4 November 2009, the Authority received a letter from Digicel concerning an Interconnect Billing System and MTR. In that letter Digicel claimed, among other things, that the cost of inter-operator billing has to be included in the FLLRIC model and that the Authority must reassess the model to ensure that it includes an inter-operator billing system. Taking into consideration that this cost item may have a material affect on the mobile termination cost, the Authority consented to making the 4 November 2009 letter part of the record of the proceeding. The Authority has reviewed the cost items and asks LIME to respond to the following interrogatories:
- a. Provide a detailed explanation of, and provide detailed calculations and supporting documentation for the amounts shown for the costs (both one-off and / or re-occurring) of each of the following items included in the (Budgetary) Mobile to Mobile Costing for Digicel Cayman:
 - Omnil.inc SS ADM,
 - E1 Ports,
 - Nokia Signalling Ports
 - IRM
 - Billing upgrade, and
 - IT service costs.
 - b. For each cost item identified above explain whether it is incurred as a result of upgrading or expanding LIME's existing network and / or whether it would be incurred by a hypothetical efficient entrant to the Cayman market with a market share equivalent to that assumed by LIME in its MTR study.
 - c. For each cost item listed above, identify whether or not LIME's proposed FLLRIC model includes such costs. If it doesn't, provide a detail rationale for the exclusion of such costs. If such costs are included, provide cell references and a detailed explanation of how each cost item included in the budgetary offer is reflected in the MTR study.

RESPONSE

- a. A revised invoice "(Budgetary) Mobile to Mobile Costing for Digicel Cayman" is included in the attached confidential spreadsheet "10_06_30 2nd round FLLRIC interrog 57 - attach 1 - conf.xls." This spreadsheet includes separate sheets with

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calculation on how each cost item is determined. A description of the identified items is as follows:

- Omnil.inc SS ADM (Working & Spare) is the multiplex equipment SDH/Sonet interface with optical tributary cards;
 - E1 ports – A MUX will connect directly to STM-1 interface cards on the LIME Mobile Media Gateway(MGW). The E1 links (or ports) to the switch are taken from these cards. That is, the MGW must be provisioned with ### (working and protection) additional STM-1 interface cards to facilitate the ### E1s required for M2M with Digicel.
 - Nokia Signalling Ports represents the two signaling cards required for signaling interface with the mobile network; and
 - IRM- installation materials required to support E1 ports.
 - Mobile CDR Processing replaces what was previously labeled "Billing Upgrade." This represents the incremental costs necessary to process the additional mobile call data records (CDRs) and affect mobile-to-mobile interconnection billing as requested by Digicel. The individual cost items include labour costs, additional INTEC CDR processing license costs, and storage costs.
 - Initially it was envisaged that IT Services would have been done by the IT Department and then recharged to the Carrier Services Billing Department on a periodic basis. We are now forced to perform these functions with resources from the Carrier Billing Team. Hence, these charges have been withdrawn.
- b. These costs represent the costs an efficient entrant would incur if another network requested a separate interconnection arrangement with LIME's mobile network.
- c. The FLLRIC model includes the following costs (in both the 2G and 3G modules): ports including signaling, costs associated with billing and IT services and expenses associated with managing interconnect requirements. These are costs associated with interconnect via the fixed network. There are currently no costs associated with mobile-to-mobile interconnect. If it is the determination of the Authority to replace the assumption of interconnection via the fixed network with direct mobile-to-mobile interconnect, then cost associated with interconnection billing and services shared with the mobile models would have to be borne by the

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fixed model and the mobile model would have to be adjusted to reflect the costs of introducing direct mobile-to-mobile interconnection.