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LIME

Our ref: GRCR/GR 15.19
15 October 2009

Mr. David Archbold,
Managing Director,
Information and Communication Technology Authority,
3rd Floor Alissta Towers,
P.O. Box 2502GT,
Grand Cayman. KY1-1104

Dear Mr. Archbold,

Re: CD 2009-1 – FLLRIC Implementation; and ICT Decision 2008-2 – Decision for the Costing Manual Consultation – Responses to Interrogatories

Further to section 4 of CD 2009-1 and to the 13 October 2009 e-mail from staff of the Authority setting out new deadlines for responses to interrogatories, Cable and Wireless (Cayman Islands) Limited, t/a LIME (“**LIME**”) is submitting the attached responses to the Authority’s 19 August 2009 interrogatories on the revised forward-looking long-run incremental cost (“**FLLRIC**”) models. In accordance with LIME’s 6 October 2009 letter to the Authority, LIME is submitting responses to the following interrogatories:

- Fixed Module (Questions 1 - 63)
- 2G Module (Questions 64 - 87)
- 3G Module (Questions 88 - 114)
- Other Module (Questions 139 - 149)

Some of these responses are being submitted in confidence, for the same reasons as set out in our 9 April 2009 letter to the Authority, and redacted versions will be provided for the public record.

In addition, LIME is filing the following documents:

- CYM fixed model
- CYM mobile model

- CYM 3G mobile model
- CYM Routing Factors
- Appendix A – Transfer Pricing Model
- Appendix B – Erlang B table
- Appendix C – Access Network
- Appendix D – USP
- Appendix E – BTS Spares

These documents are also being submitted in confidence to the Authority, with the exception of Appendix B. Redacted versions will not be made available for the public record. LIME will, however, prepare “public” versions of the models (the first three items listed).

We note that these documents were to have been filed yesterday (14 October 2009) and we apologize for the delay.

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

Sincerely yours,

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

‘Signed’

Frans Vandendries

VP , Legal Regulatory and Corporate Affairs (Central)

c.c. Anthony Ritch, Country Manager, LIME
 Donald Austin, EVP Legal Regulatory and Corporate Affairs, LIME
 Camile Facey, VP Legal Regulatory and Corporate Affairs (Jamaica & OFC), LIME
 Pete Smith, Regulatory Finance Advisor, LIME
 Interested Parties in CD (2009-1)/(2008-2)

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1. In the Duct Unit Cost section of the 'Cost Assumptions' sheet (cells A16:I78) various jointing box input costs are shown. None of these costs are used in the costing of duct. Explain why jointing boxes are not needed.

RESPONSE

LIME acknowledges this omission and has now included Jointing Box costs in its calculation of the cost of duct..

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2. The 'Cost Assumptions' sheet contains input on the cost of various types of duct and jointing costs that are related to different terrain types. However, only costs for the terrain type 'carriageway (asphalt)' are used. The Authority notes that LIME has provided estimates of the island-wide media mix and an entrant specific media mix which both indicate that unsurfaced ducting would be used to some degree (see rows 135-144 of the 'Cost Assumptions' sheet). Explain why it is appropriate to use only one terrain type for all duct cost inputs.

RESPONSE

LIME acknowledges this omission and has now included the different terrain types in its calculation.

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3. In the Access Cost part of the 'Cost Assumptions' sheet, Aerial Copper wire (e.g. 100 pair, 200 pair, dropwire etc.) costs are shown in rows 87-93. Only equipment and installation costs are transferred to the 'Access Cost' sheet. Costs related to spares, duty and planning are not used. Explain why these costs have not been used.

RESPONSE

This is simply an oversight from LIME's previous revision where duties and spares were included in the cost assumptions sheet but somehow were inadvertently not included in the Access Cost sheet calculations. This has now been corrected to include the cost of spares and duties.

Please note, the planning cost factor has been set to zero percent since planning costs have been captured as an expense factor item.

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4. In the Access Cost part of the 'Cost Assumptions' sheet, underground copper wire (e.g. 50 pair, 300 pair, etc.) costs are shown in rows 100-110. Only equipment and installation costs are transferred to the 'Access Cost' sheet. Costs related to spares, duty and planning are not used. Explain why these costs have not been used.

RESPONSE

This is simply an oversight from LIME's previous revision where duties and spares were included in the cost assumptions sheet but somehow were inadvertently not included in the Access Cost sheet calculations. This has now been corrected to include the cost of spares and duties.

Please note, planning cost factor has been set to zero percent since planning costs have been captured as an expense factor item.

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5. In the Access Cost part of the 'Cost Assumptions' sheet, the splicing costs per cable splice are shown in rows 113-117. Only equipment and installation costs related to splicing are transferred to the 'Access Cost' sheet. Costs related to spares, duty and planning are not used. Explain why these costs have not been used.

RESPONSE

This is simply an oversight from LIME's previous revision where duties and spares were included in the cost assumptions sheet but somehow were inadvertently not included in the Access Cost sheet calculations. This has now been corrected to include the cost of spares and duties.

Please note, planning cost factor has been set to zero percent since planning costs have been captured as an expense factor item.

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6. In the Access Cost part of the 'Cost Assumptions' sheet cabinet costs are shown in rows 126-128. None of these costs appear to be used, even though the model contains Cabinets/Copper Cross connection points in the 'Access Dimensions' sheet. Explain why cabinet costs are not used.

RESPONSE

LIME acknowledges this omission and has now included the cost of Cabinets and Cross Connects in its calculation.

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7. The Total Pole rental per month in the 'Cost Assumptions' sheet (cell F132) is calculated as the sum of # # and # # which is divided by # #.
- a. Provide the source of the cost inputs used in this formula.
 - b. The Authority notes that the resultant cost is the total monthly rental cost for all poles in the access network. With the assumed number of poles in the access network this is equivalent to approximately a rental cost of # # cents per pole per month (total pole rental per month of # # divided by the number of poles # # (cell K81 in the 'Access Costs' sheet)). Confirm the accuracy of the pole rental costs used in the model.

RESPONSE

Further to the Authority's observation in 'a' and 'b' above, LIME has recognized that pole rental cost has been double counted in the model. Pole rental occurs both in the Cost Assumption sheet as stated above and also in the 'FAC Input' sheet, cells A63 – B63. The cost captured in the FAC Input sheet represents the actual annual rental paid for poles whilst that captured in the 'Cost Assumption' sheet represented an outdated estimate which is no longer valid and should have been deleted. LIME has, therefore, taken the actual annual pole rental of # from the FAC Input sheet and included it in the Cost Assumptions sheet replacing the previous estimate (this was done to preserve the subsequent formulaic links of the Pole rental cost calculations). The actual pole rental in the FAC Input sheet no longer flows through the model as it now carries an efficiency adjustor of 0%.

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8. In the Access Cost part of the 'Cost Assumptions' sheet the costs of various manhole types are shown in rows 165-169. Only equipment and installation costs are transferred to the 'Access Cost' sheet. Costs related to spares, duty and planning do not appear to be used. Explain why these costs have not been used.

RESPONSE

LIME acknowledges this omission and has now included the cost of spares and duties in its calculation.

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9. In the Transmission Direct Capex Assumptions section of the 'Cost Assumptions' sheet costs of fibre, fibre joints and cable laying including sub-duct- underground are listed in rows 192-205. Only equipment, installation and duty costs are transferred to the 'Core Fibre Calculations' for further consideration in the calculation of costs. Explain why the costs of spares have not been used.

RESPONSE

LIME acknowledges this omission and has now included the cost of spares and in its calculation.

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10. In the 'Cost Assumptions' sheet the 8 and 12 fibre cable costs are not identified as being related to underground and aerial fibre whereas all other fibre cables are identified for either underground or aerial use. See cells A192:A193 compared with other categorizations in cells A194:A196. Confirm that the 8 and 12 fibre cables are used as both underground and aerial cable.

RESPONSE

LIME confirms that the 8 fibre is used for both underground and aerial installations but the 12 fibre is used only in underground installations. Given the threat of hurricanes, LIME has sought to place all fibre cable installations underground and thus, except for a diversity installation on the eastern end of Cayman which constitutes approximately 13km of 8 fibre, all other fibre installations are underground. The model has now been updated to reflect this.

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11. In the 'Cost Assumptions' sheet, the cost of 12 fibre cable (row 193) and 24 fibre aerial cable (row 194) is the same. Confirm the accuracy of this assumption.

RESPONSE

LIME has revisited this information and concludes that the information depicted is not entirely accurate and, as such, has revised the information. The model now shows the 12 fibre as underground cable and eliminated the 24 fibre aerial cable. This is because all LIME fibre installations are placed underground for protection except for a diversity route on the eastern end of Cayman which carries an 8 fibre aerial installation over approximately 13km.

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12. Provide an explanation of why cell D198 in the 'Cost Assumptions' sheet that appears to have been intended to provide the cost of spares for 8 fibre optical cable joints are blank.

RESPONSE

LIME submits that this is an error which, more than likely, was inadvertently made during the last revisions. This has now been corrected.

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- 13 Provide an explanation of why cells D204 and D205 in the 'Cost Assumptions' sheet that appear to have been intended to provide the cost of spares for the "Cable (24-Fibre) laying cost including sub-duct-underground" item are blank.

RESPONSE

LIME submits that this is an error which, more than likely, was inadvertently excluded during the last revisions. This has now been corrected.

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14. The cost of Network Management hardware and software and the Voice Mail platform (in the NGN Direct Capex Assumptions section cells D238:D240) do not appear to include any costs related to duty. Explain why the Network Management system or Voice Mail platform should be exempt from duty.

RESPONSE

LIME submits that this is an error which, more than likely, was inadvertently excluded during the last revisions. This has now been corrected.

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15. The purpose of the information in cells I244:I251 in the 'Cost Assumptions' sheet is unclear. Explain the purpose of the data in these cells and how that data is used

RESPONSE

These figures are remnants of a previous version and no longer serve any useful function. They have therefore have been removed from the model.

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16. In the 'Cost Assumptions' sheet, the cost of CS-2K Compact (2) ETSI Hardware, CS-2K Compact (2) ETSI Software, Gateway Controller, UAS, USP, PP-8600, PP-15K and IMS (in the NGN Direct Capex Assumptions section cells D238:D240) do not include any costs related to spares. Explain why no costs for spares are included in the total costs.

RESPONSE

LIME submits that this is in error which, more than likely, was inadvertently excluded during the last revisions. This has now been corrected.

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17. In the 'Cost Assumptions' sheet the MSE unit costs in cells G244:G251 reference cell F253. This cell is blank and hence this reference serves no apparent function. Explain why the referenced cell is blank.

RESPONSE

These cell references are remnants of a previous version and no longer serve any useful function. They have therefore been removed from the model.

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18. The cost of payphones in the 'Other Cost Assumptions' section of the 'Cost Assumptions' sheet (cell E281) is provided as a single figure with no reference to installation, spares, duty or planning costs. Provide a detailed explanation and source documentation on how the cost of payphones was developed.

RESPONSE

The cost of payphones 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. This cost having been capitalized, captures all costs such as duties, spares and planning.

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19. In the 'Cost Assumptions' sheet, the DSLAM Equipment Unit Cost, Broadband Access Server, Core Ethernet Switch, Core Juniper Router, Other Servers & Software and Software items in rows 283-289 include the cost of spares, but would not appear to include the cost of planning and duty. Explain why duty costs and planning costs should be excluded.

RESPONSE

The cost of duties are now included. However, the cost of planning is not included as it would be double counting since planning is captured through the expense factors.

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20. In the 'Cost Assumptions' sheet, Data Network Equipment (cell C292) does not appear to include the cost of spares, planning and duty. Explain why the cost of spares, duty and planning are excluded.

RESPONSE

The cost of duties and spares are now included. However, the cost of planning is not included as it would be double counting since planning is captured through the expense factors.

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21. In the 'Cost Assumptions' sheet the operating expenditure related to the DQ Platform (cell 296) and Call Centre (cell C298) are the same. Confirm the accuracy of this cost and explain how the cost was developed.

RESPONSE

This is a single operating expense recharged to the Cayman business from LIME Jamaica for call center and DQ services rendered. At the time of model build the amount recharged amounted to the total shown in the Cost Assumptions sheet. In the absence of actual Contact Center data, LIME thought it reasonable to allocate the cost equally between DQ and other call center activities. LIME has since requested the necessary call center statistics which would enable a split based on actual call center activities. We anticipate this would be ready for submission along with the Appendices.

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22. In the 'Asset lives' sheet, LIME assumes the asset life of Interconnect Billing is 5 years and VOIP Equipment is 6 years. Provide a detailed justification for each of these asset lives.

RESPONSE

Interconnect Billing is now assigned a life of 6 years consistent with the Authority's Decision 2008-2 regarding asset life for Management Systems. Also VOIP equipment has now been assigned an asset life of 8 years, consistent with the Authority's Decision 2008-2 for NGN equipment.

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23. In cell BI3 of the 'Overhead_exp' sheet reference is made to a value in the public version of the mobile model.
- a. Confirm that this is an accurate reference given the fact that the public version does not contain the same input values as those used in the confidential version.
 - b. Explain the rationale for making the adjustment in cells BI3 and BI6 .

RESPONSE

- A. The reference to the 'Public' version of the Mobile Model points only to the mobile network elements name descriptions only which are identical to those of the confidential version, nonetheless, this has been removed and the references all now point to the confidential version of the mobile model.
- B. The adjustment in cells BI3 and BI6 was relevant to the previous version of the model and should have been removed but was inadvertently retained. This adjustment is no longer required and therefore has been removed.

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24. In the 'Expense Factor' sheet (cells F8:F27), the formula used does not take into account '400-VOIP Equipment'. This results in an error in the allocation of expenses. The formula used in F8 is '=SUMPRODUCT(\$I\$4:\$AB\$4,\$I8:\$AB8)'. This formula should be amended to '=SUMPRODUCT(\$I\$4:\$AC\$4,\$I8:\$AC8)'. Similar corrections should be made to F9:F26. Confirm the erroneous formula and make the appropriate corrections in the model.

RESPONSE

LIME acknowledges this error and has made the necessary corrections.

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25. In ICT Decision 2008-2 the Authority dealt with the calculation and application of expense factors. In paragraph 230, the Authority noted that, "...by applying expense ratios based on 'current' network expenses (drawn from top-down data) and 'forward-looking investments' (GRC), C&W implicitly assumed that the total "forward-looking" network operating expenses will be the same as its current total operating expenses, and there will be no productivity or efficiency gains from moving to the Modern Equivalent Assets ("MEA") installed by an efficient operator." In paragraph 231, the Authority further noted that, "[o]ne simple way of dealing with this issue is to base the application of expense ratios on 'current investment' (as opposed to 'forward-looking investment') and then to apply these ratios to the forward-looking investment".

In a letter dated 22 August 2008, LIME sought clarification on how the term 'Current Investment' should be interpreted. The Authority responded on 5 September 2008 pointing LIME to footnote 85, paragraph 231 of ICT Decision 2008, where it is stated, "*i.e. using physical quantities and current unit prices for the same or equivalent assets as in the C&W FAC model.*"

In its latest submission of FLLRIC models, while LIME has conducted an asset revaluation, it has not calculated or applied the expense factors as directed. LIME has used the Net Replacement Costs as allocation factors to calculate the expenses for each network element in the FLLRIC model and done so in such a way that the network expenses in the FLLRIC model are the same as those shown in the 'FAC Input'.

As noted, the Authority directed LIME to "*[b]ase it network expense factors on 'current investment' (as 'opposed to forward-looking investment') and 'current expenses'*". Provide a revised model that calculates the expense factor ratios as the current expense divided by the revalued Gross Replacement Cost and then apply the resulting ratios to the forward looking investment, i.e. the capital investment that is the result of the FLLRIC modeling exercise. The result should be a model where changes to service volumes resulting in changes to the forward looking investment result in changes to the expenses incurred.

RESPONSE

LIME has made the necessary corrections to the calculation of the expense factors and, except where the use of the term 'current expenses'

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is used, are now calculated as the current expense divided by the revalued Gross Replacement Cost and then apply the resulting ratios to the forward looking investment.

LIME notes that the Authority ICT Decision 2008-2 paragraph 234 states that a fundamental review of existing expenses is not warranted at this time.

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26. In the 'Routing Factors Input' sheet several of the routing factors for the '900-NATIONAL CALL RETAIL' service reference an empty row 66. Confirm that the resultant values of zero are as intended and provide an explanation of why the zero values are appropriate.

RESPONSE

LIME submits that the referenced cells were inadvertently retained from the previous version of the model and should have been revised. This has now been corrected.

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27. In the 'Routing Factors Input' sheet the national payphone service has a routing factor of one for the access local loop network element (cell T29). Provide a detailed explanation for why the international payphone service does not include a routing factor for the access local network.

RESPONSE

LIME submits that this was inadvertently excluded and has now been added. The international payphone service now carries a routing factor of '1' for the network element 'Access Local Loop'.

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28. Row 109 in the 'Access Dimensions' sheet contains the item "Average underground length of transmission between concentrator and distribution point". This item has no value and is not used. Explain the purpose of this item and justify why it is included in the model.

RESPONSE

LIME acknowledges the non-use of this item and has therefore removed it from the model.

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29. Row 110 in the 'Access Dimensions' sheet contains the item "Average aerial length of transmission between cross connect cabinet and furthest distribution point". This would not appear to be used. Explain the purpose of this item and justify why it is included in the model.

RESPONSE

LIME acknowledges the non-use of this item and has therefore removed it from the model.

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30. Row 111 in the 'Access Dimensions' sheet contains the item "Average UG length of transmission between Exchange and the cross connect cabinet". This would not appear to be used. Explain the purpose of this item and justify why it is included in the model.

RESPONSE

LIME acknowledges the non-use of this item and has therefore removed it from the model.

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31. Rows 114 – 117 in the 'Access Dimensions' sheet contain various inputs related to Cabinets/Copper Cross connection points. None of these inputs would appear to be used. Explain the purpose of these items and justify why they are included in the model.

RESPONSE

LIME checked the references to rows 114 – 117 and found only the item in row 114 was not being used and, as such, this item has been removed. However, all others in rows 115 - 117 are in use and have been retained.

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32. Cell D18 of the 'TX Equipment Dimensions' sheet contains the number of exchange nodes. This information does not appear to be used. Confirm the relevance of this information and amend dimensioning formulas to include it if required.

RESPONSE

LIME has removed this reference.

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33. Cells D58:D62 of the 'TX Equipment Dimensions' sheet references the 'MG Dimensions' sheet. This would appear to be an error. Confirm the erroneous nature of this reference and make corrections if appropriate.

RESPONSE

LIME has checked the stated references and has found that they were indeed errors. These have been corrected and now reflect the appropriate values.

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34. Explain in detail what is meant by 'Electronics Component' in row 208 of the 'TX Equipment Dimensions' sheet.

RESPONSE

LIME submits that the term 'Electronic Components' refers to the associated electronic components that give the cross connect equipment its switching functionality.

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35. Cell C4 of the 'Demand Calculations' sheet contains a conversion factor for capacity to annual minutes. The formula used in the cell is: " $=1/(BH_pcent/mins_erlangs/channels)$ ". Define each of the inputs used in the formula and explain the logic and methodology underlying the formula.

RESPONSE

This formula is used to convert 2 Mbps capacities to annual minutes.

The term 'BH_pcent' represents the percentage of total traffic carried that occurs during the busy hour. This term was set at 9% by the ICT Decision 2008-2.

The term 'mins_erlangs' represents the international standard for converting minutes to erlang. This is set at 60.

The term 'channels' represents the international standard for converting 2Mbps capacities to voice channels. This is set at 30, meaning that it takes 30 64kbps voice channels to make one 2Mbps capacity.

Therefore, converting ADSL demand capacity represented in 2 Mbps as shown in the Volume input sheet, cell F3, is a simple case of multiplying $1/(BH_pcent/mins_erlangs/channels)$ by the 2Mbps demand capacity. Or put another way, first determine the total number of minutes by dividing $mins_erlangs/BH_pcent$. In this case it works out to be $60/0.09 = 666.67$ mins. Then given that 30 voice channels occurs in one 2Mbps demand capacity, we get $666.67*30 = 20,000$ which is the conversion factor for 2Mbps demand capacity to annual minutes.

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36. In row 138 of the 'Demand Calculations' sheet the following network components are not allocated a driver: 400-VAS platforms, 400-Contact Centre Platforms, 400-Interconnect billing platform and 400-VOIP Equipment. Assign a driver to these components.

RESPONSE

LIME acknowledges that the following were without a stated driver: *400-VAS platforms, 400-Contact Centre Platforms, 400-Interconnect billing platform*. However, *400-VOIP Equipment*, contrary to the Authority's statement above, carries a 'capacity' driver. In any event, a driver has been added for the others.

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37. The formulas used to calculate the number of cable pairs in row F of the 'Access Calculations' sheet adds 1 (one) to the static volume in the denominator. Provide a detailed rationale for this adjustment.

RESPONSE

The addition of one (1) was required in the previous version of the model. This, however, is no longer required given the changes to the model in compliance with the ICT Decision 2008-2. This has been corrected.

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38. The formula in the Access Calculation' sheet used to estimate the pair size after re-adjusting demand (column F) results in a requirement to round down for the largest pairs required, e.g. assuming the largest cable size is 400 pair (cell D92) and demand is for 525 pair (cell F92) the formula forces the cable size to be 400 pair (cell G92) although this is insufficient for the required demand. Explain the adequacy of this approach or suggest an alternative methodology.

RESPONSE

LIME acknowledges the shortcoming in the formula and has modified the formula to accommodate pairs greater than the maximum provided amounts. This has been accomplished by adding another set of provided pairs appropriate for the amount in excess of the maximum amount provided.

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39. In the quantity section of the 'Access Calculation' sheet (cells D114:H145) cable lengths by pair size are summarized. Since the cable sizes used in the summary do not match those used in the calculations the summary appears to be erroneous. Provide a detailed justification why this is appropriate or correct the calculation.

RESPONSE

LIME acknowledges the mismatch raised and has now corrected for this.

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40. In cell F4 of the 'MG Calculations' sheet, LIME provides what is termed an MG fixed cost. This cost item is sourced from the 'Cost Assumptions' sheet and is unitized as a fixed cost per MG. When estimating the fixed cost per MG for each MG (in cells E7:E54), LIME divides the fixed cost per MG (cell F4) with the number of MGs (cell F3). Provide a justification for why this is appropriate or correct the calculation.

RESPONSE

LIME acknowledges this error in calculation and has now corrected for this.

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41. Cell C33 in the 'International TX Costs' sheet calculates the operating costs as a percentage of the annualized capital cost. This is contradictory to the approach in cell C9 that uses the capital cost. Assuming it is the capital cost and not the annualized capital cost that is the correct base to use, the annual operating costs of the national submarine link is understated. Confirm the appropriateness of the approach or revise it as required.

RESPONSE

LIME acknowledges this error in calculation and has now corrected for this.

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42. In the 'Access Cost' sheet the costs of underground cable (cells C7:D16) are sourced from the 'Cost Assumptions' sheet. However, there is a cable size mismatch in the sourcing of cost data from the 'Cost Assumptions' sheet. For example, the cost of a 200 pair cable is costed as a 150 pair cable. Provide a justification for the apparent mismatch or correct the error.

RESPONSE

LIME acknowledges this error in calculation and has now corrected for this.

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43. In the 'Access Cost' sheet cell H18, the formula used makes an error in the look up of installation costs. The formula used is:
=IF(ISERROR(VLOOKUP(G18,\$B\$7:\$B\$24,1,FALSE)),TREND(D\$12:D\$14,\$B\$12:\$B\$14,\$F18),VLOOKUP(G18,\$B\$7:\$D\$24,3,FALSE)). One way to correct the formula is:
=IF(ISERROR(VLOOKUP(F18,\$B\$7:\$B\$24,1,FALSE)),TREND(D\$12:D\$14,\$B\$12:\$B\$14,\$F18),VLOOKUP(F18,\$B\$7:\$D\$24,3,FALSE)).
Provide a detailed justification or a correction.

RESPONSE

LIME acknowledges this error in calculation and has now corrected for this.

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44. In the 'Access Cost' sheet cell H21, the formula used makes an error in the look up of installation costs. The formula used is:
=IF(ISERROR(VLOOKUP(G21,\$B\$7:\$B\$24,1,FALSE)),TREND(D\$13:D\$15,\$B\$13:\$B\$15,\$F21),VLOOKUP(G21,\$B\$7:\$D\$24,3,FALSE)). One way to correct the formula is:
=IF(ISERROR(VLOOKUP(G22,\$B\$7:\$B\$24,1,FALSE)),TREND(D\$15:D\$16,\$B\$15:\$B\$16,\$F22),VLOOKUP(G22,\$B\$7:\$D\$24,3,FALSE)).
Provide a detailed justification or a correction.

RESPONSE

LIME acknowledges this error in calculation and has now corrected for this.

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45. In the 'Access Cost' sheet, 150 pair aerial cable (cells G35:H35) is less costly than 100 pair cable (cells G34:H34). This result is due to, what appears to be, an error in the formula used to estimate the cost. Provide a detailed justification or a correction.

RESPONSE

LIME acknowledges this error in calculation and has now corrected for this.

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46. In the 'Access Cost' sheet cell K36, it is indicated that there is 0.9 km of 200 pair aerial cable. However, since no costs are input for 200 pair aerial cable, this cable is effectively excluded from the model. Provide a detailed justification or a correction.

RESPONSE

LIME acknowledges this error in calculation and has now corrected for this.

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47. In the 'Access Cost' sheet, the cost of an underground drop wire (plus other costs) is calculated in cell I99. The calculation references an empty cell in the 'Cost Assumptions' sheet which appears to have been intended to include the cost of the drop wire. Provide a detailed justification or a correction.

RESPONSE

LIME acknowledges this error in calculation and has now corrected for this.

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48. In the 'Access Cost' sheet, an average cost of drop wire (plus other costs) is calculated in cell H102 by taking the simple average of the cost of a drop wire installed underground and one installed as an aerial cable. Provide a detailed explanation of why a simple average is appropriate and provide supporting documentation.

RESPONSE

LIME has applied a weighted average based on the km length of UG drop wire versus Aerial dropwire.

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49. Row 53 and 54 in the 'Access Cost' sheet are duplicated. This appears to result in an erroneous calculation of the number of joints. Provide a detailed justification or a correction.

RESPONSE

LIME acknowledges this error in calculation and has now corrected for this.

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50. When calculating the number of joints for various fibre sizes and types in the 'Core Fibre Costs' sheet (cells E12:K12), LIME uses the length of each type/size and the distance between joints (which is taken from the 'Access Dimensions' sheet: Average separation of fibre splices – underground). The formula divides the number of fibre km with the distance between joints and adds 0.5.
- a. Explain the addition of 0.5.
 - b. Provide a detailed justification of why the distance between joints as indicated for underground cable is appropriate for the use with aerial cable.

RESPONSE

- A. The intention of adding the 0.5 to the calculation is to round to the nearest whole number, however, the formula is missing the key component and that is the excel 'ROUND' formula. The formula should read as applied to cell E12: "`=ROUND(E9/E11+0.5,0)`", this rounds to the nearest whole number.
- B. From an engineering perspective the application of joints are avoided as much as possible and only applied where necessary. LIME has an 8 fibre aerial cable installed for diversity purposes which span about 13km and the average joint separation is about 1.2 km, slightly longer than that of the underground fibre cables. LIME has adjusted the joint separation for aerial fibre to now reflect this.

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51. In the 'Core Fibre Costs' sheet, 6 pair fibre cable and 6 pair jointing is costed as 8 pair cable and jointing (cell I17 references 'Core Fibre Calculations'!I6 and cell I19 references 'Core Fibre Calculations'!I12). Provide the rationale for this assumption.

RESPONSE

LIME has now removed the references to 6 fibre optical cable in the model. This decision was necessary as LIME's network no longer carries 6 fibre optical cables.

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52. In row 37 of the 'NGN Costs' sheet the management system cost is allocated pro-rata to the direct cost of MSE and MG (allocated to calls, minutes and lines respectively). Provide the rational for this allocation. In particular comment on the relevance of allocation of management system costs to the access network and the non-allocation of the management system cost to other parts of the core network.

RESPONSE

LIME submits that at the basic level the NGN Management System provides comprehensive service, network and element management operations which include monitoring and detection of faults on Line cards, therefore, it is indeed appropriate to include the line side in the share of management system cost. LIME notes, however, that excluding the other core components may be an oversight and has now allocated, pro-rata, costs to these components.

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53. The equipment that is costed in the 'NGN Costs' sheet is annualized using an asset life of 96 months (except management system costs), see cell C42. This includes the equipment categories 'Data Network Equipment' and 'Interconnect Billing' although these categories have different asset lives as indicated in the 'Asset lives' sheet. Explain why these cost categories should have the same asset life as NGN equipment or make the appropriate corrections to the model.

RESPONSE

LIME has adjusted these asset lives in accordance with the asset lives listed in the asset lives sheet.

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54. The formulas used in cells E21:E24 in the 'Transmission Equipment Costs' sheet are inconsistent in that, they for cells E21:E23, refer to the number of cross connects (which would appear to be erroneous) and in cell E24 refer directly to the number of ADMs. Provide the rationale for this approach or correct the formulas used.

RESPONSE

LIME acknowledges this error and has made the necessary corrections.

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55. In row 8 and 14 of the 'Cost Summary & Mapping' sheet a logical test is performed referencing cell \$P\$7 (which is empty). Explain the purpose of this test.

RESPONSE

LIME acknowledges the Authority's observation and states that the logical test was left over from the previous version of the model which provided the option of using tilted annuity versus simple annuity. This is no longer required; therefore, this reference has now been removed.

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56. Explain the purpose of the formulas in rows 11, 18, 25, 31 and 36 of the 'Cost Summary & Mapping' sheet.

RESPONSE

LIME acknowledges the Authority's observation and states that these formulas were left over from the previous version of the model which provided ability to recognize the various ISFCs (Increment Specific Fixed Costs). This is no longer required; therefore, these formulas have now been removed.

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57. In cell D21 in the 'Cost Summary & Mapping' sheet fibre transmission costs (consisting of fibre cable and joints) is divided by 4. In other words, host-host transmission is allocated 25% of the costs. Provide a detailed rationale for this allocation.

RESPONSE

LIME acknowledges the Authority's concern and submits that the most appropriate approach to splitting the fibre transmission cost would be to obtain the distances between all remotes to host exchanges and between host exchange to host exchange, including detail information as to the number of fibre strands in each section and apply the resulting ratio of these to the cost. This, however, was not possible in the absence of the underlying distance and fibre by section information. LIME, therefore, thought it reasonable to apply a ratio of 1:3 in favour of the host to remote sections given that the vast majority of the transmission network is made up of this transmission type.

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58. In cell I27 in the 'Cost Summary & Mapping' manhole costs allocated to the core network is divided by 4. In other words, 'Host-Host' segments are allocated 25% of the costs. Provide a detailed rationale for this allocation.

RESPONSE

Please refer to the response to interrogatory 57 above.

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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'.

RESPONSE

LIME has checked the above stated reference to the application of pole cost to Host-Remote annualized cost and has not found where such has been applied.

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60. The allocation of duct costs between access and core network in the 'Cost Summary & Mapping' sheet (cells D33:E33) uses the km of duct in each network to split the costs. Provide a detailed justification for this allocation method and address whether such an approach appropriately reflects the sizes and costs of ducts used for each network.

RESPONSE

LIME submits that such an approach, though not the most accurate, arguably, is a reasonable one, given that detail data as to the size, length and cost of ducts in each particular transmission section are not available.

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61. In row 32 of the 'Fixed Network Costs' sheet, the total excludes the cost category '400-VOIP Equipment'. Provide a detailed justification or correct the formula.

RESPONSE

LIME acknowledges the Authority's observation and has now made the necessary corrections.

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62. The calculation of total network service cost in row 24 of the 'Fixed Service Costs' sheet excludes the 'VoIP Equipment' component. For example the formula in cell T42

`'=SUMPRODUCT(C11:C14,T11:T14)*T40+SUMPRODUCT(C16:C24,T16:T24)*T38+SUMPRODUCT(C26:C30,T26:T30)*T39+SUMPRODUCT(C32:C33,T32:T33)*T41'`

may need to be amended to

`'=SUMPRODUCT(C11:C14,T11:T14)*T40+SUMPRODUCT(C16:C24,T16:T24)*T38+SUMPRODUCT(C26:C30,T26:T30)*T39+SUMPRODUCT(C32:C34,T32:T34)*T41'`

Provide a detailed justification for LIME's approach or provide a correction.

RESPONSE

LIME acknowledges the Authority's observation and has now made the necessary corrections.

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63. The 'Volume Input for TD' sheet contains various volume inputs. For example, the values in cells V1:AD37 are volumes that are sourced as (cell AD1): "C&W Actual 2008 volumes obtained from: CIS System and Carrier Services". The values in cells L1:T37 are growth factors that are sourced as (T1): "Growth Assumptions: Based on LIME's 1 year market Projections". The values in cells B1:H37 are calculated volumes based in input volumes and growth factors.
- a. Identify which year the resultant demand in set cells B1:H37 is intended to refer to.
 - b. Provide a detailed description of how the fixed network module accounts for foreseeable future growth beyond the base year to which it relates.

RESPONSE

- A. After application of the 1 year growth assumptions the resultant demand in set cells B1:H37 refers to the 2009/2010 year.
- B. 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.

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64. Explain the purpose and rational for the option of including "Traffic Increment Includes Equipment?" in cell F12 of the 'Cost Assumptions' sheet.

RESPONSE

LIME submits that this option is no longer relevant and therefore has removed it from the model.

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65. Import duty is not applied to the cost of the Voicemail Platform in cell Q32 of the 'Cost Assumptions' sheet. Explain why duty should not be included for the Voicemail Platform equipment.

RESPONSE

LIME acknowledges the Authority's observation and has corrected this omission.

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66. In cells C65:F76 of the 'Cost Assumptions' sheet a table is shown with network element allocations to three categories: Call Attempts, Minutes and Subscribers. This can be compared to the categorization used in the 'Mobile Network Costs' sheet, where LIME uses four different categories: Duration Sensitive, Call Sensitive, Subscriber Sensitive, Bandwidth Sensitive. It can also be compared to the allocation of costs in the 'Network Costs' sheet LIME use the following categorization (row 62): Minutes Related, Calls Related, Subscriber Related and Other. The use of different allocation categorizations that in some cases also are used inconsistently (for example in the 'Cost Assumptions' sheet the network element SGSN is allocated 100% to minutes, in 'Network Costs' sheet it is allocated to the category 'Other' while in the 'Mobile Network Costs' sheet it is allocated to the category 'Bandwidth Sensitive') is not in line with good modeling practice. In addition the Authority notes that the network element allocation for cell sites is 0% in all categories. This information is not used in the allocation in subsequent parts of the mobile module (see for example the 'Mobile Network Costs' sheet), rather LIME has allocated cell site costs as a duration related cost. To the extent that LIME includes the cell site network element in the allocation table calculations in other parts of the module should make use of the table. LIME is requested to revise the allocation approach used making it consistent across the module's sheets.

RESPONSE

LIME acknowledges the Authority's observation and has made the allocation to the said categories consistent across all sheets. LIME, however, wishes to point out that the subsequent allocation of GPRS Platform to Bandwidth Sensitive category is an appropriate one and is consistent with the overall modeling approach and technical application. Bandwidth sensitive components were first classified under the category called 'Minutes' which, technically, is correct for dimensioning purposes. The subsequent allocation under bandwidth is for reporting purposes and is simply a means of distinguishing between minutes driven by switched traffic and those driven by IP traffic. LIME, therefore, has made the following changes:

- a) Cellsite category in the 'Cost Assumptions' sheet, row 75, now shows an allocation of 100% to minutes.
- b) In the 'Network Costs' sheet row 62 LIME has labeled S61-V61 as 'IP Bandwidth' and relabeled S62-V62 using the sub category

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'Minute Related'. This is correct given that the IP components dimensioning are dependent on both minutes and IP bandwidth units.

It is also recognised that in the current model, the allocation definitions as input into the 'Cost Assumptions' sheet is not consistently flowed through the model. The required update to the model will require the inclusion of the full network element list against each allocation category throughout the model. This update will be made, and submitted along with the responses to the questions relating to the appendices.

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67. Cell J173 of the 'Cost Assumptions' sheet calculates the total cost of Tributary Cards for interconnect using the following formula: $(G173+H173+F173)*(1+I173)$. G173 is the cost of equipment including spares. H173 is the contribution to duty and F173 is the cost of spares. Accordingly, it appears that the formula double counts the cost of spares. Provide the rationale for LIME's approach or provide a revision to correct the formula.

RESPONSE

LIME acknowledges the Authority's observation and has corrected this error.

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68. Cell I173 of the 'Cost Assumptions' sheet references the empty cell B11. Provide a justification for that item. By way of comparison the Authority notes that the 3G module contains a planning factor of 20% for Tributary Cards for interconnect.

RESPONSE

LIME submits that the reference cited by the Authority should be removed and in its place, for consistency with the 3G model, carry a planning factor of 20%. Also note, cell C12 which captures the general planning factor for the mobile network is set to zero to avoid double counting as a planning expense factor is captured in the Expense Factor sheet in row 31. This however does not allocate planning to the Interconnect Specific component, so an allocation in the cost assumption sheet is appropriate.

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69. The annual depreciation charge for SMS and the prepay platform are input in cells D157 and D162 of the 'Cost Assumptions' sheet. No intermediate inputs are provided. Update the module to include all intermediary inputs, i.e. the equipment purchase price, spares, import duty, installation labour and planning and use appropriate asset lives and the WACC already in the module to annualize these costs. In addition provide detailed documentation for the inputs used.

RESPONSE

LIME submits that the cost information captured in cells D157 and D162 both carry misleading labels. These costs represent operating costs similar to the roaming platform charge in cell D167 which is a recharged cost to the Cayman Business from LIME Regional for operating and maintaining its SMS and Prepaid platforms. Since these are recharged costs duties, spares, and planning would already be accounted for and no further adjustments are required. See Appendix A for the details.

To avoid further confusion LIME has now relabeled these costs items, they are now called 'Annual Opex'.

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70. The 'Ratio of total/successful calls' in cell C54 of the 'Demand Assumptions' sheet is not used anywhere in the module. Provide a detailed explanation for why it is not used and remove it or revise the module to take it into account.

RESPONSE

LIME acknowledges the Authority's observation and has now revised the module to account for the 'Ratio of total/successful calls'. LIME has therefore now included a column labeled 'Total calls (successful + unsuccessful) (calls)' in col F of the 'Demand Assumptions' sheet. This column calculates the total number of calls and is linked to the dimensioning sheet 'Demand Calculations'.

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71. In the 'Technical Assumptions' sheet LIME has revised the maximum cell radius for dense, medium and rural areas (cells D24:D26).
- a. Provide a detailed explanation and supporting documentation for the revision of the maximum cell radius.
 - b. In addition provide a detailed explanation of how the current model with 42 sites can be considered optimal when the previously submitted model only had 17 which, everything else being equal, would be less costly.

RESPONSE

In response to the Authority's ICT Decision 2008-2 paragraphs 42 – 47, LIME took the opportunity to update and revise the input assumptions captured in the Technical Assumptions sheet and submit evidence in support of the inputs. LIME points the Authority to 'Appendix I Part I radial Distances between Cellsites' which was extracted from its engineering department's GIS system. LIME also submits that the Mobile Module, though it employs engineering assumptions and optimization algorithm, is not a comprehensive RF optimization program. Such a program is well beyond the bounds of this exercise. Therefore, it is reasonable to expect, in accordance with the LRIC guidelines, that the input assumptions incorporate the existing radial dimensions of LIME's Mobile Network.

The revision exercise using the GIS system resulted in a more accurate reflection of existing radial distances when compared to the previous version of the model which did not have the benefit of a GIS system but rather depended on a more manual process.

LIME further submits, given the fact that the module is not a comprehensive RF optimization program and in no way could account for all the factors that impact the final dimension of a RF network, it is reasonable to assume that the existing network which was designed by a well-established, reputable and highly recognized telecommunications company employing state of the art optimization tools would yield an optimized network. The other factors that impact the final dimension of the mobile network are:

- Power Rating;
- Topology;
- In Building Penetration; and

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- Resilience.

all of which cannot be accommodated within the scope of the mobile model.

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72. Interrogatory no. 25 provides a detailed discussion of the application of expense factors. Provide a revised model that calculates the expense factor ratios as the current expense divided by the revalued Gross Replacement Cost and then apply the resulting ratios to the forward looking investment, i.e. the capital investment that is the result of the FLLRIC modeling exercise.

RESPONSE

LIME has made the necessary corrections to the calculation of the expense factors and, except where the use of the term 'current expenses' is used, are now calculated as the current expense divided by the revalued Gross Replacement Cost and then apply the resulting ratios to the forward looking investment.

LIME notes that the Authority's ICT Decision 2008-2 paragraph 234 states that a fundamental review of existing expenses is not warranted at this time.

LIME has now employed the GRV in the 'Reval_Assets' sheet which is then linked to both the 'Expense Factors' sheet and the 'overhead_exp' sheet, rows 4 and 2 respectively. Also, LIME has added row 5, which captures the forward looking GRC, to the 'Expense factors' sheet and changed row 4 of the 'overhead_exp' sheet to reflect the GRC of the forward looking investments.

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73. The Erlang B table in the 'Erlang B' sheet appears to be incorrect. There is a consistent discrepancy from the standard Erlang B calculations (see e.g. <http://www.erlang.com/calculator/erlb/>) for the 5% GoS (B.05) table. For 1% GoS (B.01) table, as the offered load increases, the discrepancy from the standard Erlang B calculation grows. Explain the reason for the discrepancy.

RESPONSE

LIME visited the website referenced above and conducted a series of calculations varying the GoS and offered load using the free calculator provided on the site. The table below shows the results obtained from the online calculator, LIME's ErlB table and the difference between the two. LIME calculated values in the lower, mid and upper range (the online calculator only went to a max of 180 BH). From the table below LIME cannot agree with the Authority's assertion that the discrepancy grows, in fact, a consistent discrepancy of '1' appears. LIME also contends that this discrepancy is within the margin of acceptability; indeed different erlang B calculators will present varying results to some degree. Arguably, the online calculator may be in error. For comparison and validation LIME includes Appendix B Erlang B Table obtained from the site www.deetc.isel.ipl.pt/sistemastele/CTVS/.../Erlang%20B%20Table.xls.

Erlangs	Erl B Online Calculator - Number of circuits					LIME - Number of circuits					Difference				
	0.5%	1%	2%	3%	5%	0.5%	1%	2%	3%	5%	1%	1%	2%	3%	5%
0.25	3	3	3	2	2	2	2	2	1	1	1	1	1	1	1
3	9	8	8	7	7	8	7	7	6	6	1	1	1	1	1
7	15	14	13	12	11	14	13	12	11	10	1	1	1	1	1
50	66	64	61	59	56	65	63	60	58	55	1	1	1	1	1
170	196	190	184	180	173	195	189	183	179	172	1	1	1	1	1
175	201	196	189	185	178	200	195	188	184	177	1	1	1	1	1
180	206	201	194	190	183	205	200	193	189	182	1	1	1	1	1

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74. In the 'Services' sheet LIME include the following services: Mobile Data, Mobile International Incoming, Mobile International Outgoing, Mobile On Net Call, Mobile Subscriber, Mobile To Fixed, Mobile To Mobile, Mobile Voicemail Retail, SMS, Mobile Termination, Inbound Roaming, SMS Termination. According to its website, LIME also provide MMS service (as indicated by the Plans & Rates available on the LIME Cayman Island website:
http://www.time4lime.com/country_home.jsp?countryName=Cayman%20Islands&index=5). Explain why MMS is not included.

RESPONSE

LIME submits that its MMS service, though not labeled as such, is captured under the service heading 'SMS'.

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75. In the 'Demand Calculations' sheet cell C41 is a pasted value. According to the accompanying explanatory text "The cell represents the proportion of minutes which are not available for conversation. The cell is a static value, copied from the adjacent cell to the right when the 'Update FAC' button is pressed on the Contents Sheet". The adjacent cell to the right has a different value. Inspection of the Visual Basic code shows that the 'update_fac()' macro performs the following (among other things):

```
Sheets("Demand Calculations").Select
    Range("D41").Select
    Selection.Copy
    Range("C41").Select
    Selection.PasteSpecial Paste:=xlPasteValues,
Operation:=xlNone, SkipBlanks _
:=False, Transpose:=False
```

Indicate whether an update of cell C41 is needed and make appropriate corrections to the module to ensure future updates are possible.

RESPONSE

LIME acknowledges the Authority's observation and has now revised the VBA code to update the correct cell, which is cell C41.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
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76. Explain the purpose of the input cell B33 'Shared Towers' in the 'Transmissions Links' sheet.

RESPONSE

This is simply a note stating that all the wireless transmission antennas are located on existing cell towers.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
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77. Explain the purpose of the input cell B34 'Repeater distance' in the 'Transmissions Links' sheet.

RESPONSE

This is a note which is not relevant to any subsequent calculation. This has been deleted.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
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78. Provide the derivation of and supporting documentation for, the cost of a 'Mini Link MLE 6 GHz Radio System' in cell B42 in the 'Transmissions Links' sheet.

RESPONSE

LIME submits that it has provided the necessary documentation for the 'Mini Link' in response to the Authority's ICT Decision 2008-2 in the form of '09_04_08 Appendix XVI - Cayman Microwave cost – CONFIDENTIAL'.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
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79. In the costing of a 'Mini Link MLE 6 GHz Radio System' in the 'Transmissions Links' sheet no account is taken of spares. Provide the rationale for that assumption or amend the calculations to include spares.

RESPONSE

LIME submits that spares are included in the price quoted in cell B42. See documentation submitted in the form '09_04_08 Appendix XVI - Cayman Microwave cost – CONFIDENTIAL'.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
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80. In the 'Transmissions Links' sheet it is assumed that an STM-1 is needed for national submarine transmission. The cost of this link is based on the cost per STM-1 km from an IRU (shown in the fixed module). For mobile traffic it is assumed that the capacity of off-island BTS - BSC Links is 32 E1s. With 32 E1's = 64 Mbps and STM-1 = 155 Mps, the mobile network is assumed to require $64/155 = 41\%$ of national submarine capacity (see cell B57). The fixed network is allocated the remaining 59% of the capacity. Explain the rationale for this allocation approach considering that the fixed network may require less than (155-64) 91 Mbps capacity.

RESPONSE

LIME has revised this calculation taking into consideration the capacity requirements of the Fixed network. See 'J56' of the 'Transmission Links' sheet.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
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81. In the 'Switching Calculations' sheet it is assumed that the number of voice subscribers is the same as the number of data and SMS subscribers (cell C4=C5). Explain the reasonableness of this assumption given that not all subscribers will have (or will select) the option to use GPRS.

RESPONSE

LIME thought it is a reasonable assumption given the fact that most, if not all, mobile phones today are GPRS ready and a significant proportion of customers have activated GPRS services. Therefore LIME believes it is both reasonable and prudent to dimension the network under the assumption that all subscribers have the option to use GPRS and certainly will do so in the near future.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
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82. In the 'Network Costs' sheet, site sharing is taken into account by deducting a shared cost amount (cell I102). The shared amount is calculated in the 'Cost Assumptions' sheet, as an average of several monthly site costs multiplied by a period of 12 months. Accordingly, the value in cell I102 is the average annual cost of site rental per site (for the sites over which the average monthly cost is calculated). In the 'Network Costs' sheet this annual rental cost per site is deducted from the total annual site cost for all sites in the modeled network. In essence, LIME deducts the annual cost of one site from the annual site cost of all sites in the network to yield an estimate of total annual site costs after sharing. Provide a detailed rationale for this approach.

RESPONSE

LIME acknowledges the Authority's observation and has now revised cell B126 of the Cost Assumption sheet to account for the total annual cost reduction of shared sites which is subsequently deducted from the total annual lease cost in the Network Costs sheet.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
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83. When calculating the cost of site rental (before site sharing) in the 'Network Costs' sheet, 14 sites are deducted (cells H98:H100) from the total required sites of 42. This deduction is based on calculations performed in the 'Cost Assumptions' sheet where LIME calculates the number of co-located sites. Explain why a mobile operator at sites where co-location is possible would incur zero costs.

RESPONSE

These 14 co-located sites are infrastructure owned by LIME and whose costs are captured in the ABC/FAC model. Thus the appropriate share of costs would have already been allocated to the Fixed and Mobile businesses after which, in each LRIC model, they are treated via the expense factors. See rows 60 and 63 of the Expense Factors sheet.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
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15 October 2009

84. In the 'Network Costs' sheet cells F56:Q56 are pasted values. Inspection of the Visual Basic code shows that the 'update_fac()' macro performs the following (among other things):

```
Sheets("Network Costs").Select  
  Range("F55:q55").Select  
  Application.CutCopyMode = False  
  Selection.Copy  
  Range("F56:q56").Select  
  Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone,  
  SkipBlanks_  
    :=False, Transpose:=False
```

In other words, the calculated values in cells F55:Q55 are copied and pasted into cells F56:Q56. Explain why this portion of the macro is needed and amend the model accordingly if it is not required.

RESPONSE

LIME submits that these are needed to avoid circular errors appearing in the model. The pasted values in range F56:Q56 are subsequently linked to the Scenario Output sheet whose values are used in the 'Expense Factors' and 'overhead_exp' sheets in the calculation of the expense factors.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
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85. The calculations in rows 71 to 75 in the 'Network Costs' sheet would not appear to be required. Explain the need for the calculations or revise the model accordingly.

RESPONSE

These are no longer required and, as such, they have been removed.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
Implementation of FLLRIC Model
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86. Cells G105, G110 and G115 of the 'Network Costs' sheet shows FAC operating costs for SMS platform, Prepay platform and roaming, respectively. Explain the relevance of these cells.

RESPONSE

LIME is somewhat confused by this query, as it is obvious that these costs capture the network operating expenses associated with the SMS, Prepaid and Roaming platforms. These costs are subsequently posted to the Scenario Output sheet.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
Implementation of FLLRIC Model
15 October 2009

87. The fixed module includes an interconnect billing platform cost. No such cost would appear to be included in the mobile module. Explain how costs related to interconnect billing are taken into account in the 2G mobile module.

RESPONSE

These costs are currently captured under the Interconnect Specific cost category which is applied through the 'Expense Factor' sheet row 40, '100- Manage Mobile Interconnect Specific Requirements'.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
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15 October 2009

88. Explain the purpose and rationale for the option of including "Traffic Increment Includes Equipment?" in cell F12 of the 'Cost Assumptions' sheet.

RESPONSE

LIME agrees that this option is no longer required, and it has therefore been removed from the model.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
Implementation of FLLRIC Model
15 October 2009

89. 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.

RESPONSE

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 modelled to reflect the actual situation faced by LIME.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
Implementation of FLLRIC Model
15 October 2009

90. In the costing of a 'Mini Link MLE 6 GHz Radio System' in the 'Cost Assumptions' sheet no account is taken of spares (row 69). Explain why no account is taken of spares or amend the calculations to include spares.

RESPONSE

LIME has revised the model to include spares for 'Wireless Radio Links' (see row 69 and cell D131).

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
Implementation of FLLRIC Model
15 October 2009

91. In cells C82:F103 of the 'Cost Assumptions' sheet a table is shown with network element allocations to three categories: Call Attempts, Minutes and Subscribers. This can be compared to the categorization used in the 'Mobile Network Costs' sheet, where LIME uses four different categories: Duration Sensitive, Call Sensitive, Subscriber Sensitive, Bandwidth Sensitive. It can also be compared to the allocation of costs in the 'Network Costs' sheet LIME use the following categorization (row 75): Minutes Related, Calls Related, Subscriber Related and Other. The use of different allocation categorizations that in some cases also are used inconsistently is not in line with good modeling practice. In addition the Authority notes that the network element allocation for cell sites is 0% in all categories. This information is not used in the allocation in subsequent parts of the mobile module (see for example the 'Mobile Network Costs' sheet), rather LIME has allocated cell site costs as a duration related cost. To the extent that LIME includes the cell site network element in the allocation table calculations in other parts of the module should make use of the table. LIME is requested to revise the allocation approach used making it consistent across the module's sheets.

RESPONSE

The appropriate updates have been made to the naming of the allocation categories across all sheets to ensure consistency of terminology. LIME, however, wishes to point out that the subsequent allocation of the 'IP Core Network' and 'Applications platform' to the Bandwidth Sensitive category is an appropriate one and is consistent with the overall modelling approach and technical application. Bandwidth sensitive components were first classified under the category called 'Minutes' which technically is correct for dimensioning purposes. The subsequent allocation under bandwidth is for reporting purposes and is simply a means of distinguishing between minutes driven by switched traffic and those driven by IP traffic.

It is also recognised that in the current model, the allocation definitions as input into the 'Cost Assumptions' sheet is not consistently flowed through the model. The required update to the model will require the inclusion of the full network element list against each allocation category throughout the model. This update will be made, and submitted along with the responses to the questions relating to the Appendices.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
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15 October 2009

92. In row 101 of the 'Cost Assumptions' sheet it is indicated that the network element allocation for cell sites is 0% in all categories. Based on the implicit allocation in subsequent parts of the mobile module LIME should indicate that the allocation is 100% duration related. Update the module to reflect this.

RESPONSE

The model has been updated to reflect this.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
Implementation of FLLRIC Model
15 October 2009

93. In the Network Component Allocation table, shown in the 'Cost Assumptions' sheet, only the network element 'HLR / VLR / AUC' contains an allocation to call attempts. Explain why all other network elements have an allocation of zero to call attempts.

RESPONSE

The HLR / VLR / AUC is capacity constrained by the number of call attempts. The other network items are more constrained by the actual number of minutes demanded of them.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
Implementation of FLLRIC Model
15 October 2009

94. In the 'Cost Assumptions' sheet an assumption of # # % spares is used for 'site cost for omni cell' and 'site cost for sectorised cell' (see cells D111:D112). As source is indicated the 2G cost module. However, inspection of the 2G cost module suggest a spare parameter of # # % (see cell D93 in the 'Cost Assumptions' sheet of the 2G module). Provide a detailed explanation for this difference or align the assumptions in the two modules.

RESPONSE

We have updated the model to include # # spares for all network elements.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
Implementation of FLLRIC Model
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95. The annual depreciation charge for SMS and the prepay platform are input in cells D194 and D199 of the 'Cost Assumptions' sheet. No intermediate inputs are provided. Update the module to include all intermediary inputs, i.e. the equipment purchase price, spares, import duty, installation labour and planning and use appropriate asset lives and the WACC already in the module to annualize these costs. In addition provide detailed documentation for the inputs used.

RESPONSE

Similarly to the response to interrogatory 69 with respect to the 2G Model, LIME submits that the cost information captured in cells D194 and D199 both carry misleading labels. These costs represent operating costs similar to the roaming platform charge in cell D204 which is a recharged cost to the Cayman Business from LIME Regional for operating and maintaining its SMS and Prepaid platforms. Since these are recharged costs, duties, spares, and planning would already be accounted for and no further adjustments are required. See Appendix 3.1 for the details.

To avoid further confusion LIME has now relabeled these costs items. They are now called simply Annual Opex.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
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15 October 2009

96. The 'Ratio of total/successful calls' in cell C54 of the 'Demand Assumptions' sheet is not used anywhere in the module. Provide a detailed explanation for why it is not used and remove it or revise the module to take it into account.

RESPONSE

We acknowledge this observation, and have corrected the model to use this ratio and account for 'Total Annual Calls' rather than 'Annual Successful Calls'.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
Implementation of FLLRIC Model
15 October 2009

97. In the 'Technical Assumptions' sheet, the Max 3G cell radius does not match the average distance in Appendix I, Part I and some average distances are larger than 2 times the maximum value given as the assumption. Confirm whether Appendix 1, Part 1 refers to the 2G, the 3G, or both models. If it refers to the 3G module please explain these differences. If not, please provide similarly detailed data for the 3G module.

RESPONSE

Appendix I, Part I indicates the following average cell radius:

? Urban – # #

? Suburban – # #

? Rural – # #

This is the same as the input represented in cells C101-C103 for GSM cell radius. The Appendix is specifically analysing data from the current LIME network, which is 2G, and therefore as no such data exists for 3G the 2G averages are used within the model to approximate the expected 3G cell radius given the same frequency (850MHz). There are further approximations supplied for alternative frequencies (i.e. 1900MHz and 2100MHz), as it was unknown at the time exactly what spectrum would be available for 3G deployment.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
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98. Interrogatory no. 25 provides a detailed discussion of the application of expense factors. Provide a revised model that calculates the expense factor ratios as the current expense divided by the revalued Gross Replacement Cost and then apply the resulting ratios to the forward looking investment, i.e. the capital investment that is the result of the FLLRIC modeling exercise.

RESPONSE

The model has been updated to include the necessary corrections to the calculation of the expense factors, applying the ratio of current expenses divided by the revalued Gross Replacement Cost, to the forward looking investment.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
Implementation of FLLRIC Model
15 October 2009

99. No documentation has been provided to justify the routing factors shown in the 'Routing Factors Input' sheet. Provide documentation similar to that provided for the fixed and 2G modules in Appendix VIII.

RESPONSE

We have created documentation outlining the justification for the routing factors in the 3G model (see file 'CYM 3G Routing Factors 20091012.xls'). As the reasoning is largely based on the 2G model, reference is made to Appendix VIII where appropriate, however separate explanation is provided where any differences may arise, or there are specific items relating to 3G.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
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100. In the 'Routing Factors Input' sheet the network element '400-3G: Data Tx' has no routing factors. Confirm the accuracy of this assumption and in particular, explain how the mobile data service makes no use of this network element.

RESPONSE

This network element was included in the 2G model, and is assumed redundant in the 3G model due to the inclusion of the '400-3G: IP Core Network' element. The '400-3G: Data Tx' element has now been removed from the 3G model so as to eliminate this redundancy.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
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101. In the 'Routing Factors Input' sheet the network element '400-3G: HLR/VLR/AUC - subscriber sensitive' is in addition to the service '900-MOBILE SUBSCRIBER' used by the following services: 900-SMS, 900-MMS and 900-VIDEO CALLING. This is contrary to the equivalent network element in the 2G module which is only used by the '900-MOBILE SUBSCRIBER' service. Explain the usage of the network element '400-3G: HLR/VLR/AUC - subscriber sensitive'.

RESPONSE

We have removed the routing factors from the services: *900-SMS*, *900-MMS* and *900-VIDEO CALLING* as this was incorrect.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
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102. The Erlang B table in the 'Erlang B' sheet appears to be incorrect. There is a consistent discrepancy from the standard Erlang B calculations (see e.g. <http://www.erlang.com/calculator/erlb/>) for the 5% GoS (B.05) table. For 1% GoS (B.01) table, as the offered load increases, the discrepancy from the standard Erlang B calculation grows. Explain the reason for the discrepancy.

RESPONSE

We have recalculated the Erlang B table and corrected in the model. However, the table appeared to be -1 out for each GoS level, so could not see the same growth in discrepancy as the ICTA question implies for 1% GoS. We have also checked the values using the suggested online calculator.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
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15 October 2009

103. In the 'Demand Calculations' sheet cell C42 is a pasted value. According to the accompanying explanatory text "The cell represents the proportion of minutes which are not available for conversation. The cell is a static value, copied from the adjacent cell to the right when the 'Update FAC' button is pressed on the Contents Sheet". The adjacent cell to the right is of a different value. Inspection of the Visual Basic code shows that the 'update_fac()' macro performs the following (among other things):

```
Sheets("Demand Calculations").Select  
    Range("D42").Select  
    Selection.Copy  
    Range("C42").Select  
    Selection.PasteSpecial Paste:=xlPasteValues,  
Operation:=xlNone, SkipBlanks_  
:=False, Transpose:=False
```

Indicate whether an update of C42 is needed and make appropriate corrections to the module to ensure future updates are possible.

RESPONSE

The VBA code has been corrected to update the correct cell, C42, using the calculated value from D42.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
Implementation of FLLRIC Model
15 October 2009

104. Explain the purpose of the input cell B33 'Shared Towers' in the 'Transmission Links' sheet.

RESPONSE

This assumption was used in a previous version but is no longer required, and has been removed from the model.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
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15 October 2009

105. Explain the purpose of the input cell B34 'Repeater distance' in the 'Transmission Links' sheet.

RESPONSE

This assumption was used in a previous version but is no longer required, and has been removed from the model.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
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106. When costing Self-Supplied Wireless Links in the 'Transmission Links' sheet, LIME would appear to assume the minimum capacity is 2xE1 at each point. Confirm that this capacity is sufficient to meet the transmissions requirements of the 3G network considering the average E1s per site is 5 (cell 37).

RESPONSE

This assumption is no longer valid, and is not used within the model. Cells B57 and B58 have therefore been removed from the model.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
Implementation of FLLRIC Model
15 October 2009

107. In the 'Transmission Links' sheet it is assumed that an STM-1 is needed for national submarine transmission. The cost of this link is based on the cost per STM-1 km from IRU (shown in the fixed module). For mobile traffic it is assumed that the capacity of off-island BTS - BSC Links is 32 E1s. With 40 E1's = 80 Mbps and STM-1 = 155 Mps, the mobile network is assumed to require $80/155 = 52\%$ of national submarine capacity (see cell B76). The fixed network is allocated the remaining 48% of the capacity. Explain the rationale for this allocation approach considering that the fixed network may require more or less Mbps capacity.

RESPONSE

This calculation has been revised to take into consideration the capacity requirements of the Fixed network.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
Implementation of FLLRIC Model
15 October 2009

108. In the 'Traffic' sheet LIME provide a mix of subscriber data usage (%) in cells C20:C28. Provide a detailed explanation of how the mix was developed and provide supporting documentation for the assumed mix.

RESPONSE

Due to the lack of available data from LIME's own network, this was used as an estimate as to what a 3G subscriber's profile could be, and was taken from a mix of suitable industry benchmarks. This could of course greatly vary in reality once LIME or another operator launches 3G services in the Cayman Islands and will be heavily dependent on the service offerings that are brought to the market. It is also worth noting that this mix is only valid when modeling the 3G network without HSDPA. At the time of creating the model it was unclear as to whether LIME or any other operator would deploy a 3G network with HSDPA already enabled, and therefore it was thought necessary to include the option to model Release 99 3G data. It is now apparent that LIME has chosen to deploy HSDPA (based on the deployment in Jamaica), and therefore this assumption is not necessarily relevant.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
Implementation of FLLRIC Model
15 October 2009

109. In the 'Traffic' sheet LIME provides the average user throughput requirement per session (kbps) for different service types in cells G20:G28. Provide a detailed explanation of how these throughputs were developed and provide supporting documentation for the assumed user throughput.

RESPONSE

Once again, it is worth noting that these benchmarks are only taken into account when considering 3G Rel99, and therefore are not required in the HSDPA dimensioning calculations. These assumptions could be removed if the Authority agrees that the requirement to model Rel99 is no longer required. As they stand, the data are based on industry benchmarks relevant to 3G Release 99; actual usage in the network could differ.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
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110. When calculating the cost of site rental (before site sharing) in the 'Network Costs' sheet, 14 sites are deducted (cells H115:H1117) from the total required sites of 53. This deduction is based on calculations performed in the 'Cost Assumptions' sheet where LIME calculates the number of co-located sites. Explain why a mobile operator at sites where co-location is possible would incur zero costs.

RESPONSE

These 14 co-located sites are infrastructure owned by LIME and whose costs are captured in the ABC/FAC model. Thus the appropriate share of costs would have already been allocated to the Fixed and Mobile businesses after which, in each LRIC model, they are treated via the expense factors. See rows 60 and 63 of the Expense Factors sheet.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
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111. In the 'Network Costs' sheet cells F69:V69 are pasted values. Inspection of the Visual Basic code shows that the 'update_fac()' macro performs the following (among other things):

```
Sheets("Network Costs").Select  
  Range("F68:v68").Select  
  Application.CutCopyMode = False  
  Selection.Copy  
  Range("F69:v69").Select  
  Selection.PasteSpecial Paste:=xlPasteValues, Operation:=xlNone,  
  SkipBlanks_  
    :=False, Transpose:=False
```

In other words, the calculated values in cells F68:V68 are copied and pasted into cells F69:Q69. Explain why this portion of the macro is needed and amend the model accordingly if it is not required.

RESPONSE

The model has been constructed to not fully update the outputs with assumption changes unless the macro 'update_fac()' is run. This is something that was developed during an earlier iteration of the model, and was originally used to prevent circular errors from occurring. LIME does not see this as having any significant impact on the model as it currently stands.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
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15 October 2009

112. The calculations in rows 84 to 88 in the 'Network Costs' sheet would not appear to be required. Explain the need for the calculations or revise the model accordingly.

RESPONSE

LIME agrees that these calculations do not seem to be useful, and has removed them from the 'Network Costs' sheet.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
Implementation of FLLRIC Model
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113. Cells G122, G127 and G132 of the 'Network Costs' sheet shows FAC operating costs for SMS platform, Prepay platform and roaming, respectively. Explain the relevance of these cells.

RESPONSE

We are unsure what is meant by this question (as discussed in the response to interrogatory 86). These cells are used to pull through the annual costs associated with the recharged platforms, as input in the "Cost Assumptions" sheet (Cells E194-E204).

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
Implementation of FLLRIC Model
15 October 2009

114. The fixed module includes an interconnect billing platform cost. No such cost would appear to be included in the mobile module. Explain how costs related to interconnect billing are taken into account in the 3G mobile module.

RESPONSE

These costs are captured under the Interconnect Specific cost category.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
Interrogatory Responses
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139. LIME's response (Attachment A, Revisions to FLLRIC Model Ordered by the Authority in ICT Decision 2008-02 of 8 April 2009) to the Authority's direction in paragraph 236 in ICT Decision 2008-2: *"Split the cost centre/activity combination (in the ABC model) if relevant into what can be capitalised labour expenses (associated with the design, engineering, installation, creation of the network and commissioning) and non-capitalised labour expenses for the mobile network operating expenses 100-Provide Mobile Cellsites'. Alternatively, C&W must explain why spitting the costs would not be appropriate."*, indicates that capital labour has already been removed from the expenses and that this has been done in the ABC/FAC model, sheet 'Summary' column G of the 'Model' file. Provide a precise cell reference for the deduction.

RESPONSE

Column G is labeled 'Transfer to Capital' and captures capital labour costs that are deducted from the Cost Center costs. For example, row 4 Cost Center 200, Network Services, shows in cell I4 Staff cost of # # which is the sum of the following:

Direct Staff:- # #

Other Staff:- # #

Transfer to Capital:- -ve # #

Note the negative transfer to capital figure which clearly gives the amount deducted from the staff cost total for capitalized labour. The resulting sum total of # # staff costs are thereafter allocated to activities in the Cost Center sheet.

Cable & Wireless (Cayman Islands) Limited, d.b.a. "LIME"
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140. In LIME's response (Attachment A, Revisions to FLLRIC Model Ordered by the Authority in ICT Decision 2008-02 of 8 April 2009) to the Authority's direction in paragraph 119 in ICT Decision 2008-2: "*Develop and document a clear and consistent definition of the factors used to develop actual, network and dimensioned demand. In particular, those associated with the provisioning allowance used for demand driven by lines should be addressed*", two terms are used: 'stopped' and 'allocated' lines. Define these terms.

RESPONSE

‘Allocated’:- These represent lines assigned but not yet activated.

‘Stopped’:- These represent lines temporarily disconnected.

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141. LIME's response (Attachment A, Revisions to FLLRIC Model Ordered by the Authority in ICT Decision 2008-02 of 8 April 2009) to the Authority's direction in paragraph 119 in ICT Decision 2008-2: "*Provide justification for both explicit and implicit utilization in the different parts of the network*", makes reference to Appendix XIV, which shows in cell AJ160 for the access loop an average utilization of # #%. Explain how # #% is implemented in the fixed module and provide a detailed justification of how this factor is representative of an efficient operator.

RESPONSE

LIME's intention of submitting Appendix XIV was to demonstrate to the Authority that its 'MG Fill ratio' employed in the model was reasonable of an efficient operator given that it is above the actual utilization of LIME's Access Network. The MG fill ratio (Utilization Level) captured in the 'Technical Assumptions' sheet shows a utilization of # #, this LIME believes to be reasonable and is supported by LIME's design engineers.

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142. LIME's response (Attachment A, Revisions to FLLRIC Model Ordered by the Authority in ICT Decision 2008-02 of 8 April 2009) to the Authority's direction in paragraph 266 in ICT Decision 2008-2: *"Justify the optimality of all the inputs used in the access network part of the fixed network module. The Authority emphasises that the access network should reflect forward-looking principles and a simple replication and revaluation of C&W's existing access network cannot be regarded as a cost efficient solution without proper documentation. Justification should also be given for the assumed planning horizon"*, references the use of a GIS tool for the design and roll out its access network. LIME contends that its network can be considered optimal. Appendix IX provides a detailed presentation highlighting the functions and benefits of LIME's GIS system. This Powerpoint presentation provides an overview of the GIS tool, but does not in the Authority's view help in understanding how the model was populated. Further, it is not possible for the Authority to verify the numbers used in the model. Provide detailed documentation to justify the optimality and efficiency of the inputs used to design the access network.

RESPONSE

LIME submits Appendix C Access Network for information relating to LIME's Access network dimension. This document was completed by LIME's engineers and which was based on information captured in LIME's GIS system.

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143. In LIME's response (Attachment A, Revisions to FLLRIC Model Ordered by the Authority in ICT Decision 2008-02 of 8 April 2009) to the Authority's direction in paragraph 236 in ICT Decision 2008-2: *"Explain the relevance of the fixed network specific costs '100-R&M Exchange Equipment – Ericsson Switch' considering that an NGN is being modeled"*, LIME notes that expense item has been renamed to '100-R&M Exchange Equipment - Switch Maintenance', a more generic term and indicates that it believes the expense item to be relevant under forward looking assumptions. LIME also note that the level of support may vary from that of the past and an efficiency adjustment can be applied against the expense in column 'C' of the 'FAC Input' sheet. Identify the efficiency adjustment that should be applied to the expense category and provide a detailed justification for the magnitude of that factor.

RESPONSE

LIME contends that determining such an efficiency factor is very difficult to quantify and the jury is still out on determining the real operating cost savings attributed to NGN roll out in small states. In the Cayman scenario, LIME has two (2) host exchanges which do not provide room for exchange rationalization through scalability as in jurisdictions with hundreds of exchanges such as the UK.

LIME, however, anticipates some operating efficiencies through the simplicity and flexibility of an IP network.

But the early phases of NGN roll out are usually met with increased operating costs particularly due to the running of both NGN and legacy networks at the same time. Nonetheless, LIME believes an efficient adjustment of around # # should be reasonable.

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144. In LIME's response to the Authority's direction in paragraph 236 in ICT Decision 2008-2: "Explain the relevance of the fixed network specific costs "100-R&M Exchange Equipment – Ericsson Switch" considering that an NGN is being modeled", LIME notes that expense item has been renamed to '100-R&M Exchange Equipment - Switch Maintenance', a more generic term and indicates that it believes the expense item to be relevant under forward looking assumptions. LIME also note that the level of support may vary from that of the past and an efficiency adjustment can be applied against the expense in column 'C' of the 'FAC Input' sheet. Identify the efficiency adjustment that should be applied to the expense category and provide a detailed justification for the magnitude of that factor.

RESPONSE

LIME contends that determining such an efficiency factor is very difficult to quantify and the jury is still out on determining the real operating cost savings attributed to NGN roll out in small states. In the Cayman scenario, LIME has two (2) host exchanges which do not provide room for exchange rationalization through scalability as in jurisdictions with hundreds of exchanges such as the UK.

LIME, however, anticipates some operating efficiencies through the simplicity and flexibility of an IP network.

But the early phases of NGN roll out are usually met with increased operating costs particularly due to the running of both NGN and legacy networks at the same time. Nonetheless, LIME believes an efficient adjustment of around # # should be reasonable.

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145. In ICTA Decision 2008-02 (paragraph 301) LIME was required to indicate whether one or two USP's are needed in the fixed network module. In LIME's response in Attachment A, Revisions to FLLRIC Model Ordered by the Authority in ICT Decision 2008-02 (8 April 2009), number 69 it asserted that only a single USP is needed. Provide documentation to support LIME's assertion of a single USP.

RESPONSE

LIME submits that Appendix D USP' , which represents an updated network diagram of its NGN shows 2 USPs, therefore, the model should carry 2 USPs and, as such, LIME has updated the model to ensure two USPs are modeled.

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146. ICTA Decision 2008-02 (paragraph 253) LIME was required to provide documentation for those parameters that require several steps to be performed when updating. In LIME's response in Attachment A, Revisions to FLLRIC Model Ordered by the Authority in ICT Decision 2008-02 (8 April 2009), number 73 it asserted that documentation has been provided. The Authority has not been able to identify any such documentation. Provide a specific reference to the document detailing the steps to be performed when updating the cost models.

RESPONSE

The revised model in accordance with the ICT Decision 2008-2 has been greatly simplified. All user input cells are colour coded blue. The following outlines the steps required when one of these cells have been changed by the user.

Steps:

1. After changing the user input cell of interest, click on the 'menu' button.
2. In the dialog box that opens click on the command button 'Update Static Allocations'
3. Close the dialog box by clicking on the 'x' in the upper right corner
4. Navigate to the Results sheet of choice
5. Save workbook changes if so desired

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147. In LIME's response (Attachment A, Revisions to FLLRIC Model Ordered by the Authority in ICT Decision 2008-02 of 8 April 2009) to the Authority's direction in paragraph 346 in ICT Decision 2008-2: "*Split the cost of VLR and HLR and allocate the costs based on primary cost driver of each. If C&W believes it is appropriate to regard HLR and VLR costs together, detailed documentation must be provided to the Authority showing that this is an appropriate treatment of these costs*", it notes that this statement reflects a fundamental misunderstanding of the functions of VLR and HLR and reference. LIME submits that both the HLR and VLR primary functions are subscriber based and points the Authority to Appendix VI, Nokia Electronics Documentation, which provides a description of both components. Upon review of the documentation provided by LIME the Authority remains unconvinced that is appropriate to combine the VLR and HLR. The VLR and HLR perform different functions and use of VLR and HLR can vary from call to call. For example, when the mobile moves from one cell site to another served by the same MSC (intra-MSC Handover) within the duration of a call, extra VLR processing is required. 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.

RESPONSE

LIME does not have the cost of the VLR separately identified as its supplier does not provide such for a single switch network.

LIME emphasizes that it is difficult to split the cost of VLR and HLR given its single switch network and any attempt to do so would be arbitrary at best, the benefit of which, in LIME's view, would be immaterial, and certainly no better than the existing split employed in the model as shown in the Cost Assumption sheet row 70. LIME, therefore, seeks the Authority's guidance in this matter since splitting the cost of the VLR/HLR in terms of processing time statistics would be an exercise not worth the effort.

LIME acknowledges and agrees that VLR processing takes place during an intra MSC cellsite hand-over, however, LIME is of the opinion that the model recognizes this when a portion of the HLR/VLR cost, through appropriate route factors, is allocated to the network element 'HLR/VLR - traffic sensitive'.

LIME contends that the VLR/HLR combination is sufficient.

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148. In ICTA Decision 2008-02 (paragraph 361) LIME was required to provide information supporting its use of spares in the mobile network module. The documentation provided in Appendix X does not contain information supporting the use of spares in the mobile network model. File (09_04_08 Appendix X Part I - Spares Nokia - CONFIDENTIAL.pdf) contains lists of software and circuit pack prices for various equipment. File (09_04_08 Appendix X Part II - Spares - CONFIDENTIAL.xls) contains calculations showing the derivation of the percent used to calculate the spares cost when multiplied by total cost for various network elements in the fixed model. However neither of the files marked Appendix X show the derivation of the spare percentages used in the mobile model on sheet: "Cost Assumptions" Cells: D84 through D93. Provide documentation to support the spares used in the mobile module.

RESPONSE

LIME has used the values shown in Appendix X part I to derive and to some extent proxy the percentages used in the mobile model. For example, the percentage spares used for the BSC, MSC and TCU was obtained from the cost list captured in section 1.2, and is calculated follows: # #.

For the BTS, however, LIME used a proxy from # # to develop the # # spares estimate shown in the model. This is submitted as 'Appendix E - BTS Spares'.

LIME was unable to obtain internally supporting documentation for the rest of the equipment listed and therefore relied upon international benchmark of 5% which LIME considers to be a reasonable assumption. Of course, if the Authority is of a different view, LIME is willing to accept the Authority's recommendation.

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149. In all the cost modules (fixed, 2G, 3G) submitted to the Authority there are inconsistent or invalid named ranges, i.e. references with "#ref" errors or reference other workbooks with invalid paths. Provide an update of name ranges in the cost modules and make appropriate adjustments to the modules to eliminate any inconsistent or invalid references.

RESPONSE

LIME has examined both models and has eliminated each instance of #Ref errors and invalid paths.