

9 August 2017  
Mr. Embert Charles  
Managing Director  
Eastern Caribbean Telecommunications Authority  
Vide Boutielle  
P.O. Box 1886  
5<sup>th</sup> Floor Conway Business Centre  
Waterfront  
Castries, Saint Lucia

**RE: Cable & Wireless comments on comments re: ECTEL draft cost models for fixed and mobile interconnection rates**

Dear Mr. Charles,

Cable & Wireless Limited, on behalf of its affiliates Cable & Wireless (Dominica) Limited, Cable & Wireless (Grenada) Limited, Cable & Wireless (St. Kitts and Nevis) Limited, Cable & Wireless (St. Lucia) Limited and Cable & Wireless (St. Vincent & the Grenadines) Limited (hereafter, the “**company**” or “**C&W**”), hereby submits the following comments on comments in response to the Consultation Document on “*Draft Cost Models for Fixed and Mobile Interconnection Rates*” (the “**Consultation Document**”), issued by the Eastern Caribbean Telecommunications Authority (“**ECTEL**”). We received only comments from Digicel and so shall limit our submission to comments on Digicel’s submission.

**I. Introduction**

Digicel’s submission appears to be more or less an ill-disguise attempt to derail this proceeding. However, although its consultants, Analysys Mason (hereafter “AM”), make some valid points regarding some of the weaknesses in the modelling underlying the derivation of cost-based interconnection rates, their comments neither singly nor taken together, constitute a justification for delaying this proceeding. The kinds of problems that AM has found are just the type that this stage of the proceeding was designed to tease out. Furthermore, a number of the AM comments concern methodological issues that were dealt with in the first consultation of this proceeding. ECTEL specifically requested that respondents not address these issues in this second consultation,<sup>1</sup> so ECTEL should disregard these comments on methodology entirely.

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<sup>1</sup> See page 2 of the Consultation paper *Recommendations for new interconnection rates for the ECTEL Member States*: “Please note that the Methodology was already subject to consultation. Comments provided regarding the methodology were duly noted and taken into account in the determination. Therefore, respondents should comment only on the models and not on the methodological decisions taken in previous determination.”

Finally, this proceeding has been delayed long enough and consumers are long overdue the benefits that will result from lower termination rates. We therefore urge ECTEL to reject Digicel's pleading for more time. As intended, the consultative process has afforded stakeholders the opportunity to contribute to the improvement of the cost modelling, and C&W emphatically rejects the suggestion that the state of the model requires another extensive round of consultation.

In our response below we begin with addressing Digicel's comments. We then dig deeper into AM's report. Again, here we find that, we do not believe many of AM's comments are valid or appropriate, even among those that are valid, none are significant enough to delay the proceeding.

We also indicate where the attempt to correct for issues found by AM in the Mobile Model, ECTEL's consultants must make similar changes in analogous issues in the Fixed Model.

The comments below are not exhaustive and C&W's decision not to respond to any particular issue does not necessarily represent agreement, in whole or in part with the position taken by Digicel or AM on these issues.

## **II. Digicel's Comments**

### ***Appropriateness of Cost modelling for small island developing states***

Digicel begins its comments by suggesting that cost-modelling is not an appropriate regulatory tool for interconnection rate setting in small-island developing states. This is a particularly odd position to take after more than a decade of participating in cost-modelling across the Caribbean. Indeed, it is particularly nonsensical in light of the fact that Digicel itself has produced a number of costs models that it has represented as regulation-appropriate.

Digicel goes on to state "It's wrong to rely on model inputs and assumptions aligned with those macrostates..." Nowhere do they explain what they mean by "aligned" or suggest what model inputs and assumptions used in the model were inconsistent with the ECTEL Member state context. Indeed, it appears that ECTEL's consultants tried very hard to gather data that were directly from the experience of business units in the region.

However, if ECTEL does not reject these comments on the basis of their being illogical, ECTEL should reject them as being out of process. If Digicel had wanted to raise this fundamental methodological point at an appropriate time, they should have during the first consultation (on methodology) in this proceeding in September of 2016.

### ***Benchmarks used by Axon***

Digicel insists that errors in the benchmarking used by Axon “undermine both the validity of decisions that rely on such benchmarks and the credibility when it makes other assertions which are not so easily verified.” As we will show later in our discussion of the benchmark criticism, Digicel here is exaggerating the significance of the errors. Furthermore, these benchmarks dealt with methodological issues and were the subject of an earlier consultation. If Digicel had a significant point to make with these errors, they missed their chance. Digicel is one consultation too late. ECTEL should reject these comments as out of process.

### ***Material deficiencies identified by AM***

As indicated above there are a number of deficiencies that AM has identified that we agree with. We will deal with each of these in Part III of our comments on comments. However, Digicel goes beyond reason to suggest that these deficiencies mean the model is not “fit for purpose”. Indeed, it summarizes its view of the deficiencies in a hyperbolic and even threatening manner:

“Digicel believes that the failure of ECTEL and its consultant to properly validate the model outputs and operation, the reliance on factually inaccurate information provided by the consultant and the denial of an adequate period to respondents to properly analyse and assess such a complex and poorly annotated model combine to mean that the consultation process falls short of the minimum procedure required by well established administrative law. Unless these deficiencies are addressed Digicel is of the view that the process to date is amenable to successful to review and reserves its rights in this regard.”

This round of the proceeding was designed specifically for vetting and validating the model outputs and operation, so it is absurd to suggest that the consultation process be criticized for lack of validation in advance. The “factually inaccurate information” in the model is insignificant both in terms of the share of input information overall and its impact on the model results as we shall discuss in Part III below. Finally, we disagree that there was not adequate time to review the models. As Digicel itself notes, ECTEL gave more time for stakeholders to review and respond to the models. It gave three extra weeks. Digicel does not provide how much time it asked for nor how much time it would have required. C&W also requested additional time and was satisfied with the time given.

### ***Glidepath for implementation***

Digicel next set of comments provide an unconvincing case for a differentiated glidepath, 3 years for the MTR and 1 year for the FTR. It first gives a garbled exposition of a consumer benefit argument for a glidepath.

... It is worth noting the fact that reductions in wholesale Fixed and Mobile Termination rates do not immediately flow through to the retail

market. They do so by the operation of competitive market pressure over time. Therefore, any negative impact on consumer welfare benefit from the phased reduction of termination rate reductions are significantly ameliorated.

What negative impact on consumer welfare would there be from a reduction in termination rates? Consumers should only benefit from reductions in termination rates. Digicel's logic seems to be revealed in subsequent paragraphs:

“...step changes in wholesale pricing will... act to delay reductions in retail prices as operators must protect their ability to meet their short term liabilities.”

Thus, Digicel argues there is a one-to-one trade off between wholesale revenue and retail revenue: “if you reduce our MTRs, we will be forced to keep retail prices high.” This is a variant on the theory of the waterbed effect, which suggests that under competitive conditions pressing down prices in one part of an operator's business (wholesale) causes another set of prices (retail) to rise.

However, in the ECTEL markets, the payment circumstances are very different among competitors. Digicel is the net recipient of traffic charges, thus they unfairly benefit from above cost termination rates. Moreover, there may indeed be a distorted form of waterbed effect for Digicel: it would have to seek another source of income to replace its unfair subsidy. Happily for consumers this is not the circumstance for either C&W fixed or mobile business. Quite the opposite exists for C&W, the lower the MTR, the lower the outpayments, and the more it can pass along to consumers in the form of lower retail prices.

Digicel's last concern is in respect to fixed termination prices:

“... in the specific circumstances of the ECTEL contracting states there is little or no competitive pressure to be exerted on the retail pricing for fixed voice services... Absent functioning and effective retail competition on the fixed retail side the margin excess resulting from any reduction in MTRs will not be passed through to Consumers but will be retained by the fixed retail providers as excess or windfall profits.”

We disagree that “there is currently no effective retail competition in the fixed market” as mobile usage is highly substitutable for fixed and data calls are increasingly substituted for voice. But even if one believes that substitution inadequate, fixed-to-mobile retail call rates are directly regulated through the price-cap plan. Unlike mobile rates, ECTEL has a direct mechanism to translate reductions in mobile termination rates into retail fixed pricing. The review of the current price cap begins nine months prior to the scheduled end of the PCP 2016, i.e., in June 2018, in less than a year's time. This will allow time both to assess the impact of the mobile termination rates on the retail price and to take necessary action to reduce fixed-to-mobile retail rates if necessary.

Thus, C&W cannot “leverage its market power by simply retaining the benefit of MTR reductions and not passing them onto consumers” as Digicel suggests.

Based on this nonsensical framework, Digicel then proposes that ECTEL adopts a recommendation of a three-year glidepath for MTRs vs. one year for FTRs. Thus, despite the fact that 1) ECTEL directly controls the retail-wholesale price differential for C&W fixed operations and 2) Digicel benefits grossly and uniquely from high MTRs, Digicel feels it should get the added benefit of three year glidepath. ECTEL should reject this differential approach to glidepaths.

It is important to recall in this context that one of the main reasons for the European Commission’s move to pure LRIC was the concern about the competitive implications of the level of mobile termination rates being four to five times above cost and about ten times higher than fixed termination rates. This difference in MTR vs. FTR level effectively supports a wealth transfer from fixed operators, smaller mobile operators (due to traffic imbalances) and their customers to the large mobile operators. In the interests of allocative efficiency one customer group should not support another. A differential glidepath would serve as another mechanism to support this transfer.

Indeed, we believe that the glidepath should be as short as possible to provide benefit to consumers and reduce the scale of the transfer as soon as possible.

Digicel concludes by introducing some misleading data on glidepaths from Europe. The first is some very dated Cullen international data that include some cases reductions from LRIC+ to pure LRIC rates, and other cases that represented reductions that aren’t part of a glidepath at all, but rather the reduction in modelled rates over time. The second analysis, which is authored on behalf of a mobile operator interested in maintaining high termination rates, similarly obfuscates the use of glidepaths.

In sum, there are no compelling arguments that support Digicel’s differentiated glidepath proposal or a prolonged glidepath particularly as operators have already had over a year to prepare for this result in shift in termination rates and any delay will simply prolong existing market distortions.

### **Part III. AM’s comments**

In this section, we comment on AM’s specific critique of the models.

#### **Transparency issues**

AM begins with a listing of the aspects of the models that make them difficult to work with for stakeholders. These “transparency issues” include the following.

1. The Model Size, i.e., the number of worksheets and cells in AM’s view prevent a review by operators’ employees, and require that expert advisors must be used. AM states that the model could have been constructed with

fewer worksheets and simpler formulae.

2. Excessive Run time, i.e., the time that it takes the model to calculate results when inputs are revised is too long in AM's opinion, 2.5 minutes.
3. Excessive detail, i.e., costs are in AM's view unnecessarily reported in different disaggregated forms.
4. Redundant functionality, i.e., many rows and columns available for populating are not used in the model.
5. Lack of auditability, i.e., the model relies heavily on macros that paste values rather than calculating values directly by formulae. The use of the OFFSET function prevents tracing dependent functions.
6. Poor worksheet layout, i.e., results are sometimes reports horizontally rather than vertically, which, AM believes, makes it difficult to navigate and understand.
7. Poor use of pane freezing, i.e., without unfreezing the panes, the full substance of the worksheets is difficult to view.
8. Lack of row group, i.e., the worksheets would be easier to use if row and column grouping had been used.
9. Use of complicated formulae, i.e., the model unnecessarily uses complicated formulae.
10. Use of custom formulae, i.e., the model uses a custom formulae *array2mat( )* that is not understandable unless explained to the stakeholders.

Included as examples of these issues are the points AM raises in section 3.6 and Annex B, we therefore do not separately comment on those parts of the report.

In light of these issues, AM concludes “transparency of the cost modelling... is not of importance to ECTEL.”

A number of these criticisms have merit, but none singly or together undermine the nature of the model as being fit for purpose. Thus, while C&W agree that the models are clunky and is more difficult to work with than is necessary, we believe that these issues do not prevent the models from being adequately reviewed. With respect to the model size and redundant functionality, moreover, it is quite possible that ECTEL's consultants were providing as much “off-the-shelf” functionality to minimize their client's cost.

We also agree that it would be difficult for operators' employees to work through these models; however, that is typically the case in LRIC proceedings. AM's own models, though admittedly a great deal more efficiently constructed, also require specialist skills to review.

C&W also found problematic complicated and custom formulae. However, we did not

find the use of macros particularly onerous. Also, C&W, as well as the other stakeholders, benefited from the time that ECTEL made available to ask specific questions of its consultants on the models.

The other issues that AM raises are more annoyances than anything else, e.g., having to unfreeze panes, lack of row and column grouping, poor worksheet layout, excessive detail and excessive run-time.

Finally, we strongly disagree with AM's concluding comment that transparency is not of value to ECTEL. Our long history with ECTEL suggests quite the opposite. ECTEL deeply values transparency. And, while the models are not as user-friendly as one might hope, they achieve the objectives for the proceeding.

### **Scorched earth assumption**

AM objects to the application of the scorched earth assumption. As discussed above C&W believe that ECTEL should disregard AM's arguments in this regard as this is a methodological assumption that was reviewed and debated in the previous consultation. These comments are therefore out of process.

We feel it worth noting, however, the lack of significance of some errors in the benchmarking. AM highlights in this section of their report and later, in Section 3.9, that errors were made in ECTEL's benchmarking tables. Apart from our objection that Digicel and its consultants had the opportunity to comment on these tables in a previous consultation and therefore should not be revisiting the topic again, we don't find the criticisms particularly constructive as the benchmarking tables were provided more for informational purposes. ECTEL's consultants justified their approach to particular aspects on methodology by means other than benchmarking.

Finally, we find that the ## an issue we will revisit later in our comments.

### **Approach to geotyping and calculating coverage**

AM asserts the following problems with the deployment of radio sites in the model:

- There are instances where, based on the actual location of population, the wrong geotype appears to be used;
- There are fewer "populations centres" than there ought to be; and
- There are inconsistencies between the geotyping maps in the documentation and inputs included in the model.

AM cites the urban geotype data for St. Vincent & the Grenadines as an example of an inaccuracy in the geotyping. It is true that there appears to be an error here; however, it is the single instance among all the geotyping in the model that appears to be problematic from the point of view of population density. We also believe that AM may have misinterpreted column G in worksheet 2C, which would lead to negate their criticism of the other inconsistencies between the geotyping maps and the inputs included in this column.

AM's comments on the question of whether there should be more population centres is more constructive. AM has both criticized how the data from geonames was used and proposed a better source of demographic data available, geoMinds. C&W has not had the time to verify whether geoMinds is in fact a better source, but our response to AM's comments do not depend on the relative merits of one source over the other.

With respect to the proposition of there being fewer population centres covered in the model than there actually are in reality, we believe that AM is skewing their interpretation of the approach used. We understand that ECTEL's consultants have had to rely on the geonames database because of the lack of detailed alternative sources for demographic information. One of the flaws of geonames is that a single generic characterization is chosen for an area, e.g., "P" for city, village, "T" for mountain, hill, rock, etc., "S" for spot, building farm. Any single characterization may lead to over or under estimation of the nature of the population in the area. But even with geoMinds similar distortion will occur. AM chooses to list examples where the population to be served is under-represented; however, the characterizations may equally over-estimate the coverage requirement.

We agree with AM that ECTEL's consultant should review its geotyping in this regard and even consider geoMinds if it represents a better data source, but ultimately some measure of distortion may persist. We agree that ECTEL's consultants, if they have not already done so, should sense-check estimated locations against actual locations. AM has indicated where sites have been underestimated. However, as indicated above, we believe there are areas where the number of sites appear to be overestimated. ##.

With respect to the BTS coverage calculations, AM suggests that there is a serious problem with an algorithm that produces a single BTS coverage for four non-contiguous areas. However, there is something not quite right about AM's analysis. The overall number of BTSs it lists is not consistent with what the model produces. "Urban dense" BTS totals are "7" for the St. Vincent & the Grenadines case, not the "4" appearing in its Figure 3.8. There, therefore, may be a problem with the color coding in the documentation, rather than a flaw in the scorched earth algorithm.

### **Application of cell radii**

AM claims that the cell radii are not be applied consistently in the model. We did not find AM's critique clear enough to be properly assessed. In fact, AM itself appears to confuse the terms "radius" with "area". Row 146 of worksheet does not produce sector radii as AM suggests. Row 146 produces a measure of area or  $\text{km}^2/\text{km}$  to determine how many sites are needed for coverage. Thus, the area covered is greater if the based station is 3 sectored rather than 2 sectored. AM states "If 2-sectored base stations are being modelled, then row 146 of worksheet 6A gives an implied sector radius of 3.2km. If 3-sectored based stations are being modelled in that geotype, then the same row would give an implied sector of 2.13km." This is not true.

### **Overcapacity factors**

C&W has not had an opportunity to review the benchmarks that AM refers to in its

assertion that the overcapacity factors need to be revised upwards. However, C&W notes that in recent models conducted in the region the figures that AM introduce appear excessively high. The recent Jamaica mobile LRIC model assumes an uplift in demand of 30%, for example.

In general C&W has no issues with a revision based on justified benchmarks, but believes that ECTEL should ensure that 1) such a revision would not lead to “double counting” overcapacity and thus increase underutilization unduly and 2) revisions be considered to both fixed and mobile models equally as necessary.

### **Updating the WACC**

With respect to the WACC, we note parenthetically that in the comment round of this consultation C&W erroneously identified an error in the WACC formula. Contrary to our comments on the WACC formula, the subscripts appear in order.

With respect to AM’s proposed revisions to the WACC formula, we believe updating the parameters is justified; however, the skew of AM’s criticism to citing only those flaws in the modelling that raise cost in the mobile network are evident in their proposed revisions. A proper updating of the components lead to a lower WACC as indicated in Table 1.

For the risk-free rate, AM does not *update* the figures, it only chooses a subset of the original data values (i.e., the 10-year bond) that would raise the rate. By updating the values (for the 10 years preceding 8/8/2017), both the ECTEL approach and the AM approach lead to a *lower* risk-free rate.

For the country risk premium, the relevant rate has also fallen since 2016. The most recent data from January 2017<sup>2</sup> shows a CRP of 9.25%.

For the equity beta, AM seems to have identified the incorrect unlevered beta for wireless services. There are two sources in the Damodaran data, the updated value for the unlevered beta analogous one to the ECTEL value is 54.66%. Even if we used the data for the undiversified investor, as AM seems to have been intending, the updated value is not 66%, but 58.1%.

The market risk premium that AM says in its comments that it could not find are found at [http://people.stern.nyu.edu/adamodar/New\\_Home\\_Page/datafile/implpr.html](http://people.stern.nyu.edu/adamodar/New_Home_Page/datafile/implpr.html)

The updated five-year average is 5.67%.

Thus, as Figure 1 indicates, even using AM’s higher corporate tax rate assumptions, we come up with a WACC lower than what ECTEL had previously proposed, not higher as AM claimed.

### **Table 1. Originally proposed and updated components for the Mobile WACC**

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<sup>2</sup> See [http://pages.stern.nyu.edu/~adamodar/New\\_Home\\_Page/datafile/ctryprem.html](http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html)

Parameter	ECTEL value	Updated ECTEL value	AM proposed amendment	Updated AM proposal
<b>Risk-free rate</b>	2.71%	2.50%	2.88%	2.68%
<b>Country risk premium</b>	10.21%	9.25%	10.21%	9.25%
<b>Debt premium</b>	1.25%	1.25%	1.25%	1.25%
<b>Cost of debt</b>	14.16%	13.00%	14.34%	13.18%
<b>Equity beta</b>	62.46%	54.66%	65%	58.10%
<b>Market risk premium</b>	5.55%	5.67%	5.55%	5.67%
<b>Return on equity</b>	12.55%	10.65%	13.12%	11.33%
<b>Gearing</b>	40.00%	40.00%	40.00%	40.00%
<b>Tax</b>	27.62%	31.1%	31.1%	31.1%
<b>WACC</b>	16.07%	14.47%	17.00%	15.14%

### Working capital allowance

AM asserts that a working capital allowance should be provided for in the model. Similar to our position regarding the scorched earth assumption, we believe that ECTEL should disregard AM's arguments in this regard, as this topic was reviewed and debated in the previous consultation. The comments are therefore out of process.

### Asset life differences

AM finds that the asset lives applied between the fixed and mobile networks are not consistent. We disagree and believe that AM's comparisons are comparing apples and oranges. A "network site", for example, in the fixed network is a building whereas an "access site" for a mobile network is a tower or mast. The latter can indeed be expected to have a shorter life than a building. Similar distinctions must be made among the other assets in the models.

--End of C&W Comments on Comments--