

**Before The  
Information & Communications Technology Authority**

**ICTA FLLRIC Public Consultation – CD (2004) 1**

**Phase 1: Response to Intervenors**

**Cable & Wireless Ltd.  
Cayman Islands**

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## 1. INTRODUCTION

The purpose of this document is to respond to initial comments filed by interested parties in Phase 1 of the proceeding initiated by the “Public Consultation on Forward-Looking Long-Run Incremental Costing (FLLRIC)” (CD(2004)1) (the “FLLRIC proceeding”). Specifically, we respond to the comments of TeleCayman, Ltd. (“TeleCayman”), Mr. Joseph S. Faber on behalf of Wireless Ventures Cayman Islands, Ltd. (“WVCIL”), Digicel Cayman Ltd. (“Digicel”), and Mr. Robert Frieden on behalf of WestTel, Ltd. (“WestTel”). Our comments are organized in the following manner: In Section 2 we respond to specific issues raised by other parties in this proceeding. In Section 3 we comment on the general principles and guidelines addressed by all parties in their comments. These issues generally follow the questions raised by the Authority in Consultative Document CD(2004) 1 (“CD”). In Section 4 we provide what we consider to be, at a minimum, the relevant specific issues that the Authority must make a determination on in order for C&W to begin implementing principles and guidelines to build a FLLRIC model.

We urge the Authority and other interested parties to read the comments filed in this document in parallel with our initial methodology (“IM”) and all interrogatory responses, as many of the positions set forth in this document are based on the analysis contained in those documents. Further, in the interest of brevity and focus, we have not attempted to reproduce arguments in this document where they have already been addressed in our IM and through interrogatory responses. We note that the fact that we do not respond to any particular argument or position of another party does not mean we necessarily agree with it, but rather that the point was not of relevance or significant enough at this point to take up specifically.

Finally, we would like to express our belief that there is consensus among most of the parties on the principles and parameters of the LRIC approach. Of course, Phase 2 of these proceeding promises to be more contentious in terms of resolving particular points of implementation, but in the main we believe the Authority will be able to produce the decisions required of it for Phase 1 quite quickly based on the record now before it.

## 2. PARTY-SPECIFIC COMMENTS

### 2.1. Wireless Ventures

WVCIL states (at pages 1-2) that its comments on principles attempt to clarify its position on a number of matters, but that the exact details of that position will emerge only as this Consultation proceeds. As WVCIL indicates, we have adopted a similar position. The implementation phase of this proceeding (Phase 2) will be the most substantive phase, as the general economic principles of FLLRIC methodologies are not nearly as controversial as the implementation of those principles (notwithstanding Digicel's anti-economic efficiency position as discussed below). In fact, most of the controversial issues raised in Phase 1 of the proceeding tend to have an implementation aspect to them. To the extent that these issues can be resolved by the Authority in its Phase 1 determination, we encourage such resolution. However, we expect that the majority of issues in this FLLRIC proceeding lie in wait in Phase 2 of this proceeding.

### 2.2. WestTel

Westtel's comments contain a number of issues that are either irrelevant to the current proceeding<sup>1</sup> or have misstated C&W's position.

- Westtel argues (at page 11) that "C&W has reserved the option of imposing non-recurring charges, in lieu of recurring charges, for the construction of dedicated transmission and switching facilities for use by a newly licensed carrier." We wish to be clear that we have not expressly or implicitly "reserved" any such right in the FLLRIC methodology that we filed, nor do we propose that any FLLRIC recurring costs be recovered through non-recurring charges.

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<sup>1</sup> Indeed, the fact that the author does not appear to be familiar with the Cayman market cautions against giving too much weight to many of Westtel's comments. The lack of familiarity is evident in comments such as, "Indeed C&W may experience a difference between equipment and plant usable lives for tax purposes and actual in service use" (WestTel at 9). In fact, there is no corporate income tax in the Cayman Islands. Telecommunications operators only pay a revenue-based license fee. However this license fee is based on revenue, not income. Therefore, depreciation has no bearing on the level of this fee.

- Westtel admonishes (at page 16) that the “ICTA should not allow C&W to use existing switch location as the basis for...demanding high, non-recurring costs for the construction of facilities not available and not contemplated by C&W to be made available in the future.” We have not proposed such position in our FLLRIC methodology, and it is not our intention in this proceeding to use existing switch locations as the basis to demand any non-recurring costs for facilities not currently available or not contemplated to be available.
  
- Westtel asserts (at page 17) that “depreciation provides a tax and financial cushion that obviates the need for C&W to continue using technologically obsolete equipment, or to require a competitor to underwrite, on a special construction bases, C&W’s deployment of new equipment.” First, it is unclear what the author is advocating in this discussion. Is it that depreciation should somehow not be fully accounted for in LRIC costing? We do not believe that the other commenters in the proceeding would support such an approach, nor would such an approach be appropriate. Second, depreciation does not provide a tax cushion in the Cayman Islands because there is no corporate income tax. Third, we propose that the FLLRIC methodology employ forward-looking technology on a demand driven basis, and as necessary consequence, that it should not include “technologically obsolete equipment.”
  
- Westtel argues (at page 17) that C&W’s proposal to compare a bottom-up model with top-down costs (i.e., actual costs) provides an opportunity for the Authority to “split the difference”. C&W wishes to clarify that this is not the purpose of C&W’s proposal. We do not advocate “splitting the difference.” We agree with Westtel that, “it does not necessarily follow that a large pricing gap will result when both a bottom-up and top-down approach are used.” Indeed, the two results should not differ significantly. To the extent that the costs generated in a bottom-up model are degrees of magnitude different than the results in a top-down model, it suggests that the bottom-up model may not be adequately capturing costs.

### **2.3. Telecayman**

There are a number of examples where Telecayman's comments are either very similar to, or in many cases, verbatim replications of Westtel's comments. Given the remarkable similarity of the positions taken by WestTel and TeleCayman, we suggest that they explore filing joint positions, as this would save the Authority and other interested parties having to read the same document twice.

One specific criticism worth addressing in Telecayman's response (at 3) here is that "[C&W] leaves unanswered one of the three questions it was supposed to answer, the existence or not of an access deficit." We note that we addressed this issue in our interrogatory response DIG-CW 1-15 in which we said the following:

In its proposal C&W raised the issue of the access deficit with respect to cost modelling. In that respect, we suggested that the access modelling be set aside for the time being. However, given the prolongation of the FLLRIC proceeding implied by the Authority's published timeline, we believe that the access network can and should be costed contemporaneously with the fixed conveyance and mobile networks.

### **2.4. Digicel**

Digicel's comments are the most disappointing comments filed thus far in this proceeding. Instead of advocating a principled approach that would be useful to guiding the decision-making and the work of the Authority, they appear results-oriented, advocating solely with a view to securing a high mobile termination rate by whatever means necessary. The following are a set of examples of Digicel's comments that reflect their "end justifies the means" approach to interconnection costing.:

- "In the event that the TSLRIC costs, including termination of international traffic, for mobile termination interconnection is higher than the rates any of the operators is able to command on the international market, then the shortfall in cost recovery needs to be accounted for in the form of a mark-up to the cost of domestic termination services." (Digicel at 10).
- "The model will need to take account of the FLLRIC costs of the highest cost operator." (Digicel at 7)
- "It is necessary that the Authority use the highest WACC of the three mobile operators in Cayman." (Digicel at 13)

These quotes are just a few examples within a document unquestionably crafted with a single goal in mind: high mobile termination rates. We caution the Authority to consider Digicel's comments in light of its transparent objectives. It is likely that Digicel will consider the proceeding successful if and only if it results in a high termination rate for mobile traffic. The Authority's goal in this proceeding, however, should be the establishment of economically efficient termination rates.

### 3. ISSUES

#### 3.1. Model Principles

##### 3.1.1. Competitive Market Standard

C&W agrees in principle with the specific position taken by WVCIL (at 2) that “the economically efficient price of a network element (service) is equal to the minimum economic costs of duplicating the services provided by the element.” It is the economically efficient price that will provide the correct market signals, and promote efficient entry and efficient investment decisions in the Cayman Islands.

C&W disagrees, in contrast, with Digicel’s argument that “the principle of economic efficiency must be balanced against a requirement that existing operators are allowed to remain viable.” Digicel apparently considers it a *requirement* of the FLLRIC proceeding that existing operators be allowed to remain viable. We respectfully disagree entirely with the position apparently espoused by Digicel that it is the Authority’s duty to ensure the viability of an existing operator regardless of their inefficiencies or other such shortcomings. Instead, it is the Authority’s duty to ensure that the proper framework is in place, and that appropriate entry and exit signals are established such that the Cayman Islands attracts efficient competition. Digicel argues that the Authority should apply special treatment to existing operators, ensuring their viability. However, if the Cayman Islands is to benefit from competition, it is imperative that the Authority treat existing operators and new operators alike. Imparting special treatment to some operators over others in the manner suggested by Digicel would likely provide the wrong signals for investment to the detriment of the people of the Cayman Islands.

WVCIL argues (at 2) that the “competitive market standard” should be discarded [as an underlying economic principle] because it is an unnecessary and confusing appendage to the principle of economic efficiency.” This argument is not entirely clear or useful. C&W’s position is that the “competitive market standard” is no different than the economically efficient standard. In fact, the Authority has inadvertently summarized C&W’s position in the CD using the term “economic efficiency” instead of “competitive market standard”. C&W does not have any concern with the Authority changing the name of the principle from “competitive market

standard” as it appears on page 5 of the IM to “economic efficiency” as it appears on page 6 of the CD, as these are merely different ways of describing the same thing. However, it is important that the underlying support for the principle as discussed in the IM is not discarded.

### **3.1.2. Cost Causation**

WVCIL argues that moving away from a strict application of cost causation may be desirable if there are benefits from doing so. We agree that there may be some exceptional circumstances that permit such a migration from the principle, and we will identify any such situation in Phase 2 of this proceeding. However, we believe that cost causation should be a key principle in the design and implementation of FLLRIC and any movement away from this principle should be clearly stated and justified.

WVCIL also questions the inclusion of “indirectly attributable costs” in the FLLRIC model “since a properly constructed FLLRIC model will measure all incremental costs.” We agree with WVCIL that, by definition, a FLLRIC model will only measure direct incremental costs. However, when setting prices for interconnection services (one of the goals of the FLLRIC proceeding), a portion of shared and common costs must be allocated to each interconnection service. The inclusion of “indirectly attributable costs” speaks to this requirement only. WVCIL is correct that the forward-looking long run incremental cost (FLLRIC) per se, by strict definition, does not include any shared and common costs. These common costs are usually recovered by a mark-up over LRIC, where the total value of the mark-up over all services is equal to the total value of common costs related to those services included in the model. C&W does not intend to allocate any shared and common costs except when setting prices for interconnection services and access. In contrast, as discussed in Section 3.9 below, imputation tests treat common costs differently depending on the cost element. In most cases, imputation tests will contain two types of costs: (1) costs for essential inputs (which we be “imputed” based on the *price* that is charged to competitors for that essential input), and (2) costs for non-essential inputs which will be based simply on the LRIC of that cost element, excluding any allocation of common costs. Interconnection services represent an example of an essential input, while retailing functions are an example of non-essential inputs. Since common costs are used in developing the prices of interconnection services, they will be, by default, included in any imputation test. However, costs for non-essential inputs (e.g., retail functions), should be based

on LRIC, which by definition does not include common costs. It is up to the firm to determine how common costs are recovered for non-essential inputs in light of competitive market conditions.

### **3.1.3. Transparency**

Each intervenor has responded to the question raised by the Authority: is there a need for parties to view the results of the FLLRIC model on an ongoing basis as the model is developed? None of the intervenors have cited the undeniable need for an ongoing review of results over the course of the implementation. This lack of a clear and consistent position on this issue by the intervenors reflects the impracticability of viewing *results* on an *ongoing* basis. Interim results from an uncompleted FLLRIC model are irrelevant and immaterial. What is most important is that the model comports with the principles and guidelines set forth by the Authority. On this issue all interested parties, including C&W, agree – the model must be transparent and verifiable. Whether C&W develops the model with internal resources or with external resources, the model must be transparent enough to verify that the principles and guidelines set forth by the Authority have been reflected in the model.

While Digicel has not cited a need for an ongoing review of results, they have cited a need for ongoing review of implementation methods (Digicel at 8) and that the Authority should be offered the opportunity to be present at all meetings between the consultant and C&W. While it would be impractical for the Authority to be at all meetings between C&W and the consultant, as the consultant would will be working alongside C&W for most of the period in meetings involving engineers, finance, etc., the Authority could certainly be present at all significant project meetings. Furthermore, under this scenario we believe that it is in part the Authority's duty to ensure that the consultant has implemented the principles and guidelines adopted in Phase 1 of this proceeding. The Authority or, as suggested by some of the intervenors, a third-party auditor may choose do so on an ongoing basis. Alternatively, a more efficient review is likely available upon completion of the model. Indeed, it is in the best interests of all parties that the most appropriate time for review of implementation methods is when the model is complete. An ongoing review of implementation would be time consuming and unnecessary.

It is important, however, that any questions arising from implementation of principles and guidelines should be resolved in a public manner. That is, if C&W or its consultant, in the event

that a consultant is hired, has any questions regarding the Authority's guidelines, each party to the proceeding must be provided the opportunity to comment on the question before the Authority issues its clarification answering the question.

While the implementation of principles and guidelines must be a public and transparent process, the same is not true for all the data that will be used to populate the model. To the extent that company-specific data is used in the modelling process, it is imperative that such data only be available on a confidential basis to the Authority or a third-party auditor.

#### **3.1.4. Cost Exclusion Principle**

The Authority posed the question in the CD on whether a "cost exclusion" principle should be added to the list of principles, stating that the model should exclude costs that would be avoided if the service is not provided. There seems to be a degree of uncertainty among the intervenors as to what the Authority had in mind with the principle. Under one interpretation, if this principle were adopted, then the cost study would not contain any costs caused by the service. For example, consider switching, and say that the cost of a switch is \$100. The cost of the switch would be avoided if the service were not provided. However, under the proposed principle, the \$100 cost of the switch would be excluded from the cost study, resulting in a cost of \$0. Therefore, the proposed principle should not be adopted as it conflicts with the principle of "cost causation". Others appear to have interpreted the exclusion principle to mean a decremental (as opposed to an incremental) cost approach. Others seem to have interpreted it as excluding certain non-attributable costs. In any case, C&W believes that the cost causation principle and the discussion surrounding it should provide adequate guidance to which costs should be included and how.

#### **3.1.5. Burden of Proof**

The Authority posed the question in the CD on whether a principle should be added to the list of principles stating that the burden of proof resides with C&W to demonstrate that its cost studies comport with FLLRIC principles and guidelines. We note that the review of the FLLRIC implementation lies largely with the Authority. It is the Authority's responsibility to confirm that implementation of the FLLRIC cost study is conducted consistently with the principles and guidelines issued by the Authority. Thus, we do not agree that the burden of proof should lie

solely with C&W. The implication of this is that the FLLRIC model must, however, be transparent enough that the Authority or any third-party can verify that the Authority's principles have been implemented.

### **3.2. Cost Benefit Analysis**

The Authority raised the issue in the CD regarding the benefit of a cost-benefit analysis prior to implementation. We agree with WVCIL, Telecayman and WestTel in their comments on this specific point. Specifically, we agree with WVCIL's general comment that a cost-benefit analysis will be an ongoing component of developing the model whether the Authority recognizes it or not (see WVCIL at 8). We also agree with Telecayman and WestTel that an overall cost-benefit analysis on the primary question of whether to conduct a FLLRIC model is not appropriate. The only intervenor that argues for an overall cost-benefit analysis is Digicel, who appear solely concerned with the possibility that the FLLRIC model may result in lower mobile termination rates.

### **3.3. Forward-looking Costs & Long Run Costs**

We agree with the Authority's proposed treatment of long-run costs as economic costs and that the planning horizon should be long enough to treat all inputs as variable. However, as discussed in response to ICTA-CW 1-22, the network that is modelled in the FLLRIC cost model should reflect the real-world organic nature of network growth. That is, one of the disadvantages of modelling forward-looking costs is that in many cases it is interpreted as an opportunity to model a "hypothetical" network where facilities are instantaneously deployed with the most efficient technology in the most optimal network configuration. A rational telecommunications carrier, however, grows its network in a more "organic" manner. A rational carrier will gradually replace existing facilities with new technology over time, and will expand capacity and modify its network structure incrementally to serve growing and changing demand. In the US, for example, the federal regulator is considering precisely this question in its review of TELRIC methodology and has tentatively concluded that, "TELRIC rules should more closely account for the real-world attributes of the routing and topography of an incumbent's network in the

development of forward-looking costs.”<sup>2</sup> This is a recognition of the fact that in network build-outs, operators are not instantaneously replacing and reconfiguring all of their facilities with every improvement in technology.

### **3.4. Reconciliation of bottom-up and top-down**

As discussed in response to ICTA-CW 1-23, the reconciliation process proposed by C&W is solely to provide some assurance that the bottom-up model accurately reflects actual costs that would be incurred by an efficient operator, and that the theoretic design of the network does not stray from the other relevant factors influencing cost in a specific market. We are not suggesting that a full top-down LRIC model be built to reconcile the results of the bottom-up model with a current costing of C&W accounts. Full reconciliation of assets will not be possible to the extent that the assets of the modelled network differ from the type of assets found in the actual network. In fact, a straightforward comparison of many asset costs may not be feasible since a top-down LRIC model is usually based on the asset types that exist in the actual network whilst a bottom-up LRIC is based on a forward looking assessment of required assets and is based on current technology. For example, a top-down LRIC model may include both PDH and SDH technologies, whilst a forward looking bottom-up LRIC model may solely utilise SDH technology.<sup>3</sup> This position should address the concerns raised by the intervenors in their comments warning of the costliness of a parallel top-down modelling exercise.

### **3.5. Shared and Common Costs**

As discussed in our IM (at 13) the forward-looking long run incremental costs (FLLRIC) of a service only include the direct costs of that service. Direct costs are those costs that would be avoided entirely should that service no longer be provided. FLLRIC, by definition, does not include shared and common costs since they relate to more than a single service. However, when setting prices for interconnection services or access services, a portion of these costs must

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<sup>2</sup> Federal Communications Commission, "Notice of Proposed Rulemaking," WC Docket No. 03-173, 15 September 2003, paragraph 52.

<sup>3</sup> SDH and PDH are Synchronous and Plesiochronous Digital Hierarchy, respectively.

be allocated as discussed in our IM. Failure to allocate and recover these costs would result in the interconnection service being provided at a loss.<sup>4</sup>

We propose an Equi-Proportionate Markup (EPMU) approach to recover shared and common costs when developing interconnection prices. The only intervenor that disagrees with this approach is Digicel, who, as noted above, is simply arguing against anything that might not result in high fixed-to-mobile termination rates. Digicel proposes a Ramsey approach to recovering shared and common costs, which would ultimately result in higher termination rates. As we noted previously, we do not believe that Ramsey pricing is appropriate since it relies heavily upon the calculation of price elasticities of demand which are notoriously difficult to estimate with a high degree of certainty. While TeleCayman, WVCIL and WestTel all agree that an EPMU is appropriate, each intervenor nevertheless makes statements that must be rebutted.

TeleCayman states (at 5) that “10% is usually regarded as the upper limit of unattributable common costs.” However, there is absolutely no support for this statement, nor could there be any support for this statement. We know of no jurisdiction that uses 10% as an upper limit. WestTel makes a similar statement, also without any support. In fact, the level of shared and common costs will be determined by the FLLRIC cost study. It would be entirely inappropriate to establish the level of shared and common costs prior to developing the model. In any case, while a 10% mark-up may be appropriate for an industry where the majority of costs are direct in nature, 10% is not appropriate for the telecommunications industry, where there are a high degree of fixed and common costs.

WestTel also states (at 10) that, “C&W has proposed to apply a 13.5% markup on its identified shared and common costs.” This is completely wrong and suggests that WestTel does not understand the concept of “cost of capital.” The 13.5 percent WACC is the return required to recover the cost of capital, not shared and common costs.

WVCIL states that, “since fixed and common costs related to retail services should not be recovered by interconnection services, it may be the case that the fixed and common cost mark-up for interconnection is different than that for retail services.” It may be the case that the EPMU is, in fact, different for different classes of services if it is shown that shared and common

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<sup>4</sup> Again, as discussed above, for imputation test purposes, strict LRIC costs should be used for non-essential inputs (i.e., downstream costs), which by definition exclude common costs.

costs differ across those services. This, however, is best addressed in Phase 2 of this proceeding, when allocating shared and common costs for pricing purposes.

WVCIL also argues (at 15) that current shared and common costs are not representative of the forward-looking costs of an efficient carrier. We propose that this issue be addressed in Phase 2 of this proceeding. That is, C&W will consider the forward-looking nature of current shared and common costs in the implementation phase of this proceeding. In determining whether current shared and common costs are representative of forward-looking costs, consideration will have to be made regarding the level of competition in the market and the effects that competition has on costs.

### **3.6. Rate of Return**

We agree with WVCIL (at 20) that comments on the appropriate cost of capital should be submitted in Phase 2 of the proceeding. C&W submits to undertake a WACC study to determine an appropriate cost of capital for the FLLRIC methodology in Phase 2 of this proceeding.

### **3.7. Network Topology**

WVCIL argues (at 9) that “the decision about whether to use GLRIC or TSLRIC depends critically on the decision about whether to use the “scorched earth” or “scorched node” approach (or vice versa).” There is no support for this position in either the economic literature or any international best practices with which we are familiar. WVCIL further states that, “if the Authority determines that TSLRIC is the appropriate method for measuring incremental costs, then it necessarily follows that C&W’s FLLRIC model must employ the “scorched earth” assumption.” There is, in fact, no economic basis to argue that a TSLRIC model must employ a “scorched earth” assumption. One does not follow from the other; there is no link between GLRIC/TSLRIC and scorched earth/scorched node. Indeed, in the US, the federal regulator adopted a TSLRIC model that employs a “scorched node” assumption. Similarly, we have proposed a TSLRIC model in the Cayman Islands with a “scorched node” assumption, taking into account the organic growth of networks. The reason we chose a TSLRIC approach rather than a GLRIC approach is covered in our IM at 12.

WVCIL argues, furthermore, that “C&W appears to be amenable to a scorched earth approach” (at 12), citing interrogatory responses as the basis for this statement. WVCIL has

misinterpreted our response. In an interrogatory we were asked how to deal with a switch located outside of the Cayman Islands under a “scorched node” approach. Our response was that given the current regulatory policy regarding new entrants, we propose that the mobile model assume that the switch is located in Cayman. This is not advocating the scorched earth approach. Rather, it is recognizing the apparent forward-looking preference of the Authority for carriers to locate new switches in the Cayman Islands.

### **3.7.1. Network Costs**

WVCIL proposes that expense factors be adopted in developing network costs for the FLLRIC model. C&W is not opposed to this approach, and proposes to adopt such an approach in the implementation phase of the proceeding. Indeed, this approach is not inconsistent with the approach we advocated in the IM. We do not agree, however, that benchmarking these expense ratios is appropriate. There are significant problems with benchmarking analysis, and while such problems can be accounted for, the effort required to adjust for these problems is likely to significantly outweigh the benefit of the benchmark analysis in the first place. In particular, a benchmarking analysis should, in general, attempt to account for differences in:

- regulatory cost of capital;
- corporate tax rates;
- economies of scale;
- network/traffic density;
- equipment prices;
- labour rates;
- the peakiness of traffic profiles and the coincidence factor of interconnections with general peak carriage times; and
- other aspects of the environment such as the regulatory form of price control; routing factors; digitalisation; interconnection points; and ratio of leased line to switched network capacity.

The question of whether current expenses are representative of the forward-looking costs of an efficient carrier should be addressed in Phase 2 of this proceeding. That is, C&W will consider the forward-looking nature of current network costs in the implementation phase of this proceeding. In determining whether current network costs are representative of forward-looking

costs, consideration will have to be made regarding the current level of competition and the effects that competition has on costs.

### **3.8. Depreciation**

As discussed in our response to interrogatory WVCIL-CW 1-9 our position is that an asset's depreciation life should be based on the economic life of the asset, and that the asset lives C&W uses for its audited financial reports serve that purpose. This is consistent with the Authority's initial position in the CD, contrasting with "regulatory" lives, which is often argued by proponents of longer asset lives. More fundamentally, the Authority will have to confirm the principle on which depreciation expenses are to be derived. C&W's position is that economic depreciation is the best approach. We propose that it be implemented with the application of a tilted annuity wherein the expected changes in assets prices are captured in the annualized cost factor. Once this principle is confirmed, C&W will be able to generate financial depreciation schedules for all equipment and assets.

### **3.9. Imputation**

The Authority raises the question in the CD about whether the EPMU applied to wholesale services should be the same, comparable, or different from the EPMU applied to costing services for imputation tests. It is important here to define what an imputation test is designed to prevent, and how it should be constructed. Only then will it become apparent how to answer the Authority's question.

An imputation test is designed to prevent what is called an anticompetitive vertical "price squeeze". This occurs when a vertically integrated firm with market power in the provision of an essential input in the production of a final good sets the margin between wholesale and retail prices such that an equally efficient competitor will be unable to remain viable. A key component of this definition is the inclusion of "essential input." If the vertically integrated firm doesn't possess an essential input, then a "price squeeze" cannot be said to occur.

A similar concept to "price squeeze" is "predatory pricing". This occurs when a firm prices its service below cost, losing money on every sale, but driving equally efficient competitors out of the market. Once all other firms are out of the market, the firm that had priced its services

below cost then raises its prices above competitive levels to recoup all the losses it had incurred driving other competitors out of the market.

While the Authority hasn't explicitly stated that an "imputation test" is meant to prevent predatory pricing, we suspect that, based on how the Authority has applied an imputation test in the past, the Authority's intention is to prevent predatory pricing through an imputation test. In fact, it may be possible to set "imputation tests" to prevent predatory pricing – however, the rules for setting a price floor to prevent predatory pricing are significantly different than the rules for setting the price floor for preventing a price squeeze. The difference between the two "price floors" is the inclusion of an essential input. That is, while LRIC is an appropriate price floor to prevent predatory pricing, it is not appropriate to prevent a price squeeze. To prevent a price squeeze, the firm must "impute" the cost of the essential facility when calculating a price floor. In some cases the price of the essential facility may be more than LRIC, and in some cases it may be less. Regardless, it is the *price* of the essential facility that must be included in the price floor – not the underlying cost. Furthermore, since the essential facility is most likely to be priced above LRIC in order to recover a portion of shared and common costs, the inclusion of those shared and common costs in the price floor is necessary in order to prevent a vertical price squeeze by the firm with market power in the essential facility. This is precisely the issue raised by WVCIL in its comments. WVCIL argues (at 25) that, "if the interconnection rate includes a share of fixed and common costs, then the imputation tests must also include the same share of fixed and common costs." This is based on the premise that the interconnection rate is an essential facility. We agree with WVCIL that the interconnection rate is an essential facility, and that therefore the interconnection rate (which would include shared and common costs allocated to it) should be imputed into the price floor of any service for which it is an essential facility.

#### **4. ROADMAP OF PHASE 1 PRINCIPLES AND GUIDELINES**

The purpose of this Section is to provide C&W's opinion of a roadmap of the principles and guidelines on which the Authority must make a determination in Phase 1 of this proceeding. The list of Phase 1 issues are the following:

##### **4.1. What the model will be used for**

C&W believes that the outputs of the model should include the following:

- (1) Interconnection prices for PSTN termination, mobile termination, national transit (fixed and mobile), operator services access (fixed and mobile), and emergency services access (fixed and mobile)
- (2) Network element costs sufficiently disaggregated to enable a determination of an Access Deficit, or to be used in subsequent imputation tests. Please see C&W's response to ICTA-CW 1-5 for a preliminary set of these network elements.
- (3) retail costs-explicitly or implicitly (in terms of methodological guidance on how to model)-for the purposes of measuring overall access costs and imputation testing purposes.

Additionally, the model should be detailed enough such that it can be used as guidance for future service costing exercises.

##### **4.2. How many Models**

The Authority must make a determination on whether to develop two FLLRIC models separately for fixed service and mobile service, or one FLLRIC model encompassing both fixed and mobile services. It is the Company's position that two separate models should be constructed (see response to DIG-CW 1-12).

##### **4.3. Principles For The Model**

C&W believes it is in the Authority's interest to define a set of principles to be used in construction of the FLLRIC model. As supported in the Company's initial comments on pages 5-6, C&W believes the following principles should be adopted:

1. Competitive market standard, or "economic efficiency"
2. Cost Causality (WestTel at 9)
3. Complete Accounting

4. Transparency (WestTel at 5)
5. Proportionality and Reasonable Administrative Costs

#### **4.4. Key Parameters and Attributes**

There are a number of key parameters, inputs, and attributes that the Authority must make a determination on in Phase 1 of this proceeding. Following is a list of the inputs that C&W believes the Authority should address.

##### **4.4.1. Bottom-Up vs Top-Down**

There is a fundamental decision to be made when determining how to model network or retail costs. As described in the Company's initial comments, there is a top-down approach and a bottom-up approach. The Authority must decide which approach to use for modelling network costs (i.e., modelling the network), and for modelling retail costs. It is the Company's position that bottom-up should be used to model network costs, and top-down should be used to determine non-network costs. That is, we propose a "hybrid approach".

##### **4.4.1.1. Scorched Node, Scorched Earth vs Actual Network**

If the Authority determines a top-down approach is appropriate to model network costs, then by definition the network design in the model is the existing network design. If, however, the Authority determines that a bottom-up methodology is appropriate for modelling network costs, the Authority must then also determine the approach to network design. There are generally three approaches as described on pages 15-16 of the Company's initial comments: (1) existing network design, (2) scorched node, and (3) scorched earth. It is the Company's position that the scorched node should be adopted, recognizing the organic nature of network growth (see response to ICTA-CW 1-22) and the nature of coverage conditions.

##### **4.4.2. Use of LRIC from other jurisdiction**

It is the Company's position that only after the Authority issues its decision on Phase 1 guidelines and principles can we address whether a LRIC model(s) from another jurisdiction is appropriate (see response to WVCIL-CW 1-7). C&W suspects, however, that the comprehensive nature of the outputs required from the model discussed in this proceeding will

make drawing models on disparate models difficult and not deliver the kind of economies an “off-the-shelf” approach may at first seem to offer.

#### **4.4.3. Size of the increment**

The Authority must determine the size of the increment to be modelled. There are generally two approaches as described in the Company’s initial comments on pages 10-13: (1) the growth increment, and (2) the total service increment. It is the Company’s position that the FLLRIC model should define the increment as the total service.

#### **4.4.4. Recovery of shared fixed and common costs**

A proportion of shared and common costs must be included in the price of interconnection and infrastructure-sharing services. As discussed on pages 13-15 of the Company’s initial comments, there are generally two approaches to recovering shared and common costs: (1) the so-called Ramsey approach, and (2) Equal proportionate mark-up (EPMU). The Company recommends EPMU for the reasons stated in the initial comment on pages 13-15. Furthermore, C&W does not believe it is appropriate to include an allocation of fixed and common costs in the downstream, or retail, costs for imputation (or price floor) tests.

#### **4.4.5. Operating costs associated with interconnection and retail service provision**

The Authority must determine how to estimate operating costs. It is the Company’s position that non-network operating costs should be derived from actual costs allocated from an activity based costing system (see initial comments at 18). That is, operating costs should be included in the model on a top-down basis being reconcilable to the Company’s general ledger.

#### **4.4.6. Depreciation lives**

The Authority must determine the type of depreciation lives to be used for modelling purposes. There are generally two types of lives: (1) economic lives and (2) regulatory lives. The Company recommends an asset’s depreciation life should be based on the economic life of the asset, and that the asset lives C&W uses for its audited financial reports serve that purpose (see response to WVCIL-CW 1-9).

#### **4.4.7. Depreciation schedule**

Separate from the asset lives, the Authority will have to determine how to determine annual depreciation expenses. The Company's position is that economic depreciation as opposed to accounting depreciation is most appropriate. Accounting depreciation includes methods such as straightline, declining balance, sum-of-year digits, and the constant percentage method. Furthermore, the Company maintains that a tilted annuity, which captures the price trends of an asset, most closely approximates economic depreciation given the alternatives (see response to WVCIL-CW 1-9).

#### **4.4.8. WACC**

The Authority will have to determine the appropriate measure of cost of capital to use in the FLLRIC model. The Company proposes that the WACC be used and that it be determined in Phase 2 of the proceeding as suggested by WVCIL.

#### **4.4.9. Reconciliation of Assets**

The Authority will have to determine whether a reconciliation of assets is appropriate. As summarized on pages 25-26 of the Company's initial comments, the Company recommends a reconciliation of assets. See responses to WVCIL-CW 1-10 and ICTA-CW 1-23. The purpose of reconciliation is to provide cross-check and some assurance that the bottom-up model accurately reflects actual costs that would be incurred by an efficient operator, and that the theoretic design of the network does not stray from the other relevant factors influencing cost in a specific market.

#### **4.4.10. Efficiency Adjustments**

The Authority will have to determine whether an efficiency adjustment should be addressed in the FLLRIC model. It is the Company's position that an efficiency adjustment factor is appropriate for a FLLRIC model, should C&W first be found to be acting inefficiently (see initial comments at 29-30, and response to WVCIL-CW 1-17).

#### **4.4.11. Use of Consultants/Transparency**

The Authority will have to determine whether and how consultants will be used for this project and how transparency will be ensured. C&W believes that following Phase 1, the

Authority and C&W should either (1) jointly retender the project to a shortlist of mutually agreed upon consultancy firms, or (2) agree to the text of a tender agreement and have C&W select a consultancy. Under (2), the Authority would then hire its own third-party auditor to ensure that the model was produced in the manner foreseen in Phases 1 and 2.

In terms of transparency, the Authority must decide what is to be made public in this process. C&W believes, that while the implementation of principles and guidelines must be a public and transparent process, the same is not true for all the data that will be used to populate the model. To the extent that company-specific data is used in the modelling process, it is imperative that such data only be available on a confidential basis to the Authority or a third-party auditor.