OPENING COMMENTS OF

WIRELESS VENTURES (CAYMAN ISLANDS) LIMITED

PUBLIC CONSULTATION ON

FORWARD LOOKING LONG-RUN

INCREMENTAL COSTING (FLLRIC)

(REF: CD(2004) 1)

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I. INTRODUCTION

Wireless Ventures (Cayman Islands) Limited ("WVCIL") hereby submits its opening comments regarding the Authority's public consultation on forward-looking long-run incremental costing ("FLLRIC"). These comments are submitted in accordance with the procedure established by the Authority in its consultative document, issued on May 24, 2004 and modifications to the schedule made thereafter.

WVCIL appreciates the opportunity afforded by the Authority to allow for review of the Cable & Wireless FLLRIC proposal. The purpose of these Comments is to assist the Authority in establishing the foundation of a FLLRIC model, including identification of generally accepted economic and "best practice" regulatory costing principles relevant to the costing exercise.

To begin, WVCIL agrees with a number of the most general principles set forth by the Authority and C&W. However, WVCIL's agreement with these very broad concepts does not indicate concurrence with either the details of implementation or the justification for the principles set forth by either the Authority or C&W. WVCIL believes that forward-looking, long run incremental economic cost is the proper standard for establishing interconnection rates, setting price floors for imputation tests, and sizing the access deficit.

That said, all of the components of this cost standard (i.e., forward looking, long run, incremental, and economic) have somewhat ambiguous meanings. The practical meaning of whatever principles are adopted will be revealed fully only in the implementation phase of this proceeding. While WVCIL attempts in

these Comments to clarify its position on a number of matters, the exact details of some of its position will emerge only as this Consultation proceeds.[1]

II. DISCUSSION

a. Economic Efficiency

At the core of the FLLRIC model is the concept of economic efficiency. Put simply, the economically efficient price of a network element (service) is equal to the minimum economic costs of duplicating the services provided by the element (or the service itself) using current technology. The economically efficient price will promote efficient entry and investment decisions by firms, including the decision not to enter or invest.

Furthermore, economic efficiency serves as the basis for a forward-looking approach to costs, since efficient entry and investment decisions are unaffected by the level of historical or embedded costs. Therefore, the principle of economic efficiency is implicit in the decision to compute costs on a forward-looking basis. Both the Authority and C&W agree (in principle, at least) that historical/embedded costs are to be excluded from the FLLRIC model and that the output of the model should promote efficient entry, exit, and investment decisions. Thus, there appears to be consensus on the issue of economic efficiency.

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[1] C&W adopts a similar position. See Cable & Wireless Follow-Up Proposal For Forward-Looking Long Run Incremental Costing (hereinafter "CW") at ¶ 1.7 ("There is much detail that we choose not to take a position on at this time.") Also see C&W Response to WVCIL Interrogatory 1-8 (hereinafter "WVCIL-CW-1-8"), WVCIL-CW-1-17 and WVCIL-CW-1-24.

Based on the principle of economic efficiency, WVCIL concurs with the Authority that forward-looking costs "are to ignore embedded or historical costs; rather, they are to be based on the least-cost technology currently available whose cost can be reasonably estimated based on available data" (ICTA Public Consultation on Forward-Looking Long-Run Incremental Costing (FLLRIC) (hereinafter "ICTA"), at 8), and that forward-looking costs "must reflect assumptions and technologies that are currently operational, that is, able to be used and available in the marketplace" (ICTA at 8). WVCIL also agrees that long run costs are "economic costs" (ICTA at 8) and that the long run is a "time period sufficient to treat all inputs as variable" (ICTA at 8).[2]

WVCIL also agrees with the Authority that the proper hypothetical construct for forward-looking costs is that such costs "are to be calculated as if the service is being provided for the first time." (ICTA at 8). The comprehensiveness of the application of the "first time" principle, however, depends on the chosen method of measuring the increment (i.e., TSLRIC or GLRIC), as discussed later.

While in agreement on the principle of economic efficiency, WVCIL believes that C&W's "competitive market standard" should be discarded because it is an unnecessary and confusing appendage to the principle of economic efficiency. (C&W at ¶ 2.1). While it is true that competition often renders

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[2] The sunk nature of inputs does not change in the long run; market structure remains affected by sunk costs even in the long run. While common parlance has all costs being variable in the long run, it is perhaps more accurate to think in terms of the magnitude of fixed costs being variable. In this sense, the level of fixed costs is variable, but such costs are fixed (and potentially sunk) when actually incurred. Furthermore, variable costs can be sunk.

economically efficient prices, prices are not economically efficient simply because they arise in a competitive market. Prices are efficient because they satisfy a number of conditions unrelated to industry structure.[3] Indeed, under certain conditions, a monopolist may set economically efficient prices and competitive markets may produce prices that deviate substantially from economic efficiency.[4]

Given the ambiguity between economically efficient prices and market structure, WVCIL believes that economic efficiency should be the governing principle of the FLLRIC model without reference to the extent or nature of competition.

b. Cost Causation

WVCIL supports the inclusion of cost causality as a principle for the FLLRIC model because that concept is generally compatible with economic efficiency. WVCIL proposes, however, that the principle of cost causality not be separated from the goal of producing efficient, cost-based consumption decisions. In other words, if cost causative input prices do not alter end-user consumption or negatively impact competition without an offsetting benefit, then

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[3] These conditions include a) efficient consumption; b) efficient production; and c) product-mix efficiency. See P.R.G. Layard and A.A. Walters, MICROECONOMIC THEORY (1978), pp. 7-17 [Efficient consumption requires that all individuals place the same relative value on all produces (value being assessed at the margin). Efficient production requires that the marginal rate of substitution between factors be the same in all directions. Product-mix efficiency requires that the subjective value of *x* in terms of *y* should equal its marginal cost.].

[4] For example, the competitive price may not be efficient in the presence of externalities. In the presence of a negative externality (say pollution), the monopoly price may be preferred to the competitive price. Further, given the sizeable scale economies associated with telecommunications networks, the existence of a large number of competitors is an inefficient industry structure and is simply unsustainable.

moving away from a strict application of cost causative pricing may be desirable if there are benefits from doing so (e.g., a more simple pricing structure).[5]

WVCIL also agrees that the cost associated with the provision of service should reflect all relevant direct attributable operational expenditure and capital-related costs. (C&W at ¶ 2.1.) It is unclear what C&W implies by the inclusion of "indirectly attributable costs," since a properly constructed FLLRIC model will measure all incremental costs.[6] Thus, the distinction between direct and indirect costs seems artificial and immaterial, but perhaps opens the door for including costs that are not truly incremental to the service in question.[7] WVCIL agrees with C&W that only the incremental costs associated with the provision of service should be included as part of FLLRIC, regardless of any real or arbitrary supplementary categorizations of such costs. (C&W at ¶ 2.1).

WVCIL further contends that any allocation of fixed and common costs to interconnection services should exclude the portion of such costs that cannot be reasonably allocated to the establishment and maintenance of basic network functionality required to render the interconnection service or to the development

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[5] J. A. Ordover and J. Panzar, "On Non-linear Pricing of Inputs," International Economic Review, October 23: 659-675 (1982). Also see C&W Response to Digicel Interrogatory 1-3 (hereinafter "DIG-CW-1-3") ("C&W's retail prices are recovered consistent with market demand and expectations. C&W does not consider it an anomaly that retail prices do not include a per call charge. Demand characteristics of the market contribute to how retail costs are recovered.").

[6] "Indirectly attributable costs" are generally considered fixed and common costs, which are sometimes added to the estimate of FLLRIC using an expense factor. Such costs are not, however, incremental. See ICTA-CW-1-6 ("Indirectly attributable costs are shared by two or more activities of a firm. Stopping an indirectly attributable activity of a particular service will not avoid these costs altogether, only the complete cessation of all activities associated with the costs will avoid the shared costs.")

[7] This point is easily illustrated. Let the cost of service vector X be C(X) and service vector (X, Y) be C(X,Y). The incremental cost of Y is $IC_Y = C(X, Y) – C(X)$, which includes all incremental costs (whether described as direct or indirect or any other categorization).

of the network base. Cost causation requires that charges for interconnection service recover only those forward-looking economic costs incurred in rendering interconnection service. As observed by C&W, "only costs associated with the relevant increment of services provided are included in costing (C&W at ¶ 2.1)."

With respect to the Authority's inquiry regarding avoided costs when a service is not provided, WVCIL believes that the cost of a service increment or decrement should be symmetric in a well-designed FLLRIC model. However, explicit recognition of the service decrement principle may be useful in cases where a new service displaces to some extent the volume of an existing service.

Say, for example, a wireless carrier has a volume of 100 minutes on its own network. After initiating mobile termination service with rival wireless carriers of 50 minutes, the carriers own internal volume declines to 75 minutes as its own customers migrate to a rival. In this case, the incremental volume from the mobile termination service is 25 minutes. For costing purposes, the increment in this example is either 100 to 125 minutes for the GLRIC method or 0 to 125 minutes for the TSLRIC method.

In sum, cost causation is a legitimate principle for a FLLRIC model. This principle requires that the price of a particular element or service recover only those costs caused by the production of that element or service. In some cases, however, an application of cost causation may require some consideration of how consumer demand influences the economic efficiency of the resulting cost estimates and related retail prices.

c. Transparency

WVCIL agrees that the processes for generating cost information should be "clear and understandable" and that all assumptions, algorithms, and inputs be "objective and based on verifiable data." (C&W at ¶ 2.1). WVCIL adds that transparency requires C&W to provide all participants in this proceeding fully functional versions of all cost models relevant to the determination of prices, including any and all source information for inputs and assumptions to that model (under relevant confidentiality agreements, if necessary).

Without the ability to closely scrutinize the cost models and support materials, it will be impossible to verify the accuracy of the models inputs or outputs. To the extent C&W is unable or unwilling to provide to interested parties particular elements of the cost model or support, those elements should be purged from the FLLRIC model and replaced with modules or information the parties can evaluate and verify.[8]

Since C&W and its representatives alone will construct the FLLRIC model, it may seem sensible that the burden of proof rests with C&W to demonstrate that its cost studies comport with FLLRIC principles and guidelines. However, the final content of the models will be based on decisions rendered by the Authority. As final arbiter, to a large extent it is the Authority that determines whether C&W has shouldered its burden of proof.

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[8] C&W appears to agree. See WVCIL-CW-1-15 ("We have proposed to rely on internal C&W cost data for computing these relationships. In so doing, we would expect interested parties to comment on the techniques in Phase 2 of the proceeding. We would expect, however, that the Authority would hold the data in confidence. If C&W could not rely on such confidentiality, it may have to consider a different approach.")

d. Model Administration And Costs

From a practical perspective, WVCIL believes a cost-benefit analysis is a necessary, rather than an optional, component of the FLLRIC modeling effort, and that such analysis will occur whether or not the Authority formally recognizes it. A FLLRIC model is merely an estimation tool. Since the actual value of FLLRIC is unobservable, the model's output will inevitably contain an error component (i.e., the difference between the estimate and the actual FLLRIC).

While considerable effort should be made to minimize the error, WVCIL agrees the effort and resources devoted to minimizing the error should be reasonable (that is, subject to a cost-benefit calculation, whether formal or informal). If something can be simplified without much cost to the goals of economic efficiency, or if something can be made more complex and more thorough to better comport with economic efficiency without much costs, then such efforts should be undertaken. Likewise, if model inputs, algorithms, and even outputs can be acceptably adopted from another jurisdiction, then such adoption should be seriously contemplated.

In some cases, the relative cost and/or benefits of model simplifications or extensions will be somewhat obvious. In others, as the Authority recognizes, the costs and/or benefits of adjustments may be particularly difficult to quantify. In order to maintain the proceeding schedule, it may be necessary for the Authority to establish a formal process for evaluating disputes with regard to the cost-benefit analysis as applied to particular model components. Considering the

interrelatedness of assumptions and algorithms, resolving disputes on significant model components during model development should reduce the administrative costs of the modeling process.

e. TSLRIC or GLRIC?

Both GLRIC and TSLRIC are valid methods by which to estimate FLLRIC, but the two approaches impose very different constraints on the FLLRIC model. In the GLRIC approach, it is assumed that a network already exists. Incremental cost is computed by adding an additional element or service to this existing network and then subtracting the total cost of the embedded network from the total cost of the network, including the new increment of service.[9] In this scenario, only the increment must be provided efficiently to satisfy the principle of economic efficiency; the relative efficiency of the embedded network is irrelevant, since the costs of that network will be subtracted out when incremental costs are computed.

The existence of an embedded network is ignored in the TSLRIC approach, so that the increment is the entire network output including the new and old elements or services. Unlike the GLRIC case, with TSLRIC the *entire* output must be provided efficiently, not just the output of the new element or

[9] A simple numerical example may be useful. Say there is a network providing 100 units of service at cost C(100). The incremental service increases output to 125 units, which is supplied at cost C(125). The incremental cost of the new service is IC = C(125) – C(100). In this scenario, the cost of the initial network is irrelevant since it is subtracted from the total cost of the larger network (exactly offsetting the cost of the initial network included in the cost of the larger network).

service.[10] With TSLRIC the past is forgotten, and the entire network is replaced with the most efficient currently deployed technologies and network topology.

Obviously, the two methodologies place very different constraints on the FLLRIC model. For example, the "scorched earth" approach is required for TSLRIC, since the embedded network is forgotten and consequently plays no role in the cost calculation. Alternately, the "scorched node" assumption is entirely consistent with the GLRIC approach, since only the increment must be provided efficiently. Thus, 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). The more constraints placed on the network configuration and network expenses in the FLLRIC model, the stronger the case is for GLRIC.

C&W's proposal to employ the "scorched node" approach requires, from a conceptual standpoint, the use of GLRIC. The proposal to set network expenses equal to current/historical expenses provides further support for GLRIC.[11] 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.

The "scorched earth" approach does not imply a radically new network topology. Indeed, the scorched earth approach does not preclude a result

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[10] The numerical example from the previous footnote can be used to illustrate the difference between GLRIC and TSLRIC. For the TSLRIC approach, the increment of service is all 125 units, so the incremental cost is IC = C(125) – C(0). Obviously, the entire network must be provisioned efficiently in this case.

[11] Even with GLRIC, there is no reason to believe that current/historical expenses will provide an accurate assessment of efficient expenses for the increment of service.

comparable to the scorched node approach *ex post*; the scorched earth approach simply avoids placing the constraint on the network configuration *ex ante*.[12] Nevertheless, to impose the constraint of "scorched node" on the model may impact both the type and size of equipment chosen by the optimization routine and, if so, would violate the forward-looking principle with which all parties appear to concur.

Undoubtedly, a "scorched node" approach forces into the FLLRIC model the potential for a sub-optimal network configuration. Since the costs related to a sub-optimal network configuration will not send the appropriate entry and exit signals to entrants, the "scorched node" approach may not be consistent with the principle of economic efficiency if employed in a TSLRIC context.

WVCIL believes that the FLLRIC model will more accurately estimate forward-looking costs the fewer exogenous constraints the Authority and C&W place on the model. If the FLLRIC model indicates the that existing locations are reasonably consistent with those produced from a "scorched earth" optimization routine, then WVCIL will not object to locating the switching nodes in their current locations. Evidence of consistency between the two approaches should be formally presented for parties to evaluate. Even if the two approaches are

[12] If may be possible to show, for example, that the cost differential is trivial between the optimal location of switching nodes and the existing location. If true and if the existing locations are easier to model, then the use of the existing locations may be justified. The scorched earth approach does not preclude a result comparable to the scorched node approach *ex post*; the former approach simply avoids placing the constraint on the network configuration *ex ante*. Even so, if using TSLLRIC the Authority should impose the "scorched earth" assumption on the model since that assumption is theoretically correct (even though the model effectively scorches the nodes).

expected to or actually do produce consistent results, then the "scorched earth" assumption should be paired with TSLRIC for internal consistency.

We conclude by noting that there are merits to either the TSLRIC or GLRIC approach, and WVCIL has no preference *a priori* for either as long as the associated optimization routine related to network topology is consistent with either the implicit theoretical requirements of the TSLRIC or the GLRIC methodologies. C&W's proposal does not present a consistent treatment of network topology (i.e., scorched node) and the means by which to measure of the increment (i.e., TSLRIC). However, in response to Interrogatories, C&W appears to be amenable to a "scorched earth" approach.[13]

f. Bottom-Up Approach to Network Capital Costs

WVCIL agrees with the Authority and C&W that the "bottom up" approach to estimating network capital costs is most compatible with a forward-looking cost standard. Unlike the top-down approach, the bottom-up model allows the network to be designed with the best technology currently available irrespective of the technological makeup of the existing network.

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[13] See ICTA-CW-1-11 ("Under the scorched node assumption, and modeling C&W's long run incremental costs of its mobile network, the modeler would include all costs arising from use of the switch located outside the Cayman Islands. Generally, if the modeler is attempting to develop long run incremental costs of a hypothetical efficient entrant, the modeler is free to locate a switch in the most efficient manner possible. However, given the current regulatory policy regarding new entrants, we are proposing that the mobile model assume that the switch is located in Cayman.") Also see DIG-CW-1-10 ("The goal of the modeling exercise is to establish the forward-looking cost of an efficient operator in the Cayman Islands. Given the regulatory policy favouring the location of new entrant switches in the Cayman Islands, we believe that assuming the switch is located in the Cayman Islands for modeling purposes is justified.")

WVCIL strongly opposes incorporating formally the concept of a top-down reconciliation for the bottom-up model. For obvious reasons, reconciliation is entirely inconsistent with the basis for using the bottom-up methodology. The selection of the bottom-up methodology is based on the fact that the bottom-up approach provides a *superior* estimate of forward-looking network costs than does a top-down model. It necessarily follows that the reconciliation process proposes to judge the quality of a particular methodology by referring to a less accurate methodology.

Such a proposal is illogical. *To adjust the bottom-up model to better comport with the less accurate top-down model necessarily degrades the quality of the estimate of forward-looking cost*.[14] Since the Authority and C&W agree that the bottom-up methodology produces more reliable estimates of the forward-looking network, it follows that the bottom-up estimates should serve as the relevant benchmark for other, less accurate costing methods.

Any observed difference between the bottom-up and top-down result proves only that the top-down methodology is incorrect or incomplete. Indeed, as noted by C&W, in many cases reconciliation "will not be possible," illustrating the incomplete nature of reconciliation.[15]

WVCIL believes the reconciliation process offers no useful information to the determination of forward-looking costs and is, therefore, a waste of

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[14] Furthermore, the validity and comprehensiveness of top-down adjustments to the network must be evaluated using bottom-up modeling techniques, introducing circularity into the process.

[15] C&W Response to ICTA Interrogatory 1-23 (hereinafter "ICTA-CW-1-23").

resources. Consequently, reconciliation should be excluded from the FLLRIC model.

g. "Top Down" Approach To Network Operating Costs

WVCIL opposes the top-down approach to determining network operating costs, primarily because operating costs are correlated with the network assets to which they are associated. Applying differentially the "bottom up" and "top down" approach for cost components so closely intertwined is plainly inconsistent. Since both the Authority and C&W reject using the embedded/current network as the foundation for the FLLRIC model, then it is necessary to reject as forward looking the operating costs associated with *that particular network*.

Indeed, C&W states that the forward-looking network will be "built using modern materials, techniques, and design" and that the difference between the forward-looking and existing network assets is so substantial that a complete top-down reconciliation of network assets "will not be possible." ICTA-CW-1-16 and ICTA-CW-1-23.[16] WVCIL believes that if the differences in network assets are so substantial that a reconciliation of the assets is not possible, then is it unreasonable to assume *ex ante* that the expenses associated with these very different network configurations are equivalent.

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[16] ICTA-CW-1-23 ("Full reconciliation of assets will not be possible to the extent that the assets of the modeled network differ from the type of assets found in the actual network. A straightforward comparison of many asset costs may not be feasible.")

WVCIL also believes that C&W's contention that its "current shared and common costs are representative of the forward-looking costs of an efficient carrier" is entirely unsupported and conflicts with C&W's own modeling proposals. First, C&W's current costs are historical costs, and all parties agree that such costs should be excluded from the FLLRIC model. Second, C&W proposes to construct cost models that are different than its current (actual) business operations.[17] If C&W is not modeling its own business, then its own business costs are not suitable measures of either historical or FLLRIC cost.

Finally, as C&W has repeatedly observed, the purpose of Phase I of this proceeding is to establish economic and regulatory principles only and the company has yet to develop a FLLRIC model. However, in its determination that current expenses are forward-looking expenses, C&W has effectively proposed a model for which it has already computed the output. C&W's claim regarding expenses is obviously premature.

Furthermore, in the absence of a FLLRIC model of the network, all the features of the forward-looking network remain undetermined. Clearly, it is absurd to decide *a priori* that current expenses are suitable proxies for a forward-looking network whose characteristics, including its size, topology, and technology, have yet to be determined.

The bottom-up approach to both capital costs and capital operating costs is widely accepted. For the bottom-up approach, forward-looking capital

[17] See DIG-CW-1-12 ("C&W does not propose to model separately the economies of scope, if they exist, that may be available from providing fixed and mobile services. We are proposing to model two self-standing networks, one fixed and one mobile.")

operating costs are estimated using expense factors that are typically constructed as the ratio of current expenses, adjusted for efficiencies, to the current value of the embedded network. [18] Forward-looking expenses are computed by multiplying this expense ratio by the forward-looking investment in the network.

Expense ratios also allow the Authority to avoid a complete dependence on C&W's historical accounting data to compute the expense ratios, since the Authority can borrow or benchmark expense ratios for C&W using data or expenses factors from other countries. Benchmarking may also save time and resources.

The ability to borrow and benchmark expenses factors is desirable given the scope of the C&W's operations in the Caymans (providing wireline, mobile, and international services). The provision of multiple services may allow C&W to allocate its existing expenses to particular elements and services in order to strategically benefit its business by raising the cost of rivals or giving greater retail pricing flexibility on particular services (by affecting the imputation test). A bottom-up calculation of expenses should attenuate strategic cost allocation by C&W.

It is worth observing that C&W offers no explanation for why the top-down approach is preferred for network operating costs; they merely state that this method will be used. Given the inconsistency of using the top-down approach for

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[18] Application of a TSLRIC Pricing Methodology – Discussion Paper, New Zealand Commerce Commission, July 2, 2002, Section 9.

expenses and the bottom-up approach for network assets, as well as the absence of any justification for the top-down method, WVCIL proposes that a bottom-up approach to network operating and maintenance expenses be used in the FLLRIC model.

h. "Top down" Approach for Incremental Costs of Retail Services

WVCIL is not opposed to the use of the top-down approach for estimating retail expenses. As observed by C&W, the provision of retail service is not capital intensive, so the current means are likely to be similar to the forward-looking means of rendering retail services.

The forward-looking retail costs should, however, reflect the expected market structure of the industry to which they are applied. Retail costs may be higher (or lower) in a competitive market than a monopolistic one, so historical or current data may need to be adjusted to reflect any difference between the current/historical and the expected market structure with which they will be associated.[19]

i. Activity-based Costing (ABC) Methodology

WVCIL is skeptical of the use of Activity-Based Costing ("ABC"), in part due to the vague discussion of the methodology contained in C&W's proposal. For example, at times it appears as if C&W intends to use ABC to allocate some exogenously determined expense amount (e.g., current booked expenses)

[19] See, e.g., C&W discussion of the mobile market in DIG-CW-1-27.

across services or elements. If an allocation tool, then the role of ABC is simply to assign proportions to expense particular activities (e.g., 30% labor for task A, 70% for task B). In contrast to a pure allocation tool, the "demonstrable inefficiencies" component of ABC suggests C&W will employ ABC in part to size the overall level of expenses.[20] Thus, it is unclear to WVCIL from the documentation whether C&W proposes ABC be used to allocate or determine expenses. It is also unclear whether ABC would be used to construct the expense factors in a bottom-up expense model.

WVCIL is also concerned that the ABC methodology will not be transparent, verifiable, or replicable. Thus, it may violate the principle of transparency. Overall, WVCIL reserves judgment on ABC until its purpose is more clearly stated and the transparency of the methodology can be assessed more fully.

j. Equal Proportionate Mark-Up (EPMU)

To the extent a mark-up for fixed and common costs is applied, WVCIL agrees with C&W that the Ramsey price approach is not viable. Ramsey mark-ups require a great deal of information on demand elasticities, the estimation of which is often controversial. Furthermore, demand elasticities can be unstable in dynamic markets and often vary across price levels for the same service, thereby requiring frequent updates and possibly "out of sample range" guess-timates to

[20] As a practical matter, WVCIL believes the "demonstrable inefficiencies" component is unworkable. It is unclear what ratios will be compared and who the ratios will be compared to, and firms rarely are willing to confess to their own inefficiency.

maintain the efficiency properties of the pricing standard. The Ramsey approach would consume a significant amount of resources yet still produce unsatisfactory results.

For the FLLRIC model, WVCIL believes the EPMU approach is sensible. However, it may be necessary to employ differential mark-ups across groups of similar services. In other words, not all fixed and common costs can be reasonably attributed to every service provided over the network. The distinction is perhaps most important in relation to markups for retail and interconnection services. Since the 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.[21] WVCIL believes that the FLLRIC model must be capable of applying varying mark-ups for fixed and common costs across services, and that all fixed and common costs unrelated to the establishment and maintenance of basic network functionality should be assigned to retail and not interconnection services.

[21] Under a uniform overhead factor, overhead expenses are allocated based on either the expense or investment share of particular elements or services. It may be that C&W intends to allocate portions of fixed costs to retail services, and if so the use of a uniform fixed and shared factor may be reasonable (since all that remains in the expenses are those that truly cannot be reasonably allocated to a particular service).

k. Reasonable Rate of Return

WVCIL agrees that a FLLRIC model should incorporate a reasonable rate of return on forward-looking capital. For a number of reasons, WVCIL disagrees that a 13.5% cost of capital should be used.

First, C&W cannot produce one shred of evidence or documentation supporting their assertion that 13.5% is a reasonable estimate of the forward-looking cost of capital for an efficient provider of telecommunications services.[22] Indeed, the company was unable to produce evidence supporting even a single input used to compute the 13.5% rate. Without such evidence, it is impossible to determine the reasonableness of the proposed cost of capital. For the FLLRIC model to be valid, important inputs such as the cost of capital cannot simply be conjured up by C&W.

Second, C&W provides numerous examples showing that a 13.5% cost of capital is higher than other jurisdictions have approved.[23] So, what little documentation C&W can muster on the issue fails to support their proposal.

Considering the importance of the cost of capital input to a FLLRIC model, WVCIL contends that the comments directed at the appropriate cost of capital should be submitted in Phase 2 of the proceeding. For the sake of transparency, the comments should be fully documented so that all inputs and assumptions can be evaluated.

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[22] See ICTA-CW-1-14 ("QUESTION: If not already provided in interrogatory #33, provide all relevant documentation and analysis relied upon in arriving at the assumed risk free rate, gearing ratios and equity risk premium, cost of debt, and the beta. REPLY: There is no such documentation.")

[23] See WVCIL-CW-1-20.

l. Network Topology

As described above, if TSLRIC is the chosen incremental cost methodology, then the "scorched earth" topology is required. Alternately, the "scorched node" topology is compatible with the GLRIC approach. For a small geographic area like the Caymans, it may be that the two approaches generate nearly identical network topologies, though it is presently impossible to address that possibility given the lack of a FLLRIC model. However, consistency with the implicit requirements of the conceptual cost standard adopted should be maintained irrespective of the similarly or dissimilarity of the output.

m. Static and Dynamic Demand

Generally, there are two approaches to the treatment of demand in FLLRIC studies. The first is to construct the forward-looking network to efficiently satisfy current demand. Costs are then spread out over the useful life of the network without any change in the quantity of service provided. The second approach is to optimize the forward-looking network for a growing demand. Depending on the scalability of the assets involved, this approach may lead to excess capacity being built into the network (at least, in the early life of equipment scaleable only on a "lumpy" basis). In such cases, it is important to recover the cost of the network on an equal *per-unit* basis over the life of the network equipment, so that today's consumers do not pay a disproportionate share of network costs and interconnection prices are stable over time.

Of course, the “dynamic” approach to demand requires a number of somewhat subjective inputs not required by the “static” approach. For example, the dynamic approach requires forecasts of future demand. Generating these forecasts consumes resources and those forecasts may be an issue of dispute. The FLLRIC model must also accommodate increasing demand by expanding network capacity; when and how this expansion occurs and how current excess capacity is recovered must be modeled, thereby consuming resources. Also, the particular modeling assumptions and algorithms related to expansion may be disputed. The increased complexity of the “dynamic” approach does not imply it should be avoided, but the additional resources consumed by the approach should not be ignored. If demand growth is expected to substantially alter the cost estimates due to density, scale or scope economies, then the benefit of the complexity may exceed the costs. If not, then the static approach may be the preferred method since it is easier and less controversial to implement.

In either case, WVCIL reiterates that it is important to recover the cost of the network on an equal *per-unit* basis over the life of the network equipment, so that today’s consumers do not pay a disproportionate share of network costs and interconnection prices are stable over time.

n. Appropriate Method for Calculating Depreciation

A key principle to the FLLRIC standard is that costs are “economic” costs. As such, the model should use economic depreciation rather some “arbitrary schedule (Brealey Myers, at 336)” motivated primarily by tax laws and the tax

status of the firm. The Authority recommends using as economic lives those assumed for financial purposes. As a general matter, WVCIL respectively disagrees. In some cases, the economic lives assumed for financial purposes may coincide with actual economic lives and in those cases the Authorities recommendation would be perfectly reasonable and consistent with the "economic" characteristic of FLLRIC. In other cases, however, financial depreciation lives may reflect particular tax implications or gross generalities more than the real economic life of a particular piece of equipment. In these cases, the use of financial depreciation lives would be incompatible with the economic nature of FLLRIC.

WVCIL believes depreciation lives should be rooted first and foremost in economics and that some effort should be made to estimate the actual economic life of an asset. WVCIL does recognize, however, that actual economic lives are often difficult to estimate. In those cases, proposed depreciation lives can also be benchmarked against those selected in other countries as a check for reasonableness.

WVCIL agrees that in some cases the financial lives of assets may be used as benchmark assumptions. If so, then compatibility between financial and economic lives should be considered formally and the standard by which a decision is rendered should be economics and not consistency with potentially arbitrary accounting standards.

Because of its simplicity and transparency, WVCIL proposes that traditional straight-line depreciation be employed in the FLLRIC model.

Alternative depreciation methods should not materially impact the final cost estimates, since the total amount of depreciation covered is identical across methods and must be recovered on an equal per-unit basis over the life of the asset.[24]

o. Imputation

The purpose of imputation is prevent a price-squeeze. A price-squeeze occurs when the "price of monopolistically supplied upstream input and the price of the downstream product are set so that the margin between them is not sufficient for an equally efficient downstream competitor to earn a normal return on its investment." ICTA at 9. The standard imputation rule requires that the retail price (P_R) be at greater than or equal to the access price (P_A) plus the incremental cost of converting the access input into a unit of output (IC_R), or

$$P_R \geq P_A + IC_R.$$

Under this imputation rule, only if an entrant is less efficient than the incumbent at converting access into a final service will the price floor lie below the entrant's costs.

At the close of this Consultation, both P_A and IC_R will have been estimated and presumably set equal to FLLRIC (with the potential for a fixed and common cost additive). Thus, according to the imputation rule, FLLRIC (including the common cost additive where applicable) is an appropriate standard for the

[24] The timing of depreciation may influence rates due to discounting.

imputation test, but *only* because the access price (P_A) and the retail incremental cost (IC_R) are both measured using FLLRIC. Notably, 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. Otherwise, the imputed price floor could lie below the entrant's costs even though the entrant is equally as or more efficient than the incumbent.

A simple numerical example may be helpful. Say the incremental cost of producing a service is $1 and the retail incremental costs are $1. The overhead factor is 20%, so total overhead is $0.40 (with half applied each to wholesale and retail functions). Assume the entrant is more efficient than the incumbent and has retail incremental costs of $0.90, so the total per-unit cost of the entrant is $2.28 [=1.00(1+0.2) + 0.90(1+0.2)]. If the imputation rule excludes shared and common costs, then the price floor is $2.00, which is less than the entrant's costs despite the fact the entrant is more efficient. Such an imputation rule would exclude efficient entry from occurring, thereby violating the goal of efficient entry decisions. Even if shared and common are ignored only for the retail portion of costs, the exclusion will block efficient entry (the floor is $2.20, which is still below $2.28).

The basis for C&W's proposal to exclude shared and common costs in the imputation test is that "pricing at any level at or above marginal costs ensures a positive contribution to the firm's profits (or reduces its losses)." ICTA-CW-1-6. Ensuring a "positive contribution to the firm's profits" is not the purpose of an imputation test, however. Imputation tests are designed to ensure that an

equally (or more) efficient entrant can profitably serve customers when using essential inputs supplied to it by a monopoly input supplier with which the firm competes in the final goods market. Since C&W's argument for considering only marginal cost has nothing to do with imputation, there is no basis for excluding shared and common costs from the imputation test (unless such costs are excluded from the interconnection prices).

In conclusion, if shared and common costs are added to FLLRIC when setting interconnection prices, such costs must be included in the imputation tests.

III. CONCLUSION

As explained at the outset, the discussion in these comments is necessarily limited by the fact that WVCIL's views and opinions will be influenced by the actual operation of the FLLRIC modeling process. Nevertheless, WVCIL has made its best efforts to address the issues raised by the Authority and by the C&W proposal.

WVCIL welcomes the chance to participate in the Authority's consultation on forward-looking long-run incremental costs. We are willing to discuss any or all of our concerns with the Authority as it deems appropriate.

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