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January 22, 2002

Mr. Alex Himelfarb
Clerk of the Privy Council and
Secretary to the Cabinet
Langevin Block
80 Wellington Street
Ottawa, Ontario K1A 0A3

Dear Sir:

Subject: **Petition to the Governor in Council**
Government of Canada
to vary Telecommunications Decision CRTC 2002-67
TELUS Communications Inc. – Application to Review and Vary
Decision 2000-745 and Decision 2001-238

Pursuant to section 12 of the *Telecommunications Act*, TELUS Communications Inc. hereby files the attached Petition to the Governor in Council requesting a variance of Telecom Decision CRTC 2002-67.

Your consideration of this matter is most appreciated.

Yours truly,

James W. Peters

James W. Peters

Attachments

cc: The Honourable Allan Rock, Ministry of Industry
The Honourable Sheila Copps, Minister of Canadian Heritage
Ms. Diane Rhéaume, Secretary General, CRTC
Mr. Michael Binder, Assistant Deputy Minister, Industry Canada
Mr. Larry Shaw, Director General,
Telecommunications Policy Branch, Industry Canada
(In electronic format, to telecom@ic.gc.ca)

Petition to the
Governor in Council
Government of Canada
to vary
Telecom Decision CRTC 2002-67
TELUS Communications Inc. – Application to review and vary Decision 2000-745 and Decision 2001-238

TELUS Communications Inc.

January 22, 2003

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APPENDICES

1.0 INTRODUCTION

1. TELUS Communications Inc. (TELUS) files this Petition to the Governor in Council pursuant to section 12 of the *Telecommunications Act.* This Petition seeks a variance of certain portions of Telecom Decision CRTC 2002-67[1] (the "R&V Decision"), in which the Canadian Radio-television and Telecommunications Commission (CRTC) denied TELUS' application for a review and variance of portions of two earlier CRTC decisions, Telecom Decision CRTC 2000-745 (the Contribution Decision)[2] and Telecom Decision 2001-238 (the Rebanding Decision).[3] In particular, this Petition seeks a variance and other related relief with respect to the costing determinations made by the CRTC in the Rebanding Decision and affirmed by the CRTC in the R&V Decision.

2. As part of and in support of this Petition, TELUS is filing six Appendices, which provide further information, and statements of five experts familiar with the issues raised in this Petition.

3. The costs at issue in this Petition are the costs the CRTC has ordered TELUS and the other incumbent local exchange carriers (ILECs)[4] to use for two important purposes. First, the costs of residential primary exchange service are used to calculate the subsidies required to help pay for the provision of affordable basic local service for residential customers living in high cost serving areas, typically (but not exclusively) rural and remote areas. Second, the costs of unbundled local

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1 *TELUS Communications Inc. – Application to review and vary Decision 2000-745 and Decision 2001-238,* Telecom Decision CRTC 2002-67 (Decision 2002-67 or the R&V Decision).

2 *Changes to the contribution regime,* Decision CRTC 2000-745 (Decision 2000-745 or the Contribution Decision).

3 *Restructured bands, revised loop rates and related issues,* Decision CRTC 2001-238 (Decision 2001-238 or the Rebanding Decision). Bands are geographic areas within an ILEC's operating territory having similar cost characteristics based on population density and loop length. The CRTC established seven bands in the Rebanding Decision.

4 The ILECs consist of Aliant Telecom Inc., Bell Canada, MTS Communications Inc., Saskatchewan Telecommunications and TELUS Communications Inc.

loops[5] are used to calculate the rates paid by competitors for unbundled local loops[6] provided to them by TELUS and the other ILECs in order to compete against the ILECs in both the residential and business local exchange markets.

4. The R&V Decision makes two critical policy errors. First, the costs TELUS and the other ILECs are required to use for these purposes are not actual company-specific costs. The CRTC has required that they be calculated using three national uniform cost parameter values that are applied identically to all ILECs regardless of the actual circumstances of the companies operating in different regions of the country having geographic, population density and other regional differences. The result is that the R&V Decision does not comply with the policy adopted by Parliament in the *Telecommunications Act* that just and reasonable rates be set on a company-specific basis.

5. Second, the costs are too low for TELUS and appear to be too low for the other ILECs as well. This creates an environment in which achievement of the Canadian telecommunications policy objectives is threatened. Most significantly, the continuing and expanded provision of service to residential customers in rural and remote areas of the country and the development of a competitive local market for both residential and business telecommunications services is impaired. In addition, because the costs are below TELUS' actual costs and appear to be below the actual costs of the other ILECs, the financial health of the

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[5] The term "local loop" refers to the wire that goes from the telephone company's local switching centre to the customer's premises. Local loops connect customers (either business or residential) to the networks of the incumbent telephone companies. Competitors may use the incumbents' local loops by disconnecting or "unbundling" them from the incumbents' networks and connecting them to their own networks. In this way, competitors can provide primary exchange services to their own business or residential customers in competition with the incumbent telephone companies.

[6] The costs employed by the CRTC are economic costs, referred to as Phase II costs. Phase II costs do not include all of the costs of a company and, therefore, require a mark-up in order to allow the company to recover its total costs. In order to calculate the required subsidies and unbundled local loop rates the CRTC employs a uniform national mark-up of 15 percent. TELUS has argued that not only must costs be determined on a company-specific basis but so too should mark-ups. The issue of the CRTC's mark-up policy will be considered again in future proceedings and TELUS will argue for company-specific Phase II costs and mark-ups. The uniform mark-up policy could not be properly brought before the Governor in Council in this Petition.

telecommunications industry is weakened. This will undermine achievement of many of the Canadian telecommunications policy objectives and other Government initiatives such as the Innovation Agenda and the objectives of the National Broadband Task Force.

6. In order to correct this situation, TELUS asks the Governor in Council to vary the R&V Decision to require that the CRTC employ the actual company-specific costs for residential primary exchange service and unbundled local loops filed by the ILECs in January 2001[7] in the CRTC proceeding leading to the Rebanding Decision. Under the order sought by TELUS, these costs would be incorporated into the CRTC's current price cap framework as of January 1, 2002. TELUS further requests that the Governor in Council refer back to the CRTC the details of implementation, including any specific rate or other determinations that might be necessary.

2.0 THE COSTS AT ISSUE

7. It is apparent that the costs for residential primary exchange service and unbundled local loops ordered by the CRTC are not actual company-specific costs because the CRTC has ordered cost parameter values that are applied identically[8] to all ILECs regardless of their particular regional circumstances. The CRTC has ruled that the cost calculations for residential primary exchange service and unbundled local loops cannot include functional operating expenses that exceed a prescribed monthly amount, regardless of the company's actual operating expenses. In addition, the CRTC has stated that the value for maintenance expense in the calculation of these costs cannot exceed ten percent of capital

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[7] In January 2001, after the ILECs had filed final comments in the Rebanding proceeding, the CRTC asked for Phase II costs for unbundled loops and residential primary exchange service for the band structure it had proposed. In response, TELUS and the other ILECs filed their actual company-specific costs with the CRTC. These are the costs TELUS asked the CRTC to employ in its R&V Application.

[8] In the case of Bell Canada, the CRTC ordered a different value for one of the cost elements to account for a difference in the way Bell Canada data is collected. The purpose was to ensure that the result for Bell was identical to the results for the other ILECs.

regardless of the actual maintenance expense of the company. The CRTC has also ordered that these two cost parameter values as well as a third, average working fill factors, must be applied identically to all of the ILECs' cost calculations, despite the fact that they cannot be expected to be the same for companies operating in different regions of the country. As a result of these determinations, the costs for residential primary exchange service and unbundled local loops cannot be reflective of the ILECs' actual company-specific costs.

8. The statements of Dr. Richard Emmerson and Mr. Mark Goldberg in Appendices B and C respectively attached to this Petition demonstrate that this is the case.

9. Dr. Emmerson is an internationally recognized expert in telecommunications costing who has examined the costs of over 40 incumbent telephone companies worldwide. Dr. Emmerson describes the costing methodology employed by the CRTC and finds that it is consistent with the economic costing methods adopted by regulators worldwide. However, he also finds that the CRTC, by choosing to order the use of the national uniform cost parameter values, has failed to provide company-specific costs for each of the ILECs. Dr. Emmerson also states that one of the cost parameter values (average working fill factors) ordered by the CRTC is unachievable in practice by any of the ILECs in Canada. He states, "I know of no territory the size and character of the ILECs in Canada that can come close to achieving these fill factors in practice. This is even more true in rural areas and given the quality of service requirements specified by the CRTC." Because of the significant effect of changes to average working fill factors on the results of cost studies, he concludes that the costs ordered for TELUS are too low and it appears the costs ordered for the other ILECs are also too low.

10. Mr. Goldberg is now a Canadian telecommunications consultant offering services globally. Mr. Goldberg was responsible for competitive network development plans for Unitel Communications (now AT&T Canada) and was the vice-president responsible for network operations and engineering at Sprint Canada (Call-Net). In those roles, he participated in a number of CRTC proceedings

dealing with network design and costs across the country. Mr. Goldberg describes how networks are designed differently in different parts of Canada in response to regional and local conditions and explains that costs and individual cost parameter values should and do vary across the country due to geography, population density, and other local circumstances. Mr. Goldberg concludes that the average working fill factors ordered by the CRTC will be unattainable by the ILECs.

3.0 CANADIAN TELECOMMUNICATIONS POLICY

11. Although the specific costing issues and how costs are used to determine prices and subsidies are complex, the underlying public policy principles at stake in this Petition are straightforward. First, at issue is whether the Canadian telecommunications policy framework permits the federal regulator to depart from determining costs (and therefore rates and required subsidies) on a company-specific basis. It does not.

12. The Canadian telecommunications policy framework requires company-specific cost and rate determinations that recognize the diverse circumstances of companies offering rate-regulated services in different regions of Canada. This is a central tenet of Canada's telecommunications policy.

13. The second public policy issue arises because the resulting costs are too low for TELUS and appear to be too low for the other ILECs. This creates an environment in which the achievement of the Canadian telecommunications policy objectives set out in section 7 of the *Telecommunications Act* is threatened. Indeed, the R&V Decision has maintained regulatory conditions that weaken the economic and financial foundation for the future of Canadian telecommunications markets.

4.0 COMPANY-SPECIFIC COSTS

14. Section 47 of the *Telecommunications Act* instructs the CRTC to perform its duties "with a view to implementing the Canadian telecommunications policy

objectives and ensuring that Canadian carriers provide telecommunications services and charge rates in accordance with section 27."

15. Section 27 requires that rates be just and reasonable. Contrary to the R&V Decision, that determination must be made on a company-specific basis. This is explained in the statement of Dr. Hudson Janisch attached as Appendix D to this Petition. Dr. Janisch is a professor in the Faculty of Law at the University of Toronto. He acted as an advisor to the Senate Committee that reviewed the draft legislation in 1992 and 1993 leading up to enactment of the *Telecommunications Act*. He describes the telecommunications policy framework established by Parliament in the *Telecommunications Act* and speaks directly to the basic policy principle embodied in the *Act* that costs and rates must be assessed on a company-specific basis. He also speaks to the policy determinations made by Parliament in 1993 in response to concerns that federal regulation of telecommunications should be sensitive to and recognize regional circumstances and concerns.

16. Dr. Janisch states:

> Fidelity to the policy of just and reasonable rates had sought to achieve two interrelated, but not oppositional objectives: first, to protect consumers from any possible abuse of monopoly power in rate setting, second, to ensure that carriers recovered their costs so as to be able to continue to provide that service. In short, as we have seen, rates were to be just and reasonable for *both* customers and carriers. The common law and principles of statutory interpretation have supported the idea of a regulatory bargain in which the regulated company gives up the right to set its own prices on the understanding that the regulator will ensure that in setting just and reasonable rates it will be able to recover its costs, including the cost of attracting new investment.[9]
>
> …
>
> In 1993 this well-established policy principle was specifically incorporated as a central concept in the *Telecommunications Act*. Section 47, which governs the exercise of the CRTC's regulatory

[9] Statement of Dr. Janisch, page 5.

> powers, provides that they are to be employed to ensure that Canadian carriers charge rates in accordance with section 27 of the Act. Section 27(1) stipulates that, "Every rate charged by a Canadian carrier for a telecommunications service shall be just and reasonable." [10]
>
> …
>
> The CRTC in giving concrete expression to the need to balance the interests of both the carriers and their customers (including competitors seeking access to essential facilities) has until very recently proceeded on the basis that costs would be assessed on a company-specific basis. Indeed, this approach had been adopted by the Commission in 1979 with the inauguration of competition and had remained the fundamental cost methodology throughout the incremental introduction of competition. This was clearly in keeping with the company-specific approach which had prevailed prior to the *Telecommunications Act* which, as we have seen, was implicitly incorporated into it. It was also in line with the specific inclusion of just and reasonable rates as a central governing principle in the Act itself. Indeed, it should be recalled that section 27 does not require that rates be just and reasonable in general, but stipulates that rates charged by individual Canadian carriers must be just and reasonable. How could this ever be assured without looking at the unique circumstances of the particular carrier in question?[11]

17. Economic efficiency also requires the use of company-specific costs. This is explained by Dr. Alfred E. Kahn in his statement attached as Appendix E to this Petition. Dr. Kahn is the Robert Julius Thorne Professor of Political Economy, Emeritus, Cornell University and Special Consultant with National Economic Research Associates, Inc. (NERA). He is the author of numerous works on economic regulation and the introduction of competition into markets previously characterized by regulated monopoly provision of services. He has held regulatory positions in the United States responsible for the regulation of telecommunications, airlines and electricity and is widely regarded as one of the world's leading authorities on economic regulation.

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[10] Statement of Dr. Janisch, page 5.

18. Dr. Kahn explains the importance of establishing costs and prices for incumbent companies on a company-specific basis so that competition may develop in an economically efficient manner and so that regulatory policies do not inhibit the development of competition by establishing costs and prices for the incumbent companies that are too low. Dr. Kahn states:

> I have consistently—going back at least to my *Economics of Regulation*, published in 1970 and 1971—maintained that the only relevant costs, whether original or book costs as traditionally defined in American regulatory practice, or marginal or incremental costs, must be those of the incumbent utility company. The central thesis of those two volumes—redeclared after my almost three-year experience as Chairman of the New York Public Service Commission—is that economic efficiency requires prices equated to the actual, forward-looking, marginal or incremental costs of the incumbent company, which obviously requires taking into account its own specific circumstances. The reason for confronting purchasers with the incremental costs actually incurred by incumbent companies is that it is essential for efficient allocation of resources: it tells purchasers the costs that society will actually incur if they consume additional amounts or that society will actually save if they curtail their usage.
>
> As Dr. Janisch observes in his Statement, the move to price cap regulation—which I have consistently supported—has not basically altered that fundamental requirement: … When, as is the case here, the rates for unbundled local loops and the costs used to determine the universal service subsidy at the outset of the price cap period are based on long run incremental costs, it is critical that they be based on the actual long run incremental costs of the incumbent firms because that is also the proper point for the initiation of competition.[12] [footnote omitted]

19. Canadian telecommunications policy is that rates be just and reasonable on a company-specific basis. This requirement is also consistent with economic efficiency. The R&V Decision has failed to give effect to this requirement.

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[11] Statement of Dr. Janisch, page 10.
[12] Statement of Dr. Kahn, pages 6 & 7.

5.0 ACHIEVEMENT OF THE TELECOMMUNICATIONS POLICY OBJECTIVES

20. Section 47 of the *Act* also instructs the CRTC to perform its duties with a view to implementing the Canadian telecommunications policy objectives. The CRTC's costing has created a negative economic and financial environment for the Canadian telecommunications industry.

21. The costing determinations made in the Rebanding Decision and affirmed in the R&V Decision are applied to all ILECs across Canada and the resulting costs form an important part of the foundation for the CRTC's four-year price cap plan that went into effect January 1, 2002. Immediate impacts are already being felt. However, there are also ongoing and long-term negative impacts that, if not remedied, will continue to undermine achievement of the Canadian telecommunications policy objectives, at least to the end of the current price cap period and likely beyond.

22. The telecommunications policy objectives most relevant to this Petition are set out in section 7 of the *Telecommunications Act* as follows:

> 7. It is hereby affirmed that telecommunications performs an essential role in the maintenance of Canada's identity and sovereignty and that the Canadian telecommunications policy has as its objectives
>
> (a) to facilitate the orderly development throughout Canada of a telecommunications system that serves to safeguard, enrich and strengthen the social and economic fabric of Canada and its regions;
>
> (b) to render reliable and affordable telecommunications services of high quality accessible to Canadians in both urban and rural areas in all regions of Canada;
>
> (c) to enhance the efficiency and competitiveness, at the national and international levels, of Canadian telecommunications; …

(f) to foster increased reliance on market forces for the provision of telecommunications services and to ensure that regulation, where required, is efficient and effective;

(g) to stimulate research and development in Canada in the field of telecommunications and to encourage innovation in the provision of telecommunications services;

(h) to respond to the economic and social requirements of users of telecommunications services; …

23. The objectives most at risk are those dealing with the provision of affordable service and reliance on market forces.

24. The use of costs that are too low to calculate the allowed subsidies for residential primary exchange service means that there is now, and will continue to be, insufficient revenues to provide reliable, affordable and high quality telecommunications services accessible to Canadians in both urban and rural areas in all regions of Canada. A gap has been created between the statutory objective and the availability of funds to pay for that objective. The obligation of the ILECs to provide services to rural and remote communities is becoming increasingly difficult to meet. The Government cannot reasonably expect existing and future investors to continue to provide capital to companies that are denied any reasonable opportunity of recovering this type of uneconomic investment. The Governor in Council should not allow the CRTC's one size fits all costing policies to undermine the achievement of this policy objective.

25. The objective of reliance on market forces for the provision of telecommunications services requires economically efficient competitive entry. The CRTC's national uniform cost parameter values result in costs and rates for unbundled local loops that are too low. This has the effect of lowering the underlying costs for competitors providing both residential and business services by simply using unbundled local loops purchased from the ILECs. But the incumbent telephone companies must still continue to incur the full costs of

providing those loops to their competitors and customers. This situation simply promotes inefficient entry in the market. As Dr. Kahn explains:

> … recent experience in the United States and elsewhere suggests that economically incorrect prices for unbundled elements can both induce uneconomic entry by firms that would otherwise be non-viable and drive retail prices down to a level at which neither incumbents nor entrants can prosper. In contrast, regulated prices set on the basis of the ILECs' own costs provide correct signals for entry, investment and consumption.[13]

26. There are also other adverse effects. First, a competitive market for unbundled local loops cannot develop. Competitors considering their own investment in local loops and other local access facilities will find it uneconomic to do so and monopoly in the provision of unbundled local loops will be entrenched. Dr. Kahn speaks to this point in his statement:

> The CRTC has … presumed to prescribe for TELUS the costs of a firm operating with less spare capacity than it actually has and with lower maintenance and functional operating expenses than it actually experiences. In so doing, it has departed from the proper standard for establishing costs for rate setting purposes. … But it is the actual forward-looking costs of the incumbent producers themselves that alone give challengers the proper target at which to shoot—the proper standard to meet or beat and the proper reward if they succeed. If they can achieve costs lower than that, they will enter and *in the process* (which the CRTC's pricing rules would short-circuit) beat prices down to efficient levels. In contrast, rates based on national standard values for cost elements and factors that are expected to vary among companies—when such rates are lower than rates based on the telephone companies' actual costs—would actually *discourage* more efficient competitors coming in and building their own facilities, which it has heretofore been the clear intention of the CRTC to encourage.[14]

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[13] Statement of Dr. Kahn, page 6.
[14] Statement of Dr. Kahn, pages 8 & 9.

27. Second, competitors who have already built their own local loops to compete against the incumbent companies will find the value of their investment has declined. As a result, uncertainty is created in the market. Dr Kahn explains that:

> … to the extent that the Commission's costing decisions have lowered the charges for unbundled local loops below levels reflecting actual ILEC-specific costs, competitors that had already built competitive facilities on the basis of the previous charges will find their investments devalued. This kind of after-the-fact change in government-imposed rules creates considerable uncertainty for existing and potential competitors and, in turn, dilutes their incentives to construct more facilities or enter at all.
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> …
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> … this immediate prescription of a 20 to 25 percent lower cost, based on what the CRTC might think would be the *outcome* of a competitive process, *short-circuits* that process: why would competitors (including ILECs entering geographic areas served by other ILECs) undertake the risks of major investments in their own facilities if they can instead lease them from the incumbent firms at what regulators speculate would be the minimum costs that an ideally efficient firm would incur constructing them afresh? An even more perverse possibility is that by declaring those lower costs in 2002, four years after having opened the local market to competition, the CRTC may well have pulled the rug out from under CLECs that have already done exactly what it had hoped they would do—constructed some of their own facilities, misled by its own previous adoption of actual company-specific long run incremental costs as the basis for ILECs' charges for use of their facilities.[15]

28. TELUS finds itself in exactly this situation outside of British Columbia and Alberta. Its significant investments in local access facilities are undercut by the costing determinations made in the Rebanding Decision and affirmed in the R&V Decision. Other competitors, such as Group Telecom, also find themselves in this situation and have sought financial compensation from the CRTC for related

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[15] Statement of Dr. Kahn, pages 4, 5, 12 & 13.

regulatory decisions.[16] The CRTC's costing determinations do not promote a reliance on market forces as the Act requires, but rather, the entrenchment of reliance by competitors (including TELUS operating outside of British Columbia and Alberta) on the facilities of the incumbents and, in the case of Group Telecom, on regulation as well.

29. Over time, the industry will become increasingly weakened as prices and revenues are suppressed by incorrect costing. A weakened telecommunications industry cannot serve to safeguard, enrich and strengthen the social and economic fabric of Canada and its regions.

30. A major feature of Canadian telecommunications policy has been its regional character. As Dr. Janisch explains in his statement, with respect to his review of the discussions leading up to enactment of the *Act*, that:

> All this indicates that concerns for regional and carrier differences were high on the policy agenda in the implementation of federal jurisdiction. It was simply never envisaged that the new Act would lead to the application of undifferentiated standards across the country. Indeed, once the CRTC started regulating the formerly provincially-regulated carriers, it did so on a case by case company-specific basis in a manner which reflected that it appreciated that the object had all along been to create a form of national regulation which recognized local differences and actual company circumstances.[17]

31. The CRTC is also required to carry out its duties in a way that will stimulate research and development and encourage innovation in the provision of telecommunications services. The R&V Decision constrains the industry's ability to advance these important purposes. Remarkably, just as the federal government embarks on its Innovation Agenda, an agency of the federal government makes decisions that will stifle innovation.

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[16] This is discussed further in section 6 of Appendix A.
[17] Statement of Dr. Janisch, section 5.

32. An under-funded industry is less able to respond to the economic and social requirements of users of telecommunications services in a way that provides opportunities for Canadians living and working in all regions of the country. In addition, Canada could be left behind when international telecommunications markets begin to recover from the financial challenges they have recently experienced. Mr. Patrick Meneley is Head of Investment Banking Canada, at TD Securities, where he is responsible for client relationship management, transaction origination and execution for investment banking services, corporate lending, and mergers and acquisitions in Canada. Mr. Meneley, in his statement attached to the Petition as Appendix F, states:

> … as a result of Decision 2002-67, the Canadian industry may be left behind as international telecommunications markets begin to recover. The resulting decrease in capital expenditures could threaten Canada's leadership role in telecommunications. [18]

33. The fundamental relationship is one where the Government of Canada sets policy and the CRTC implements it. In this case, the policies are established in the *Telecommunications Act*. Adoption of the one size fits all cost parameter values and the understatement of costs is contrary to these policies, and impairs achievement of the Canadian telecommunications policy objectives set out in the *Telecommunications Act* as well as other Government of Canada objectives. This is a case where intervention by the Governor in Council is required.

34. Failure by the Governor in Council to act now will perpetuate one size fits all regulation. Further, failure by the Governor in Council to require the CRTC to employ company-specific costs in its price cap framework will threaten the financial health of the entire telecommunications industry and deprive Canadians in different regions of the country the benefits of a strong telecommunications industry operating within the Canadian telecommunications policy framework and capable of contributing fully to achievement of the Government's policies.

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[18] Statement of Mr. Meneley, page 5.

35. Only the Governor in Council can correct the current situation. Prompt action will ensure that the negative effects of the CRTC's decisions do not become irreparably entrenched during this price cap period.

6.0 RELIEF SOUGHT

36. TELUS requests that the Governor in Council affirm that the Canadian telecommunications policy framework requires that whatever method or technique the CRTC employs to determine just and reasonable rates, that method or technique must be based on company-specific circumstances and actual company-specific costs.

37. To give effect to this policy, TELUS requests that the Governor in Council order the CRTC to use the company-specific costs filed by the ILECs with the CRTC in January of 2001. These costs were filed in the Rebanding Proceeding at the request of the CRTC in January of 2001 according to the banding structure[19] adopted (with minor modifications) in the Rebanding Decision. These January 2001 costs are the appropriate residential primary exchange service and unbundled local loop costs to be employed by the CRTC for the current price cap period. They are the only company-specific Phase II costs filed with the CRTC based on the CRTC's banding structure, and are the costs TELUS, in its application to review and vary the Rebanding Decision, requested that the CRTC employ beginning January 1, 2002. These costs are readily available.[20] TELUS' request for relief asks, among other things, that the Governor in Council order the CRTC

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[19] Bands are geographic areas within an ILEC's operating territory having similar cost characteristics based on population density and loop length. The CRTC established seven bands in the Rebanding Decision.

[20] The Phase II costs that would be employed for SaskTel would be the Phase II costs filed November 15, 2001 in response to TELUS' request that all ILECs be required to refile their January 2001 costs to account for the minor changes the CRTC had made to the assignment of exchanges to bands. The CRTC denied TELUS' request and stated that the Phase II costs TELUS was seeking to have filed were available. TELUS acknowledges that some ILECs have, since the filing of the January 2001 costs, indicated to the CRTC that there were some mistakes made in the original calculations. These appear to be simple calculation errors and the CRTC has the ability to obtain the necessary information to make the corrections.

to incorporate these January 2001 Phase II costs into the CRTC's current regulatory framework established in the Price Cap Decision, effective as of January 1, 2002.

38. There would be no immediate changes to unbundled local loop rates or the percent of revenue charge used to collect the funds paid into the National Fund[21] established to support the provision of service to residential customers living in high cost serving areas as a result of this order. Instead, TELUS proposes that the CRTC be ordered to conduct a follow-up proceeding to receive input from the industry and other interested parties in order to determine how these January 2001 Phase II costs should be incorporated into the current price cap framework.

39. TELUS is also requesting an audit of residential primary exchange service and unbundled local loop Phase II costs. TELUS first suggested a review and audit of Phase II costs in its R&V Application. The CRTC, in its Price Cap Decision, announced its intention to initiate a full review of Phase II costing, and the ILECs are preparing for it. That review is expected to take approximately two years to complete. The CRTC also indicated in the Price Cap Decision that it would conduct periodic audits of the ILECs' Phase II costs after the Phase II review was complete. In this Petition, TELUS is asking the Governor in Council to order the CRTC to order the ILECs to conduct an audit of the Phase II costs calculated based on the CRTC's determinations in the Phase II review. The requested audits would be for residential primary exchange service and unbundled local loop Phase II costs.

6.1 Order Sought

40. TELUS specifically requests that the Governor in Council make the following order:

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[21] The National Fund was established in the Contribution Decision issued in November of 2000. Telecommunications Service Providers are required to collect a percentage of their revenue from customers and remit it to the National Fund. ILECs and CLECs serving customers in high cost areas are able to draw from the fund to provide a subsidy to residential customers in high cost serving areas.

1. Affirm that Canadian telecommunications policy framework requires that whatever method or technique the CRTC employs in determining just and reasonable rates for regulated services, the CRTC must make its determinations based on company-specific circumstances and must employ actual company-specific costs of the regulated services.

2. Vary Decision 2002-67 to require that, for each ILEC, the January 2001 Phase II costs be used to determine the Total Subsidy Requirement[22] effective as of January 1, 2002.

3. Order the CRTC to conduct a proceeding to:

    a. calculate the difference between the amount of each subsidy payment made from the National Fund calculated using the costs affirmed by the CRTC in Decision 2002-67, and the amount of subsidy payments from the National Fund that would have been made using the January 2001 Phase II costs (plus a 15 percent mark-up) for the period beginning January 1, 2002 and ending on the effective date of the CRTC's decision setting out the difference;

    b. establish a competitively neutral mechanism[23] to compensate eligible local exchange carriers[24] for the difference calculated in a. above; and

    c. establish a competitively neutral mechanism to provide to eligible local exchange carriers the subsidy requirements required as a result of using the January 2001 Phase II costs for the period beginning on the effective date of the CRTC's decision and ending on a date to be determined by the CRTC no earlier than the last day of the current price cap period.

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[22] Total Subsidy Requirement is the sum of all subsidy requirements of all ILECs, TELUS Québec, Télébec, Northwestel and the independent telephone companies for residential primary exchange service.

[23] The CRTC's competitive neutrality policy with respect to contribution requires that no contribution discounts be granted to telecommunications service providers.

[24] An "eligible local exchange carrier" is an ILEC or a CLEC serving residential local exchange customers in high cost areas.

4. Vary Decision 2002-67 to require that, for each ILEC, the January 2001 Phase II costs be used to establish the unbundled local loop Phase II costs, effective as of January 1, 2002.

5. Order the CRTC to conduct a proceeding to:

    a. calculate the difference between the unbundled local loop revenues received by each ILEC using the costs affirmed by the CRTC in Decision 2002-67, and the unbundled local loop revenues that would have been received had the January 2001 Phase II costs (plus a 15 percent mark-up) been used to determine unbundled local loop rates for the period beginning January 1, 2002 and ending on the effective date of the CRTC's decision setting out the difference; and

    b. for the period beginning on the effective date of the CRTC's decision setting out the difference in a. above and ending no earlier than the last day of the current price cap period, provide for recovery by the ILECs of the difference between the revenues that would be received using the unbundled local loop rates determined using the costs affirmed by the CRTC in Decision 2002-67 and the revenues that would be received using the January 2001 Phase II costs (plus a 15 percent mark-up) to determine unbundled local loop rates.

6. Order the CRTC to, upon completion of the Phase II review and the filing of the Phase II costs according to the CRTC's determinations in the Phase II review, pursuant to sections 37(1) and (2) of the *Telecommunications Act*, order each ILEC to conduct an audit of its residential primary exchange service Phase II costs and unbundled local loop Phase II costs in each of bands "A" through "G", as follows:

    a. the audit of each ILEC's residential primary exchange service Phase II costs and unbundled local loop Phase II costs shall be conducted by a recognized auditing firm experienced in telecommunications incremental costing methods and approved by the CRTC;

b. the CRTC shall provide a CRTC representative familiar with Phase II costing to attend each audit to assist the auditor;
c. ILECs shall permit independent third parties representing interested parties to attend the audit, subject to a confidentiality agreement approved by the CRTC; and
d. each ILEC shall file the results of its audit with the CRTC to permit the CRTC to use the audited Phase II costs for regulatory purposes.

Appendix A

Petition of TELUS Communications Inc. to Her Excellency the Governor in Council

Telecom Decision CRTC 2002-67
TELUS Communications Inc. – Application to review and vary Decision 2000-745 and Decision 2001-238

Submission of
TELUS Communications Inc.

January 22, 2003

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1.0 INTRODUCTION

1. This Appendix A is filed with the Governor in Council to more fully describe the circumstances giving rise to the Petition to the Governor in Council filed by TELUS Communications Inc. on January 22, 2003. This document also provides further background regarding the CRTC's regulatory framework and how the issues under consideration in the Petition fit within that framework, further evidence in support of the factual assertions made by TELUS and a description of the effects of the CRTC's decision on the achievement of the Canadian telecommunications policy objectives. This document concludes with details of the relief sought by TELUS including an explanation of related implementation issues.

2.0 THE TELUS PETITION

2.1 Proceedings leading to the TELUS Petition

2. The Petition seeks a variance of Telecom Decision CRTC 2002-67[1] (the R&V Decision) and other related relief. The R&V Decision ruled on TELUS' R&V Application filed on September 14, 2001. The CRTC released the R&V Decision on October 25, 2002. The R&V Application sought a review and variance of two CRTC decisions. The first decision was issued in November of 2000 (the Contribution Decision)[2] and the second was issued in April of 2001 (the Rebanding Decision).[3]

3. With respect to the Contribution Decision, the R&V Application sought a review and variance of the CRTC's decision to eliminate recovery of embedded costs in

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1 *TELUS Communications Inc. – Application to review and vary Decision 2000-745 and Decision 2001-238*, Telecom Decision CRTC 2002-67 (Decision 2002-67 or the R&V Decision).

2 *Changes to the contribution regime*, Decision CRTC 2000-745 (Decision 2000-745 or the Contribution Decision).

3 *Restructured bands, revised loop rates and related issues*, Decision CRTC 2001-238 (Decision 2001-238 or the Rebanding Decision).

the mark-up applied to Phase II costs for residential primary exchange services. The R&V Application was made on the grounds that by excluding the costs in question, the CRTC had granted a contribution discount, contrary to its own policies. Further, the Contribution Decision had done so without any notice that the policy of including embedded costs in the mark-up might be changed, thereby resulting in a contribution discount.

4. The R&V Decision held that there had been sufficient notice that the changes ordered by the CRTC might be made and that no contribution discount had been granted. TELUS is not petitioning this aspect of the R&V Decision since the issue of the mark-up was subsequently addressed in the Price Cap Decision[4] and will have to be further examined in the future.[5]

5. With respect to the Rebanding Decision, the R&V Application sought a review and variance of changes to the costing methodology for residential primary exchange service and unbundled local loops in the geographic bands defined in the decision. The R&V Application argued that the CRTC had not given notice that the proceeding would include a review of, and possible changes to, the costing methodology that had been previously determined by the CRTC in Decision 98-22.[6] The R&V Application also argued that the CRTC had not indicated whether it considered the costs it had prescribed in the Rebanding Decision to be the actual Phase II costs of the ILECs[7] or something else. If the CRTC knew that the costs it prescribed in the Rebanding Decision were not the actual costs of the ILECs, then the CRTC had granted a contribution discount and

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4 *Regulatory Framework for second price cap period*, Telecom Decision CRTC 2002-34. (Price Cap Decision)

5 In order to calculate the required subsidies and unbundled local loop rates the CRTC employs a uniform national mark-up of 15 percent. TELUS has argued that not only must costs be determined on a company-specific basis but so too should mark-ups. The issue of the CRTC's mark-up policy will be considered again in future proceedings and TELUS will argue for company-specific Phase II costs and mark-ups. The uniform mark-up policy could not be properly brought before the Governor in Council in this Petition.

6 *Final rates for unbundled local network components*, Telecom Decision CRTC 98-22 (Decision 98-22).

7 Incumbent Local Exchange Carriers. The ILECs consist of Aliant Telecom Inc., Bell Canada, MTS Communications Inc., Saskatchewan Telecommunications Inc. and TELUS Communications Inc.

a discount on unbundled local loops contrary to its own policies[8] and without notice that those policies might be reconsidered. If, however, the CRTC determined that the costs it had prescribed were the actual costs of TELUS, the CRTC had made an error of fact.

6. The CRTC denied the R&V Application. The R&V Decision held that there had been adequate notice that the costs would be reviewed, that there was no contribution or unbundled local loop discount granted, that its determinations were consistent with its Decision 98-22 costing methodologies and that its costing determinations "reflected appropriate current levels of each ILEC's loop and residential PES service costs."[9]

2.2 Summary of the Petition

7. The Petition seeks a variance of the R&V Decision and other related relief because the decision steps out of the telecommunications policy framework established by Parliament. The R&V Decision makes two critical policy errors. First, the decision affirms the use of costs for regulatory purposes that are not actual company-specific costs. Second, the decision requires the use of costs that are too low for TELUS and appear to be too low for the other ILECs.

8. It is apparent that the costs for residential primary exchange service and unbundled local loops are not actual company-specific costs because the CRTC

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[8] Decision 2000-745, paragraph 9, states "the [contribution] collection mechanism must promote fairness, ratepayer equity, economic efficiency, technological neutrality and competitive equity. The mechanism must be fair to all market participants and should not adversely affect one service provider over another. It should also promote economic efficiency by limiting distortions in the telecommunications market. Further, the mechanism should be competitively-equitable by promoting the efficient allocation of resources and avoid unfair advantages to any service or service provider." In addition, in Decision 98-22, the CRTC stated that "Pursuant to Decision 97-8, these rates [rates for unbundled components] are set to recover the associated incremental costs, including a mark-up of 25%." In Decision 97-8, the CRTC stated at paragraph 252 that, "the Commission is of the view that a new entrant discount would not be appropriate."

[9] Decision 2002-67, paragraph 163.

has ordered the use of mandated uniform cost parameter[10] values that are applied identically[11] to all ILECs regardless of their particular regional circumstances. In particular, the CRTC has ruled that the cost calculations for residential primary exchange service and unbundled local loops cannot include functional operating expenses that exceed a prescribed monthly amount, regardless of the company's actual operating expenses. In addition, the CRTC has stated that a value for maintenance expense in the calculation of these costs cannot exceed ten percent of capital regardless of the actual maintenance expense of the company. The CRTC has also ordered that these two cost parameter values as well as a third, average working fill factors, must be applied identically to all of the ILECs' cost calculations, despite the fact that they cannot be expected to be the same for companies operating in different regions of the country. As a result of these determinations, the costs for residential primary exchange service and unbundled local loops cannot be reflective of the ILECs' actual company-specific costs.

9. The resulting costs are too low for TELUS. TELUS is also concerned that the resulting costs ordered for the other ILECs are also too low. In the public notice setting out the scope of the Rebanding Proceeding, it was represented that the costing of the new bands would be made "in accordance with the costing methodologies used to determine the rates approved in Decision 98-22."[12] That decision employed a company-specific costing methodology. Company-specific costs were filed in the Rebanding Proceeding at the request of the CRTC in January of 2001 according to the banding structure adopted (with minor modifications) in the Rebanding Decision. These are the appropriate set of costs to be employed by the CRTC because they represent the only set of Phase II costs

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[10] Cost parameters include both cost elements, such as functional operating expenses, and cost factors, such as a 10 percent factor for maintenance expense and the average working fill factors further described in this Submission.

[11] In the case of Bell Canada, the CRTC ordered a different value for one of the cost elements to account for a difference in the way Bell Canada data is collected. The purpose was to ensure that the result for Bell was identical to the results for the other ILECs.

based on the CRTC's banding structure that are based on a company-specific costing methodology.

10. By affirming the use of the costs ordered in the Rebanding Decision, the R&V Decision steps out of the Canadian telecommunications policy framework. Because the new costs ordered by the CRTC are not company-specific, the rates and revenues resulting from the CRTC's order will not and cannot result in Parliament's just and reasonable rates policy being observed. That policy can only be implemented on a company-specific basis using actual company-specific costs.

11. Furthermore, by ordering the ILECs to use costs that are based on national uniform cost parameter values despite regional differences in geography and population density and ordering costs that are lower than the ILECs' actual costs, the CRTC has created an environment in which achievement of the Canadian telecommunications policy objectives in section 7 of the *Telecommunications Act* is threatened. In addition, the ability of the Government of Canada to rely on the telecommunications industry to participate in the national roll-out of broadband services and in the Innovation Agenda is jeopardized.

12. Low regulatorily-mandated costs result in lower revenues not only for the ILECs but also for competitors thereby further weakening an industry already weakened by the decline in international telecommunications markets. Instead of being the driver of economic growth it is expected to be, Canadian telecommunications will be unable to fulfill the important roles the Government of Canada is asking it to undertake. Furthermore, the industry will be held back when international telecommunications markets begin to recover because the depressed revenues resulting from the CRTC's ordered costs will make the Canadian industry less attractive to both domestic and foreign investors.

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[12] Public Notice CRTC 2000-27, paragraph 7. Later, in the Contribution Decision, the CRTC stated that the costs for residential primary exchange service should be based on the same cost methodology determinations. (the Contribution Decision, paragraph 61)

13. It is clear that the CRTC has stepped outside of the Canadian telecommunications policy framework by failing to implement the just and reasonable rates policy and by creating an environment in which achievement of the Canadian telecommunications policy objectives is threatened.

14. The relief requested is that the Governor in Council order the CRTC to employ actual company-specific costs for residential primary exchange service and unbundled local loops effective January 1, 2002. The requested order would also require the CRTC to conduct a follow-up proceeding to determine how the company-specific costs are to be incorporated into the current price cap regulatory framework. In this way, the requested order relies on the CRTC's role as the agency responsible for implementing Canadian telecommunications policy.

15. To that end, TELUS requests that the CRTC be ordered to employ the company-specific costs filed by the ILECs in January of 2001 in the Rebanding Proceeding. These costs are readily available.[13] The CRTC would have to conduct a follow-up proceeding to determine how the revenues that should have been collected by the ILECs and CLECs[14] that received insufficient revenue from the National Fund[15] and ILECs that received insufficient unbundled local loop revenue would be recovered. The CRTC would also have to determine how the increased subsidy revenues and unbundled local loop revenues would be provided over the remainder of the Price Cap period.

16. TELUS also seeks an order requiring that when the Phase II review announced by the CRTC is completed, an audit of each ILEC's actual company-specific residential primary exchange service and unbundled local loop Phase II costs be conducted by an auditing firm familiar with telecommunications incremental costing studies.

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[13] In Order CRTC 2001-831 issued on 15 November 2001, the CRTC noted that "the PES cost information sought by TCI to recalculate the total subsidy requirement under its proposal is available."

[14] Competitive Local Exchange Carriers.

[15] The National Fund was established to ensure affordable basic telephone service to Canadians pursuant to section 46.5 of the *Telecommunications Act*.

3.0 BACKGROUND

3.1 The Evolution of CRTC Cost Methods

17. The costs employed by the CRTC and at issue in the Petition are called "Phase II" costs. As explained by Dr. Emmerson in his attached statement[16], Phase II costs are a form of economic costs referred to as long run incremental costs. Businesses operating in competitive markets use these types of costs to ensure that prices at least cover these costs. In so doing, businesses make decisions such as whether to enter or exit a market for a particular service. However, because economic costs do not include other costs of the company, such as overhead costs, prices must be established to include a mark-up. If mark-ups are not included, the company will be unable to recover its total costs including overheads and will eventually be forced out of business.

18. Phase II costs were first adopted by the CRTC in 1979[17] and, in recognition of the need for a mark-up, were marked up to establish prices for new telecommunications services as they were introduced. At that time, the concern was that the telecommunications companies should not introduce new services that would lose money thereby requiring subsidies from other services. The CRTC's regulatory framework at that time, referred to as rate of return regulation, was such that if an individual service were losing money, the costs for that service would be recovered through higher prices for other services. This result flowed automatically because the CRTC regulated the overall revenue requirements of the ILECs. If the companies were earning too low a rate of return, rate increases could be ordered for any of the services to make up the shortfall because virtually all services were monopoly provided. Likewise, if the companies were earning rates of return that were too high, rate decreases for any of the services could be ordered.

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[16] Appendix B, Statement of Dr. Emmerson, section 2.

19. Shortly after the CRTC began introducing competition in 1979, it turned to economic costs, as the basis for establishing prices for interconnection services offered to competitors. The Phase II costs for these services were marked up to establish the prices for interconnection. When telecommunications came under exclusive federal regulation in the early 1990s, the CRTC required each of the companies under its jurisdiction to adopt Phase II costing and to file Phase II costing manuals.

20. As competition was introduced into more and more telecommunications markets, the CRTC isolated the costs and revenues of services that were still monopoly provided from the costs and revenues of services that were offered in markets opened to competition. The CRTC used one set of costs (Phase III embedded costs recorded in the regulated financial statements of the companies) to determine the overall justness and reasonableness of revenues and prices for monopoly provided telecommunications services. These included, until recently, the levels of subsidies required for each regulated company. The CRTC used another set of costs (Phase II costs) as the basis for determining the justness and reasonableness of prices for individual services, especially interconnection services and unbundled network elements (such as local loops) used by competitors to complete their own networks and compete with the telephone companies.

21. Phase II costs are economic costs and are, therefore, the right costs to use for pricing services provided to competitors. They can also be determined on a service-specific and even geography-specific basis, whereas Phase III embedded costs cannot. The CRTC has now discontinued the use of Phase III costs and relies exclusively on Phase II costs.

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[17] *Inquiry into Telecommunications Carriers' Costing and Accounting Procedures: Phase II – Information Requirements for New Service Tariff Filings*, Telecom Decision CRTC 79-16, 28 August 1979 (Decision 79-16).

3.2 Verification of Phase II Costs

22. In the R&V Decision, the CRTC commented on TELUS' use of the expressions "actual" or "true" Phase II costs as follows:

> The Commission also notes that contrary to TELUS' claim, there is no single objective measure of "actual" or "true" Phase II costs. Phase II costs reflect estimates of forward-looking incremental costs of providing a service. As indicated by Group Telecom, these costs depend on a wide variety of forecasts, estimates and assumptions, many of which involve varying degrees of judgement, and which, as a result, cannot be known with absolute certainty.[18]

23. TELUS recognizes that there are forecasts and assumptions used in the calculation of Phase II costs. TELUS is concerned, however, that the CRTC's statement could be misinterpreted to mean that there can be no certainty about Phase II costs at all. TELUS, therefore, asked Dr. Emmerson to review how Phase II costs are developed and to comment on the CRTC's statement. Dr. Emmerson explains that the vast majority of the cost inputs used in Phase II cost studies, and particularly in the Phase II studies at issue in the Petition, are verifiable by reference to the records of the company and other generally available data. Where the data is not available in the company's records, Dr. Emmerson states that the reasonable ranges for the data can be established. In addition, Dr. Emmerson states that Phase II costs can be audited using the CRTC's 1979 Phase II decision[19] and subsequent updates and directives as well as the Phase II manuals filed by TELUS and the other ILECs.[20]

24. Actual Phase II costs can be determined by using company-specific information gathered from the companies' records and reasonable assumptions and forecasts based on the individual circumstances of the company operating in its particular region of the country using the best information available to the company at the time.

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[18] Decision 2002-67, paragraph 162.

3.3 Use of Phase II Costs in the Price Cap Framework

25. On February 18, 2000, the CRTC issued the Rebanding Public Notice. Among the purposes of this public notice was to establish new bands (geographic areas within an ILEC's operating territory having similar cost characteristics based on population density and loop length), determine local loop costs and rates in the new bands and calculate the amounts of subsidy per residential customer required from the National Fund[21] in the operating territories of the various incumbent telephone companies. In order to establish costs and rates for local access services, the CRTC assigned local access loops to geographic bands in each ILEC's operating territory. This proceeding reviewed the make-up of bands in order to better identify those areas that are high cost and that would accordingly need to be subsidized from the National Fund, and to determine the Phase II costs and the rates for unbundled local loops.

26. The Phase II costs for residential primary exchange service and unbundled local loops were determined for each band. For areas classified as high cost, the ILECs calculate the difference between the revenues[22] and the Phase II costs plus a 15 percent mark-up for residential primary exchange service in each band on a per line and per month basis. The amount of subsidy available in the band is then determined by multiplying the number of residential lines by the amount of the per line subsidy each month. The Total Subsidy Requirement (TSR) is the sum of the required monthly subsidies for each ILEC in the year. An estimate of this TSR amount is used to determine the contribution charge to be collected by telecommunications service providers from their customers as a percentage of

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19 Decision CRTC 79-16.

20 Statement of Dr. Emmerson, Section 7.

21 The National Fund was established in the Contribution Proceeding. Telecommunications Service Providers are required to collect a percentage of their revenue from customers and remit it to the National Fund. ILECs and CLECs serving customers in high cost areas are able to draw from the fund to provide a subsidy to residential customers in high cost serving areas.

22 For the purpose of calculating the subsidy requirement, revenues are comprised of the rates for residential primary exchange service and an implicit contribution from optional local services of $60 per NAS per year.

revenues and remitted to the National Fund. Both ILECs and CLECs receive payments from the National Fund when they serve residential customers in subsidy-eligible high cost bands.

27. In addition to using Phase II costs to set the National Fund subsidy, Phase II costs are used for setting the costs, and rates, for unbundled local loops. Unbundled local loop costs were set for each band in order to establish different rates for unbundled local loops depending on where they were purchased by competitors. In the bands where the ILEC's costs to provide unbundled local loops to competitors would be higher, the resulting rates for unbundled local loops would be higher and *visa versa*. Unbundled local loops in each band are used by competitors to provide both business and residential local exchange services.

28. Precisely because unbundled local loops are used to provide residential local exchange services, it is necessary to ensure that the costing determinations used for residential primary exchange service and for unbundled local loops are consistent. This is what the CRTC has stated[23] and what it has done. What is at issue in this Petition is the values ordered by the CRTC for three cost parameter values used in the Phase II studies for residential primary exchange service and unbundled local loops.

29. The three cost parameter values are average working fill factors, maintenance expense and functional operating expenses. Average working fill factors for outside plant facilities (such as local loops) are a measure of the average utilization of cable facilities in comparison to the total capacity of cable facilities. Maintenance expenses are the direct expenses associated with the servicing and repair of equipment and facilities used, in this case, to provide residential primary exchange service and unbundled local loops. Functional operating expenses include the costs for activities that are not related to network facilities including sales, order entry, marketing, advertising, billing, and credit and collections.

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[23] Decision 2000-745, paragraph 61.

30. Capital costs to which the average working fill factors are applied, maintenance expense and functional operating expenses, in total, account for more than 95 percent of unbundled local loop Phase II costs and more than 80 percent of residential primary exchange service Phase II costs. The direct effect of changing fill factors is to change the amount of capital cost allowed in cost studies, which in turn affects the amount of the TSR for the National Fund and unbundled local loop rates calculated on the basis of those costs. Of the three, the level of average working fill factors has the biggest single influence on the results of the Phase II cost studies and rates based on Phase II costs plus a markup.

3.4 Prior Phase II Costing Determinations

31. Beginning in 1979 when the CRTC issued its first Phase II decision, the CRTC sought to determine Phase II costs for services on a company-specific basis using each individual company's most current and accurate information. Until recently, the CRTC sought to determine the most current and accurate average working fill factors, maintenance expense and functional operating expenses for each ILEC.

32. For a time, some of the incumbent companies were unable to produce their own company-specific Phase II costs. As a result, the CRTC had little choice but to use Phase II costs or cost parameters of other companies (typically Bell Canada) as a proxy for company-specific costs, until these companies could produce their own Phase II costs. However, the objective always was to require companies to file their own Phase II costs based on company-specific cost parameter values.

33. After the CRTC's landmark 1997 decision[24] that established the rules for competition in the local exchange market, the CRTC initiated a proceeding to determine the Phase II costs and resulting rates for interconnection and the unbundled facilities and services (such as unbundled local loops) the CRTC had ordered the ILECs to provide to competitors. This proceeding culminated in Decision 98-22 issued by the CRTC on November 30, 1998. In Decision 98-22,

the CRTC maintained its company-specific costing approach in making company-specific determinations of average working fill factors, maintenance expense and functional operating expenses.

3.5 Rebanding Proceeding

34. In the Rebanding Public Notice, the CRTC stated that the revised unbundled loop rates based on the proposed bands should be filed in accordance with the costing methodology approved in Decision 98-22. Later, in the Contribution Decision, the CRTC confirmed that the same costing methodology used for unbundled local loops should also be used as the basis for determining the residential primary exchange service costs for the bands being considered in the Rebanding Proceeding.

35. In the third round of interrogatories addressed to the ILECs on October 30, 2000, TELUS and the other ILECs were asked by the CRTC to provide a calculation of each company's Phase II costs using the CRTC's own proposed banding structure specifying, among other things, that the ILECs should employ an average working fill factor of no less than 75 percent for the feeder plant and no less than 65 percent for the distribution plant.[25]

36. The CRTC's direction in this interrogatory represented a major departure from the methodology established by Decision 98-22. Specifically, it required TELUS to use, as inputs to its Phase II cost calculations, cost parameter values that did not align with the company's actual costs or network realities. TELUS objected to the departure from a company-specific methodology requested in the interrogatory (to increase the average working fill factors) because the values specified by the CRTC were higher than TELUS' actual average working fill factors. TELUS also

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[24] *Local Competition*, Telecom Decision CRTC 97-8 (Decision 97-8).

[25] Feeder plant is the high capacity cabling that provides telephone service to large geographic areas surrounding the telephone exchange. At a point near where the customers are located, each feeder cable is sub-divided into a number of smaller distribution cables, which extend to each customer location served by the telephone exchange.

stated that arbitrarily increasing fill factors is confiscatory in nature and, if adopted, the fill factors would lower rates and amount to a refusal, by the CRTC, to allow for recovery of network constructed to achieve TELUS' current fill factors.

37. In January 2001, after the ILECs had filed final comments in the Rebanding proceeding, the CRTC asked for company-specific Phase II costs for unbundled loops and residential primary exchange service for the band structure it had proposed.[26] In doing so, the CRTC noted TELUS' objection to the use of incorrect average working fill factors and requested actual company-specific costs based on a number of parameters set out by the CRTC in the interrogatory. TELUS filed its actual company-specific costs with the CRTC. These filed January 2001 costs are significant because they are the costs that would have been used by the CRTC for calculating the subsidy requirement and for determining unbundled loop rates had the CRTC retained a company-specific costing methodology in the Rebanding Decision. These are also the Phase II costs that TELUS, in its R&V Application,[27] asked the CRTC to adopt and they are the Phase II costs that TELUS, in this Petition, is asking the Governor in Council to order the CRTC to adopt.

3.6 Rebanding Decision and R&V Decision

3.6.1 Costing Determinations depart from company-specific costs

38. When the Rebanding Decision was rendered by the CRTC, it became apparent that the CRTC had departed from its company-specific costing methodology. In particular, by its actions, the CRTC had departed from the determination of actual Phase II costs on a company-specific basis and had instead opted to order costs

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[26] Interrogatory TELUS(CRTC)30Jan01-1, PN 2000-27.

[27] On October 18, 2001, after TELUS had filed its R&V Application, TELUS requested that the CRTC require the ILECs to update their January 2001 costs to take into account the reassignment of some exchanges to new bands. The CRTC responded in Order CRTC 2001-831 that the required information was available. TELUS notes that some ILECs have indicated that there are calculation errors in their costs.

based on national uniform cost parameter values for average working fill factors, maintenance expense and functional operating expenses to be applied identically to all of the ILECs.[28]

39. The CRTC increased the average working fill factors to levels that do not reflect the actual working fill factors of TELUS and to levels that cannot actually be achieved by Canadian ILECs in practice.[29]

40. In the Rebanding Decision, the CRTC determined that the maintenance expense for the cost studies for residential primary exchange service and unbundled local loops would not exceed 10 percent of the capital. This 10 percent rule was applied uniformly to all ILECs. However, because the Rebanding Decision had reduced the capital allowed in cost studies by increasing the average working fill factors, the application of the 10 percent rule reduced TELUS' allowed maintenance costs below their actual levels. The impact of the 10 percent rule is compounded by the CRTC's change to the value of the average working fill factors, so that the total maintenance expense is below the result that would have been allowed if actual company-specific fill factors had been used. The CRTC also applied the same rule for maintenance expense to residential primary exchange service costs, thereby lowering the dollar amount of maintenance expense that would otherwise have been allowed using a company-specific approach.

41. Finally, the CRTC imposed a cap on functional operating expenses for residential primary exchange services and for unbundled local loops. The cap on total functional operating expenses was set at a uniform national standard amount of

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[28] In the case of Bell Canada, the CRTC ordered a different value for functional operating expenses to account for a difference in the way Bell Canada data is collected. The purpose was to ensure that the result for Bell was identical to the results for the other ILECs. The CRTC stated in paragraph 129 of the Rebanding Decision that **"**The expense ceiling for Bell Canada is set higher at $1.95 to recognize a change in the reporting of certain service provisioning expenses that were previously captured in the capital category. These expense limits are set to include the costs of in-building wire associated with the multi unit dwellings where in-building wire continues to be controlled by an ILEC."**)**

[29] Statement of Dr. Emmerson, Section 6; Statement of Mr. Goldgerg, page 19.

$2.50 per residential line per month, far less than TELUS' actual functional operating expenses per line for residential primary exchange services filed in the Rebanding Proceeding. In the case of unbundled local loops, the CRTC's uniform national functional operating expense value per line, set at $1.65 per month, is actually higher than what TELUS filed with the CRTC. The CRTC noted this point in the R&V Decision in response to TELUS' comments that the CRTC's determination had resulted in the calculated Phase II costs being too low.[30] It cannot be assumed, however, that this component of the decision could somehow make up for the very significant effects of the CRTC's other determinations.

42. The combined effect of these changes (average working fill factors, maintenance expense and functional operating expenses) was to significantly reduce the costs used to determine residential primary exchange service costs and unbundled local loop rates in each of the seven geographic bands ordered by the CRTC.

43. Changing these three cost parameter values is not merely a minor adjustment to the cost studies. Capital costs to which the average working fill factors are applied, maintenance expense and functional operating expenses, in total, account for more than 95 percent of unbundled local loop Phase II costs and more than 80 percent of residential primary exchange service Phase II costs. As explained above, the biggest effect is felt by changing the average working fill factors used in the Phase II studies and the compounding effect on maintenance expense.

44. But there is also an additional compounding effect. As noted above, a mark-up on Phase II costs is necessary to permit recovery of costs such as overhead.[31] A mark-up on residential primary exchange service costs is provided for in the calculation of the amount of subsidy TELUS and other local exchange carriers (ILECs and CLECs) receive from the National Fund. Because these mark-ups are now to be applied to the lower Phase II costs, one result is a further reduction in the total compensation TELUS, the other ILECs and CLECs receive for providing

[30] Decision 2002-67, paragraph 142.

residential primary exchange services in high cost areas. Because adjustments to the three cost parameter values were also made for unbundled local loops, and a mark-up is also applied, there is also a reduction in the revenues TELUS and the other ILECs receive for providing unbundled local loops to competitors.

45. The effect of the CRTC's adoption of these uniform cost parameter values is to reduce the January 2001 Phase II costs for unbundled local loops by approximately 20%, on average across the seven bands, and reduce the January 2001 residential primary exchange service costs by approximately 24%, on average across the seven bands, in comparison to the company-specific January 2001 Phase II costs.

46. As a further result of these costing determinations, only bands E, F and G required a subsidy from the National Fund. If the January 2001 Phase II costs had been used, more bands would have required a subsidy, although the CRTC has ruled that even in such cases, subsidies will only be available in bands E, F and G.

47. The change to national uniform average working fill factors has a particularly significant effect on the costing results and, therefore, represents a particularly significant change to the CRTC's policy approach. Phase II studies require that the company first calculate the economic capital costs of replacing its existing network using the costs of current technology and then adding to those costs, the forecast capital costs to be incurred to expand that network in response to increased demand over the next five years. The company then determines what its current demand for service is (in this case the number of residential primary exchange service lines) and adds to that current demand, the forecast demand for the next five years. Notionally, the total capital cost (current plus forecast) is then divided by the total demand (current plus forecast) to establish the cost per line. If every line were fully used, the fill factor would be 100 percent. However, not

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[31] See section 3.1 above.

every line is used. As a result, the average working fill factors must be applied to the capital costs in order to allow for recovery of spare capacity.

48. As Mr. Goldberg explains,[32] telecommunications networks are designed to ensure there is spare capacity in place to accommodate growth in demand and to ensure that service quality can be maintained for customers. Efficient engineering practices applied to different local and regional circumstances require companies to choose the least cost mix of capital expenditures and expected maintenance expense in their own particular circumstances. The critical planning decision for network engineers is whether to plan for more spare capacity and lower maintenance expense or less spare capacity and greater maintenance expense, considering the current costs of network facilities and the current costs of labour. Of course, engineers working for competitors seeking to enter these local geographic markets must make the same kinds of determinations.

49. Once the optimal amount of spare capacity is determined, the network is built to those standards and remains in place for many years until it must be replaced. It cannot be pulled out of the ground if the original decisions later prove to be incorrect. If there turns out to be too much spare capacity, the company must try to recover those extra costs in a competitive market where competing network engineers may have made decisions that turn out to better reflect what actually happens.

50. After the fact adjustments to the level of average working fill factors used in costing studies can have a significant impact on the cost calculations. By way of example, what this means for costs and rates is, if the actual fill factor for a network is 50 percent, but the CRTC increases the fill factor used in the Phase II study to 75 percent, recovery of one third of the network costs is disallowed[33].

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[32] Statement of Mark Goldberg, page 10.

[33] Suppose there are 100 lines. With a fill of .75, 133 units of capacity are needed (100/.75). With a fill of .5, 200 units of capacity are needed. (100/.5) Thus the cost has been lowered from 200 units worth of capacity to 133, a reduction of 33%.

3.6.2 Reasons for Costing Determinations

51. The Rebanding Decision did not appear to TELUS to explain whether the CRTC had tried to establish company-specific costs or had abandoned the principle of using company-specific costs for other reasons. The R&V application was therefore framed in the alternative. If the CRTC had chosen not to determine actual company-specific costs, one set of policy issues arose. In the alternative, if the CRTC had meant to determine actual company specific costs, the Rebanding Decision made an error of fact.

52. In the R&V Decision, the CRTC said:

> 163. The Commission considers that the cost assumptions and methods that were determined in Decision 2001-238 were based on the record of that proceeding and were consistent with Decision 98-22. The Commission is of the view that the cost estimates determined in Decision 2001-238 reflected appropriate current levels of each ILEC's loop and residential PES service costs.[34]

53. Reading this paragraph, it is not clear whether the "appropriate" standard is meant to reflect an intention to determine "appropriate" actual company-specific costs or "appropriate" costs using some other standard.

54. Paragraph 136 of the R&V Decision indicates that the object of the exercise was to establish *accurate* costs. The CRTC states:

> 136. These submissions demonstrate that the parties, including TELUS and the Companies, understood that the various cost study assumptions such as the demand forecasts, cost study parameters including AWFFs, and certain expense estimates, that were used to estimate the costs in the proceeding leading to Decision 98-22, would be subject to change to reflect the <u>most current and accurate costing information.</u> [emphasis added]

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[34] Decision 2002-67, paragraph 163.

55. Further, in paragraph 137, the CRTC again indicates that the "appropriate" standard means the most current and accurate costing information:

> 137. Decision 2001-238 did not depart from fundamental cost methodology findings in Decision 98-22, except to reflect changes in costing inputs over time or in response to costing proposals by the ILECs. Consequently, the Commission considers that the determination of what estimates should be assumed for each ILEC's cost inputs such as AWFFs, maintenance and functional operating expenses were clearly within the scope of the proceeding and all parties had the opportunity to make submissions on what the appropriate costs should be. [emphasis added]

56. Earlier, in paragraph 135, the CRTC referred to three years of changes since the Decision 98-22 costs had been prepared:

> 135. Moreover, in response to the interrogatory The Companies(CRTC)11Aug00-110 PN 2000-27, the Companies stated that there were no significant methodology changes between the 1997 and 2000 loop cost studies, and that the changes in costs reflected in their replies were the result of a multiplicity of changes, which were often cross-impacting, making an exact comparison impossible. The Companies indicated that these changes reflected three years of experience and additional data and network structure changes which impacted costs and caused them to change. [emphasis added]

57. The CRTC's reference to "experience and additional data" seems again to signal an intention to determine actual company-specific costs.

58. However, other statements by the CRTC seem to disclose a different intention. For example, the CRTC's assertion that some disallowed costs could be recovered in the mark-up signals that the CRTC knew the average working fill factors (AWFF) were not reflective of the circumstances of the ILECs. The CRTC stated at paragraph 103 of Decision 2001-238:

> 103. In some cases, the approved changes could result in some of the spare capacity in the network (implicit to the use of

> the AWFF) being disallowed for causal costing purposes under the view that it is in excess to that which should be reflected in the Phase II costs. This excess may be reflected in the company's embedded costs. The issue of compensation related to the difference between embedded and current costs for competitor services will be examined through the mark-up policy, as discussed in paragraph 65. [emphasis added]

59. The CRTC also said in the Rebanding Decision that it was adopting "uniform national AWFF measures" for five reasons aimed at using "uniform national" measures:

> 102. The use of these uniform national AWFF measures, although higher than most AWFFs proposed by the ILECs, recognize, among other things: (a) the apparent lack of consistency in the AWFF definitions; (b) the differences in the measures filed by most ILECs compared to 1997 cost studies; (c) Bell Canada et al.'s request for consistent AWFF definitions across ILECs; (d) the need to revise the ILECs' proposed average historic AWFF values to reflect longer-run measures of AWFFs, i.e., those expected over the 2002-2006 study period; and (e) the Commission's prior determination in Decision 98-22 to increase TCBC's proposed AWFF value for distribution plant for purposes of determining its loop costs, in order to be more consistent with the distribution AWFFs of other ILECs."[35]

60. In the R&V Application, TELUS filed evidence of Dr. Emmerson, which stated:

> I continue to strongly recommend that for calculating loop costs and PES costs the Commission employ fill rates that reflect the company's actual experience and those that can be actually attained. In my experience, the fill rates now required by the CRTC are unreasonably high.[36]

61. In the R&V Decision, the CRTC did not contradict or even refer to this expert evidence. This seems to indicate that the CRTC may not have sought to establish current and accurate costs for TELUS or the other ILECs.

62. Against this background, paragraph 163 of the R&V Decision can be read as a tacit acknowledgment that the costs are not company-specific and are not the most current and accurate. All the CRTC said is that the cost methods "were based on the record" of the Rebanding Proceeding and that the costs determined "reflected *appropriate* current levels of each ILEC's loop and residential PES service costs." The CRTC did not and could not say that the costs determined are *company-specific* and *accurate*.

4.0 TELUS OBJECTIONS TO THE COSTING DETERMINATIONS

4.1 The Resulting Costs Are Not Company-Specific and Are Too Low

63. The statements of Dr. Emmerson and Mr. Goldberg show that the Phase II costs calculated using the CRTC's national uniform cost parameter values are neither TELUS' actual company-specific costs, nor any reasonable approximation of TELUS' actual company-specific costs.

64. Mr. Goldberg explains in his statement that telecommunications carriers incur different costs to provide services in different regions of the country, based on a number of regionally varying factors, including geographic topology, climate, population density, economic and population growth, and even municipal rights-of-way policies. Mr. Goldberg concludes that:

> Based on these regional considerations, engineering resources at telecommunications carriers develop provisioning practices to best provide a specified quality of service for a minimum cost for a given forecast of demand. We conclude that variations between regions make it necessary to observe regional considerations in assessing metrics of capital efficiency such as working fill factors.[37]

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[35] Decision 2001-238 at paragraph 102.
[36] R&V Application, Attachment 1, page 3.
[37] Statement of Mark Goldberg, page i.

65. In the R&V Decision, the CRTC stated that its cost determinations had not departed from "fundamental cost methodology findings" in Decision 98-22.[38] The CRTC also stated that its cost determinations were made in accordance with its 1998 decision "subject to change to reflect the most current and accurate costing information."[39]

66. However, it is apparent that the CRTC did depart from the most fundamental cost methodology. Dr. Emmerson finds that the imposition of national uniform values for average working fill factors, maintenance expense and functional operating expenses has:

> …the effect of replacing company-specific cost information with mandated numbers that have no basis in company-specific factual information. In this ruling, the CRTC has, in practice and in principle, made a fundamental change in its costing methodology; no longer can the Phase II costs be considered to reasonably represent incremental costs based on widely accepted economic principles.[40] [emphasis added]

67. The average working fill factors mandated by the CRTC in the Rebanding Decision are higher than TELUS' actual average working fill factors with the result that TELUS' costs are understated. TELUS cannot, due to the regional characteristics of its operations, use its cable facilities to the extent that would be necessary to achieve the average working fill factors mandated by the CRTC. Indeed, Dr. Emmerson finds that:

> My staff of telecommunications engineers and I have examined fill factors in the majority of the 50 states in the U.S., in two provinces in Canada, in nine other countries, and in the context of constructing general models of engineering costs that have been applied in more general circumstances. I know of no territory the size and character of the ILECs in Canada that can come close to achieving these fill factors in practice. This is even more true in rural areas and given the quality of service requirements specified

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38 R&V Decision, paragraph 137.
39 R&V Decision, paragraph 136.
40 Statement of Dr. Emmerson, section 6.

> by the CRTC. As such, the CRTC-mandated fill factors cause a significant understatement of TELUS' costs and likely the costs of all other ILECs in Canada.[41] [footnotes omitted]

68. Mr. Goldberg concludes:

> As long as there continues to be new construction or real estate development, ILECs will be required to continue to expand their feeder and distribution plant. Coupled with this continued requirement for expansion in capacity is a reduction in the number of working lines. Therefore, we do not believe that it is reasonable to expect that an incumbent carrier in Canada will be able to attain the national standard AWFF measures for distribution and feeder facilities set by the CRTC in Decision 2001-238.[42]

69. TELUS is not only concerned about the effects of the CRTC's costing determinations on its own ILEC operations. TELUS is also concerned about the effect of the CRTC's determinations on its operations outside of British Columbia and Alberta. Ordering artificially low costs for the other ILECs reduces TELUS' opportunities to enter local markets as a facilities-based entrant outside of British Columbia and Alberta. This means that TELUS will have to rely increasingly on the network facilities of the other ILECs rather than constructing its own facilities. This is not just an issue for the residential local exchange market. Competitors in both the business and residential local exchange markets receive the same unbundled local loop rates within a common band.

70. These costs also reduce the value of TELUS' existing local network investments outside of British Columbia and Alberta. These network investments were made in reliance on the CRTC continuing its policy of establishing ILEC rates for unbundled local loops at rates based on actual company-specific Phase II costs. By changing its methodology, the CRTC has not only devalued TELUS' current investments, it has also significantly increased the risk that the CRTC might

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[41] Statement of Dr. Emmerson, section 6.
[42] Statement of Mark Goldberg, page 19

extend the same approach to other types of facilities that TELUS has constructed and plans to construct in the future in competition with the other ILECs.

71. TELUS is seeking an order that instructs the CRTC to return to the use of actual company-specific Phase II costs using actual company-specific cost parameter values. TELUS acknowledges, however, that the CRTC has, from time to time, adopted national standards for various purposes. For example, the CRTC chose to move the entire industry to a uniform productivity offset under price cap regulation. The CRTC has also chosen to prescribe a uniform national rate of return to be applied to certain Phase II cost studies, apparently for the purpose of ensuring that if higher costs of capital were experienced by telecommunications companies due to investments in riskier competitive ventures, those higher costs would not be passed through to customers in markets that were not yet competitive.

72. For the most part, in the past, TELUS has been able to accommodate most one-size fits all determinations because they could be "smoothed over" under the old rate of return regulatory model. Under that regime, which operated on a company-specific basis, the CRTC could order increases in some rates to pay for policies that kept other rates at below cost levels, because the majority of telecommunications markets were not open to competition. Therefore, if the CRTC imposed a one size fits all cost parameter, Phase II cost or even a rate, the rate of return regulatory process would still ensure that the company had an ongoing opportunity to recover its costs.

73. Now that markets are opened to competition, it is not possible to maintain internal cross-subsidies among services. Indeed, it is precisely for this reason that Parliament added section 46.5 to the *Telecommunications Act*. Without monopoly to sustain internal subsidies, a specific subsidy mechanism for residential basic services that traditionally had been subsidized by revenues from other services had to be permitted in the *Act*. Just as residential basic service subsidies can no longer be sustained by internal implicit subsidies, revenues lost as a result of rates

based on Phase II costs that are too low cannot be recovered through internal implicit subsidies.

74. The CRTC has recognized that rate of return regulation is wholly unsuited in markets opened to competition and has moved to price cap regulation, although the CRTC continued with its hybrid form of regulation (part rate base rate of return and part price caps using Phase II costs) until its recent Price Cap Decision. In that decision, the CRTC stated that it would no longer require the companies to file financial results for their Utility segment services. The abandonment of the last vestiges of rate of return regulation means that the importance of determining actual company-specific Phase II costs is magnified.

75. When the next price cap proceeding is held in 2005 to establish the regulatory framework that will go into effect in 2006, the CRTC will rely on Phase II costs to examine the justness and reasonableness of each individual company's regulated rates. It is for this reason, among many others, that it is critically important for the Governor in Council to affirm that the Canadian telecommunications policy framework requires the use of actual company-specific costs.

4.2 Another Possibility – The "promotion of efficiency" Approach

76. TELUS is aware that there have been suggestions that the CRTC, in establishing national uniform cost parameter values may not have been attempting to determine the most current and accurate cost information of each ILEC. Instead, perhaps the CRTC was establishing the cost parameter values at levels that it believed should be achievable by the ILECs.

77. The CRTC, however, has not said in any decision that this was its intention. As noted above, the CRTC said that the costs are "appropriate" based on three years of changes in the cost parameters and that the purpose of the review of the cost parameters was "to reflect the most current and accurate costing information."[43]

[43] Decision 2002-67, paragraph 136.

Indeed, the CRTC never requested comments from interested parties on an "efficient" company approach or what parties thought the ILECs should be able to achieve.

78. Of course, such an approach would require a full public process and a number of specific findings that the actual costs and network configurations (including average working fill factors) represented imprudent expenditures and investments. This would not represent a mere minor adjustment resulting from a difference of opinion about assumptions or forecasts of particular cost parameter values. For TELUS alone, implementation of the costing determinations made in the Rebanding Decision across all Utility segment services would amount to a cost disallowance of approximately $290 million per year.[44]

79. Also, from a policy perspective, any attempt by any regulator to determine in a vacuum what an "efficient" company might look like or should look like would be self-defeating. As Dr. Kahn explains in his statement, any decision to set costs and rates at "efficient" levels presupposes that the regulator can second guess what an efficient market outcome might be. This pre-judgment of competitive outcomes short circuits the competitive process:

> Experience in the US is instructive here. The imposition by regulators in the United States of hypothetical, optimally-efficiently-incurred long run incremental costs not only opens the regulatory process to ridiculously litigious competition by cost models and constitutes an act of appalling arrogance, considering the fact that competition is itself a far better determinant than the regulatory process of the level of costs necessary to survival, it also has, inevitably, absurdly discouraged true facilities-based competition.
>
> The CRTC's adoption of costs and cost element values that result in long run incremental costs lower than the actual costs of the ILECs seems to be based on the assumption that this is the level

[44] TELUS explained this in its Reply Comments in the Decision 2001-238 *Follow-up Proceeding, Mark-up* dated January 18, 2002 that was incorporated into the Price Cap proceeding (see paragraph 113).

> that would both reflect and promote effective competition. That view is mistaken.
>
> …
>
> Even more, though, prescribing at once a 20 to 25 percent lower cost based on what the CRTC might think would be the *outcome* of a competitive process, *short-circuits* that process:

80. The *Telecommunications Act* seeks reliance on market forces to move the industry to efficient levels of costs and rates, not reliance on regulation to decide up front what the costs in a competitive market would be, force prices to that level and expect competition to arise. It is competition that determines what efficient companies responding in the market to various incentives and customer demands might look like and not all companies will be the same even within a particular geographic market, let alone across a country as diverse as Canada. Even where regulation steps in to take the place of competition until there is competition sufficient to protect users, the CRTC, in the Price Cap Decision, has already determined what the annual productivity improvements expected of the ILECs will be. If the CRTC did indeed seek to order costs that represent the costs of a hypothetically efficient company (which it did not claim to do), the CRTC would be counting productivity gains twice. Dr. Kahn explains:

> While it might appear that these two (applying a productivity offset and cutting costs at the outset) are merely alternative ways of achieving the same result, a comparison of the prices produced by these two kinds of regulation demonstrates immediately how radical is the difference between them. In contrast with the two to three percent annual cost reductions typically contained in price cap plans—which purport, at least, to be based on historical experience of productivity improvements actually achieved and therefore presumed to be achievable *over time*—TELUS informs me the results of the CRTC's use of national values for fill, maintenance and functional operating expenses implicitly assumes that it should be able immediately to reduce its long run incremental costs of providing unbundled local loops and basic residential service by twenty to twenty-five percent per line, *while also* continuing from that point onward with a further annual 3.5

> percent real decrease on an already significantly reduced cost base—a seemingly egregious double-counting of what is supposed to be achievable.[45]

81. In addition, there is no claim and no evidence (nor could there be) that efficient companies operating in different parts of Canada would have identical functional operating expenses per line, identical maintenance expense as a percentage of capital per line and identical average working fill factors.

4.3 Conclusion

82. The Governor in Council has before it sufficient and compelling evidence that the Phase II costs prescribed by the CRTC in the Rebanding Decision and affirmed in the R&V Decision, do not represent TELUS' actual costs or even a reasonable approximation of TELUS' actual costs of providing residential primary exchange service or unbundled local loops and that they do not represent the actual Phase II costs of any of the other ILECs.

83. TELUS asks the Governor in Council to recognize that the CRTC's costing determinations affirmed in the R&V Decision are not appropriate on the grounds that they do not, and could not, reflect the actual costs or any reasonable approximation of the actual costs of TELUS or, likely, any of the other ILECs.

5.0 FILING FOR A REVENUE REQUIREMENT WAS NOT A VIABLE OPTION

84. The CRTC's one size fits all prescriptions for the calculation of Phase II costs and the full realization of the impact of that determination for TELUS and the industry unfolded over an extended period of time, and through a number of decisions. During that time, TELUS was unable to obtain from the CRTC a satisfactory resolution to the issues now put before the Governor in Council in the Petition.

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[45] Statement of Dr. Kahn, page 12.

85. Indeed, despite the fact that the determinations of the CRTC respecting the three cost parameter values were made in the Rebanding Decision, the full impact of that decision was not known, nor could it have been known when it was issued in the spring of 2001. Final determinations of the rates for unbundled local loops were not made until much later.

86. TELUS also relied on statements in the Rebanding Decision that the CRTC would consider an upward adjustment to the percentage mark-up on the costs for unbundled local loops if the ILECs provided cost evidence that a higher percentage mark-up than that contemplated by the CRTC were necessary to provide them with an adequate opportunity to recover their costs of providing service.[46] The Rebanding Decision recognized that the one size fits all determinations for average working fill factors had the effect of disallowing some spare capacity from inclusion in the Phase II studies.

> 103. In some cases, the approved changes could result in some of the spare capacity in the network (implicit to the use of the AWFF) being disallowed for causal costing purposes under the view that it is in excess to that which should be reflected in the Phase II costs. This excess may be reflected in the company's embedded costs. The issue of compensation related to the difference between embedded and current costs for competitor services will be examined through the mark-up policy, as discussed in paragraph 65.

At paragraph 65, the CRTC stated:

> 65. In the absence of a response by an ILEC or should there be insufficient quantitative evidence to justify the 25% mark-up, or some lower mark-up, within the process provided herein, the Commission will use a mark-up of 15% to determine final loop rates. In the event that the current mark-up of 25%, or some lower mark-up above 15%, is shown to be justified (to compensate for the differences between embedded and current costs), the issue of whether that mark-up level will remain after the price cap review

[46] Decision 2001-238, paragraph 103.

> proceeding will be dependent on the pricing policy established for competitor services in that proceeding.

87. TELUS noted the CRTC's offer to consider adjusting its mark-up policy if, in the follow-up filing that was called for at paragraph 63 of the Rebanding Decision, the ILECs demonstrated that the CRTC's proposed 15 percent mark-up on Phase II costs, presumably as now calculated pursuant to the Rebanding Decision, was not adequate. TELUS took this opportunity to demonstrate that not only was the CRTC's proposed 15 percent mark-up inadequate to compensate for the adjustments to the Phase II cost parameters that had been made by the CRTC in the Rebanding Decision, but that the 25 percent mark-up that had historically been accepted by both TELUS and the CRTC was not adequate to recover TELUS' actual costs.

88. It was clear to TELUS that if the cost evidence put forward credibly demonstrated the necessity of a mark-up higher than 25 percent, then the CRTC would have to consider using this level of mark-up. It was on this basis, and for this reason, that TELUS participated in the Rebanding Decision follow-up proceeding with an expectation of recovering the full amount of its actual costs through the Phase II determinations plus a markup.

89. On June 8, 2001, TELUS filed its evidence on the mark-up required to recover the full amount of its actual costs (including the costs the CRTC acknowledged it had excluded from the Phase II studies). In that filing, TELUS demonstrated that the average mark-up on Phase II costs would need to be 61 percent in order to fully recover its full actual costs, taking into account the effect of the very significant changes made by the CRTC to average working fill factors, maintenance expense and functional operating expenses.

90. TELUS relied on this opportunity to argue that the CRTC should adjust the mark-up to allow TELUS to recover company-specific costs. On September 10, 2001,

the CRTC issued Decision 2001-582.[47] In this procedural decision, the CRTC incorporated the record of the follow-up proceeding to the Rebanding Decision to determine the required mark-up into the record of the price cap proceeding, thereby implying that it would consider the matter of the percentage mark-up in the pending price cap hearing.

91. Following Decision 2001-582, on September 14, 2001, TELUS filed its R&V application. Later, at the end of May 2002, the CRTC released the Price Cap Decision. At paragraph 201 of that decision, the CRTC stated "that the determination of an appropriate level of mark-up for a given service's costs is a decision related to pricing rather than costing." In making this statement, the CRTC disregarded the commitment made at paragraph 103 of Decision 2001-238, that it would consider adjusting its mark-up policy accordingly, if the ILECs demonstrated that the CRTC's proposed 15 percent mark-up on Phase II costs was not adequate to recover the costs excluded from the Phase II studies. No explanation for this decision to treat the mark-up as a pricing decision and not a cost recovery issue was offered by the CRTC in the Price Cap Decision. However, the CRTC, in the R&V Decision, did confirm that it had made a commitment to consider allowing the recovery of costs excluded from Phase II studies in the Rebanding Decision.[48]

92. It appears the CRTC's mark-up decision may have been influenced by something it had said in March of 2001. Three weeks before the Rebanding Decision was released, the CRTC issued Public Notice CRTC 2001-37 *Price cap review and related issues*, on March 13, 2001. At paragraph 13 of that public notice the CRTC stated:

> The Commission does not intend to conduct a revenue requirement assessment of Utility segment results unless a telephone company

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[47] Decision CRTC 2001-582, *Public Notice CRTC 2001-37 - Price cap review and related issues: Requests for clarification of issues and determinations on public disclosure of information and on further responses to interrogatories*, 10 September 2001.

[48] Decision 2002-67, paragraph 140.

> proposes rate increases, to be effective at the outset of the next price regulation regime, other than those that would reduce the subsidy requirement in high-cost serving areas. This would apply, for example, to any such proposed rate increases related to: (a) the service improvement plans (SIPs) filed pursuant to the Commission letter sent 29 January 2001; and (b) any proposed recovery of Phase III/Phase II contribution shortfalls that may be warranted.

93. At paragraph 15 of this public notice, the CRTC indicated that any proposed rate increases to recover a shortfall in the subsidy an ILEC receives to support affordable basic telephone service would only be accepted if the ILEC could demonstrate that an increase in revenues was necessary:

> Should any company propose rate increases to be effective at the outset of the next price regulation regime, other than rate increases that reduce the subsidy requirement in high-cost serving areas, it is to file, along with its other evidence, the evidence normally filed as part of an application pursuant to Part III of the *CRTC Telecommunications Rules of Procedure*, but confined to its Utility segment.

94. In this way, three weeks prior to the release of the Rebanding Decision that substantially reduced the Phase II costs, the CRTC offered the ILECs an opportunity for a traditional rate of return proceeding to set "going-in" rates and revenues for the second price cap period. If ILECs did not ask for such a rate of return proceeding, the CRTC assumed, it seems, that the ILECs were satisfied with their current rates and the revenues that would be produced taking into account the effects of the CRTC's national uniform cost parameter values ordered in the Rebanding Decision. Of course, the CRTC did not require the ILECs to apply for a rate review and thereby implicitly approved their revenue requirements at the outset of the price caps proceeding.

95. In the R&V Decision the CRTC made reference to its invitation to file for rate increases based on the old rate of return standard implying that TELUS had a single remedy and chose not to pursue it. The CRTC stated:

> It is also important to emphasize that the revenues generated by a mark-up on Phase II costs are subsumed in the ILEC's overall revenues. The regulatory regime established by the Commission provides an ILEC with a reasonable opportunity to earn sufficient revenues to cover all of the ILEC's costs which are recognized and approved by the Commission. If TELUS thought its revenues would be inadequate as a result of the revised subsidy mechanism established by Decision 2000-745, it had the opportunity in the proceeding initiated by *Price cap review and related issues*, Public Notice CRTC 2001-37, 13 March 2001 (PN 2001-37) to request a revenue requirement review of its rates, so as to ensure that it would have a reasonable opportunity to recover its costs. TELUS did not make such a request in the PN 2001-37 proceeding.[49]

96. There are a number of reasons TELUS did not seek a rate of return proceeding. The most significant reason is that a traditional rate of return application would have been no remedy at all. This is because the rates for unbundled local loops, based on the CRTC's decision to use artificially low Phase II costs, would mean that retail revenues could not be sustained through the price cap period where competitors chose to enter the local exchange market. Consequently, any revenue requirement approved by the CRTC would not be recoverable in the market during the price cap period because the regulatory framework encourages competitive entry through the use of unbundled local loop rates that are priced using the artificially low Phase II costs.

97. Setting unbundled local loop rates below levels that would reflect actual company-specific Phase II costs means that competitors can enter the market for both business and residential local exchange services, use the unbundled local loops of the incumbent and end up with an automatic cost advantage. This allows otherwise equally efficient competitors (and, indeed, less efficient competitors) to lower retail prices when the actual underlying costs do not justify the reductions. In this way, rates for unbundled local loops that are too low undermine the ongoing sustainability of the entire local exchange rate structure in place at the outset of price caps.

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[49] Decision 2002-67, paragraph 62.

98. Evidence provided in the recent AT&T Canada Petition to the Governor in Council[50] shows that competitors now have approximately 17.5% share of business access lines across Bell Canada's entire operating territory in Ontario and Québec, a full 12% of which is provided on their own facilities. Canada wide, competitors have captured 14.2% of the business access market, with over half that share facilities-based. [51]

99. TELUS is both an ILEC and a CLEC, having invested in local facilities in Ontario and Quebec. By artificially lowering costs and rates against which TELUS must compete, the CRTC has devalued these investments. A revenue requirement, would have only dealt with TELUS' local tariffed services in British Columbia and Alberta and would not have dealt with the unbundled local loop rates of either TELUS or the other ILECs. It would have done nothing to address the impacts of the other ILECs' lowered Phase II costs on the TELUS competitive facilities outside of British Columbia and Alberta.

100. A rate of return proceeding for TELUS would have done nothing to address these competition-distorting problems created by the one size fits all costing determinations.

101. Finally, it was impossible for TELUS to predict how far the CRTC would go in lowering Phase II costs for services other than unbundled local loops throughout the price cap period. Having moved away from the principle of actual company-specific costs, there would appear to be little impediment to the CRTC ordering lower Phase II costs for other services by adopting non-company-specific parameters or otherwise. It seemed to TELUS that a revenue requirement could not have adequately predicted the potential for further regulatorily-mandated cost reductions over the price cap period. As noted above under section 4.2, implementation of the CRTC's incorrect costing determinations across all Utility segment services would amount to a cost disallowance of approximately $290

[50] Canada Gazette Part I, 14 September 2002 *Telecommunications Act* Notice No. DGTP-008-02.

million per year for TELUS. This massive uncertainty cannot reasonably be accommodated in a revenue requirement determination for one year at the outset of a price cap period.

102. TELUS had no choice but to seek a review and variance of the re-costing portions of the Rebanding Decision. The old rate of return regulatory framework offered no realistic remedy at all. Price cap regulation and competition can only work if the ILECs' unbundled local loop rates and rates for other competitor services are based on actual company-specific Phase II costs. TELUS, therefore, chose to seek a review and variance of the costing determinations in the Rebanding Decision.

6.0 THE CANADIAN TELECOMMUNICATIONS POLICY FRAMEWORK

103. The R&V Decision has stepped outside of the Canadian telecommunications policy framework by affirming the use of costs that are not reflective of the ILECs' actual company-specific costs. In so doing, the decision has failed to implement the just and reasonable rates policy set out in section 27 of the *Telecommunications Act*. The CRTC's new costing approach also threatens the achievement of the policy objectives set out in section 7 of the *Telecommunications Act* and the ability of the Government to rely on the telecommunication industry to fully participate in the roll-out of broadband services and the Innovation Agenda.

6.1 The Just and Reasonable Rates Policy

104. Section 27 of the *Telecommunications Act* requires that rates be just and reasonable. As Dr. Janisch explains in his statement, rates must be just and reasonable for both the customers of a regulated company and the regulated company itself. Rates must provide the regulated company with a reasonable opportunity to recover its costs of providing regulated services.[52] In addition, as

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[51] Comments of the Companies, Appendix 4.
[52] Statement of Dr. Janisch, Page 5.

noted by Dr. Janisch, the Canadian telecommunications policy framework was designed with a view to ensuring that the federal regulator would be sensitive to regional differences in Canada.[53] This requires that the CRTC turn its mind to the circumstances of each individual company when assessing whether regulated rates meet the "just and reasonable" rates standard specified in the *Telecommunications Act*.

105. The CRTC may use any method or technique to determine just and reasonable rates.[54] The CRTC has chosen Phase II costs for residential primary exchange services, unbundled local loops and many other services. Whatever method or technique the CRTC may choose to employ for the determination of just and reasonable rates, that method or technique must be applied on a company-specific basis and must set just and reasonable rates for each carrier – not just and reasonable rates in a generalized fashion.[55]

106. In order to be attentive to regional differences and to comply with the just and reasonable rates standard, the CRTC must determine, or at least make a reasonable estimation of, the actual costs of each regulated company to provide the regulated services in question. National one size fits all determinations, like the ones at issue in the Petition, are simply not contemplated by the Canadian telecommunications policy framework, because they do not take full account of the very real differences between individual regulated companies and the regions in which they operate. They effectively mask important differences between parts of Canada and the different companies that serve them. While the CRTC has a great deal of discretion and may use any method or technique to determine just and reasonable rates, the result must always be that the cost elements and cost

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53 Statement of Dr. Janisch, section 4.
54 *Telecommunications Act*, section 27(5).
55 Statement of Dr. Janisch, page 10.

factors, including Phase II, be set on a company-specific basis.[56] As Dr. Janisch concludes in his statement:

> While older forms of regulation, such as rate of return, have given way to price cap regulation and Phase II costs, the overarching principle of just and reasonable rates continues to apply. Just as revenue requirement and rate of return calculations were made under rate base rate of return regulation on the basis of company-specific financial statements in the past, so too must company-specific assessment of costs and rates be made now by ensuring that the CRTC determines Phase II costs, including cost elements and cost factors that vary from company to company, on a company-specific basis. To do otherwise, would be to disregard a central tenet of Canada's telecommunications policy.[57]

107. By departing from this fundamental policy principle, the R&V Decision has stepped outside of the Canadian telecommunications policy framework.

6.2 The Telecommunications Policy Objectives

108. The CRTC has also stepped outside of the Canadian telecommunications policy framework because its new cost determinations threaten the achievement of the Canadian telecommunications policy objectives established in section 7 of the *Telecommunications Act*. Some of these objectives are directly threatened by inadequate funding for the provision of affordable service to residential customers. Other objectives are impaired by rates for unbundled local loops that are too low and do not reflect their actual underlying costs.

Policy Objective (a): to facilitate the orderly development throughout Canada of a telecommunications system that serves to safeguard, enrich and strengthen the social and economic fabric of Canada and its regions;

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[56] Statement of Dr. Janisch, page 11.
[57] Statement of Dr. Janisch, pages 10 – 11.

109. The orderly development of Canada's telecommunications system will be impaired by the CRTC's cost determinations because they will have a chilling effect on capital markets. As Patrick Meneley of TD Securities explains in his statement:

> …by not allowing TELUS and the other ILECS an opportunity to recover their true costs for providing services, the CRTC is undermining the ability of these companies to attract the necessary capital to continue to provide these and other services.[58]

110. Mr. Meneley goes on to conclude that:

> Over time, shareholder value in the entire telecommunications market would be destroyed and the market value of all equity and debt securities issued by the Canadian telecommunications industry as a group would decline.
>
> The result will be the weakening of the capital base of both the incumbent telephone companies and new entrants, together with the disappearance of equity and debt capital available to the Canadian telecommunications industry.

111. The CRTC's costing determinations will not "facilitate the orderly development throughout Canada of a telecommunications system that serves to safeguard, enrich and strengthen the social and economic fabric of Canada and its regions." The adoption of national uniform cost parameter values is inconsistent with the strengthening of the social and economic fabric of a country made up of regions with diverse geography and population density.

112. The possibility of federal regulatory decisions, such as the R&V Decision's failure to fully account for regional differences in its costing determinations, lay at the heart of the federal-provincial negotiations that occurred for decades until such time as it was clarified that Parliament has exclusive responsibility for the oversight of telecommunications.[59] As described by Dr. Janisch, the federal

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[58] Statement of Mr. Meneley, page 3.
[59] *Alberta Government Telephones* v. *CRTC* [1989] 2 S.C.R. 225.

government went to considerable lengths in responding to concerns that centralized regulation might disregard regional differences. Dr. Janisch states that:

> This concern to recognize regional differences was to be given concrete form both in provisions of the Act itself and in related legislation, as well as in consultative mechanisms adopted in bringing previously regulated carriers into the federal regulatory sphere.[60]

113. The relief sought by TELUS ensures that federal regulation will continue to safeguard, enrich and strengthen the social and economic fabric of Canada and its regions.

Policy Objective (b): to render reliable and affordable telecommunications services of high quality accessible to Canadians in both urban and rural areas in all regions of Canada;

114. The inability of TELUS to recover the costs of meeting its obligation to provide basic telecommunications service to residential customers in many parts of British Columbia and Alberta is contrary to this policy objective.

115. TELUS has an obligation to provide residential basic telephone service at below-cost rates in many areas, particularly rural and remote areas. The difference between the costs of providing service in these areas and the rates that the ILECs are allowed to charge is made up from the National Fund.

116. In the Rebanding Decision, the CRTC changed the amount of the subsidy available for the provision of basic telephone service by ordering costs for residential primary exchange services based on national uniform cost parameter values. The result of the costing changes is that the revenues (rates plus the level of subsidy from the National Fund) is below that which is necessary to enable

[60] Janisch Statement, page 7.

TELUS to recover its costs of providing residential basic services in high cost rural and remote areas.

117. This issue is particularly important for TELUS because of its reliance on the National Fund provided for in section 46.5 of the *Telecommunications Act* to support the provision of service to high cost serving areas within its serving territory. The combination of mountainous terrain and lower population density means that TELUS incurs significant costs in providing basic telephone service to many of its customers.

118. The obligation of the ILECs to provide services to rural and remote communities is becoming increasingly difficult to meet. The government cannot reasonably expect existing and future investors to continue to provide capital to companies that are denied any reasonable opportunity of recovering this type of uneconomic investment. The Governor in Council should not allow the CRTC's one size fits all costing policies to undermine the achievement of this policy objective.

Policy Objective (c): to enhance the efficiency and competitiveness, at the national and international levels, of Canadian telecommunications;

119. The Government said in its Innovation Strategy, "(a) 'business confidence gap' may emerge if businesses are not assured that the policy environment is supportive of innovation and investment."[61] The inability of TELUS to recover its actual Phase II costs of service gives little assurance that any investment it undertakes to support the Government's Innovation Strategy will be adequately recovered. A business confidence gap is inimical to an efficient and competitive telecommunications market.

120. The CRTC's disallowance of the use of the ILECs' actual Phase II costs effectively negates any possibility that competition for residential primary

[61] Achieving Excellence, page 21.

exchange service will ever be available to Canadians in many areas. The policy objective in section 7 (c) contemplates a competitive telecommunications market throughout Canada, not just in the larger urban centers.

121. The CRTC's new costing approach also has the potential to detract from Canada's international reputation of having a solid regulatory environment that promotes stability, capital investment, and sustainable economic growth. It is perilous at this time of poor market performance to send a message that future investments made in support of the Government's policy objectives may be stranded by unexpected changes in policy. As Mr. Patrick Meneley states:

> Because of this poor market performance, investors have become more cautious regarding investments in telecommunications companies, resulting in an upward revision of their required rates of return due to a higher perceived level of industry and company-specific risk. Investors have become more cognizant of early warning signs of under-performance and are more likely to react quickly to negative news. Accordingly, the risk that markets will react swiftly and decisively to a perception regarding negative changes in the operating environment for telecommunications companies is even greater today than it has been in the past. Accordingly, as a result of Decision 2002-67, the Canadian industry may be left behind as international telecommunications markets begin to recover. The resulting decrease in capital expenditures could threaten Canada's leadership role in telecommunications.[62]

Policy Objective (f): to foster increased reliance on market forces for the provision of telecommunications services and to ensure that regulation, where required, is efficient and effective;

122. Artificial costing threatens the policy objective of increased reliance on market forces. Using costs that do not reflect company-specific costs does nothing to ensure that regulation, where required, is efficient and effective. To address this

[62] Statement of Mr. Meneley, page 5.

important issue, TELUS asked Dr. Alfred E. Kahn to consider the economic consequences of the CRTC's new costing method. Dr. Kahn finds that:

> The relation between the Commission-prescribed charges for unbundled facilities of the incumbents, the actual costs of entry on a partial- or full-facilities basis and the basic-service subsidy will of course have a critical influence on the extent to which that goal of facilities-based competition is realized.[63]

123. Dr. Kahn goes on to observe that the consequences of the CRTC's costing policies are significant:

> …to the extent that the Commission's costing decisions have lowered the charges for unbundled local loops below prices that would reflect actual ILEC-specific costs, competitors that had already built competitive facilities on the basis of the previous charges will find their investment devalued. This kind of after-the-fact change in government-imposed rules creates considerable uncertainty for existing and potential competitors and, in turn, dilutes their incentives to construct more facilities or enter at all. [64]

124. When prices are set below actual company-specific costs for the underlying elements provided by incumbents to competitors, the incentives for competitors to invest in their own facilities are reduced. Additionally, when rates are set significantly below company-specific costs, competition is harmed because fewer competitive facilities will be constructed and because retail rates against which competitors must compete will be artificially suppressed. As Dr. Kahn notes:

> The regulated unbundled local loop and residential basic service costs and resulting prices and subsidies affirmed in Telecom Decision CRTC 2002-67 will therefore have distorting effects on (1) the amount and types of entry into local exchange markets, (2) the amount of investment in telecommunications infrastructure by both incumbents and entrants, and (3) the overall financial health of the industry. Indeed, recent experience in the United States and elsewhere suggests that economically incorrect prices for unbundled elements can both induce uneconomic entry by firms

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[63] Statement of Dr. Kahn, page 4.
[64] Statement of Dr. Kahn, page 4.

> that would otherwise be non-viable and drive retail prices down to a level at which neither incumbents nor entrants can prosper. In contrast, regulated prices set on the basis of the ILECs' own costs provide correct signals for entry, investment and consumption.

125. In this way, costing and pricing policies designed ostensibly to help competitors, end up hurting the competitors who have actually constructed their own networks. Dr. Kahn also observes that:

> An even more perverse possibility is that by declaring those lower costs in 2002, four years after having opened the local market to competition, the CRTC may well have pulled the rug out from under CLECs that have already done exactly what it had hoped they would do—namely, constructed some of their own facilities, misled by its own previous adoption of actual company-specific long run incremental costs as the basis for ILECs charges for use of their facilities.[65]

126. In the Price Cap proceeding, Group Telecom (a new entrant in the telecommunications market) opposed creation of a reduced rate digital network access service to "help competitors" because its business plan is to build competing access facilities, including digital network access facilities, and provide competing services to other competitors.[66] An order by the CRTC to lower the rates for these facilities to uneconomically low levels would cause economic harm to Group Telecom. At the urging of other competitors, the CRTC ordered that a competitor digital network access service be established for competitors in the Price Cap Decision. It now appears that the CRTC may be contemplating the use of the same national uniform cost value parameters in the Phase II studies for these services as mandated for the Phase II costs that are the subject of the Petition.

127. In addition, distorted costing leads to bizarre behaviour in the regulatory arena. Group Telecom is now asking the CRTC for compensation for its losses caused

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[65] Statement of Dr. Kahn, pages 12-13.

[66] Fully 50 percent of Group Telecom's revenues were derived in wholesale markets where GT sold to its competitors.

by the CRTC's decision, and it appears the CRTC is considering it.[67] Uneconomic regulatory decisions are forcing Group Telecom to rely on regulation, not its own efficiency and innovativeness in the marketplace, to recover its investments.

128. Surely this is not what the Canadian telecommunications policy framework envisions. The Canadian telecommunications policy objectives call for a fostering of a greater reliance on market forces. They do not call for a greater reliance on regulation.

129. A direct effect of the CRTC's determinations is that monopoly in the market for the provision of unbundled local loops (and any other services such as digital network access priced at uneconomically inefficient levels) will become entrenched because no other market participant will be able to match artificially low costs and rates imposed by regulation. Group Telecom, TELUS (which has also built similar facilities outside British Columbia and Alberta) and others will have far less incentive to invest in more competitive access facilities. Of course, the entrenchment of monopoly in the facilities market does not foster a reliance on market forces but rather a reliance on continuing regulation.

130. Unless the Governor in Council takes action now, there will be a slow-down in the development of competition, and the perpetuation of monopoly and regulation in the facilities market. Canadians will be deprived of the benefits a strong and vibrant telecommunications industry can bring to the Canadian economy.

Policy Objective (g): ***to stimulate research and development in Canada in the field of telecommunications and to encourage innovation in the provision of telecommunications services;***

Policy Objective (h): ***to respond to the economic and social requirements of users of telecommunications services;***

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[67] Decision 2002-75, paragraph 12.

131. In its September 2001 report to the Governor in Council on the status of competition in Canadian telecommunications markets[68], the CRTC described some of the initiatives that support policy objectives (g) and (h) as follows:

> Broadband access is a key enabler for a number of new opportunities, including e-commerce, e-learning, e-health and e-government.
>
> Governments in Canada have responded in a number of ways to the challenge of increasing the deployment of broadband infrastructure and services. Initiatives have included contracting for high-speed services for government institutions or personnel, providing seed funding to community projects, providing capital funding for infrastructure projects, providing research and development tax credits to equipment manufacturers, funding trials for broadband applications, and development of web-content.
>
> As well, Industry Canada has made available and licensed the use of new spectrum for fixed wireless services, allocated orbital position for advanced satellite services, and funded a range of broadband initiatives for the purpose of research and application.
>
> The Minister of Industry established the National Broadband Task Force (the Task Force) to map out a strategy to achieve the Government's goal of making broadband access widely available to citizens, businesses, public institutions and to all communities in Canada by 2004. In addition, the Task Force was asked to advise the Government on issues related to the development and deployment of broadband networks and services in Canada.

132. On February 12, 2002, the Honourable Allan Rock, Minister of Industry, and the Honourable Jane Stewart, Minister of Human Resources Development, announced the Government of Canada's Innovation Strategy.[69] As part of this far-reaching strategy, the Government outlined a number of goals, milestones and targets to

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[68] *Report to the Governor In Council: Status of Competition in Canadian Telecommunications Markets and Deployment/Accessibility of Advanced Telecommunications Infrastructure and Services*, CRTC, September 2001, page 51.

[69] The Innovation Strategy was presented in two papers entitled *Achieving Excellence: Investing in People, Knowledge and Opportunity*, and *Knowledge Matters: Skills and Learning for Canadians*. See also News Releases entitled *Government of Canada Launches Innovation Strategy* and *Industry Minister Allan Rock Outlines Blueprint for Canada's Economic Growth*, dated February 12, 2002.

improve innovation, skills and learning in Canada so as to drive economic growth and social development over the next decade.

133. Part of the Innovation Strategy involves stimulating more innovative communities. The Government stated in this regard that many smaller communities lack the infrastructure to live up to their innovative potential. In order to ensure that this potential is met:

> Governments will need to work with the private sector to ensure that Canadians in both urban and rural communities can benefit from these developments. Rural, remote and First Nations communities are more in need of broadband than many other communities to bridge the gaps that exist in employment, business, learning, culture and health care. Broadband will provide the infrastructure needed to develop and deliver advanced applications and services that will bring greater economic and social benefits to these communities.[70] [emphasis added]

134. Residential and business subscribers are calling for increasingly sophisticated services to meet their needs. This is no less true in rural areas than in urban areas, where traditionally a wider range of services has been available for customers. TELUS is attempting to meet its customers' demands for high quality accessible service through initiatives such as its Service Improvement Program ("SIP"), which was approved by the CRTC in the Price Cap Decision.

135. Rural subscribers are increasingly demanding more advanced services, such as high-speed Internet access so that they can gain access to all of the opportunities the World Wide Web offers. The Government set as a target to, by 2005, ensure that high-speed broadband access is widely available to Canadian communities,[71] and established as a priority, to

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[70] Achieving Excellence, page 75. TELUS also notes as an aside that the Innovation Strategy also seeks to "modernize our business and regulatory policies to support and recognize innovation excellence while protecting our quality of life" (*Government of Canada Launches Innovation Strategy*, News Release, February 12, 2002).

[71] *Achieving Excellence*, page 77.

> …work with industry, the provinces and territories, communities and the public to advance a private sector solution to further the deployment of broadband, particularly for rural and remote areas. The 2001 budget set aside $105 million over three years to advance this objective.[72] [emphasis added]

136. TELUS has been working with the Department of Industry, the Department of Canadian Heritage and other Government departments to help achieve the goal of deploying broadband access as quickly as possible. TELUS participated as a Member in the National Broadband Task Force[73] and fully supports the action plan recommended by the Task Force of deploying broadband facilities to and within all Canadian communities.

137. TELUS is trying to meet the demand for its ADSL services through an aggressive roll-out program. Part of this effort includes extending the reach of ADSL service from its Central Offices through the introduction of improved technology. However this is a capital-intensive exercise. Without the ability to recover its costs of existing services, TELUS will be unable to raise sufficient capital in the future to fund further ADSL roll-out, or fund other new initiatives, such as the recently announced Next Generation Network. [74]

138. TELUS' Next Generation Network initiative is designed to transform TELUS' network from traditional circuit-based technology to leading edge Internet

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72 *Achieving Excellence*, page 77. See also Budget 2001 – Strategic Investments: Bridging the Future, page 21, December 10, 2001. More recently, on June 20, 2002, the Honourable Jean Chrétien, Prime Minister of Canada, and the Honourable Lyle Vanclief, Minister of Agriculture, announced measures to support agricultural communities and to establish a new Agricultural Policy Framework (*The New Agricultural Policy Framework*, Fact Sheet, June 20, 2002). In a subsequent announcement, The Honourable Andy Mitchell, Secretary of State (Rural Development) (Federal Economic Development Initiative for Northern Ontario) announced a four-part plan on June 26, 2002 whereby the deployment of broadband Internet access to rural and remote communities would be accelerated this year (*Government of Canada Delivers on Promise to Provide Economic Development Tools for Rural Communities*, News Release June 26, 2002, see also *Rural Development Backgrounder to Government of Canada Delivers on Promise to Provide Economic Development Tools for Rural Communities*, News Release dated June 26, 2002). This accelerated schedule was most recently confirmed by the Honourable Allan Rock, Minister of Industry, and the Honourable Herb Dhaliwal, Minister of Natural Resources in an announcement dated August 7, 2002 (*Rural Broadband Plan on Fast Track Says Minister Rock*, News Release, August 7, 2002).

73 TELUS President and CEO Darren Entwistle was a Member of the Task Force.

Protocol technology, thereby bringing a variety of new capabilities and services to subscribers. This network, while itself a significant example of precisely the type of innovation the Government seeks to encourage through its Innovation Agenda, will provide a fully modern platform for Canadians to pursue their own innovation agendas.

139. TELUS supports the goals of the Innovation Strategy. However, the inability of TELUS to recover its actual company-specific costs in providing even basic residential primary exchange service will hinder its ability to support the Innovation Strategy. Without the granting of the relief requested in the Petition, the Government policy goals of deploying advanced telecommunications infrastructure may be delayed. The Government will not be able to rely on the sixth guiding principle outlined by the National Broadband Task Force that:

> Working with other stakeholders, and operating under competitive market forces and within the evolving regulatory environment, the private sector should play a leadership role in the development and operation of broadband networks and services for Canadians.[75]

140. The relief TELUS seeks in the Petition will establish a strong and predictable foundation for the telecommunications industry that provides all telecommunications service providers with economically efficient cost and price signals in all regions of Canada. A solid and predictable foundation for participants in the telecommunications sector would be more conducive to the achievement of the Government's goals.

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[74] *TELUS Leads with Next Generation Network*, News Release, July 22, 2002.

[75] *Report of the National Broadband Task Force - The New National Dream: Networking the Nation for Broadband Access*, page 9. TELUS also notes the seventh principle relating to the role of governments, the first point under which it is stated that governments should "foster effective competition in facilities, services and content provision, as well as a climate conducive to private innovation and investment."

7.0 WHY THE GOVERNOR IN COUNCIL SHOULD ACT

141. TELUS has demonstrated that there are considerable problems with the one size fits all approach adopted by the CRTC. The three uniform national cost parameter values that are the subject of the Petition result in Phase II costs that cannot be company-specific costs. These costs are too low for TELUS and are likely too low for the other ILECs.

142. The CRTC is now extending this one size fits all approach to the "independent" telephone companies in Canada by requiring them to use an "average" of the resulting Phase II costs of the ILECs. For example, in Québec, two companies, Télébec and TELUS Québec, despite having significantly different operations from the ILECs, must use the average of the ILECs' residential primary exchange service costs to determine their contribution subsidy requirements.[76] This same approach has also been imposed on even smaller companies in Ontario and Quebec.[77] This is occurring at the same time as local competition is being introduced into these companies' territories**.**

143. The CRTC indicated in the Price Cap Decision that it would be initiating a review of the Phase II methodology beginning in the fourth quarter of 2002. The CRTC has yet to issue the public notice initiating the review of Phase II. It may be that this review provides an opportunity to redress some of the issues raised in the Petition. Unfortunately, all indications are that this Phase II review will take at least two years to complete. By the time the review is complete and the details of the costing methodology are in place, the currently ordered incorrect Phase II costs will be entrenched. Competitors will have relied on the CRTC's one size fits all costing methodology and this reliance cannot help but have an influence on the

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[76] *Implementation of price regulation for Télébec and TELUS Québec*, Telecom Decision CRTC 2002-43, 31 July 2002, paragraph 596.

[77] The CRTC developed a cost proxy for residential primary exchange service for the independent telephone companies to consider in *New regulatory framework for small independent telephone companies and related issues*, Public Notice CRTC 2001-61 (paragraph 11), which was later adopted by the CRTC in *Regulatory framework for the small incumbent telephone companies*, Decision CRTC 2001-756 (paragraphs 51 and 57).

submissions of competitors and debates surrounding the costing determinations to be made in the Phase II review.

144. Failure by the Governor in Council to act now will perpetuate one size fits all regulation. Further, failure by the by the Governor in Council to require the CRTC to employ company-specific costs in its price cap framework will threaten the financial health of the entire telecommunications industry and deprive Canadians in different regions of the country the benefits of a strong telecommunications industry operating within the Canadian telecommunications policy framework and capable of contributing fully to achievement of the Government's policies.

145. Only the Governor in Council can correct the current situation. Prompt action will ensure that the negative effects of the CRTC's decisions do not become irreparably entrenched during this price cap period.

146. TELUS offers a course of action for the Governor in Council that will bring the CRTC's policies back within the telecommunications policy framework, ensure the avoidance of further damage to the industry and allow the industry to evolve and grow on a strong economic foundation.

8.0 RELIEF SOUGHT BY TELUS

147. TELUS requests that the Governor in Council affirm that the Canadian telecommunications policy framework requires that whatever method or technique the CRTC employs to determine just and reasonable rates, that method must be based on company-specific circumstances and actual company-specific costs. Such an affirmation will not limit the CRTC's ability to employ price cap regulation or any other method or technique. In the case of price caps, for example, any rates to be determined on the basis of Phase II costs and made subject to the I–X pricing constraint, would be based on actual company-specific Phase II costs at the outset of price caps.

148. To this end, TELUS requests that the Governor in Council order the CRTC to use the January 2001 Phase II costs to determine the residential primary exchange service and unbundled local loop costs in each of the seven bands. These January 2001 Phase II costs would be incorporated into the CRTC's current regulatory framework established in the Price Cap Decision, effective as of January 1, 2002. These costs are readily available.[78]

149. But, in recognition of the time that has already elapsed, TELUS is not asking that the percent of revenue contribution rate and the unbundled local loop rates rise immediately upon the Governor in Council issuing an order. Instead, TELUS proposes that a follow-up proceeding be conducted by the CRTC to seek input from the industry and interested parties on how these January 2001 Phase II costs should be incorporated into the current price cap framework in a way that allows the ILECs and CLECs serving residential customers in high cost bands to recover the revenues they have foregone and would forego during the remainder of the price cap period if the current Phase II costs were to stay in effect. Similar relief is requested in the case of unbundled local loop revenues.

150. The effect of requiring that the January 2001 Phase II costs be employed would be to bring the regulatory framework back within the telecommunications policy framework established in the *Telecommunications Act*. If these Phase II costs had been employed by the CRTC for the calculation of residential primary exchange service Phase II costs and unbundled local loop Phase II costs in each of the seven bands effective January 1, 2002, additional revenues would have been received by the ILECs and any CLECs receiving subsidy payments from the National Fund beginning at that date and additional revenues would have continued to be

[78] The Phase II costs that would be employed for SaskTel would be the Phase II costs filed November 15, 2001 in response to TELUS' request that all ILECs be required to refile their January 2001 costs to account for the minor changes the CRTC had made to the assignment of exchanges to bands. The CRTC denied TELUS' request and stated that the Phase II costs TELUS was seeking to have filed were available. TELUS acknowledges that some ILECs have, since the filing of the January 2001 costs, indicated to the CRTC that there were some mistakes made in the original calculations. These appear to

available through to the end of the price cap period. In addition, the ILECs would have received additional unbundled local loop revenues from January 1, 2002 to the end of the price cap period.

8.1 Implementation of Company-Specific Residential Phase II Costs

151. The Phase II costs for residential primary exchange service affirmed by the CRTC in its R&V Decision were first ordered in the Rebanding Decision. For residential primary exchange service, the Phase II costs ordered by the CRTC were marked up by 15 percent to determine the costs of residential primary exchange service in each of the seven bands. In the Rebanding Decision, the CRTC also declared that bands "E", "F" and "G" would be considered "high cost bands" and that residential primary exchange services provided in those bands would be eligible to receive a subsidy.

152. In order to calculate the amount of subsidy per residential service per month, the CRTC calculated the difference between the Phase II costs (calculated in accordance with the cost parameter determinations affirmed in the R&V Decision) plus 15 percent and the local revenues per residential service in each band (and on a monthly basis). The difference between the two became the amount of subsidy local exchange carriers serving residential customers would be eligible to receive when they served residential customers in the bands designated to be high cost bands.

153. These subsidy calculations went into effect on January 1, 2002. They are expected to be adjusted downward (in real terms) using the I – 3.5% price cap formula effective June 1, 2003 and each year thereafter under the price cap formula for the duration of the current price cap plan thereby reducing the amount of subsidy per residential service in each high cost band in each year.[79]

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be simple arithmetic calculation errors and the CRTC has the ability to obtain the necessary information to make the corrections.

[79] This assumes that the rate of inflation remains below 3.5 percent for the price cap period.

154. Therefore, in order to implement paragraph 2 of the order sought (described in section 8.3 below), the CRTC would replace the residential primary exchange service Phase II costs affirmed in the R&V Decision with the January 2001 Phase II costs filed by each of the incumbent telephone companies. The CRTC, under paragraph 3 of the order sought, would calculate the difference between each subsidy requirement per month in each high cost band calculated using the costs affirmed in the R&V Decision and calculated using the January 2001 Phase II costs.

155. The CRTC would conduct a proceeding to seek submissions from interested parties to establish a competitively neutral mechanism to generate and the revenues necessary to compensate each local exchange carrier that received contribution during the period between January 1, 2002 and the effective date of the CRTC's decision arising out of the follow-up proceeding for the difference so calculated.

156. The CRTC would also determine how the revenue required to fund the additional subsidy requirements over the remainder of the price cap period would be generated. This determination could include increases to the percent of revenue contribution charge, increases in customer rates, draw-downs from the deferral account established in the Price Cap Decision or another mechanism or mix of mechanisms. The determination should be made separately for each ILEC operating territory according to territory and company-specific circumstances.

157. Implementation of paragraph 3 of the order sought would ensure that all local exchange carriers that should have received higher revenues from the National Fund up to the effective date of the CRTC's decision arising from the follow-up proceeding (as calculated using the January 2001 Phase II costs), would receive the difference between what they actually received from the National Fund and what they should have received if the January 2001 Phase II costs had been employed by the CRTC in its Rebanding Decision. It would also ensure that all

local exchange carriers receive the necessary revenues in high cost serving areas for the remainder of the price cap period.

8.2 Implementation of Company-Specific Unbundled Local Loop Phase II Costs

158. The CRTC used the Phase II costs established in the Rebanding Decision to establish the rates for unbundled local loops that went into effect in 2001 when the Rebanding Decision was issued. These unbundled local loop Phase II costs were marked up to establish the rates for unbundled local loops in each of the seven geographic bands established by the CRTC in the Rebanding Decision.

159. In order to implement paragraph 4 of the order sought, the CRTC would recalculate the Phase II costs of unbundled local loops effective January 1, 2002 by using the January 2001 Phase II costs and would determine the rate that would have been charged to competitors effective January 1, 2002 by applying a mark-up of 15 percent to those January 2001 unbundled local loop Phase II costs.

160. However, because competitors have relied on the lower unbundled local loop rates currently in effect, and have adjusted the prices they charge for the services they offer in competitive markets, having taken into account the lower unbundled local loop rates, it would be unfair to require that competitors be required to pay more for unbundled local loops effective January 1, 2002.

161. Therefore, paragraph 5 of the order sought would require the CRTC to conduct a proceeding to determine how the ILECs should be permitted to recover the difference between the revenues received using the unbundled local loop rates in effect and using the unbundled local loop rates that would have been charged if the January 2001 Phase II costs plus a mark-up of 15 percent were employed to determine the unbundled local loop rates from January 1, 2002 to the effective date of the CRTC's decision arising from the follow-up proceeding.

162. The CRTC would also determine in the follow-up proceeding whether the unbundled local loop rates would rise immediately on the effective date of the

decision and, if not, how the ILECs might be compensated for the remainder of the price cap period for the revenues they would have received had the unbundled local loop rates increased to rates established using the January 2001 Phase II costs (and adjusted for inflation and expected productivity as required in the price cap framework). The CRTC might also decide to phase in the new unbundled local loop rates over a set time period.

163. All other parts of the current regulatory framework would not change as a result of these orders being implemented. Indeed, the deferral account established by the CRTC in the Price Cap decision would be available to assist the CRTC in providing any compensation that might be payable in accordance with paragraphs 3 and 5 of the order sought.

164. TELUS also requests that the CRTC be instructed to order each ILEC to conduct an audit of its company-specific Phase II costs for residential primary exchange service and unbundled local loops.

165. A review and audit of Phase II costing was first suggested by TELUS in its R&V Application. TELUS recognized that there would always be a degree of skepticism about its own views that the Phase II costs ordered by the CRTC were too low, however strongly held. It is for this reason that in its Review and Variance Application, TELUS asked the CRTC for a review of the Phase II costing methodology and suggested (in recognition of the tremendous workload at the CRTC) that in order to expedite the review, TELUS would agree to an independent audit of its costs by an auditing firm familiar with telecommunications incremental costing.

166. Since that time, the CRTC, in its Price Cap Decision, announced its intention to initiate a full review of Phase II costing, and the ILECs are preparing for it. That review is expected to take approximately two years to complete. The CRTC also indicated in the Price Cap Decision that it would conduct periodic audits of the ILECs' Phase II costs after the Phase II review was complete. In this Petition,

TELUS is asking the Governor in Council to order the CRTC to order the ILECs to conduct an audit of the Phase II costs calculated based on the CRTC's determinations in the Phase II review. The requested audits would be for residential primary exchange service and unbundled local loop Phase II costs.

167. The audit would be conducted by an accounting firm familiar with telecommunications incremental costing studies, as Dr. Emmerson suggests. The audits would be attended by a CRTC representative who would assist the auditor in interpreting the CRTC's directives and determinations. Other parties would also be permitted to send independent third party experts to observe the audit. In this way, these experts could ensure that the information used by the company for its Phase II costing is verified and that forecasts and assumptions are reasonable. Also, all parties could then be satisfied that the Phase II costs are calculated using the most current and accurate information available for each ILEC. These audited Phase II costs would be incorporated into the regulatory framework when available, likely at the outset of the next price cap period, and would serve to establish a strong foundation for the future development of the industry and the achievement of Canada's telecommunications policy objectives.

8.3 Order Sought

168. TELUS specifically requests that the Governor in Council make the following order:

1. Affirm that Canadian telecommunications policy framework requires that whatever method or technique the CRTC employs in determining just and reasonable rates for regulated services, the CRTC must make its determinations based on company-specific circumstances and must employ actual company-specific costs of the regulated services.

2. Vary Decision 2002-67 to require that, for each ILEC, the January 2001 Phase II costs be used to determine the Total Subsidy Requirement[80] effective as of January 1, 2002.

3. Order the CRTC to conduct a proceeding to:

   a. calculate the difference between the amount of each subsidy payment made from the National Fund calculated using the costs affirmed by the CRTC in Decision 2002-67, and the amount of subsidy payments from the National Fund that would have been made using the January 2001 Phase II costs (plus a 15 percent mark-up) for the period beginning January 1, 2002 and ending on the effective date of the CRTC's decision setting out the difference;

   b. establish a competitively neutral mechanism[81] to compensate eligible local exchange carriers[82] for the difference calculated in a. above; and

   c. establish a competitively neutral mechanism to provide to eligible local exchange carriers the subsidy requirements required as a result of using the January 2001 Phase II costs for the period beginning on the effective date of the CRTC's decision and ending on a date to be determined by the CRTC no earlier than the last day of the current price cap period.

4. Vary Decision 2002-67 to require that, for each ILEC, the January 2001 Phase II costs be used to establish the unbundled local loop Phase II costs, effective as of January 1, 2002.

5. Order the CRTC to conduct a proceeding to:

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[80] Total Subsidy Requirement is the sum of all subsidy requirements of all ILECs, TELUS Québec, Télébec, Northwestel and the independent telephone companies for residential primary exchange service.

[81] The CRTC's competitive neutrality policy with respect to contribution requires that no contribution discounts be granted to telecommunications service providers.

[82] An "eligible local exchange carrier" is an ILEC or a CLEC serving residential local exchange customers in high cost areas.

a. calculate the difference between the unbundled local loop revenues received by each ILEC using the costs affirmed by the CRTC in Decision 2002-67, and the unbundled local loop revenues that would have been received had the January 2001 Phase II costs (plus a 15 percent mark-up) been used to determine unbundled local loop rates for the period beginning January 1, 2002 and ending on the effective date of the CRTC's decision setting out the difference; and

b. for the period beginning on the effective date of the CRTC's decision setting out the difference in a. above and ending no earlier than the last day of the current price cap period, provide for recovery by the ILECs of the difference between the revenues that would be received using the unbundled local loop rates determined using the costs affirmed by the CRTC in Decision 2002-67 and the revenues that would be received using the January 2001 Phase II costs (plus a 15 percent mark-up) to determine unbundled local loop rates.

6. Order the CRTC to, upon completion of the Phase II review and the filing of the Phase II costs according to the CRTC's determinations in the Phase II review, pursuant to sections 37(1) and (2) of the *Telecommunications Act*, order each ILEC to conduct an audit of its residential primary exchange service Phase II costs and unbundled local loop Phase II costs in each of bands "A" through "G", as follows:

   a. the audit of each ILEC's residential primary exchange service Phase II costs and unbundled local loop Phase II costs shall be conducted by a recognized auditing firm experienced in telecommunications incremental costing methods and approved by the CRTC;
   b. the CRTC shall provide a CRTC representative familiar with Phase II costing to attend each audit to assist the auditor;

c. ILECs shall permit independent third parties representing interested parties to attend the audit, subject to a confidentiality agreement approved by the CRTC; and
d. each ILEC shall file the results of its audit with the CRTC to permit the CRTC to use the audited Phase II costs for regulatory purposes.

Statement of
Dr. Richard D. Emmerson

Appendix B

Petition of TELUS Communications Inc. to
the Governor in Council
Government of Canada
to vary
Telecom Decision CRTC 2002-67
*TELUS Communications Inc. – Application to review and vary Decision 2000-745 and Decision 2001-2*38

January 22, 2003

Table of Contents

1. Introduction

Beginning in 1979, the CRTC properly required the reporting of company-specific incremental costs in order to ensure that prices of certain services would recover the costs incurred by those services. Over time, Phase II cost reporting was standardized in cost manuals that each company filed with the CRTC. According to these cost manuals and in accordance with generally accepted economic principles, there is a correct format and methodology for reporting Phase II costs.

The CRTC recently has asserted that there is no "actual" or "true" Phase II cost and has imposed on all reporting companies cost parameters that are in significant regards incorrect. Not only are the CRTC's cost mandates inconsistent with the Phase II cost manuals, they are inconsistent with sound economic principles and policies. As discussed below, Phase II costs can be audited to determine the accuracy with which each company reports its costs.

In order to ensure that the communications environment in Canada develops in step with other developed countries, the reporting of company-specific incremental costs, a critical component of sound communications policies and regulated prices, must be reinstated.

The means to do this are available in Canada. An audit, performed by an independent accounting firm, can establish compliance with the filed Phase II cost manuals and compliance with the underlying economic principles. Company-specific incremental costs can be reported accurately and consistently so that public policies and regulated prices and subsidies can be fairly and efficiently administered.

Much of what follows provides the facts and principles behind the proper reporting of Phase II costs, and otherwise supports my recommendation to undertake an audit of Phase II costing.

2. A Brief History of Phase II Costs

As telecommunications has become increasingly competitive over the past thirty years, costing objectives in most countries have evolved from cost-reimbursement to promoting competition in lieu of regulation.

In Canada, the Canadian Transport Commission (CTC) began redefining costing practices by initiating comprehensive proceedings in 1972. At that time, the CTC undertook the Inquiry into Telecommunications Carriers' Costing and Accounting Procedures ("the Cost Inquiry"). The responsibility for the inquiry was transferred to the Canadian Radio-television and Telecommunications Commission in 1976 and Phase I and Phase II of the Cost Inquiry were completed in 1979.

The first two phases of the Cost Inquiry created a new set of costing standards called Phase I and Phase II Costs. Phase I Costs dealt with accounting and financial issues

including appropriate depreciation practices and criteria for the capitalization versus expensing of plant expenditures. Phase II of the Cost Inquiry established the methodology for reporting revenues and costs to be used in the evaluation of new services.

Phase II Costs were designed to ensure that the present value of revenues from new services would recover the present value of costs caused by the respective new services. This would prevent the burden of cost recovery for new services from falling on existing services and customers.

At the same time, other countries were undertaking similar proceedings. In general, regulatory authorities were concerned that new potentially competitive services could be subsidized by the "monopoly ratepayers" thereby causing two problems: 1) rates for traditional telephone services would be higher than necessary, and 2) incumbent carriers might gain an unfair competitive advantage over new entrants by offering new services at a loss. Beginning in the early 1970s and through the mid-1980s, the concept of studying and understanding a carrier's "incremental costs" was introduced into and widely accepted within the telecommunications industry to address this general concern.

Phase II costs are intended to apply incremental costs to telecommunications carriers in Canada. As I discuss below, incremental costs are "economic costs" (rather than accounting costs) and are generally accepted as the proper basis for a variety of purposes pertaining to pricing including preventing undesirable cross-subsidies and predatory pricing. Most developed countries today employ some form of incremental cost studies to ensure that new services, and/or existing competitive services do not require a subsidy *prospectively*.

It is important to note that incremental costs do not sum to the total costs of the company. This is true because not all costs are caused by (incremental to) individual services or collections of services. In incremental cost studies, costs not causally related to services are designated as "fixed and common" costs (the term used here is as defined by the CRTC). Thus a mark-up above Phase II costs is necessary because the Phase II costs do not capture all of the costs incurred by the carrier in the provision of its services. Nevertheless, all of the costs must ultimately be recovered if a carrier is to remain financially viable. Prices of services must be sufficiently in excess of Phase II costs to cover all costs of the firm in order for the firm to remain financially viable.

There are two types of costs that cannot be not found in Phase II cost studies for individual services: 1) "fixed and common costs,"[1] and 2) unrecovered retrospective costs that are not recognized in a prospective cost view (e.g., remaining depreciation expenses for existing assets that are not needed prospectively).

[1] Includes fixed common expenses and other costs of replacing and operating the present network that are explicitly excluded from the calculation of Phase II costs.

3. Economic Costs Provide a Foundation for Both Market and Regulated Prices

Phase II Costs are incremental costs. Incremental costs are economic costs; "forward-looking" costs calculated according to generally accepted economic principles designed to support pricing and other business decisions. Phase costs were, until recently, reported according to Phase II Cost Manuals approved by the CRTC.

As Dr. Alfred Kahn explains in a companion document, it is imperative that the relationship between telecommunications prices and their respective economic costs be understood clearly in order for the communications industry to develop in a robust and efficient manner throughout Canada. The correct standard for reporting costs used to evaluate or govern prices of telephone services is economic costs including service-specific, company-specific incremental costs.

Economic costs differ from accounting costs in three important respects (among others):

1. Economic costs are forward-looking rather than retrospective (only forward-looking costs can be affected by present market or regulatory decisions);
2. Economic costs reflect market values of resources rather than historical purchase prices (market values represent the value that can actually be realized by using or deploying resources in alternative ways); and
3. Economic costs best represent the costs that each firm must incur to conduct the business it has chosen to pursue.

Because of these differences, it often is assumed that while retrospective accounting costs can be audited, prospective incremental costs cannot be rigorously verified. This assumption is incorrect as will be described in Section 7 below.

Incremental costs of a product or service are those economic costs that are incurred by a specific company as a result of offering the respective product or service. Equivalently, incremental costs, and only incremental costs, are not incurred when the company, all other things equal, does not offer the product or service.[2]

That markets force efficiency on a firm does *not* imply that all firms will experience the same cost structure. Market forces will compel a firm to be efficient given within its operating environment. A wide variety of factors cause different firms to have different cost structures. In general, costs differ because:

- The costs of inputs differ among firms;
- Efficient production configurations differ among firms;
- There are many non-price competitive variables that cause different costs;
- Firms experience one-time and sunk costs that occur at different times; and
- The customer bases of different firms demand different mixes of products.

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[2] Formally, a company producing two products in amounts A and B, respectively, has incremental costs of A equal to C(A, B) - C(0,B) where C(*) is the total cost of the company.

The costs of inputs differ among firms for several reasons. Labor rates are not uniform across and within provinces. Volume discounts differ among firms. Negotiated equipment prices vary according to the timing and specific needs of each company. Other costs that vary across the varied jurisdictions of the ILECs are: taxes, rights of way, insurances, office rents, land purchases, vehicle maintenance, fuel, travel, and delivered materials. All firms will experience different costs according to location, size, inventory requirements, growth conditions and a host of other factors. These cost differences are generally not within the control of any individual firm but are dependent on the service territory each ILEC serves.

Efficient production configurations differ among firms. Each company experiences costs according to its own unique optimal production configuration and in according to the unique requirements of the customers in its region. For example, the costs of installing and maintaining submarine cable are not the same as buried cable. Mixes of aerial cable, submarine cable, buried cable and underground cable will differ due to terrain, available rights of way, weather, municipal and other government regulations, etc. Whether maintenance is centralized or diffused throughout a territory can differ due to weather (and related public services), travel costs, the geographic distribution of the population, local road conditions, availability of labor, and other factors. Most importantly for loop costs, the vast differences in the density of population among the Canadian provinces cause dramatic differences in costs (sparsely populated areas generally entail longer loops, lower fill factors, and higher costs of maintenance). The CRTC acknowledged this fact based on testimony I filed in CRTC 95-21:

"With respect to AGT's local cost comparison study and the concerns expressed by interested parties, the Commission concludes that the study results represent a reasonable comparison of AGT's loop costs with equivalent U.S. costs, and that the evidence supports the identification of access line density per square kilometer as the key explanation for the higher AGT loop costs."[3]

There are many non-price competitive variables that cause different costs. Different companies will select different non-price competitive variables that greatly affect costs. For example, one grocery store may have a policy to never let a line of customers become longer than three people. Another may be willing to entertain much longer lines. The former will incur higher labor costs and have more cash registers than will the latter. These are competitive variables that provide consumers with choices beyond selecting the lowest price. In telecommunications for example: maintaining more spare capacity in local loop plant (i.e., lower fill factors) will improve quality of service in many dimensions. There will be fewer held orders for service, faster time to repair (an available line can serve while another is being repaired, etc.), and a better opportunity to creatively package and sell additional lines to existing customers. Having these competitive variable available will be critical as competition from other modes of communications continue to erode the traditional revenue sources of ILECs, and will provide consumers with a richer variety of choices in the market place.

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[3] CRTC Decision 95-21 at II B.

Firms experience one-time and sunk costs that occur at different times. When companies change out one technology for another (e.g., install a "next generation" network), enter a business or a new territory, or otherwise make major changes in the way they operate, they change their fundamental cost structure. The timing and extent of these decisions is a critical competitive variable in the "high tech" industries including telecommunications. The product offerings and associated prices must be coordinated with these decisions in order of gain or hold a competitive advantage in today's markets.

The customer base of each firm demands a different mix of products. Not only are different customer communities different in their demands, but companies choose as a competitive variable different ways of serving these communities of customers. For example, in the U.S., Southwest Airlines is known for its efficiencies. They use a single type of aircraft, saving on labor costs (all personnel are qualified on all flights, making them more interchangeable), inventories of parts, and so forth. But not all airlines can achieve the same efficiencies. For example, Southwest Airlines serves short routes (they don't fly international or transcontinental routes which require a different mix of longer distance aircraft). Southwest also was able to hire non-union labor, obtain gates at second tier airports, and so forth. The total industry requires more than Southwest Airlines (or its clones) could deliver (e.g. international travel). Incumbent telephone companies must not only compete with one another, but they must compete with wireless carriers, satellite carriers, cable TV companies, data network providers, and others. Finding the right mix of service and price packages is a daunting task today. Each company will need to choose a different course of action depending on customer demands and competitive offerings. This will result in very different costs disciplined by different market conditions.

Thus, dynamic, responsive markets will exhibit different costs for a variety of reasons that serve consumers and businesses well. Markets normally drive firms to serve customers in efficient and responsive ways. Regulators intervene where necessary to achieve the same result. Whether markets are properly regulated or subject to competitive pressures, differences in cost structures among firms must be respected.

Regulators use incremental costs for several purposes. The revenue of each service must remain above its incremental cost to avoid requiring a subsidy either from external sources or from internal sources.[4] Predatory pricing also can be avoided by requiring revenues of a service to equal or exceed the respective incremental cost.[5] The efficient pricing of essential facilities requires that the essential facility price not exceed an amount that includes its incremental cost in the formula, or equivalently that the price of a retail service employing an essential facility not be less than an amount that also includes incremental costs in its calculation. In each of these cases, it is the firm's unique cost structure that must be used to regulate prices. If arbitrary or industry-wide input

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[4] Internal sources of subsidies are either in the form of a cross-subsidy or a subsidy from the shareholders (owners) of the firm.

[5] Predatory pricing is a complex legal subject and involves much more than a simple price-cost relationship.

values for costs are used, or if firms otherwise are required to use costs that are not their own, economic inefficiencies inevitably result.

4. Phase II Costs, as Defined in CRTC 79-16, are Reasonable Representations of Economic Costs

Phase II costs satisfy the general economic cost criteria. In addition, the Phase II methodology *as specified in Decision CRTC 79-16* reasonably measures incremental costs.

1. Economic costs are forward-looking incremental costs, rather than retrospective accounting costs.

Decision CRTC 79-16 set forth the principles and the basic approach and directives pertaining to how Phase II costs are to be developed. Those directives emphasize that: the resource costs should reflect current and future costs (not historical costs), fixed and common costs of the company is not included in the cost of the service under study, and the study period is a future rather than an historical period.

2. Economic costs reflect market values of resources rather than historical purchase prices.

The directives contained in CRTC 79-16 require the use of *current* purchase prices to measure costs. Current resource prices replace historical purchase prices thus substituting market values for "book" values. . Briefly, TELUS develops Phase II costs by first valuing the network using current market prices of inputs (labor, equipment, etc.). Then a reasonable forecast of growth and anticipated changes in prices of inputs are used to estimate the value of the network as it will be modified to accommodate the growth over the standardized four-year period to be included in the reported costs (the growth normally is a small percent of the total networwk).

3. Economic costs best represent the costs that each firm must incur to conduct the business it has chosen to pursue.

The directives of CRTC 79-16 contain a number of provisions for identifying and tracking costs and revenues that pertain to the specific quantities and types of services offered by the reporting company through the study period.

I have reviewed the directives in CRTC 79-16 and subsequent modifications to those directives and I conclude that Phase II costs explicitly require company-specific economic costs to be used in the Phase II cost studies. Furthermore the costs to be reported for each service studied using the Phase II cost methodology are incremental cost as unambiguously defined in the economics literature.

Furthermore, I have been an expert witness in a number of proceedings before the CRTC

that required the use or reporting of Phase II costs. Through that experience, I conclude that Phase II costs, as prescribed in CRTC 79-16, are reasonable representations of incremental costs.

5. Phase II Directives Require Company-Specific Costs

Both economic principles and the requirements of Phase II costs call for company-specific cost estimates.

As discussed in Section 2 above (Economic Costs Provide the Foundation for Both Market and Regulated Prices) economic costs call for company-specific costs because competitive markets and the associated discipline of market prices hold firms accountable to the costs they can achieve in competition with other firms.

In addition, carrier-specific cost information is required throughout the original directives as indicated in the following examples.[6] The original Phase II cost directives required:

- The reporting firm's engineering schematics and associated dedicated and shared equipment to be used (Directive 1,3);
- A description of the market and market share for the service under study (Directive 2.5);
- A description and quantity of resources that the firm must add to provide the service under study (Directive 4.1);
- The firm's current cost of labor and current purchase price of new equipment, and a specific method of valuing reused equipment that is to be reused, in providing the service under study (Directive 5.2);
- The use of fill factor determined over a time period of sufficient length to justify its appropriateness as an average for the related facility type and use (Directive 5.2);
- The reporting of the carrier's relevant development costs incurred as a result of activities such as product testing, market testing, economic evaluation studies and training of personnel prior to offering the service (Directive 5.8);[7]
- The carrier's cost of capital to be used in the study (Directive 6.7);
- The carrier to demonstrate that based on its revenues and costs that the service is profitable within a specified time period (Directive 6.9);[8]
- Each carrier to record its revenues and costs and report significant deviations between its actual resource costs and those reported in its study (Directive 8.3).[9]

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[6] These directives have been modified over time; not all original directives are still in effect (modifications are noted in footnotes). The directives still in effect continue to require company-specific costs to be reported.

[7] As a result of the revised filing requirements granted interim approval by letter dated 16 January 1995 and adopted by the Commission in the Imputation Test for Local Services dated 27 November 1998, this information is no longer reported.

[8] As a result of the revised filing requirements granted interim approval by letter dated 16 January 1995 and adopted by the Commission in the Imputation Test for Local Services dated 27 November 1998, the test to be met for Competitive services is the Imputation Test and not that the NPV is maximized.

[9] As a result of the revised filing requirements granted interim approval by letter dated 16 January 1995

6. Recent CRTC Decisions Deviate from Company-Specific Costs

In Decision CRTC 2001-238, The CRTC imposed on all ILECs an arbitrary Average Working Fill Factor (AWFF) for distribution and feeder plant to be used in Phase II cost studies. In addition, the CRTC placed nation-wide limits on Functional Operating Expense (FOE) per line for loops and for primary exchange residential service, and limited loop maintenance expense to a fixed percent of loop capital invested.

These impositions have the effect of replacing company-specific cost information with arbitrary values that have no basis in company-specific factual information. In this ruling, the CRTC has, in practice and in principle, made a fundamental change in its costing methodology; no longer can the Phase II costs be considered to reasonably represent incremental costs based on widely accepted economic principles.

The deviation from company-specific costs affects other pricing and subsidy calculations. For example, the CRTC in decision CRTC 2000-745 concluded that it was appropriate to use Phase II costs for calculating the subsidy requirement for high-cost areas. Among the reasons for this determination was:
a. The ability to compare the cost for primary exchange residential service among ILECs,
b. The need to encourage efficiency and competition in high-cost areas, and
c. To recognize the important link between setting rates for unbundled loops and the subsidy calculation.[10]
Thus subsidies available to support high-cost areas are limited by the same mandated cost parameters.

The rational for deviating from company-specific costs appears to be rooted in the fact that Phase II costs are not extracted from the accounting records of each carrier and thus are not “actual” or “true” because they require a certain amount of judgment. This view is not only incorrect but it provides the CRTC a parlous ability to impose on any company any cost that serves to justify policies or rates that may or may not be consistent with the efficient development of the communications industry.

The CRTC, in denying TELUS’ request for Review and Variance of CRTC Decision 2000-745, set the stage for this dangerous practice:

> “The Commission also notes that contrary to TELUS' claim, there is no single objective measure of "actual" or "true" Phase II costs. Phase II costs reflect estimates of forward-looking incremental costs of providing a service. As indicated by Group Telecom, these costs depend on a wide variety of forecasts, estimates and assumptions, many of which involve

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and adopted by the Commission in the Imputation Test for Local Services dated 27 November 1998, this information is no longer reported.

[10] Decision 2000-745 at paragraph 44.

> varying degrees of judgement, and which, as a result, cannot be known with absolute certainty."[11]

With this simple declaration, the CRTC waives the responsibility to verify the vast majority of facts and data that can be verified in Phase II cost studies. On the contrary, Phase II costs can be and should be audited (this point is discussed below at section 7); company-specific costs can be reported in standard formats using approved standards of measurements.

The three categories of cost that have been arbitrarily imposed on ILECs affect, in the case of TELUS, over 80 % of the costs of residential service and over 95% of the costs of the local loop.[12]

I will discuss the seriousness of the error that the CRTC makes in each case.

AWFF (Average Working Fill Factor)

In Decision CRTC 2001-238, the CRTC cites a variety of reasons why it chose to mandate a single AWFF for all companies.

> "The use of these uniform national AWFF measures, although higher than most AWFFs proposed by the ILECs, recognize, among other things: (a) the apparent lack of consistency in the AWFF definitions; (b) the differences in the measures filed by most ILECs compared to 1997 cost studies; (c) Bell Canada et al.'s request for consistent AWFF definitions across ILECs; (d) the need to revise the ILECs' proposed average historic AWFF values to reflect longer-run measures of AWFFs, i.e., those expected over the 2002-2006 study period; and (e) the Commission's prior determination in Decision 98-22 to increase TCBC's proposed AWFF value for distribution plant for purposes of determining its loop costs, in order to be more consistent with the distribution AWFFs of other ILECs."[13]

I will address each of these points (a through e) in order.

(a) "…the apparent lack of consistency in the AWFF definitions;…" Fill factors and the precise calculations that generate them are filed in confidence so there is no way to know just how inconsistent are the various definitions used. However, in general, the CRTC has mandated that the "capacity cost" concept be used (as opposed to, for example, "fill at relief" – see CRTC Decision at paragraph 93). This means, among other things, that a reasonable and efficient amount of spare capacity associated with the efficient provision of services be included in the definition of AWFF. This specifically limits the reasonable values that pertain to measuring AWFF. The remaining differences in definitions should be addressed

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[11] Decision 2001-238 at paragraph 162.

[12] This does not include the mandated 15% "markup" that is intended partly to cover fixed and common costs, another cost that can in principle and in practice be measured on a company-specific basis.

[13] Decision 2001-238 at paragraph 102.

in approving (or not) the Phase II cost manuals according to an acceptable range of definitions that the CRTC finds to be acceptable. The solution is not to impose a common numerical value on all companies knowing that it will be used in formulas that lack consistency across companies with the perverse result that an attempt to impose a uniform cost parameter will generate non-uniform costs due entirely to inconsistencies in how the parameter is employed.[14]

(b) "... the differences in the measures filed by most ILECs compared to 1997 cost studies;…" The fill factors filed by some companies in 1997 were based on "fill at relief" which the CRTC properly dismissed by standardizing the measure with Average Working Fill Factors (AWFF) in the rebanding decision. This would, of course, cause differences in measures between the two dates.[15]

(c) "…Bell Canada et al.'s request for consistent AWFF definitions across ILECs;…" This was a reasonable request in light of the many inconsistencies in AWFF definitions cited by the CRTC. However, imposing a common numerical value on inconsistent definitions only exacerbates the problem.

(d) "…the need to revise the ILECs' proposed average historic AWFF values to reflect longer-run measures of AWFFs, i.e., those expected over the 2002-2006 study period;…" Fill factors remain remarkably stable over time for many reasons. Spare capacity is used up at approximately the rate it is created as relief is constructed, for example. In addition, such a small fraction of the network is newly constructed or modified that network-wide fill factors cannot change much over the period of a few years. It is entirely unreasonable for the CRTC to say that the difference between the AWFFs filed by TELUS and those adopted by the CRTC can be attributed to the differences in the applicable time frames. Fill factors in particular, and loop costs in general, do not change over four years by amounts that are reflected in the CRTC's Decision 2001-238; only a fundamental change in costing methodology could cause such a change.

(e) "…the Commission's prior determination in Decision 98-22 to increase TCBC's proposed AWFF value for distribution plant for purposes of determining its loop costs, in order to be more consistent with the distribution AWFFs of other ILECs." Forcing one company to report costs that are more like other companies costs is not a good reason to continue to do more of the same. The matter can and should be resolved by auditing the company-specific information to determine is such a change is warranted. To do otherwise is to allow a mistake to beget more mistakes.

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[14] In Decision CRTC 2001-238 at paragraphs 88 through 100, the commission cited a wide variety of inconsistencies that, if used with a common value for AWFF, would result in widely varying costs that have no basis in other than definitional differences.

[15] "Fill at Relief" (FAR) defines when a segment of loop plant must be expanded and is the maximum utilization that is acceptable. Following the expansion, fill levels will drop. AWFF is, roughly, the average of the FAR and the lower levels that result from periodic expansions. Thus, AWFF must logically be lower then FAR, often by significant amounts.

Based on these justifications, the national mandated AWFF for feeder and distribution plant was set at:

- 77% and 60% (respectively) for areas not in the "high cost" areas, and
- 72% and 56% (respectively) for high cost bands.

My staff of telecommunications engineers and I have examined fill factors in the majority of the 50 states in the U.S., in two provinces in Canada, in nine other countries, and in the context of constructing general models of engineering costs that have been applied in more general circumstances.[16] I know of no territory the size and character of the ILECs in Canada that can come close to achieving these fill factors in practice.[17] This is even more true in rural areas and given the quality of service requirements specified by the CRTC. As such, the CRTC-mandated fill factors cause a significant understatement of TELUS' costs and likely the costs of all other ILECs in Canada.[18]

The rationale used by the CRTC to impose a single national AWFF value on all ILECs is seriously flawed. The matter is not of minor importance. To reject company-specific data about AWFF values has far-reaching implications.

The impact of altering fill factors is magnified throughout the Phase II cost study. A change in the fill factor changes most other costs in the study proportionately. For example, the capital cost of the loop changes, the maximum allowed maintenance cost of the loop changes, and the allowed markup on loop costs (and therefore the fixed and common cost coverage) changes. By changing one number (a number that is otherwise verifiable), many additional costs, which can also be verified, are changed proportionately.

Attainable fill factors are important company-specific facts that must be measured according to a standard and applied in a logically consistent manner. To illustrate, consider an entirely hypothetical but revealing numerical example.

If it costs $5,000 a kilometer to bury a cable, if installed cables are available in multiples of 100 pairs at a cost of $1,000 per cable-kilometer, and if 60 telephone lines must be provided in a given area one kilometer from the central office, then the capital investment required is $5,000 + $1000 = $6,000. The fill factor (the ratio of working pairs to total pairs) is 0.60, or 60%. The "capacity cost" method used in Phase II cost studies assigns to the working pairs the cost of the remaining pairs so the final cost calculation is based

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[16] My staff and I have designed and/or built models that calculate the costs and subsidies required for Universal Service or Interconnection in: California (the CPM), a number of other states (BCPM2), Australia (Net Universal Cost System), Hong Kong (Regulatory Analysis System), South America (CAPS-Reg), and contributed significant components of the FCC's Hybrid Cost Proxy Model (HCPM).

[17] This conclusion pertains to fill factors that meet the "capacity cost" convention that applies in Canada.

[18] The fill factors and associated methods of measurement of other ILECs are filed with the CRTC in confidence and are not available to me. An independent audit, as recommended below, can accomplish two things in this regard: 1) a standard measurement of fill factors such as that used by the FCC in the U.S. could establish if there are company-specific or intra-company regional differences that are important, and 2) whether the fill factors are unrealistically low for all companies as I assert here.

on a capital investment per pair equal to $100.[19]

This capital investment per pair is, under the simple conditions described here, the lowest investment per pair possible for this company. If this company were mandated to use an alternative fill factor (say, .75), the investment per working line would be reduced to $80.[20] It now appears that the company need only invest $4,800 to serve the area -- an engineering impossibility, since the installation cost is fixed. Even if cable sizes were more variable (for example, if cable could be purchased in perfectly variable amounts for a pro-rata price), the cost of attaining a 75% fill would be $5,750 ($5,000 + .75*$1,000), not $4,800. Because of the manner in which the CRTC has misused fill factors, there is no distinction between the cost per route-kilometer and the cost of the cable employed along the route.

This matter is more important than it first appears because it affects disproportionately companies, and regions within companies such as high cost areas, having higher loop investments. That is, companies with proportionately longer loops serving more sparsely populated areas will experience a larger "disallowance" of loop costs from applying fill factors that are too low.

But the problem does not end here. Other deviations from company-specific costs compound the problem. For example, the costs of maintaining most loops are mandated to be no greater than 10% of capital investment. This limit reduces the maximum maintenance cost in our example from $10 per line to $8 per line. Not only does the mandate potentially deny a company with a higher cost than $10 per line from reflecting its actual cost, the imposition of a common fill factor exacerbates the misstatement. The same effect is reflected in the mandated maximum recognition of the mark-up that is designed to cover costs that are not included in the Phase II incremental costs (these fixed and common costs may not be more than 15% of the sum of the incremental costs).

While the example is hypothetical, the salient point is: the "costs" presently imposed by the CRTC are not company-specific, do not tie back to operational and engineering realities of individual companies, and are not consistent with sound economic cost practices and are too low for TELUS (and likely for other ILECs as well).

Misstating fill factors has its most onerous consequences in high cost rural areas. TELUS uses a minimum sized feeder cable. In sparsely populated areas where a cable must serve only one or a few premises (e.g., 5 to 10), fill factors on the final segments of the loop will be far below the mandated level (typically, rural fill factors in distribution plant are in the range of 20% to 40%). Costs in these situations will be understated because the mandated fill factors cannot be achieved using standard sized cables.

Understating costs in rural high-cost areas will create serious obstructions to bringing alternative forms of traditional and advanced communications to rural areas and will

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[19] The actual calculation divides the total investment, $6,000, by the total pairs, 100 to obtain $60 per pair. This number is in turn divided by the fill factor, .60, to obtain $100 per pair.

[20] This value results from dividing the investment per total line, $60, by the new fill factor, .75.

cause incumbent service providers to neglect those areas out of financial necessity.

Because TELUS, compared to national averages, has a disproportionate number of customers in areas requiring long loops in sparsely populated areas, TELUS will experience cost distortions that are amplified compared to the rest of the nation.[21]

FOE (Functional Operating Expense)

FOE (the cost of provisioning the loop, billing and collection, sales expense, and similar expenses) varies across regions according to many company-specific characteristics. For example, labor costs are a large component of FOE and vary among the provinces. In addition, many of the FOE costs are substantially fixed (e.g., creating and maintaining billing systems). By expressing all FOE costs as a fixed cost *per line*, companies having more lines may "recognize" higher costs while smaller companies will "recognize" lower costs, contrary to the fact that the costs do not vary per line.

In addition, for those FOE costs that do vary per line (e.g., provisioning the loop), there are significant economies of scale. The costs of provisioning 500 lines to a single university campus are quite different than the costs of provisioning one line to 500 premises. Thus even within each ILEC's territory, the mandated FOE cost per line (e.g., $1.65 per line per month for an unbundled loop) seriously overstates the cost of serving the university campus and seriously understates the cost of serving each rural premise.

Similarly, the costs of ILECs having a larger proportion of population in densely populated areas will have overstated costs and those ILECs having more lines in rural areas will have understated costs. A single FOE cost per line across all lines and companies is not credible and, worse, will distort subsidies and the development of competition in all areas of Canada.

Each company will have FOE costs that depend on its unique loop characteristics, its operations in its unique service territory, and on its quality of customer service. Company-specific FOE costs can be (and are, in the case of TELUS) measured using Activity Based Cost principles and practices and in accordance with the approved Phase II cost manuals.

Loop Maintenance Expense

In my experience, loop maintenance expenses and related maintenance expenses of residential service cannot be expressed as a percent of capital investment for several reasons: the per line capital cost of loops tends to fall as technology improves even while

[21] The two provinces served by TELUS are both in the lower fifty percentile among provinces as ranked by dwellings per square kilometer and population per square kilometer. For example, see the Revised Evidence filed by SaskTel in response to Public Notice 2001-119 dated 26 July 2002. Recall also that the in Decision 95-21, the CRTC had previously declared that density is the most important determinant of AGT's high loop cost.

maintenance costs (mostly labor) are rising; some maintenance costs (e.g., inspection of aerial cable) are more closely tied to route-kilometers than to number of lines – metropolitan areas will have larger cable sizes and thus lower inspection costs per dollar invested; labor costs for the same activity differ among regions of a country; vendor discounts on cable are not associated with identical discounts on maintenance labor; and so forth.

Three examples will serve to illustrate some of the basic problems with the "percent of capital" approach.

a. When cable vendors discount material (e.g., to reflect volume discounts), the reduced investment incorrectly reduces the reported cost of maintenance.
b. When maintenance labor costs rise, the increased cost will not be reflected in reported maintenance expenses if associated investment remains constant.
c. The highest *actual* maintenance cost per line often is associated with rural aerial cable which often has the lowest investment per kilometer of cable route.

Loop maintenance cost, in my experience, varies greatly among companies in ways that are entirely unrelated to loop investment.

7. "Actual" Phase II Company-Specific Costs are Auditable

There are many judgments that must be made in performing economic cost studies just as there are many judgments that must be made in recording information according to Generally Accepted Accounting Principles (GAAP). In both financial and economic cost development and reporting standards based on underlying accepted accounting principles and accepted economic principles (respectively) are established and followed. An audit determines two primary things: whether the company adhered to those standards, and the accuracy of the reported values. Some of the judgments pertain to forecasts that, by nature, cannot be known with certainty.[22] But the vast majority of facts and data in Phase II cost studies can be verified through standardized audit practices. In particular, the sensitivity of Phase II costs is less related to forecasts, assumptions and judgments made in the study than in the verifiable parameters that the CRTC has imposed on all ILECs alike. An audit of Phase II costs could determine accuracy of the vast majority of costs that are linked to company-specific data (e.g., current labor and equipment prices) and can set reasonable ranges for data that is not contained in those records (e.g., projected changes in labor and equipment costs that may apply during the reporting period).

I have participated in a number of extensive reviews and audits of incremental cost studies and incremental cost models. Briefly, the following elements of incremental costs are verifiable.

- For any selected standard definition of AWFF, fill factors can be verified in both

[22] Even in traditional accounting, some predictions must be made without the certainty of historical knowledge. For example, cost and revenue recognition practices are often based on forecasted timing of events that may or may not come to be, and forecasts of revenue-generating lives of equipment underlie the depreciation rates that pertain to categories of equipment.

feeder and distribution plant by examining current and historical engineering records and related data.[23]

- Current costs of labor, purchase prices of plant and equipment, and other resource costs can be verified by examining labor agreements, vendor contracts, and other records that specify the purchase agreements that pertain to the current and future time periods (these records cover the vast majority of resource costs that are used in a Phase II cost study).
- Loop characteristics for a company can be verified by auditing the loop census or by checking the statistical validity of the loop sample using scientific methods that are widely accepted for these purposes.
- FOE and loop maintenance costs can be verified using modern Activity Based Costing practices and by reference to current accounting records.

In summary, a significant proportion of Phase II costs can be audited to arrive at company-specific costs that meet the conditions of well-developed incremental cost studies. In some cases, national standards will be appropriate. Certain methodologies and parameters may be applicable to all companies. The parameters that can be imposed nation-wide are those that likely pertain to all companies uniformly (e.g., general inflation rates, national tax rates, productivity changes in the industry as a whole, interest rates before company-specific adjustments for risk, etc.). The methodologies will be those in the companies' filed Phase II cost manuals or by reference to standard methodologies that are within the scope of sound economic principles. To say "there is no single objective measure of 'actual' or 'true' Phase II costs" [Decision 2001-238 at paragraph 162] implies that any answer is as good as any other; there are no wrong answers. On the contrary, Phase II costs can and should be audited.

Each ILEC employs a Phase II cost manual that has been filed with CRTC. Verifying that the manual was followed, verifying that the reporting of the elements of cost is in accordance with that manual, and verifying that the reported data is confirmed by reference to contracts and similar company records would determine the extent to which costs vary by company and meet Phase II requirements. A qualified accounting firm familiar with the telecommunications industry and with incremental cost practices can perform such an audit to determine what costs differ among ILECs and by what magnitudes.[24]

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[23] Companies maintain engineering models and practices that minimize the overall investment in loops by managing fill ratios. This results in remarkable stability of distribution and feeder fill factors over long periods of time.

[24] Indeed, the FCC has undertaken audits of specific incremental cost models such as Telcordia's Switching Cost Information System (SCIS) in comparison to USWest's Switching Cost Model (SCM). State commissions in the U.S. are also beginning to verify company-specific costs by reference to vendor contracts, and similar data.

Qualifications and Experience of Dr. Richard Emmerson

I hold a Ph.D. in economics from the University of California, Santa Barbara (1971). I have been a practicing economist for over 30 years, specializing in telecommunications for 23 years. I was a member of the economics faculty at the University of California, San Diego from 1971 through 1983, serving as an Assistant Professor and Lecturer. During my academic career, I published articles in mathematical economics, urban and regional economics.

In addition to academic research, I have had experience teaching and consulting. A sampling of these activities is listed in two categories: teaching and consulting.

Teaching

From 1979 through 1984 I was responsible for designing and teaching the first courses offered by AT&T on incremental costing and competitive pricing.

Following divestiture by AT&T of its local operating companies, I continued to teach for AT&T Network Systems (later renamed Lucent) through 1998.

I also designed and taught the incremental cost curriculum for Bellcore Technical Education Center from 1984 through 1995.

I designed and taught the costing curriculum and a portion of the pricing curriculum for the United States Independent Telephone Association (USITA), and later for the United States Telephone Association (USTA).

I have designed and taught costing and pricing courses for: equipment providers (Lucent and Nortel), government agencies and educational institutions (Singapore, Malaysia, Indonesia, South African Telecommunications Regulatory Authority – SATRA, Thailand, Mexico, Colombia, Argentina, and a variety of state commissions in the U.S.).

In 1995 I was the Director of the Executive Program for Scientists and Engineers (EPSE), a graduate program offered at the University of California, San Diego. I taught Managerial Accounting in that program from 1987 through 1996.

Consulting

I have consulted on economics, public policy, costing, pricing and business strategies for private and government entities for 30 years. Among the industries in which I have consulting experience are: insurance, mining, transportation, electric power generation, manufacturing, information technologies, and telecommunications.

Only consulting especially pertinent to incremental cost is summarized here.

For Cincinnati Bell, I designed and supervised the implementation of MIDAS

(Management Information Decision and Analysis System) to determine the profitability of products and services in business and consumer markets.

For Southwestern Bell, I designed and supervised the building of PROMIS (PROduct Management Information System) for the Marketing Department to measure profitability by product, geography and customer segment.

For Hong Kong Telecom, I designed and supervised the building of PARADE, which measured the profitability of every tenant in every building in Hong Kong, Kowloon and the New Territories including remote islands. The costs considered the actual inventory of equipment in: all central offices, all routes of outside plant, and equipment placed in individual buildings.

For Ameritech, I designed and supervised the building of Mentor, a profitability measurement system that measured revenues and costs of services, market segments, geographical areas, and selected sales channels.

For ETB in Colombia, South America, I designed (for business decisions) CAPS (Cost and Profitability System) to measure the profitability of products and customer segments; and (for regulatory compliance) CAPS-Reg to measure the costs of interconnection.

For Nevada Bell, I designed and supervised the building of MIS (Management Information System) which measured forward-looking costs and revenues and reconciled those measurements with the accounting records of the company.

In partnership with Arthur Anderson, I designed and directed the building of ProfitMap and CostMap, two systems that measured the profitability and cost (respectively) of products, market segments, customer segments, sales channels, geographical areas and one additional "dimension" that could be selected by the company. The model could be operated to reconcile either with the accounting records of the company or the economic costs of the company.

For the European Union, I wrote the reports that were used to cost the local loop for purposes of designing "open network architecture" as a precursor to network unbundling.

For Bellcore (now Telcordia), I provided the conceptual architecture and algorithms for the economic cost content of network cost models for switching, the loop and inter-office transport.

For Citizens Utilities, I designed and supervised the building of CPMS (Citizens Product Management System) to measure the cost and profitability of services, market segments and geographical areas in several states..

For Pacific Bell, I designed and supervised the building of the CPM (Cost Proxy Model) which was (and still is) used to calculate the cost of residential service for purposes of measuring subsidies in high cost areas. The original model located each housing unit

served by Pacific Bell and calculated the cost of service by premise. Later versions protected the identity of individual households by aggregating households into small grids and other small geographical areas as prescribed by the CPUC.

For Bell South, Pacific Bell, and US West, I directed the building of BCPM2 (a combination of the BCPM built by US West and the CPM built by me for Pacific Bell), which was adopted in many states to measure subsidy requirements for state jurisdictions. Later, a "hybrid" of the FCC's model, the BCPM2 and the Hatfield model was created (now called the "Hybrid Cost Proxy Model – HCPM) and adopted for federal universal service subsidy calculations.

For Optus Communications in Australia, I designed costing systems that were adopted to measure the performance of products, marketing programs and other business segments. I used the output of the model to design transfer prices to be used in performance measurements.

For the Hong Kong Regulatory Authority, I designed and built the cost models that were adopted to measure the subsidy requirements for Hong Kong and surrounding territories.

For the Australian regulatory authorities, I designed and supervised the algorithms in the cost models that were incorporated into the measurements of subsidy requirements for Australia including the "outback" and other areas served by traditional and radio-based technologies.

For GTE I designed and supervised the building the ICM (Integrated Cost Model) that was used throughout GTE's (largely rural) service territories to measure costs of service based on Activity Based Costing (for maintenance and other labor-intensive activities) and detailed engineering design (for the capital-intensive portions of the business) for geographical areas covering the full range of population densities.

For Bell South, I designed and supervised the building of a highly sophisticated loop cost model (the Bell South Loop Cost Model) that simulates the engineering of loop plant based on detailed equipment requirements route-by-route using current equipment prices and other current cost data.

In 28 state jurisdictions I reviewed, refined or audited the incremental cost studies submitted to state commissions for setting tariffs and unregulated prices.

For Alberta Government Telephone in Canada I performed a detailed comparison between Canada and the U.S. of costs of the local loop considering differences in engineering, definitions of the loop, the detailed list of components used in each country, differences in fill factors, and differences in terrain, weather and other factors. I provided this information to the CRTC in testimony.

For TELUS, I performed statistical and economic analysis to determine the differences in costs among enumeration areas in Alberta and British Columbia to recommend a subsidy

structure that would reflect high cost areas at a more refined level than was adopted by the CRTC in the rebanding decision.

For the Government of Alberta, I am the economic advisor regarding SuperNet (the extension of broadband communications to 422 communities in the province) overseeing: 1) the impact of SuperNet on competition and the development of private markets; 2) the business case and financial integrity of the ten-year program; and 3) the cost and pricing of Internet and services to commercial wholesale customers of SuperNet.

For Verizon, I worked for two years refining the cost estimation and pricing of special constructions and competitive bids and training account representatives and engineers on improved pricing practices.

For SBC, I worked with the Wholesale Marketing organization to improve measurements of the cost and profitability of wholesale services to other long distance and local carriers and to improve pricing to become more competitive.

For New Zealand Telecom, I worked to define how costs and prices should be set for "essential facilities" and filed recommendations to the government.

Statement of
Dr. Richard D. Emmerson

Appendix B

Petition of TELUS Communications Inc. to
the Governor in Council
Government of Canada
to vary
Telecom Decision CRTC 2002-67
*TELUS Communications Inc. – Application to review and vary Decision 2000-745 and Decision 2001-2*38

January 22, 2003

Table of Contents

1. Introduction

Beginning in 1979, the CRTC properly required the reporting of company-specific incremental costs in order to ensure that prices of certain services would recover the costs incurred by those services. Over time, Phase II cost reporting was standardized in cost manuals that each company filed with the CRTC. According to these cost manuals and in accordance with generally accepted economic principles, there is a correct format and methodology for reporting Phase II costs.

The CRTC recently has asserted that there is no "actual" or "true" Phase II cost and has imposed on all reporting companies cost parameters that are in significant regards incorrect. Not only are the CRTC's cost mandates inconsistent with the Phase II cost manuals, they are inconsistent with sound economic principles and policies. As discussed below, Phase II costs can be audited to determine the accuracy with which each company reports its costs.

In order to ensure that the communications environment in Canada develops in step with other developed countries, the reporting of company-specific incremental costs, a critical component of sound communications policies and regulated prices, must be reinstated.

The means to do this are available in Canada. An audit, performed by an independent accounting firm, can establish compliance with the filed Phase II cost manuals and compliance with the underlying economic principles. Company-specific incremental costs can be reported accurately and consistently so that public policies and regulated prices and subsidies can be fairly and efficiently administered.

Much of what follows provides the facts and principles behind the proper reporting of Phase II costs, and otherwise supports my recommendation to undertake an audit of Phase II costing.

2. A Brief History of Phase II Costs

As telecommunications has become increasingly competitive over the past thirty years, costing objectives in most countries have evolved from cost-reimbursement to promoting competition in lieu of regulation.

In Canada, the Canadian Transport Commission (CTC) began redefining costing practices by initiating comprehensive proceedings in 1972. At that time, the CTC undertook the Inquiry into Telecommunications Carriers' Costing and Accounting Procedures ("the Cost Inquiry"). The responsibility for the inquiry was transferred to the Canadian Radio-television and Telecommunications Commission in 1976 and Phase I and Phase II of the Cost Inquiry were completed in 1979.

The first two phases of the Cost Inquiry created a new set of costing standards called Phase I and Phase II Costs. Phase I Costs dealt with accounting and financial issues

including appropriate depreciation practices and criteria for the capitalization versus expensing of plant expenditures. Phase II of the Cost Inquiry established the methodology for reporting revenues and costs to be used in the evaluation of new services.

Phase II Costs were designed to ensure that the present value of revenues from new services would recover the present value of costs caused by the respective new services. This would prevent the burden of cost recovery for new services from falling on existing services and customers.

At the same time, other countries were undertaking similar proceedings. In general, regulatory authorities were concerned that new potentially competitive services could be subsidized by the "monopoly ratepayers" thereby causing two problems: 1) rates for traditional telephone services would be higher than necessary, and 2) incumbent carriers might gain an unfair competitive advantage over new entrants by offering new services at a loss. Beginning in the early 1970s and through the mid-1980s, the concept of studying and understanding a carrier's "incremental costs" was introduced into and widely accepted within the telecommunications industry to address this general concern.

Phase II costs are intended to apply incremental costs to telecommunications carriers in Canada. As I discuss below, incremental costs are "economic costs" (rather than accounting costs) and are generally accepted as the proper basis for a variety of purposes pertaining to pricing including preventing undesirable cross-subsidies and predatory pricing. Most developed countries today employ some form of incremental cost studies to ensure that new services, and/or existing competitive services do not require a subsidy *prospectively*.

It is important to note that incremental costs do not sum to the total costs of the company. This is true because not all costs are caused by (incremental to) individual services or collections of services. In incremental cost studies, costs not causally related to services are designated as "fixed and common" costs (the term used here is as defined by the CRTC). Thus a mark-up above Phase II costs is necessary because the Phase II costs do not capture all of the costs incurred by the carrier in the provision of its services. Nevertheless, all of the costs must ultimately be recovered if a carrier is to remain financially viable. Prices of services must be sufficiently in excess of Phase II costs to cover all costs of the firm in order for the firm to remain financially viable.

There are two types of costs that cannot be not found in Phase II cost studies for individual services: 1) "fixed and common costs,"[1] and 2) unrecovered retrospective costs that are not recognized in a prospective cost view (e.g., remaining depreciation expenses for existing assets that are not needed prospectively).

[1] Includes fixed common expenses and other costs of replacing and operating the present network that are explicitly excluded from the calculation of Phase II costs.

3. Economic Costs Provide a Foundation for Both Market and Regulated Prices

Phase II Costs are incremental costs. Incremental costs are economic costs; "forward-looking" costs calculated according to generally accepted economic principles designed to support pricing and other business decisions. Phase costs were, until recently, reported according to Phase II Cost Manuals approved by the CRTC.

As Dr. Alfred Kahn explains in a companion document, it is imperative that the relationship between telecommunications prices and their respective economic costs be understood clearly in order for the communications industry to develop in a robust and efficient manner throughout Canada. The correct standard for reporting costs used to evaluate or govern prices of telephone services is economic costs including service-specific, company-specific incremental costs.

Economic costs differ from accounting costs in three important respects (among others):

1. Economic costs are forward-looking rather than retrospective (only forward-looking costs can be affected by present market or regulatory decisions);
2. Economic costs reflect market values of resources rather than historical purchase prices (market values represent the value that can actually be realized by using or deploying resources in alternative ways); and
3. Economic costs best represent the costs that each firm must incur to conduct the business it has chosen to pursue.

Because of these differences, it often is assumed that while retrospective accounting costs can be audited, prospective incremental costs cannot be rigorously verified. This assumption is incorrect as will be described in Section 7 below.

Incremental costs of a product or service are those economic costs that are incurred by a specific company as a result of offering the respective product or service. Equivalently, incremental costs, and only incremental costs, are not incurred when the company, all other things equal, does not offer the product or service.[2]

That markets force efficiency on a firm does *not* imply that all firms will experience the same cost structure. Market forces will compel a firm to be efficient given within its operating environment. A wide variety of factors cause different firms to have different cost structures. In general, costs differ because:

- The costs of inputs differ among firms;
- Efficient production configurations differ among firms;
- There are many non-price competitive variables that cause different costs;
- Firms experience one-time and sunk costs that occur at different times; and
- The customer bases of different firms demand different mixes of products.

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[2] Formally, a company producing two products in amounts A and B, respectively, has incremental costs of A equal to C(A, B) - C(0,B) where C(*) is the total cost of the company.

The costs of inputs differ among firms for several reasons. Labor rates are not uniform across and within provinces. Volume discounts differ among firms. Negotiated equipment prices vary according to the timing and specific needs of each company. Other costs that vary across the varied jurisdictions of the ILECs are: taxes, rights of way, insurances, office rents, land purchases, vehicle maintenance, fuel, travel, and delivered materials. All firms will experience different costs according to location, size, inventory requirements, growth conditions and a host of other factors. These cost differences are generally not within the control of any individual firm but are dependent on the service territory each ILEC serves.

Efficient production configurations differ among firms. Each company experiences costs according to its own unique optimal production configuration and in according to the unique requirements of the customers in its region. For example, the costs of installing and maintaining submarine cable are not the same as buried cable. Mixes of aerial cable, submarine cable, buried cable and underground cable will differ due to terrain, available rights of way, weather, municipal and other government regulations, etc. Whether maintenance is centralized or diffused throughout a territory can differ due to weather (and related public services), travel costs, the geographic distribution of the population, local road conditions, availability of labor, and other factors. Most importantly for loop costs, the vast differences in the density of population among the Canadian provinces cause dramatic differences in costs (sparsely populated areas generally entail longer loops, lower fill factors, and higher costs of maintenance). The CRTC acknowledged this fact based on testimony I filed in CRTC 95-21:

"With respect to AGT's local cost comparison study and the concerns expressed by interested parties, the Commission concludes that the study results represent a reasonable comparison of AGT's loop costs with equivalent U.S. costs, and that the evidence supports the identification of access line density per square kilometer as the key explanation for the higher AGT loop costs."[3]

There are many non-price competitive variables that cause different costs. Different companies will select different non-price competitive variables that greatly affect costs. For example, one grocery store may have a policy to never let a line of customers become longer than three people. Another may be willing to entertain much longer lines. The former will incur higher labor costs and have more cash registers than will the latter. These are competitive variables that provide consumers with choices beyond selecting the lowest price. In telecommunications for example: maintaining more spare capacity in local loop plant (i.e., lower fill factors) will improve quality of service in many dimensions. There will be fewer held orders for service, faster time to repair (an available line can serve while another is being repaired, etc.), and a better opportunity to creatively package and sell additional lines to existing customers. Having these competitive variable available will be critical as competition from other modes of communications continue to erode the traditional revenue sources of ILECs, and will provide consumers with a richer variety of choices in the market place.

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[3] CRTC Decision 95-21 at II B.

Firms experience one-time and sunk costs that occur at different times. When companies change out one technology for another (e.g., install a "next generation" network), enter a business or a new territory, or otherwise make major changes in the way they operate, they change their fundamental cost structure. The timing and extent of these decisions is a critical competitive variable in the "high tech" industries including telecommunications. The product offerings and associated prices must be coordinated with these decisions in order of gain or hold a competitive advantage in today's markets.

The customer base of each firm demands a different mix of products. Not only are different customer communities different in their demands, but companies choose as a competitive variable different ways of serving these communities of customers. For example, in the U.S., Southwest Airlines is known for its efficiencies. They use a single type of aircraft, saving on labor costs (all personnel are qualified on all flights, making them more interchangeable), inventories of parts, and so forth. But not all airlines can achieve the same efficiencies. For example, Southwest Airlines serves short routes (they don't fly international or transcontinental routes which require a different mix of longer distance aircraft). Southwest also was able to hire non-union labor, obtain gates at second tier airports, and so forth. The total industry requires more than Southwest Airlines (or its clones) could deliver (e.g. international travel). Incumbent telephone companies must not only compete with one another, but they must compete with wireless carriers, satellite carriers, cable TV companies, data network providers, and others. Finding the right mix of service and price packages is a daunting task today. Each company will need to choose a different course of action depending on customer demands and competitive offerings. This will result in very different costs disciplined by different market conditions.

Thus, dynamic, responsive markets will exhibit different costs for a variety of reasons that serve consumers and businesses well. Markets normally drive firms to serve customers in efficient and responsive ways. Regulators intervene where necessary to achieve the same result. Whether markets are properly regulated or subject to competitive pressures, differences in cost structures among firms must be respected.

Regulators use incremental costs for several purposes. The revenue of each service must remain above its incremental cost to avoid requiring a subsidy either from external sources or from internal sources.[4] Predatory pricing also can be avoided by requiring revenues of a service to equal or exceed the respective incremental cost.[5] The efficient pricing of essential facilities requires that the essential facility price not exceed an amount that includes its incremental cost in the formula, or equivalently that the price of a retail service employing an essential facility not be less than an amount that also includes incremental costs in its calculation. In each of these cases, it is the firm's unique cost structure that must be used to regulate prices. If arbitrary or industry-wide input

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[4] Internal sources of subsidies are either in the form of a cross-subsidy or a subsidy from the shareholders (owners) of the firm.

[5] Predatory pricing is a complex legal subject and involves much more than a simple price-cost relationship.

values for costs are used, or if firms otherwise are required to use costs that are not their own, economic inefficiencies inevitably result.

4. Phase II Costs, as Defined in CRTC 79-16, are Reasonable Representations of Economic Costs

Phase II costs satisfy the general economic cost criteria. In addition, the Phase II methodology *as specified in Decision CRTC 79-16* reasonably measures incremental costs.

1. Economic costs are forward-looking incremental costs, rather than retrospective accounting costs.

Decision CRTC 79-16 set forth the principles and the basic approach and directives pertaining to how Phase II costs are to be developed. Those directives emphasize that: the resource costs should reflect current and future costs (not historical costs), fixed and common costs of the company is not included in the cost of the service under study, and the study period is a future rather than an historical period.

2. Economic costs reflect market values of resources rather than historical purchase prices.

The directives contained in CRTC 79-16 require the use of *current* purchase prices to measure costs. Current resource prices replace historical purchase prices thus substituting market values for "book" values. . Briefly, TELUS develops Phase II costs by first valuing the network using current market prices of inputs (labor, equipment, etc.). Then a reasonable forecast of growth and anticipated changes in prices of inputs are used to estimate the value of the network as it will be modified to accommodate the growth over the standardized four-year period to be included in the reported costs (the growth normally is a small percent of the total networwk).

3. Economic costs best represent the costs that each firm must incur to conduct the business it has chosen to pursue.

The directives of CRTC 79-16 contain a number of provisions for identifying and tracking costs and revenues that pertain to the specific quantities and types of services offered by the reporting company through the study period.

I have reviewed the directives in CRTC 79-16 and subsequent modifications to those directives and I conclude that Phase II costs explicitly require company-specific economic costs to be used in the Phase II cost studies. Furthermore the costs to be reported for each service studied using the Phase II cost methodology are incremental cost as unambiguously defined in the economics literature.

Furthermore, I have been an expert witness in a number of proceedings before the CRTC

that required the use or reporting of Phase II costs. Through that experience, I conclude that Phase II costs, as prescribed in CRTC 79-16, are reasonable representations of incremental costs.

5. Phase II Directives Require Company-Specific Costs

Both economic principles and the requirements of Phase II costs call for company-specific cost estimates.

As discussed in Section 2 above (Economic Costs Provide the Foundation for Both Market and Regulated Prices) economic costs call for company-specific costs because competitive markets and the associated discipline of market prices hold firms accountable to the costs they can achieve in competition with other firms.

In addition, carrier-specific cost information is required throughout the original directives as indicated in the following examples.[6] The original Phase II cost directives required:

- The reporting firm's engineering schematics and associated dedicated and shared equipment to be used (Directive 1,3);
- A description of the market and market share for the service under study (Directive 2.5);
- A description and quantity of resources that the firm must add to provide the service under study (Directive 4.1);
- The firm's current cost of labor and current purchase price of new equipment, and a specific method of valuing reused equipment that is to be reused, in providing the service under study (Directive 5.2);
- The use of fill factor determined over a time period of sufficient length to justify its appropriateness as an average for the related facility type and use (Directive 5.2);
- The reporting of the carrier's relevant development costs incurred as a result of activities such as product testing, market testing, economic evaluation studies and training of personnel prior to offering the service (Directive 5.8);[7]
- The carrier's cost of capital to be used in the study (Directive 6.7);
- The carrier to demonstrate that based on its revenues and costs that the service is profitable within a specified time period (Directive 6.9);[8]
- Each carrier to record its revenues and costs and report significant deviations between its actual resource costs and those reported in its study (Directive 8.3).[9]

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[6] These directives have been modified over time; not all original directives are still in effect (modifications are noted in footnotes). The directives still in effect continue to require company-specific costs to be reported.

[7] As a result of the revised filing requirements granted interim approval by letter dated 16 January 1995 and adopted by the Commission in the Imputation Test for Local Services dated 27 November 1998, this information is no longer reported.

[8] As a result of the revised filing requirements granted interim approval by letter dated 16 January 1995 and adopted by the Commission in the Imputation Test for Local Services dated 27 November 1998, the test to be met for Competitive services is the Imputation Test and not that the NPV is maximized.

[9] As a result of the revised filing requirements granted interim approval by letter dated 16 January 1995

6. Recent CRTC Decisions Deviate from Company-Specific Costs

In Decision CRTC 2001-238, The CRTC imposed on all ILECs an arbitrary Average Working Fill Factor (AWFF) for distribution and feeder plant to be used in Phase II cost studies. In addition, the CRTC placed nation-wide limits on Functional Operating Expense (FOE) per line for loops and for primary exchange residential service, and limited loop maintenance expense to a fixed percent of loop capital invested.

These impositions have the effect of replacing company-specific cost information with arbitrary values that have no basis in company-specific factual information. In this ruling, the CRTC has, in practice and in principle, made a fundamental change in its costing methodology; no longer can the Phase II costs be considered to reasonably represent incremental costs based on widely accepted economic principles.

The deviation from company-specific costs affects other pricing and subsidy calculations. For example, the CRTC in decision CRTC 2000-745 concluded that it was appropriate to use Phase II costs for calculating the subsidy requirement for high-cost areas. Among the reasons for this determination was:
a. The ability to compare the cost for primary exchange residential service among ILECs,
b. The need to encourage efficiency and competition in high-cost areas, and
c. To recognize the important link between setting rates for unbundled loops and the subsidy calculation.[10]
Thus subsidies available to support high-cost areas are limited by the same mandated cost parameters.

The rational for deviating from company-specific costs appears to be rooted in the fact that Phase II costs are not extracted from the accounting records of each carrier and thus are not “actual” or “true” because they require a certain amount of judgment. This view is not only incorrect but it provides the CRTC a parlous ability to impose on any company any cost that serves to justify policies or rates that may or may not be consistent with the efficient development of the communications industry.

The CRTC, in denying TELUS’ request for Review and Variance of CRTC Decision 2000-745, set the stage for this dangerous practice:

> “The Commission also notes that contrary to TELUS' claim, there is no single objective measure of "actual" or "true" Phase II costs. Phase II costs reflect estimates of forward-looking incremental costs of providing a service. As indicated by Group Telecom, these costs depend on a wide variety of forecasts, estimates and assumptions, many of which involve

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and adopted by the Commission in the Imputation Test for Local Services dated 27 November 1998, this information is no longer reported.

[10] Decision 2000-745 at paragraph 44.

> varying degrees of judgement, and which, as a result, cannot be known with absolute certainty."[11]

With this simple declaration, the CRTC waives the responsibility to verify the vast majority of facts and data that can be verified in Phase II cost studies. On the contrary, Phase II costs can be and should be audited (this point is discussed below at section 7); company-specific costs can be reported in standard formats using approved standards of measurements.

The three categories of cost that have been arbitrarily imposed on ILECs affect, in the case of TELUS, over 80 % of the costs of residential service and over 95% of the costs of the local loop.[12]

I will discuss the seriousness of the error that the CRTC makes in each case.

AWFF (Average Working Fill Factor)

In Decision CRTC 2001-238, the CRTC cites a variety of reasons why it chose to mandate a single AWFF for all companies.

> "The use of these uniform national AWFF measures, although higher than most AWFFs proposed by the ILECs, recognize, among other things: (a) the apparent lack of consistency in the AWFF definitions; (b) the differences in the measures filed by most ILECs compared to 1997 cost studies; (c) Bell Canada et al.'s request for consistent AWFF definitions across ILECs; (d) the need to revise the ILECs' proposed average historic AWFF values to reflect longer-run measures of AWFFs, i.e., those expected over the 2002-2006 study period; and (e) the Commission's prior determination in Decision 98-22 to increase TCBC's proposed AWFF value for distribution plant for purposes of determining its loop costs, in order to be more consistent with the distribution AWFFs of other ILECs."[13]

I will address each of these points (a through e) in order.

(a) "…the apparent lack of consistency in the AWFF definitions;…" Fill factors and the precise calculations that generate them are filed in confidence so there is no way to know just how inconsistent are the various definitions used. However, in general, the CRTC has mandated that the "capacity cost" concept be used (as opposed to, for example, "fill at relief" – see CRTC Decision at paragraph 93). This means, among other things, that a reasonable and efficient amount of spare capacity associated with the efficient provision of services be included in the definition of AWFF. This specifically limits the reasonable values that pertain to measuring AWFF. The remaining differences in definitions should be addressed

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[11] Decision 2001-238 at paragraph 162.

[12] This does not include the mandated 15% "markup" that is intended partly to cover fixed and common costs, another cost that can in principle and in practice be measured on a company-specific basis.

[13] Decision 2001-238 at paragraph 102.

in approving (or not) the Phase II cost manuals according to an acceptable range of definitions that the CRTC finds to be acceptable. The solution is not to impose a common numerical value on all companies knowing that it will be used in formulas that lack consistency across companies with the perverse result that an attempt to impose a uniform cost parameter will generate non-uniform costs due entirely to inconsistencies in how the parameter is employed.[14]

(b) "... the differences in the measures filed by most ILECs compared to 1997 cost studies;…" The fill factors filed by some companies in 1997 were based on "fill at relief" which the CRTC properly dismissed by standardizing the measure with Average Working Fill Factors (AWFF) in the rebanding decision. This would, of course, cause differences in measures between the two dates.[15]

(c) "…Bell Canada et al.'s request for consistent AWFF definitions across ILECs;…" This was a reasonable request in light of the many inconsistencies in AWFF definitions cited by the CRTC. However, imposing a common numerical value on inconsistent definitions only exacerbates the problem.

(d) "…the need to revise the ILECs' proposed average historic AWFF values to reflect longer-run measures of AWFFs, i.e., those expected over the 2002-2006 study period;…" Fill factors remain remarkably stable over time for many reasons. Spare capacity is used up at approximately the rate it is created as relief is constructed, for example. In addition, such a small fraction of the network is newly constructed or modified that network-wide fill factors cannot change much over the period of a few years. It is entirely unreasonable for the CRTC to say that the difference between the AWFFs filed by TELUS and those adopted by the CRTC can be attributed to the differences in the applicable time frames. Fill factors in particular, and loop costs in general, do not change over four years by amounts that are reflected in the CRTC's Decision 2001-238; only a fundamental change in costing methodology could cause such a change.

(e) "…the Commission's prior determination in Decision 98-22 to increase TCBC's proposed AWFF value for distribution plant for purposes of determining its loop costs, in order to be more consistent with the distribution AWFFs of other ILECs." Forcing one company to report costs that are more like other companies costs is not a good reason to continue to do more of the same. The matter can and should be resolved by auditing the company-specific information to determine is such a change is warranted. To do otherwise is to allow a mistake to beget more mistakes.

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[14] In Decision CRTC 2001-238 at paragraphs 88 through 100, the commission cited a wide variety of inconsistencies that, if used with a common value for AWFF, would result in widely varying costs that have no basis in other than definitional differences.

[15] "Fill at Relief" (FAR) defines when a segment of loop plant must be expanded and is the maximum utilization that is acceptable. Following the expansion, fill levels will drop. AWFF is, roughly, the average of the FAR and the lower levels that result from periodic expansions. Thus, AWFF must logically be lower then FAR, often by significant amounts.

Based on these justifications, the national mandated AWFF for feeder and distribution plant was set at:

- 77% and 60% (respectively) for areas not in the "high cost" areas, and
- 72% and 56% (respectively) for high cost bands.

My staff of telecommunications engineers and I have examined fill factors in the majority of the 50 states in the U.S., in two provinces in Canada, in nine other countries, and in the context of constructing general models of engineering costs that have been applied in more general circumstances.[16] I know of no territory the size and character of the ILECs in Canada that can come close to achieving these fill factors in practice.[17] This is even more true in rural areas and given the quality of service requirements specified by the CRTC. As such, the CRTC-mandated fill factors cause a significant understatement of TELUS' costs and likely the costs of all other ILECs in Canada.[18]

The rationale used by the CRTC to impose a single national AWFF value on all ILECs is seriously flawed. The matter is not of minor importance. To reject company-specific data about AWFF values has far-reaching implications.

The impact of altering fill factors is magnified throughout the Phase II cost study. A change in the fill factor changes most other costs in the study proportionately. For example, the capital cost of the loop changes, the maximum allowed maintenance cost of the loop changes, and the allowed markup on loop costs (and therefore the fixed and common cost coverage) changes. By changing one number (a number that is otherwise verifiable), many additional costs, which can also be verified, are changed proportionately.

Attainable fill factors are important company-specific facts that must be measured according to a standard and applied in a logically consistent manner. To illustrate, consider an entirely hypothetical but revealing numerical example.

If it costs $5,000 a kilometer to bury a cable, if installed cables are available in multiples of 100 pairs at a cost of $1,000 per cable-kilometer, and if 60 telephone lines must be provided in a given area one kilometer from the central office, then the capital investment required is $5,000 + $1000 = $6,000. The fill factor (the ratio of working pairs to total pairs) is 0.60, or 60%. The "capacity cost" method used in Phase II cost studies assigns to the working pairs the cost of the remaining pairs so the final cost calculation is based

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[16] My staff and I have designed and/or built models that calculate the costs and subsidies required for Universal Service or Interconnection in: California (the CPM), a number of other states (BCPM2), Australia (Net Universal Cost System), Hong Kong (Regulatory Analysis System), South America (CAPS-Reg), and contributed significant components of the FCC's Hybrid Cost Proxy Model (HCPM).

[17] This conclusion pertains to fill factors that meet the "capacity cost" convention that applies in Canada.

[18] The fill factors and associated methods of measurement of other ILECs are filed with the CRTC in confidence and are not available to me. An independent audit, as recommended below, can accomplish two things in this regard: 1) a standard measurement of fill factors such as that used by the FCC in the U.S. could establish if there are company-specific or intra-company regional differences that are important, and 2) whether the fill factors are unrealistically low for all companies as I assert here.

on a capital investment per pair equal to $100.[19]

This capital investment per pair is, under the simple conditions described here, the lowest investment per pair possible for this company. If this company were mandated to use an alternative fill factor (say, .75), the investment per working line would be reduced to $80.[20] It now appears that the company need only invest $4,800 to serve the area -- an engineering impossibility, since the installation cost is fixed. Even if cable sizes were more variable (for example, if cable could be purchased in perfectly variable amounts for a pro-rata price), the cost of attaining a 75% fill would be $5,750 ($5,000 + .75*$1,000), not $4,800. Because of the manner in which the CRTC has misused fill factors, there is no distinction between the cost per route-kilometer and the cost of the cable employed along the route.

This matter is more important than it first appears because it affects disproportionately companies, and regions within companies such as high cost areas, having higher loop investments. That is, companies with proportionately longer loops serving more sparsely populated areas will experience a larger "disallowance" of loop costs from applying fill factors that are too low.

But the problem does not end here. Other deviations from company-specific costs compound the problem. For example, the costs of maintaining most loops are mandated to be no greater than 10% of capital investment. This limit reduces the maximum maintenance cost in our example from $10 per line to $8 per line. Not only does the mandate potentially deny a company with a higher cost than $10 per line from reflecting its actual cost, the imposition of a common fill factor exacerbates the misstatement. The same effect is reflected in the mandated maximum recognition of the mark-up that is designed to cover costs that are not included in the Phase II incremental costs (these fixed and common costs may not be more than 15% of the sum of the incremental costs).

While the example is hypothetical, the salient point is: the "costs" presently imposed by the CRTC are not company-specific, do not tie back to operational and engineering realities of individual companies, and are not consistent with sound economic cost practices and are too low for TELUS (and likely for other ILECs as well).

Misstating fill factors has its most onerous consequences in high cost rural areas. TELUS uses a minimum sized feeder cable. In sparsely populated areas where a cable must serve only one or a few premises (e.g., 5 to 10), fill factors on the final segments of the loop will be far below the mandated level (typically, rural fill factors in distribution plant are in the range of 20% to 40%). Costs in these situations will be understated because the mandated fill factors cannot be achieved using standard sized cables.

Understating costs in rural high-cost areas will create serious obstructions to bringing alternative forms of traditional and advanced communications to rural areas and will

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[19] The actual calculation divides the total investment, $6,000, by the total pairs, 100 to obtain $60 per pair. This number is in turn divided by the fill factor, .60, to obtain $100 per pair.

[20] This value results from dividing the investment per total line, $60, by the new fill factor, .75.

cause incumbent service providers to neglect those areas out of financial necessity.

Because TELUS, compared to national averages, has a disproportionate number of customers in areas requiring long loops in sparsely populated areas, TELUS will experience cost distortions that are amplified compared to the rest of the nation.[21]

FOE (Functional Operating Expense)

FOE (the cost of provisioning the loop, billing and collection, sales expense, and similar expenses) varies across regions according to many company-specific characteristics. For example, labor costs are a large component of FOE and vary among the provinces. In addition, many of the FOE costs are substantially fixed (e.g., creating and maintaining billing systems). By expressing all FOE costs as a fixed cost *per line*, companies having more lines may "recognize" higher costs while smaller companies will "recognize" lower costs, contrary to the fact that the costs do not vary per line.

In addition, for those FOE costs that do vary per line (e.g., provisioning the loop), there are significant economies of scale. The costs of provisioning 500 lines to a single university campus are quite different than the costs of provisioning one line to 500 premises. Thus even within each ILEC's territory, the mandated FOE cost per line (e.g., $1.65 per line per month for an unbundled loop) seriously overstates the cost of serving the university campus and seriously understates the cost of serving each rural premise.

Similarly, the costs of ILECs having a larger proportion of population in densely populated areas will have overstated costs and those ILECs having more lines in rural areas will have understated costs. A single FOE cost per line across all lines and companies is not credible and, worse, will distort subsidies and the development of competition in all areas of Canada.

Each company will have FOE costs that depend on its unique loop characteristics, its operations in its unique service territory, and on its quality of customer service. Company-specific FOE costs can be (and are, in the case of TELUS) measured using Activity Based Cost principles and practices and in accordance with the approved Phase II cost manuals.

Loop Maintenance Expense

In my experience, loop maintenance expenses and related maintenance expenses of residential service cannot be expressed as a percent of capital investment for several reasons: the per line capital cost of loops tends to fall as technology improves even while

[21] The two provinces served by TELUS are both in the lower fifty percentile among provinces as ranked by dwellings per square kilometer and population per square kilometer. For example, see the Revised Evidence filed by SaskTel in response to Public Notice 2001-119 dated 26 July 2002. Recall also that the in Decision 95-21, the CRTC had previously declared that density is the most important determinant of AGT's high loop cost.

maintenance costs (mostly labor) are rising; some maintenance costs (e.g., inspection of aerial cable) are more closely tied to route-kilometers than to number of lines – metropolitan areas will have larger cable sizes and thus lower inspection costs per dollar invested; labor costs for the same activity differ among regions of a country; vendor discounts on cable are not associated with identical discounts on maintenance labor; and so forth.

Three examples will serve to illustrate some of the basic problems with the "percent of capital" approach.

a. When cable vendors discount material (e.g., to reflect volume discounts), the reduced investment incorrectly reduces the reported cost of maintenance.
b. When maintenance labor costs rise, the increased cost will not be reflected in reported maintenance expenses if associated investment remains constant.
c. The highest *actual* maintenance cost per line often is associated with rural aerial cable which often has the lowest investment per kilometer of cable route.

Loop maintenance cost, in my experience, varies greatly among companies in ways that are entirely unrelated to loop investment.

7. "Actual" Phase II Company-Specific Costs are Auditable

There are many judgments that must be made in performing economic cost studies just as there are many judgments that must be made in recording information according to Generally Accepted Accounting Principles (GAAP). In both financial and economic cost development and reporting standards based on underlying accepted accounting principles and accepted economic principles (respectively) are established and followed. An audit determines two primary things: whether the company adhered to those standards, and the accuracy of the reported values. Some of the judgments pertain to forecasts that, by nature, cannot be known with certainty.[22] But the vast majority of facts and data in Phase II cost studies can be verified through standardized audit practices. In particular, the sensitivity of Phase II costs is less related to forecasts, assumptions and judgments made in the study than in the verifiable parameters that the CRTC has imposed on all ILECs alike. An audit of Phase II costs could determine accuracy of the vast majority of costs that are linked to company-specific data (e.g., current labor and equipment prices) and can set reasonable ranges for data that is not contained in those records (e.g., projected changes in labor and equipment costs that may apply during the reporting period).

I have participated in a number of extensive reviews and audits of incremental cost studies and incremental cost models. Briefly, the following elements of incremental costs are verifiable.

- For any selected standard definition of AWFF, fill factors can be verified in both

[22] Even in traditional accounting, some predictions must be made without the certainty of historical knowledge. For example, cost and revenue recognition practices are often based on forecasted timing of events that may or may not come to be, and forecasts of revenue-generating lives of equipment underlie the depreciation rates that pertain to categories of equipment.

feeder and distribution plant by examining current and historical engineering records and related data.[23]

- Current costs of labor, purchase prices of plant and equipment, and other resource costs can be verified by examining labor agreements, vendor contracts, and other records that specify the purchase agreements that pertain to the current and future time periods (these records cover the vast majority of resource costs that are used in a Phase II cost study).
- Loop characteristics for a company can be verified by auditing the loop census or by checking the statistical validity of the loop sample using scientific methods that are widely accepted for these purposes.
- FOE and loop maintenance costs can be verified using modern Activity Based Costing practices and by reference to current accounting records.

In summary, a significant proportion of Phase II costs can be audited to arrive at company-specific costs that meet the conditions of well-developed incremental cost studies. In some cases, national standards will be appropriate. Certain methodologies and parameters may be applicable to all companies. The parameters that can be imposed nation-wide are those that likely pertain to all companies uniformly (e.g., general inflation rates, national tax rates, productivity changes in the industry as a whole, interest rates before company-specific adjustments for risk, etc.). The methodologies will be those in the companies' filed Phase II cost manuals or by reference to standard methodologies that are within the scope of sound economic principles. To say "there is no single objective measure of 'actual' or 'true' Phase II costs" [Decision 2001-238 at paragraph 162] implies that any answer is as good as any other; there are no wrong answers. On the contrary, Phase II costs can and should be audited.

Each ILEC employs a Phase II cost manual that has been filed with CRTC. Verifying that the manual was followed, verifying that the reporting of the elements of cost is in accordance with that manual, and verifying that the reported data is confirmed by reference to contracts and similar company records would determine the extent to which costs vary by company and meet Phase II requirements. A qualified accounting firm familiar with the telecommunications industry and with incremental cost practices can perform such an audit to determine what costs differ among ILECs and by what magnitudes.[24]

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[23] Companies maintain engineering models and practices that minimize the overall investment in loops by managing fill ratios. This results in remarkable stability of distribution and feeder fill factors over long periods of time.

[24] Indeed, the FCC has undertaken audits of specific incremental cost models such as Telcordia's Switching Cost Information System (SCIS) in comparison to USWest's Switching Cost Model (SCM). State commissions in the U.S. are also beginning to verify company-specific costs by reference to vendor contracts, and similar data.

Qualifications and Experience of Dr. Richard Emmerson

I hold a Ph.D. in economics from the University of California, Santa Barbara (1971). I have been a practicing economist for over 30 years, specializing in telecommunications for 23 years. I was a member of the economics faculty at the University of California, San Diego from 1971 through 1983, serving as an Assistant Professor and Lecturer. During my academic career, I published articles in mathematical economics, urban and regional economics.

In addition to academic research, I have had experience teaching and consulting. A sampling of these activities is listed in two categories: teaching and consulting.

Teaching

From 1979 through 1984 I was responsible for designing and teaching the first courses offered by AT&T on incremental costing and competitive pricing.

Following divestiture by AT&T of its local operating companies, I continued to teach for AT&T Network Systems (later renamed Lucent) through 1998.

I also designed and taught the incremental cost curriculum for Bellcore Technical Education Center from 1984 through 1995.

I designed and taught the costing curriculum and a portion of the pricing curriculum for the United States Independent Telephone Association (USITA), and later for the United States Telephone Association (USTA).

I have designed and taught costing and pricing courses for: equipment providers (Lucent and Nortel), government agencies and educational institutions (Singapore, Malaysia, Indonesia, South African Telecommunications Regulatory Authority – SATRA, Thailand, Mexico, Colombia, Argentina, and a variety of state commissions in the U.S.).

In 1995 I was the Director of the Executive Program for Scientists and Engineers (EPSE), a graduate program offered at the University of California, San Diego. I taught Managerial Accounting in that program from 1987 through 1996.

Consulting

I have consulted on economics, public policy, costing, pricing and business strategies for private and government entities for 30 years. Among the industries in which I have consulting experience are: insurance, mining, transportation, electric power generation, manufacturing, information technologies, and telecommunications.

Only consulting especially pertinent to incremental cost is summarized here.

For Cincinnati Bell, I designed and supervised the implementation of MIDAS

(Management Information Decision and Analysis System) to determine the profitability of products and services in business and consumer markets.

For Southwestern Bell, I designed and supervised the building of PROMIS (PROduct Management Information System) for the Marketing Department to measure profitability by product, geography and customer segment.

For Hong Kong Telecom, I designed and supervised the building of PARADE, which measured the profitability of every tenant in every building in Hong Kong, Kowloon and the New Territories including remote islands. The costs considered the actual inventory of equipment in: all central offices, all routes of outside plant, and equipment placed in individual buildings.

For Ameritech, I designed and supervised the building of Mentor, a profitability measurement system that measured revenues and costs of services, market segments, geographical areas, and selected sales channels.

For ETB in Colombia, South America, I designed (for business decisions) CAPS (Cost and Profitability System) to measure the profitability of products and customer segments; and (for regulatory compliance) CAPS-Reg to measure the costs of interconnection.

For Nevada Bell, I designed and supervised the building of MIS (Management Information System) which measured forward-looking costs and revenues and reconciled those measurements with the accounting records of the company.

In partnership with Arthur Anderson, I designed and directed the building of ProfitMap and CostMap, two systems that measured the profitability and cost (respectively) of products, market segments, customer segments, sales channels, geographical areas and one additional "dimension" that could be selected by the company. The model could be operated to reconcile either with the accounting records of the company or the economic costs of the company.

For the European Union, I wrote the reports that were used to cost the local loop for purposes of designing "open network architecture" as a precursor to network unbundling.

For Bellcore (now Telcordia), I provided the conceptual architecture and algorithms for the economic cost content of network cost models for switching, the loop and inter-office transport.

For Citizens Utilities, I designed and supervised the building of CPMS (Citizens Product Management System) to measure the cost and profitability of services, market segments and geographical areas in several states..

For Pacific Bell, I designed and supervised the building of the CPM (Cost Proxy Model) which was (and still is) used to calculate the cost of residential service for purposes of measuring subsidies in high cost areas. The original model located each housing unit

served by Pacific Bell and calculated the cost of service by premise. Later versions protected the identity of individual households by aggregating households into small grids and other small geographical areas as prescribed by the CPUC.

For Bell South, Pacific Bell, and US West, I directed the building of BCPM2 (a combination of the BCPM built by US West and the CPM built by me for Pacific Bell), which was adopted in many states to measure subsidy requirements for state jurisdictions. Later, a "hybrid" of the FCC's model, the BCPM2 and the Hatfield model was created (now called the "Hybrid Cost Proxy Model – HCPM) and adopted for federal universal service subsidy calculations.

For Optus Communications in Australia, I designed costing systems that were adopted to measure the performance of products, marketing programs and other business segments. I used the output of the model to design transfer prices to be used in performance measurements.

For the Hong Kong Regulatory Authority, I designed and built the cost models that were adopted to measure the subsidy requirements for Hong Kong and surrounding territories.

For the Australian regulatory authorities, I designed and supervised the algorithms in the cost models that were incorporated into the measurements of subsidy requirements for Australia including the "outback" and other areas served by traditional and radio-based technologies.

For GTE I designed and supervised the building the ICM (Integrated Cost Model) that was used throughout GTE's (largely rural) service territories to measure costs of service based on Activity Based Costing (for maintenance and other labor-intensive activities) and detailed engineering design (for the capital-intensive portions of the business) for geographical areas covering the full range of population densities.

For Bell South, I designed and supervised the building of a highly sophisticated loop cost model (the Bell South Loop Cost Model) that simulates the engineering of loop plant based on detailed equipment requirements route-by-route using current equipment prices and other current cost data.

In 28 state jurisdictions I reviewed, refined or audited the incremental cost studies submitted to state commissions for setting tariffs and unregulated prices.

For Alberta Government Telephone in Canada I performed a detailed comparison between Canada and the U.S. of costs of the local loop considering differences in engineering, definitions of the loop, the detailed list of components used in each country, differences in fill factors, and differences in terrain, weather and other factors. I provided this information to the CRTC in testimony.

For TELUS, I performed statistical and economic analysis to determine the differences in costs among enumeration areas in Alberta and British Columbia to recommend a subsidy

structure that would reflect high cost areas at a more refined level than was adopted by the CRTC in the rebanding decision.

For the Government of Alberta, I am the economic advisor regarding SuperNet (the extension of broadband communications to 422 communities in the province) overseeing: 1) the impact of SuperNet on competition and the development of private markets; 2) the business case and financial integrity of the ten-year program; and 3) the cost and pricing of Internet and services to commercial wholesale customers of SuperNet.

For Verizon, I worked for two years refining the cost estimation and pricing of special constructions and competitive bids and training account representatives and engineers on improved pricing practices.

For SBC, I worked with the Wholesale Marketing organization to improve measurements of the cost and profitability of wholesale services to other long distance and local carriers and to improve pricing to become more competitive.

For New Zealand Telecom, I worked to define how costs and prices should be set for "essential facilities" and filed recommendations to the government.

Statement of
Mr. Mark H. Goldberg

Appendix C

Petition of TELUS Communications Inc. to
the Governor in Council
Government of Canada
to vary
Telecom Decision CRTC 2002-67
*TELUS Communications Inc. – Application to review and vary Decision 2000-745 and Decision 2001-2*38

January 22, 2003

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Regional diversity leads to variations in costs

A report for TELUS
January, 2003

Abstract

The cost to provide telecommunications services varies by region due to geographic topology, climate, population density, variability in economic and population growth forecasts, as well as the locations of central offices relative to areas of growth. These factors lead to varying provisioning practices in order to provide service with the greatest engineering economic efficiency. Based on these regional considerations, engineering resources at telecommunications carriers develop provisioning practices to best provide a specified quality of service for a minimum cost for a given forecast of demand. We conclude that variations between regions make it necessary to observe regional considerations in assessing metrics of capital efficiency such as working fill factors.

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Introduction

In this report, we discuss how regional diversity leads to differences in costs incurred in providing telecommunications service in Canada. We will first examine a number of sources of regional variation, such as variations in geographic topology, climate, population density, economic and population growth and municipal policy. We will then examine how these variables can affect capital and operating expense.

Among the roles of a network planner and engineer is the responsibility to cost-effectively address the regional variations and optimize the use of company financial resources. Network planners and engineers are required to balance a tension between providing the greatest amount of service capacity, for a reasonable amount of money, for a given quality of service. There is a healthy rivalry balancing the competing interests between increased quality of service and minimized capital expenditures; between target utilization factors and customer waiting times for new service installation.

In the summary, we conclude that variations between regions make it necessary to observe regional considerations in assessing metrics of capital efficiency such as working fill factors.

Varying Regional Conditions Cause Varying Costs

Telecommunication carriers incur different costs to provide services in different regions of the country, based on a number of regionally varying factors. The CRTC, in the past, has shared this view. For example, in Telecom Decision CRTC 98-22, the CRTC stated:

> The Commission considers that the significant factors affecting loop costs are loop length, loop density, supplier prices and labour costs. The Commission considers that a significant degree of variability among the ILECs may exist with respect to supplier prices and labour costs and that similar variability may arise with U.S. comparisons.[1]

Sources of Variability

It is our experience that there are significant differences in costs based on regional variations. Therefore, engineering principles that must be employed in different parts of the country will vary between companies, based on such factors as geographic topology, climate, population density, variances in economic and population growth forecasts, as well as the historical investments in various technologies and locations of central offices relative to areas of growth. In addition, municipal political conditions have become a factor which influences capital investment decisions due to challenges in negotiating access on municipal rights of way.

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[1] Telecom Decision CRTC 98-22, *Final Rates For Unbundled Local Network Components*, paragraph 6. At paragraph 7, the CRTC continued, stating:

> The Commission further considers that there are numerous other factors that affect unbundled loop costs. These include the feeder/distribution ratio, the cable construction mix for feeder and distribution (i.e., aerial, buried and underground), the circuit mix (i.e., copper loaded or unloaded, pair gain systems) and cable gauges and sizes, along with adjustments for loops that are deployed on integrated remote systems.

Variations in Geographic Topology

- Equipment placed in telecom industry locations in the lower mainland of British Columbia requires earthquake bracing – extra steel reinforcement – to protect sensitive electronic equipment against damage from vibrations;

- Fibre optics (and indeed, all wireline connections) are much more expensive to deploy through rocky terrain (such as that found in most of TELUS territory, in northern Ontario and that of Aliant – Newfoundland) than through the prairies.

- A high water table in the lower mainland leads to additional engineering challenges in order to keep cabling dry. While the cost of the cable itself is constant per linear measure, the cost of installation varies substantially based on the terrain. The cost of the cable is generally a small fraction of the overall project cost. Hence, variations in the installation cost create a substantial variation in the overall cost of the cabling project.

Variations in Climate

- For example, microwave towers in some parts of Newfoundland and on mountaintops may require extra bracing to protect from hurricane force winds. In warmer climates, aerial placement of telephone wires on poles may provide a low cost and acceptable method of distribution. Areas susceptible to ice storms will generally find buried cable a more robust method of placement.

- Those parts of the country that typically have a long winter freeze-up season experience higher cable placement costs and a need to revisit

feeder cable repairs performed during the winter in order to bury the cable in the spring. Certain regions have construction periods that only occur during the winter, when lakes or bogs have frozen over, thereby providing temporary "road" access.

- Regions with a prolonged wet season due to rain or spring thaw experience typically higher repair costs and greater levels of trouble with older cables that may have problems associated with dampness in the paper insulation in the distribution cable.

Variations in Population Density

- The CRTC defined High Cost Serving Areas as[2]:

> a) wire centres or exchanges with less than or equal to 1,500 total NAS;
>
> b) wire centres or exchanges with greater than 1,500 and less than 8,000 total NAS, and where the average loop length is greater than four kilometers; and
>
> c) remote wire centres or exchanges (e.g., without year-round road access or found in remote parts of a company's serving territory).

- Areas of low population density, such as in rural communities, have very long distances from the average user to the central telephone switching centre, as noted in the first two criteria under the CRTC definition. The low population density increases the cost on a per user basis, as the CRTC

[2] Decision CRTC 2001-238: *Restructured bands, revised loop rates and related issues*, April 27, 2001.

itself has acknowledged in the past[3], because of extraordinary loop lengths. In addition, since distribution and feeder cable is only available in specific sizes, there are often substantial inefficiencies associated with cable installed in rural areas and a reduced opportunity to achieve a high utilization of these access facilities.

- Low population density regions also vary between farming versus mining or forestry. In farming areas, there is a low-density penetration of telephones throughout a very large geographic area leading to longer (and therefore, more costly) local loops. Conversely, in more mountainous areas, it is may be more common for there to be large areas of un-serviced territory with a large number of very small towns, each having its own switching centre, more akin to the third CRTC definition of a High Cost Serving Area.

- There is a difference between the types of communities identified in the CRTC definitions. In the case of remote wire centres, costs vary based on the ability or inability to readily gain access to communities in remote locations. In these remote wire centres, the challenge is in access to the community itself, for connectivity to the community and for maintenance

[3] In the proceeding leading to Telecom Decision CRTC 95-21, *Implementation Of Regulatory Framework - Splitting Of The Rate Base And Related Issues*, parties had challenged AGT (a predecessor company to TELUS) in respect of its higher loop costs. In section II-B of the Decision, the CRTC stated:

> With respect to AGT's local cost comparison study and the concerns expressed by interested parties, the Commission concludes that the study results represent a reasonable comparison of AGT's loop costs with equivalent U.S. costs, and that the evidence supports the identification of access line density per square kilometer as the key explanation for the higher AGT loop costs.

See also Telecom Decision CRTC 99-16, *Telephone Service To High-Cost Serving Areas*, where the CRTC stated, at paragraph 71, "The cost of providing local service varies with the loop length and densities within each band."

access. In many cases, there are communities on islands or located on inlets that can only be reached by boat or airplane and other communities that do not have year-round road access. While these communities have small populations, their remoteness increases both the initial service installation costs and the ongoing maintenance costs. It is common for these costs to be more than an order of magnitude (ie. more than 10 times) higher than equivalent costs in urban areas.

- In the case of certain communities (such as forestry), it is common for there to be wide seasonal variations. Each of these types of communities attract different operating and maintenance costs to provide telecommunications services.

- Service Improvement Plans have been established by the CRTC to provide service to communities that have previously been un-served or underserved. The costs of serving these communities are recovered through a subsidy mechanism for high-cost locations.[4]

Variations in Economic and Population Growth

- High annual variations in economic or population growth leads to differences in engineering philosophies. Where growth rates vary widely from year to year, forecasts are generally unreliable and may lead to a strategy of over-engineering in order to be able to safeguard sufficient network capacity to provide service in accordance with service

[4] We note however, that if the costs for these locations are understated (because of cost constraints imposed by the Commission), then insufficient funds will be available to cover the costs to provide service and to maintain service in these locations.

provisioning intervals. In an environment of stable growth, engineering staff can more accurately plan growth projects in a more orderly fashion.

Variations in Municipal Policy

- Certain municipalities are more cooperative than others in encouraging or discouraging carriers to place fibre or copper cable infrastructure in their communities. All of the major carriers have all been parties to processes before the CRTC seeking orders to provide access at more reasonable rates with the mosaic of municipalities and other entities controlling key rights of way and bridges. Despite a recent court ruling upholding the specific case in the CRTC's Decision CRTC 2001-23: *Ledcor / Vancouver – Construction, operation and maintenance of transmission lines in Vancouver* on this matter, in practice, there is continued lack of clarity in governing the more general relationship between municipalities and carriers.

The Impact of External Variables on Network Costs

Having observed incumbent and competitive carriers throughout Canada and abroad, it is our experience that network engineers seek means to provide services in the most economically efficient manner. Capital and ongoing maintenance and administration costs for a carrier are incurred to generate revenue from the delivery of services to a subscriber base. These are important factors. For a given amount of cost, a certain capacity for delivery of service can be provided at a specific level of quality.

Capital Impact

Network related capital expenditures are planned, ordered and project managed by an organization generally known as Network Engineering and Planning. When planning a capital project, telecommunications companies have developed project "life expectancies" for the engineering and installation effort. The planning department uses guidelines that suggest how long the capacity added by a certain project should last, in order to maximize capital efficiency while minimizing potential service interruptions. A measure of capital efficiency is found in the Average Working Fill Factor (AWFF), which is loosely a ratio of the working unit of capacity consumption divided by the capacity available for use (eg. the number of working lines divided by the line capacity).

Network Planning Studies

The primary means of determining a course of action for Network Engineering projects are the use of engineering economic studies. This tool, often referred to as an NPV (for "Net Present Value") study, examines the relative effective cost of various alternatives to achieve the same end result. Such studies are prepared by

a planning organization and then scrutinized by various levels of management, based on the magnitude of the project and the signing authority of the reviewing management or executives. In some cases, only the Board of Directors of the company can grant project authorization.

Such studies, performed on a macro level, also form the basis of CRTC regulatory filings, known as Phase II cost studies. Phase II costing is used to determine the costs incurred by a telephone company that are associated with a specific service. Parameters for these studies vary by company (such as: costs of capital, debt equity ratios, asset life tables, terminal value treatment, etc.), yet the principles and models should be consistent. The Phase II costing rules were established nearly a quarter century ago in Decision CRTC 79-16 and have been reviewed and adjusted from time to time. The preparation of the inputs to these models is placed in the hands of professional network planners, often certified Professional Engineers, and the results are generally reviewed by corporate controllers, in the course of project approvals and for the purpose of annual and mid-year budget cycles.

Network Provisioning Practices

There is a balance involved in network provisioning, examining the appropriate mix of concerns for capital efficiency, quality of service and capacity augmentation.

For most “inside plant” capital projects, such as switching equipment in major centres, most of the equipment is marginally incremental in the amount of capacity added, such as adding circuit packs providing individual line capacity. The life expectancy of an “inside plant” capital project would typically be in the

order of one-year project intervals. In other words, the engineers plan to return the following year to add more capacity. As such, sufficient capacity is installed to meet the forecasted requirements with a reasonable buffer to accommodate forecast variations.

For "outside plant" projects, such as distribution cabling, capacity is added in much larger quantities. As such, the provisioning interval for outside plant projects will typically be much longer. Because so much of the cost is in the installation, along with factors like public inconvenience associated with roadwork, an engineer will seek to prolong the useful life of the initial project by installing a greater amount of spare capacity. In essence, a carrier would want to ensure that it does not need to reinforce a particular route for a longer period of time.

The provisioning interval for such projects is defined as "ultimate use"; the company considers the zoning for the area and places sufficient distribution cable to meet the future requirements for the community under development. As a result, the general provisioning philosophy for placing buried distribution cable is to engineer a route with sufficient cables such as to minimize the probability of having to return. Considerations also include an examination of the level of effort to receive permissions for construction along public and private rights of way. In order to provide reasonable customer service installation intervals (i.e. the time between receiving a customer order and the time service is installed), the engineering department for a carrier will anticipate demand using a variety of forecast tools and will provision additional amounts of spare capacity in order to avoid the need to rebuild a route in the future.

This has the effect of raising the average initial cost per working cable and lowering the working fill factor, in an effort to provide the best long term economic provisioning cost. The net result is that average utilization is lower – measured as the working fill factor and its construction cost of placement is higher as a result of placing greater capacity than required on average.

This does not mean that the carrier did the wrong thing by installing excess capacity; on the contrary, the carrier's engineering department developed the least cost means of serving the expected demand. The costs are completely appropriate in order for the carrier to most efficiently provide the required capacity to provide the specified level of service quality.

Each of the regionally varying factors creates different engineering considerations, which determine economic sizing of outside plant. Regardless of the form of regulation, be it rate of return or incentive based regulation such as price caps, it has been our experience that network engineers and planners are measured on their ability to balance the tension between providing the greatest amount of service capacity, for a reasonable amount of money, for a given quality of service. There is a healthy rivalry balancing the competing interests between increased quality of service and minimized capital expenditures; between target utilization factors and customer waiting times for new service installation.

The engineering organization works with the most current demand forecast, examines the designed life expectancy for the project and determines the required level of capacity to be added, with a view to the quality of service to be provided. On one hand, incumbent carriers such as TELUS are expected to have new service installed and activated within certain time frames, in order to meet

customer and regulatory expectations. On the other hand, in order to do so requires that the company maintain inventories of spare capacity, yet such inventory is constrained by corporate financial realities. Inventory that does not produce revenues is simply not financially sustainable.

Population Growth

For most of the 1990's, economic growth in the lower mainland of British Columbia was exceptionally high. In addition, there have been large swings in the economic growth rates in parts of Alberta. For "inside plant" projects, using a relatively shorter engineering life cycle, the variability in the growth rates has generally limited impact, because of the engineering philosophy to limit the forecasted life of a project to only one year. If there is a sudden increase in demand beyond that which was forecasted, a relief project can be initiated as the increased utilization begins to materialize. On the other hand, if the expected growth does not materialize, then the scheduled project for the following year may be delayed until the excess capacity is consumed.

In the case of "outside plant," engineers and planners work with much longer provisioning intervals, including, in some cases, the forecasted ultimate capacity requirements. Severe variability in population and economic growth therefore has a more substantial impact on the per unit capital costs of "outside plant" investment. If the forecasted growth does not materialize, the plant in inventory does not get consumed, the utilization is lower than forecasted and the investment per unit of capacity that is in service becomes very high. On the other hand, if growth exceeds the forecast, in the extreme case, the capacity could become exhausted, leading to a requirement to add additional capacity at a very high cost.

According to an Industry Canada review of Telecommunications Services, the following growth rates were observed.[5]

Year	National	Telus - Alberta	Telus - BC
1989	3.4%	2.1%	4.3%
1990	2.7%	2.4%	4.3%
1991	2.2%	1.5%	3.6%
1992	2.2%	2.5%	4.5%
1993	2.2%	2.0%	4.3%
1994	2.0%	1.7%	3.7%
1995	1.5%	2.2%	3.0%
1996	1.2%	2.4%	2.9%
1997	2.2%	3.5%	2.7%
1998	1.4%	3.4%	0.9%
1999	1.1%	1.1%	0.6%
2000	Not Available	2.4%	1.1%
2001	Not Available	1.0%	-0.5%
CAGR	**2.0%**	**2.2%**	**2.7%**

Table 1: Growth Rates of Residential Wireline Access Lines

Coupled with other factors, wireline NAS (Network Access Services) growth has been very difficult to predict (although it has been trending in recent years to a contraction in total number of lines[6]). Table 1 above shows variations in growth rates between Alberta and British Columbia and the variation from the national average. In addition, there are significant variations on a more localized basis. Different demographics lead to different levels of penetration of second line services. In those areas where high-speed internet service is not generally available, second lines are more desirable for computer access. Other areas, typically with higher income levels, have greater demand for second or third lines for calling, fax and perhaps internet access. In many cases, demand for second

[5] National figures are from Industry Canada, *Telecommunications Service in Canada: An Industry Overview 1999-2000: Table 3-4* and confirmed in Table A-6 in the 2000-2001 edition (published in 2002). TELUS information from company results.
[6] See Table 1 at page 13

line service varies with the availability of good quality mobile service and high speed internet service.

AWFF in Times of Declining Numbers of Lines

As seen in Table 1 above, NAS are now in decline, largely due to replacement of second phone lines with mobile services and the increased penetration of high-speed internet services from cable companies and telephone companies. Both of these technologies result in lower demand for multiple line services in residences and in some households, these technologies are actually replacing primary line services.

As can be observed from Table 1, growth trends have generally been declining, due to the factors discussed above. The table also demonstrates significant regional differences between the provinces and differences from the national observed growth. Another important observation of relevance for the planning of capital spending is the variation from the long-term trend. If capital expenditures were tied strictly to growth in lines, one would expect that no incremental capital would be required to satisfy the total demand for new residential lines in British Columbia, since the province experienced negative growth in the year 2001. Of course, this is not the case, since capital cannot be spent on a macro-economic basis. One simply cannot tear up the extra capacity from cancelled second lines and re-install this equipment to service new housing developments.

It would therefore be extremely difficult for an incumbent to increase its utilization of distribution facilities, measured as AWFF, under the condition of generally declining overall demand. Even if the phone company imposed a complete freeze on new additions to its access plant, it would continue to

experience declines in its AWFF, as customers continue to substitute data and wireless services for their conventional lines. In the meantime, of course, such a freeze is not possible unless there is also a complete freeze on new home and office construction. Builders expect their residents to have phone service ready at the time of move-in.

In an environment where line growth has stagnated, it is difficult to see how the AWFF could rise for existing feeder and distribution plant. Looking at AWFF mathematically, the numerator (working lines) is trending lower, while the denominator (capacity) will continue to rise, due to the need to place additional distribution and feeder plant in order to meet the requirements of population growth and real estate development. For this reason, we do not believe that it is reasonable to expect that an incumbent carrier will be able to attain the national standard AWFF measures for distribution plant set by the CRTC in Decision 2001-238.

Arbitrarily setting a national objective for increasing the AWFF metric is similar to the problem with using a "top-down" view of capital forecasting. If overall growth is small, or even negative, a top-down perspective would dictate that spending be frozen. This ignores the regional or local characteristics that observe considerable construction required for new developments. Costs are actually incurred on a project-by-project basis and therefore, funding requirements are best determined by understanding regional conditions.

Operating Expense Impact

Network Operations is the organization in most telecommunications companies that incurs network related operating expense. Such expense is incurred in

maintaining the network infrastructure that is commissioned for service by the Network Engineering department. The status of modern telecommunications systems can be monitored remotely, enabling a centralized network management centre to observe conditions across a very large geographic area. While monitoring functions can be performed remotely, corrective action will still require intervention by operations personnel, to change defective circuit boards, rearrange wiring, or repair faulty lines, to name but a few of the activities. The costs to perform these activities will vary regionally.

For example, in remote communities, there is an increased expense associated with reaching communities at certain times of year. This is also a matter of balancing reasonable levels of expenditures against the quality of service, specifically the mean time to repair a service outage. The time it takes to dispatch a technician in a major urban centre is considerably less than that required in a more remote part of the service area.

Normally, field operations personnel are assigned on the basis of the number of lines under their sphere of responsibility. In remote areas, these indicators are usually distorted by at least two factors. First, companies need to maintain personnel on the basis of being able to respond to a service outage in a reasonable amount of time. This could require deployment of people in remote areas where the low number of lines not normally justify the resources.

Secondly, many types of service outages, such as cable cuts, are correlated to the number of kilometers of outside plant cable, and the type of cable (such as buried or aerial) independent of the number of lines in service within the sheath of cable. As defined by the CRTC, in rural areas, distribution and feeder cable lengths often average more than four kilometers. As such, these could attract a

disproportionate share of outages, associated with accidental farming or construction cable cuts, among other sources of outages. In this way, it is expected that there would be variability in operating expense costs associated with variations in population density.

As discussed above, there may be significant variations in the costs to dispatch a technician to perform a repair in a remote site, based on the accessibility of the location, the time of year, and the weather conditions. Certain regional weather conditions can create more frequent service disruptions, such as wet cable conditions caused by prolonged rainy seasons or extended spring thaw conditions. In addition, weather can affect the costs to repair cabling. For example, when feeder cables are replaced in the winter, it is common practice to return in the spring to bury the cable. This has the effect of doubling the number of site visits for maintenance work.

Variations in municipal policy and access to various rights of way can cause variations in functional operating expenses and maintenance expense, in addition to capital provisioning issues discussed above. In a number of situations, negotiations with municipalities have delayed access to public rights of way for carriers seeking to augment cable infrastructure until agreement has been reached on the fees payable from the carrier to the municipality. As a result, there continue to be regional variations in costs associated with access to public and private rights of way.

Summary

The telecommunications industry tends to operate on razor thin coupled with billions of long distance minutes, trillions of bits of data, millions of lines to generate the profits that drive further innovation, investment and jobs. Fully understanding costs and aligning prices to those costs are the key factors that differentiate between success and failure of industry participants. Network engineering departments are measured on their ability to plan and implement cost effective capital projects to meet specified service quality levels and to provide sufficient capacity to meet customer demand. Network operations departments are similarly measured on their ability to cost effectively provide satisfactory repairs and maintenance, in accordance with service quality metrics.

It is our experience that telecommunications costs vary across Canada based on the sources for regional diversity that are identified in this report. Telecommunication carriers experience a variety of regional variations in conditions that must be considered by their network engineering organizations in order to install and maintain telecom service. As a result, it is our experience that carriers will incur different costs to provide services in different regions of the country.

Arbitrarily setting a national objective for increasing an AWFF metric is similar to the problem with solely using a “top-down” view of capital forecasting. If overall growth is small, or even negative, a top-down perspective would dictate that spending be frozen, ignoring regional characteristics that observe considerable construction required for new developments. Costs are actually incurred on a project-by-project basis and therefore, funding requirements are best determined by consideration of regional conditions.

As long as there continues to be new construction or real estate development, ILECs will be required to continue to expand their feeder and distribution plant. Coupled with this continued requirement for expansion in capacity is a reduction in the number of working lines. Therefore, we do not believe that it is reasonable to expect that an incumbent carrier in Canada will be able to attain the national standard AWFF measures for distribution and feeder facilities set by the CRTC in Decision 2001-238.

Credentials:

Mark H. Goldberg & Associates Inc. is a telecommunications industry consulting practice that specializes in assisting its clients to understand the implications of changes in competitive markets. Drawing on 23 years of global industry experience, for more than 6 years, the firm has assisted clients in Canada and around the world in all sectors of the industry: new entrants and incumbents, end users, manufacturers and software suppliers, government regulators and industry associations.

Mark Goldberg is the president of Mark H. Goldberg & Associates Inc. He has been involved in the planning, engineering, operation and management of national and global telecommunications networks, for both incumbents and new entrants. In the course of his corporate career, he served as Vice President Network Services for Sprint Canada, where he was responsible for the planning, engineering, administration and operations of its national network. He held similar responsibilities for TelRoute Communications Inc. As such, he has direct experience in the construction and operation of advanced, competitive telecommunications networks in Canada.

Prior to these positions, he created the discipline of Regulatory Technology at Unitel Communications (a predecessor to AT&T Canada). In this role, he was responsible for the development of telecommunications network interconnection architectures for the introduction of telecommunications competition in Canada. He has testified on competitive network architectures before the CRTC in proceedings that led to its landmark decisions related to long distance and local competition. He also prepared cross-examination and participated the CRTC

reviews of capital spending programs by the incumbent carriers, including TELUS and its predecessor companies.

His background includes serving as Western Regional Manager, based in Denver, Colorado, for Bell Northern Research (BNR), the research and development arm of Nortel Networks, acting as a liaison with the research activities for US West (now Qwest). Prior to this, He was with AT&T Bell Laboratories, based in Holmdel, New Jersey, responsible for AT&T's voice services proposal for the United States federal government communications system, known as FTS-2000.

His career began with Bell Canada's regional network administration and engineering organizations, based in South-Western Ontario.

Statement of
Dr. Hudson Janisch

Appendix D

Petition of TELUS Communications Inc. to
the Governor in Council
Government of Canada
to vary
Telecom Decision CRTC 2002-67
*TELUS Communications Inc. – Application to review and vary Decision 2000-745 and Decision 2001-2*38

January 22, 2003

Principles of Canadian Telecommunications Policy: Change and Continuity
Statement of Dr. Hudson Janisch

1. Qualifications

I hold the Osler, Hoskin and Harcourt Chair in Law and Technology in the Faculty of Law at the University of Toronto. I am currently on sabbatical as the Douglas McK. Brown Visiting Professor at the Faculty of Law, The University of British Columbia. I hold graduate degrees from Cambridge University and the University of Chicago, from which I received my full doctorate in law (J.S.D.) in 1971, the year I was called to the bar of Ontario.

I have had an active involvement and interest in Canadian telecommunications law and policy for some 35 years, starting with an intervention in Bell Canada's 1968 rate application before the Canadian Transport Commission. Subsequently, I gained experience in provincial regulation before the Nova Scotia Board of Commissioners of Public Utilities while teaching at Dalhousie University and in federal regulation before the Canadian Radio-television and Telecommunications Commission (CRTC) while teaching at the University of Toronto and chairing the Regulated Industries Program of the Consumers' Association of Canada.

I have taught a wide range of domestic, international and comparative courses on most aspects of telecommunications regulation and policy at a number of university law schools and in many continuing education venues. I have written extensively on the subject of regulation and have consulted widely for government, industry and users. With graduate student Craig McTaggart, and with financial assistance from the University of Toronto's Centre for Innovation Law and Policy, I developed an entirely new course, "Internet Law and Governance" which we offered at the Faculty of Law in

2002. In June, 2002 I was awarded the Allan W. Mewett, Q.C. Award for Excellence in Teaching by the graduating class. As well, I have taught extensively in the Masters of Engineering Program in the Edward S. Rogers Sr. Department of Electrical and Computer Engineering at the University of Toronto.

I received the Canadian Business Telecommunications Alliance (CBTA) 1991 Honourary Award in Recognition of Leadership and Significant Influence on the Canadian Telecommunications Environment. Most importantly for present purposes, in 1992 I acted as Counsel to the Senate Committee on Transportation and Communications in its detailed pre-study of Bill C-62, the proposed new telecommunications act under the chairmanship of Senator Donald H. Oliver, Q.C. The Committee's report and recommendations were largely adopted in the final legislation passed in 1993.[1]

In this statement, I draw directly on this extensive experience and involvement in order to show that despite many recent changes, there has been a high degree of continuity in the basic principles underlying Canadian telecommunications policy.

2. Evolution of the Telecommunications Policy Framework

It is essential to an understanding of the current policy framework to keep in mind that until quite recently the Canadian telecommunications industry was made up of regionally-based and regulated monopolies. Moreover, in the transition to full federal regulation and competition, residual monopoly services continued to be regulated on the same basis as previously, while care was taken to ensure that regional differences were not overlooked in the move to centralized regulation. It is also particularly important to remember that there had been a long period of federal and provincial, company-specific regulation and that competition in the federal sphere had been introduced as early as 1979 under the old *Railway Act*. The *Telecommunications Act* of 1993 thus incorporated long-

[1] See H. N. Janisch, "At Last! A New Canadian Telecommunications Act," *Telecommunications Policy,* 1993, p. 691.

established principles of monopoly regulation and endorsed the early approach to competition adopted by the regulator, the Canadian Radio-television and Telecommunications Commission (CRTC).

Monopoly regulation had long been based on three foundational policy principles. First, rates charged by carriers were to be "just and reasonable". Second, there was to be no "unjust discrimination" or "undue preference" in the provision of service. Third, carriers were obliged to serve all customers requesting service except where the governing statute or tariffs approved by the regulator provided otherwise. Of these policy principles, the concept of just and reasonable rates was particularly well developed. In its essence, it meant that rates had to be just and reasonable for *both* the company offering the service and the customers receiving the service. Rates had to be high enough to allow the carrier a reasonable opportunity to recover the cost of providing its services (including its cost of capital), and at the same time they had to be low enough to ensure that customers did not pay more than the company's cost to provide service. As we will see, this principle was specifically carried over into the policy incorporated in the *Telecommunications Act.*

In 1979, the CRTC issued what was to be the first in a series of decisions that incrementally introduced competition into all telecommunications markets in Canada. This decision permitted CNCP Telecommunications (now AT&T Canada) to interconnect its network with the switched local distribution network of Bell Canada for the purpose of providing competitive data and private voice services. In so doing, the CRTC established three fundamental policy principles of enduring quality. First, competitors were now entitled to gain access to essential facilities of the incumbent to provide the type of competition endorsed by the Commission. Second, the just and reasonable rates to be charged to competitors for access to essential facility local networks were to be based on the costs of providing those services plus a markup to recover overhead cost. Third, incumbent carriers were not to be compensated for the loss of business to competitors made possible by this mandated access to their networks, but were permitted to recover their costs to subsidize residential services carried over the

networks they had built and operated, particularly in rural parts of Canada. As we will see, while details in the application of these three policy principles have changed with technological advances and the spread of competition, the principles themselves have remained intact.

3. The New Telecommunications Act

It was into this well-established environment of just and reasonable rates and the terms on which access to essential facilities would be granted, that Parliament enacted the *Telecommunications Act* in 1993. In so doing, Parliament did not seek to change any of the fundamental policy principles of just and reasonable rates, non-discrimination and carrier obligations to serve. Nor did Parliament seek to overturn the basis on which the CRTC had been gradually introducing competition into the telecommunications industry.

It also should be kept in mind that in Section 7 of the *Telecommunications Act* setting out the objectives of the Canadian Telecommunications Policy, adopted a listing approach without specific weighting. The Senate Committee had recommended an alternative version of the Telecommunications Policy based on a draft by Dr. Richard Schultz of McGill University which would have made it clear that a commitment had been made to competition as the primary means of achieving reliable and affordable service. [2] This approach was rejected by the government. As a result, in choosing to foster reliance on market forces, the CRTC must continue to give weight to the other policy objectives, including affordability and concern for the regions of Canada.

We need now to explore more fully the continuing role of just and reasonable rates, and the principles on which they are based, along with on-going concern for a regional, company-specific focus for regulation.

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[2] The Senate of Canada, *Report of the Standing Committee on Transportation and Communications on the Subject-Matter of Bill C-62, An Act Respecting Telecommunications*, Third Session, Thirty-Fourth Parliament, June 1992, p. 41.

4. Just and Reasonable Rates: A Principle at the Heart of Canadian Telecommunications Policy

Even prior to any statutory enactments, the common law had long recognized the right to a cost recovering reasonable return for entities required to provide service to the public. The continued vitality of this common law right may be seen where a provision in legislation specifically allowing for a fair rate of return was repealed, the Supreme Court of Canada nonetheless concluded that there was still an entitlement at common law to a fair rate of return. Moreover, the Court said that such a right was protected by the principle that a statute should not be held to take away private rights of property without compensation, unless the intention to do so is expressed in clear and unambiguous terms.[3]

Fidelity to the policy of just and reasonable rates had sought to achieve two interrelated, but not oppositional objectives: first, to protect consumers from any possible abuse of monopoly power in rate setting, second, to ensure that carriers recovered their costs so as to be able to continue to provide that service. In short, as we have seen, rates were to be just and reasonable for *both* customers and carriers. The common law and principles of statutory interpretation have supported the idea of a regulatory bargain in which the regulated company gives up the right to set its own prices on the understanding that the regulator will ensure that in setting just and reasonable rates it will be able to recover its costs, including the cost of attracting new investment.

In 1993 this well-established policy principle was specifically incorporated as a central concept in the *Telecommunications Act*. Section 47, which governs the exercise of the CRTC's regulatory powers, provides that they are to be employed to ensure that Canadian carriers charge rates in accordance with section 27 of the Act. Section 27(1) stipulates that, "Every rate charged by a Canadian carrier for a telecommunications service shall be just and reasonable."

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[3] *B.C. Electric Ry Co. Ltd.* v. *Public Utility Commissioners of B.C.*, [1960] S.C.R. 837. It should also be noted that in *Ottawa Electric Railway Co* v. *Nepean (Township)* [1920] 60 S.C.R. 216, the Supreme

Of course, the Act did envisage a move towards greater reliance on competition and it was recognized that this would require that the regulator be given more flexible powers than it had been in the monopoly era, although this was not, as we have seen, at the expense of other considerations. Thus section 27(5) of the Act provides, "In determining whether a rate is just or reasonable, the Commission may adopt any method or technique that it considers appropriate, whether based on a carrier's return on its rate base or otherwise." This does not in any way undermine the pre-existing principle that a fair rate of return is inherent in the determination of just and reasonable rates. All it addresses is the method of determining such rates, not their essential characteristics. A provision governing regulatory methodology does not change a substantive entitlement. Thus where, with the advent of competition, the CRTC moved to incremental costing, this did not change the principles underlying of just and reasonable rates.

5. Telecommunications Policy and Regional Differences

As we have seen, a major feature of Canadian telecommunications has always been its regional character. The Supreme Court of Canada had only held in 1989 that all major regional carriers were subject to federal jurisdiction. This ruling raised a concern that it would lead to an inflexible form of unitary regulation which would not be sensitive to regional differences. As Dr. Richard Schultz and I urged in 1991:

> [W]e believe that monopoly federal regulation is not necessary to satisfy national telecommunications policy and regulatory objectives. In our view, Canada requires a truly federal, not a unitary, regulatory system and this system should incorporate a version of two-tier regulation in which multiple regulators co-exist within a hierarchical, but diverse, public policy system. Hierarchy is necessary to ensure that national policy needs

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Court of Canada expressly confirmed the continuity between the common law and subsequent statutory formulations of the requirement of just and reasonable rates.

> can be met while diversity will permit legitimate provincial aspirations to be pursued.[4]

While the federal government was not prepared to adopt a two tier system of regulation as in the United States,[5] it did go to considerable lengths in responding to widespread concerns that centralized regulation would ignore regional differences. Although it was recognized that a coherent national policy and regulatory approach was required, this was not envisaged as being at the expense of regional flexibility. As Perrin Beatty, the Minister of Communications put it, "Our goal is to ensure that within the context of national regulation, the coherent national policy with a national marketplace, we can recognize that needs in Canada vary from region to region and that there is room for flexibility." [6]

This policy concern to recognize regional differences was to be given concrete form both in provisions of the Act itself and in related legislation, as well as in consultative mechanisms adopted in bringing previously provincially regulated carriers into the federal regulatory sphere.

The first two objectives of the Act's Canadian Telecommunications Policy set out in section 7, provided that it was, "(a) to facilitate the orderly development *throughout Canada* of a telecommunications system that serves to safeguard, enrich and strengthen the social and economic fabric of Canada *and its regions*; (b) to render reliable and affordable telecommunications services of high quality accessible to Canadians in *both urban and rural areas in all regions of Canada*." Most significantly, the Commission is required under section 47 to exercise its powers with a view to implementing these telecommunications policy objectives set out in section 7.

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[4] H. N. *Janisch* and R. J. Schultz, "Federalism's Turn: Telecommunications and Canadian Global Competitiveness," (1991) *Canadian Business Law Journal*, 1 at p. 2.

[5] It remains interesting to note that the Minister said at the time that extensive provision was being made for consultation " … because we felt that even though the Supreme Court had given us the jurisdiction, we wanted it to be done in an orderly way to *satisfy the just requirements and demands of the provinces.*" Senate of Canada, *Proceedings of the Standing Committee on Transportation and Communications*, Issue No. 12, May 4, 1992, p. 43 (emphasis added).

[6] *Ibid*., p. 41.

As well, it was provided in section 13 that prior to the issuance of any directions on broad policy matters by the Governor in Council (Cabinet) to the CRTC (s. 8), and before the Cabinet varied, rescinded or referred back a decision of the Commission (s. 12) and prior to an order establishing technical standards (s. 15), the Minister of Communications, before making any recommendation to cabinet colleagues or issuing order, must notify a minister designated by the government of each province of an intention to make a recommendation or order, and provide an opportunity for consultation. [7] At the same time, a good deal was made of the 1991 amendments to the *Canadian Radio-Television and Telecommunications Act* for regional commissioners at the CRTC. As the Minister put it, "The regional commissioners will be able to reside in the regions themselves. This will create the new ability to strike regional panels of the CRTC to deal with regional issues." [8] Overall, there was so much emphasis on a regional focus for regulation that Liberal Senator Graham from Nova Scotia, expressed his concern that this would lead to "patchwork regulation." [9]

Even though the Supreme Court of Canada had handed the federal government a clear constitutional mandate over the major telecommunications carriers, the government went about implementing its new authority in a very deliberate, consultative fashion. This involved an extensive exchange of letters and memoranda of agreement with the affected provinces. Recognizing that the inclusion of provincially government-owned carriers might be somewhat difficult, the Joint Federal-Prairie Task Force was established with a mandate to investigate whether government ownership required a different form of regulation. Although the Task Force's report did not consider that this would be so in the longer term, the federal government held back from simply imposing its authority. Manitoba Tel was granted a year's extension while Sask Tel was exempt from the *Telecommunications Act* for a number of years. As well, when smaller local telephone

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[7] It was clearly envisaged at the time that directions from the cabinet would be the principal means of establishing policy. Hence the extensive provisions for provincial consultation. As Minister Beatty put it "… this bill guarantees an ongoing sensitivity to regional needs throughout Canada, including an unprecedented degree of participation by the provinces in developing and implementing policy." *Ibid*., p 9. In practice, it has been the CRTC which has made policy.

[8] *Ibid*., p. 10.

[9] *Ibid*., p. 41.

companies were brought under federal jurisdiction by a subsequent decision of the Supreme Court of Canada,[10] the CRTC went out of its way to avoid imposing a "one size fits all" approach to costs for regulatory purposes.

All this indicates that concerns for regional and carrier differences were high on the policy agenda in the implementation of federal jurisdiction. It was simply never envisaged that the new Act would lead to the application of undifferentiated standards across the country. Indeed, once the CRTC started regulating the formerly provincially-regulated carriers, it did so on a case by case company-specific basis in a manner which reflected that it appreciated that the object had all along been to create a form of national regulation which recognized local difference and actual company circumstances.

6. Change and Continuity

With the current shift from monopoly to competition in telecommunications, it might be thought that the policy principle of just and reasonable rates would no longer be as important as it was in the monopoly era. However, this would be to ignore the distinctive challenge in introducing competition into a network industry such as telecommunications. It has had to be recognized that new entrant competitors will often have to access their customers over the incumbent's facilities. This, in turn, means that significant portions of the incumbent's network have been declared by the regulator to constitute "essential facilities" to which competitors must be given access at regulated rates. And incumbents, although now subject to competition, are still required to maintain affordable basic local service for residential customers living in high cost areas.

In effect, when seen in its broad historical context, incumbents are now being required to provide facilities and services in much the same way as they were required to provide regulated services to the public at large under the old monopoly regime. The concern today is not with the issue of an overall rate of return as in the monopoly era, but

[10] *Téléphone Guèvremont Inc.* v. *Québec (Régie des télécommunications)*, [1994] 1 S.C.R. 878.

with a continuing entitlement to recover the total costs of service incumbents are still required to provide at regulated rates. This raises exactly the same concern which led to the recognition of the need for a fair rate of return component in just and reasonable rates: if carriers are required to give access to their networks, they must be allowed to recover the cost of doing so, including the cost of attracting new capital investment. Thus while the extent of *change* in telecommunications needs to be recognized, so too must *continuity* in the applicability of underlying regulatory principles.

The CRTC in giving concrete expression to the need to balance the interests of both the carriers and their customers (including competitors seeking access to essential facilities) has until very recently proceeded on the basis that costs would be assessed on a company-specific basis. Indeed, this approach had been adopted by the Commission in 1979 with the inauguration of competition and had remained the fundamental cost methodology throughout the incremental introduction of competition. This was clearly in keeping with the company-specific approach which had prevailed prior to the *Telecommunications Act* which, as we have seen, was implicitly incorporated into it. It was also in line with the specific inclusion of just and reasonable rates as a central governing principle in the Act itself. Indeed, it should be recalled that section 27 does not require that rates be just and reasonable in general, but stipulates that rates charged by individual Canadian carriers must be just and reasonable. How could this ever be assured without looking at the unique circumstances of the particular carrier in question?

The other aspect of continuity is the extent to which, despite some consolidation, the Canadian telecommunications industry remains regionally-based. Local access facilities are inherently geographically bounded. This is particularly so with respect to the “essential facilities” of TELUS and Bell Canada and the characteristics of their high cost service areas. Given this industry structure, it would be unrealistically premature, as well as contrary to established Canadian telecommunications policy, to ignore regional costs in favour of mythical uniform national standards.

While older forms of regulation, such as rate of return, have given way to price cap regulation and Phase II costs, the overarching principle of just and reasonable rates continues to apply. Just as revenue requirement and rate of return calculations were made under rate base rate of return regulation on the basis of company-specific financial statements in the past, so too must company-specific assessment of costs and rates be made now by ensuring that the CRTC determines Phase II costs, including cost elements and cost factors that vary from company to company, on a company-specific basis. To do otherwise, would be to disregard a central tenet of Canada's telecommunications policy.

Statement of
Dr. Alfred E. Kahn

Appendix E

Petition of TELUS Communications Inc. to
the Governor in Council
Government of Canada
to vary
Telecom Decision CRTC 2002-67
*TELUS Communications Inc. – Application to review and vary Decision 2000-745 and Decision 2001-2*38

January 22, 2003

Economic and Regulatory Principles For Efficient Telecommunications Competition

Alfred E. Kahn

My name is Alfred E. Kahn. My business address is 308 N. Cayuga Street, Ithaca, NY 14850. I am the Robert Julius Thorne Professor of Political Economy, Emeritus, Cornell University and Special Consultant with National Economic Research Associates, Inc. (NERA). I received my A.B. degree summa cum laude from New York University and my Ph.D. from Yale University, in 1942. I came to Cornell University in 1947 and have served successively as Chairman of the Department of Economics and Dean of the College of Arts and Sciences. I have been Chairman of the New York State Public Service Commission and of the (U.S.) Civil Aeronautics Board; and in my capacity as Advisor to President Carter on Inflation, I participated actively in the successful efforts of his Administration to deregulate the trucking industry.

I am the co-author of Fair Competition, The Law and Economics of Antitrust Policy, author of the two-volume The Economics of Regulation, reprinted in 1988 by MIT Press, Letting Go: Deregulating the Process of Deregulation, published in 1998 by Michigan State University Institute of Public Utilities, Whom the Gods Would Destroy or How Not to Deregulate, published last year by the AEI-Brookings Joint Center for Regulatory Studies, and have published and testified extensively over the last twenty years in the area of direct economic regulation and deregulation and on the requisites of efficient competition in regulated and previously regulated industries. I served as Associate Economist with the Antitrust Division of the U.S. Department of Justice in 1941-42; as a member of AT&T's Economic Advisory Board in 1968-74; was a member

of the Attorney General's National Committee to Study the Antitrust Laws and the National Commission on Antitrust Laws and Procedures in the Eisenhower and Carter Administrations, respectively; I have served as consultant with both the Antitrust Division of the Department of Justice and the Federal Trade Commission; I was recently a member of the National Research Council/Transportation Research Board committee charged with reporting to Congress on the state of competition in the airline industry. A copy of my resume is included as Attachment 1 to this Appendix.

I. ECONOMIC CONSEQUENCES OF THE CRTC'S MEASUREMENT OF UNBUNDLED LOOP AND RESIDENTIAL PRIMARY EXCHANGE SERVICE COSTS

TELUS has asked me to comment on the economic and regulatory principles applicable to the issues it raises in its Petition to the Governor in Council and the deleterious consequences of departing from them. These issues involve determinations by the Canadian Radio-television and Telecommunications Commission (the CRTC) about the costs TELUS and other incumbent local exchange carriers (ILECs) are required to use:

1. to establish charges to competitive local exchange carriers (CLECs) for use of their unbundled local loops, and
2. to calculate the cost of residential primary exchange service (PES) in order to determine the subsidies that must be offered in high cost areas to ILECs and CLECs alike, in order to keep rates at affordable levels compatible with virtual universality of subscription, while at the same time allowing competition to emerge in those markets.

As the Commission recognizes,[1] these two determinations are intimately related and must be compatible with one another and with the retail rates that the CRTC sets, region by region, for basic residential service. Clearly, in order to ensure that equally efficient competitors can enter such markets using the ILECs' unbundled local loops, the Commission's prescribed charges for those loops must be based on costing determinations consistent with the ones it makes for the purpose of setting the retail rates; and that is what the CRTC purports to have done. I have been advised, however, that it has established costs for setting both rates for unbundled local loops and subsidy requirements for residential basic service markedly below TELUS' actual costs, and that, in consequence, the rates for unbundled loops and the subsidies available in high-cost areas are uneconomically low.

This is so, as I understand it, because the CRTC has applied *nationwide network values* for such important cost determinants as fill factors, maintenance and functional operating expenses per line—*factors not based on national averages of values actually experienced but*, I am informed, in the very important case of fill factors *higher than actually experienced by all companies*. In view of the fact, as Dr. Emmerson demonstrates, that the differences among various geographic areas—and particularly areas with differing concentrations of subscribers—can be very great, the use even of actual nationwide network values among such differing markets would in itself produce only nonsensical results. In the case of fill factors, at least, the irrationality is even greater, since, it appears, the stipulated values produce costs below those of *all* companies.

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[1] Telecom Decision CRTC 2000-745, paragraph 44.

As its requirement that incumbent local exchange companies make unbundled elements of their own networks, particularly local loops available to competitors at regulated prices and its offer of residential service subsidies to incumbents and would-be competitors alike both demonstrate, the CRTC has the goal of encouraging competition at the local level. Moreover, as its—entirely proper—intention to base these critical rates and subsidies on cost clearly demonstrates, it could have intended only that the competition it wishes to encourage would be competition based on—and whose outcome would be determined by—the relative efficiencies of these several kinds of operation. It also seems clear that the CRTC regards the mandated leasing of unbundled portions of the ILECs' networks (and mandated resale of their service offerings) as transitional measures that, it hopes, will not discourage the development of facilities-based competition, which the CRTC believes—as do I—is likely to be more effective and more enduring than competition based on resale of the incumbents' networks and services.[2]

The relation between the Commission-prescribed charges for unbundled facilities of the incumbents, the actual costs of entry on a partial- or full-facilities basis and the basic-service subsidy will of course have a critical influence on the extent to which those goals of efficient competition and efficient entry by facilities-based competitors are realized. In addition, and just as important, to the extent that the Commission's costing decisions have lowered the charges for unbundled local loops below levels reflecting actual ILEC-specific costs, competitors that have already built competitive facilities on the basis of the previous charges will find their investments devalued. This kind of after-

[2] "The Commission is of the view that efficient and effective competition will be best achieved through facilities-based competitive service providers; otherwise, competition will only develop at the retail level,

the-fact change in government-imposed rules creates considerable uncertainty for existing and potential competitors and, in turn, dilutes their incentives to construct more facilities or enter at all.

Speaking first in the most general terms, if what I have taken to be the central goals of Canadian telecommunications policy are to be achieved—

- the availability of basic telephone service at affordable prices;
- the encouragement of competition by challengers at least as efficient as the ILECs, with rates for unbundled loops and high-cost subsidies sufficient but neither lower nor higher than sufficient to ensure it; and
- the encouragement of facilities-based competition, to the extent it is economically feasible,

the determination of the level of the two costs at issue here—for unbundled loops and residential PES in order to establish high-cost subsidies—must take into account the varying local conditions that determine the pertinent costs. As I understand it, the CRTC recognizes this necessity, establishing geographic cost bands within the operating territories of the incumbent companies; but, inconsistently, as I have already observed, it also applies nationwide values for fill factors, maintenance[3] and functional operating expenses.

The correct approach would have been for the CRTC instead to require each ILEC to use measures of the latter determinants reflecting its own experience. These

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with the ILECs retaining monopoly control of wholesale level distribution." (CRTC Decision 97-98, paragraph 73).

[3] Maintenance expenses are determined by applying a percentage (which is limited nationally to 10 percent) to capital costs.

would produce measures of costs of such unbundled elements as subscriber loops and primary exchange service reflecting its own particular situation. As Dr. Emmerson demonstrates, the differences among various geographic areas—and particularly areas of differing concentration of subscribers—can be very great; in consequence, the CRTC's insistence on using the nationwide values it has selected produces costs that differ widely from the costs of any carrier, for reasons that have nothing to do with its comparative efficiency. Specifically, it produces costs for TELUS lower than its actual costs. The regulated unbundled local loop and residential basic service costs and resulting prices and subsidies affirmed in Telecom Decision CRTC 2002-67 will therefore have distorting effects on (1) the amount and types of entry into local exchange markets, (2) the amount of investment in telecommunications infrastructure by both incumbents and entrants and (3) the overall financial health of the industry. Indeed, recent experience in the United States and elsewhere suggests that economically incorrect prices for unbundled elements can both induce uneconomic entry by firms that would otherwise be non-viable and drive retail prices down to a level at which neither incumbents nor entrants can prosper. In contrast, regulated prices set on the basis of the ILECs' own costs provide correct signals for entry, investment and consumption.

II. THE ECONOMIC NECESSITY OF BASING PRICES ON ACTUAL FORWARD-LOOKING COSTS OF THE INCUMBENT

I have consistently—going back at least to my *Economics of Regulation*, published in 1970 and 1971[4]—maintained that the only relevant costs, whether original or book costs as traditionally defined in American regulatory practice, or marginal or

incremental costs, must be those of the incumbent utility company. The central thesis of those two volumes—redeclared after my almost three-year experience as Chairman of the New York Public Service Commission—is that economic efficiency requires prices equated to the actual, forward-looking, marginal or incremental costs of that company, which obviously requires taking into account its own specific circumstances. The reason for confronting purchasers with those costs is that it is essential for efficient allocation of resources: it tells purchasers the costs that society will actually incur if they consume additional amounts or that society will actually save if they curtail their usage. To the extent that such regulated prices must be modified to satisfy the requirement, typical in the United States until something like the last decade, to give the companies a reasonable opportunity to earn a reasonable return on their investments, as regulatorily determined, once again the only pertinent costs are obviously those of each regulated company, in its own particular geographic and other circumstances.

As Dr. Janisch observes in his Statement, the move to price cap regulation—which I have consistently supported—has not basically altered that fundamental requirement: price ceilings typically begin with rates calculated in the traditional manner and only their changes over time are calculated on the basis of what efficient companies may be reasonably expected to be able to achieve while continuing to earn the requisite rate of return on their historical investments. When, as is the case here, the rates for unbundled local loops and the costs used to determine the universal service subsidy at the outset of the price cap period are based on long run incremental costs, it is critical that

[4] "An Economist at Work on Utility Rate Regulation," a series of three articles, *Public Utilities Fortnightly*, Washington, D.C., January 5, 19, and February 2, 1978.

they be based on the actual long run incremental costs of the incumbent firms because that is also the proper point for the initiation of competition.

Among economists and regulators, there is widespread agreement in principle that (1) the costs that would be the basis for efficient prices are forward-looking, rather than historical and (2) the prices set on that basis should emulate the ones that would emerge from competition, if it were feasible. Agreement breaks down when the practical issues of how to measure and define forward-looking costs are joined. Two opposing viewpoints have emerged: that they should be the costs of (1) the incumbent and (2) an optimally efficient firm. In my view, repeatedly expounded in testimony at state and federal levels and in my writings, it is the former that is, unequivocally, the proper *starting point* for competition. Since as I understand it the CRTC has not exposed itself to the fate of those "whom the gods would destroy"[5] by presuming to prescribe unbundled network element charges on the basis of calculations of costs meant to emulate a hypothetically optimally efficient firm, it would be unfair and inaccurate to direct against it the bitter objections I have expressed, on principle, to application of that standard by regulators in the United States. The CRTC has, however, presumed to prescribe for TELUS the costs of a firm operating with less spare capacity than it actually has and with lower maintenance and functional operating expenses than it actually experiences. In so doing, it has departed from the proper standard for establishing costs for rate setting purposes. Whether that was plausible in the context of the proceeding in which it did so, on the basis of the evidence adduced, I am not in a position to judge. But

[5] See my book *Whom the Gods Would Destroy, or How Not to Deregulate*, AEI-Brookings Joint Center for Regulatory Studies, May 2001. The reference is to the Henry Wadsworth Longfellow version of the ancient aphorism of Euripides: "Whom the gods would destroy they first make mad."

it is the actual forward-looking costs of the incumbent producers themselves[6] that alone give challengers the proper target at which to shoot—the proper standard to meet or beat and the proper reward if they succeed. If they can achieve costs lower than that, they will enter and *in the process* (which the CRTC's pricing rules would short-circuit) beat prices down to efficient levels. In contrast, rates based on national standard values for cost elements and factors that are expected to vary among companies—when such rates are lower than rates based on the telephone companies' actual costs—would actually *discourage* more efficient competitors coming in and building their own facilities, which it has heretofore been the clear intention of the CRTC to encourage.

Experience in the US is instructive here. The imposition by regulators in the United States of hypothetical, optimally-efficiently-incurred long run incremental costs not only opens the regulatory process to ridiculously litigious competition by cost models and constitutes an act of appalling arrogance, considering the fact that competition is itself a far better determinant than the regulatory process of the level of costs necessary to survival. It also has, inevitably, absurdly discouraged true facilities-based competition.[7]

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[6] This statement is of course extremely vague—it does not distinguish industries regulated as natural monopolies from industries subject to competition, actual or potential; it says nothing about actual or optimal markups above incremental costs; and it does not distinguish long- and short-run—distinctions unnecessary to make in the present context.

[7] The FCC's latest (as of this writing) report on local competition, dated December 9, 2002 (tables 3 - 5) provides empirical support for this proposition. Between December of 2000 and June of 2002, the number of CLEC-owned access lines increased from 5.2 to 6.2 million; but among those, cable lines—i.e., cable telephony subscribers—increased from 1.1 (see the FCC's earlier May 2001 local competition report) to 2.6 million—an interesting indication of growth in competition. But it means that non-cable lines actually *declined* in this period from 4.1 to 3.6 million—unsurprisingly because this was exactly the period in which the use of UNE-Ps (unbundled network element "platforms"—local loop and switch combinations) almost tripled, from 2.8 million to 7.5 million lines—another powerful indication that the Commission's eagerness to promote *competitors* with its TELRIC pricing had its inevitable effect of discouraging the facilities-based competition that it itself proclaimed as particularly important. (See, for example, Remarks of Michael K. Powell, Chairman, Federal Communications Commission, at the Goldman Sachs Communicopia XI Conference, October 2, 2002, explaining the superiority of facilities-based competition over mere resale of incumbents' services in producing (1) genuine differentiation of

The CRTC's adoption of costs and cost element values that result in long run incremental costs lower than the actual costs of the ILECs seems to be based on the assumption that this is the level that would both reflect and promote effective competition. That view is mistaken.

Manifestly, if CLECs are going to be induced to make the efficient make-or-lease decision, the price of the unbundled local loops and other unbundled elements must be based on the actual incremental costs of the incumbent—not some hypothetical lower cost determined by the CRTC. That is how optimum allocation is achieved in the real world, and how competition actually works as well. [8]

III. THE NEED FOR COMPATIBILITY BETWEEN INCENTIVE REGULATION AND THE REGULATORILY MANDATED PRICING OF UNBUNDLED LOOPS

Up until the mid-to-late 1990s, telephone prices in Canada were established by cost of service regulation, under which carriers received what it was anticipated their costs would turn out to be plus a fair return on invested capital, provided only those costs were not found to have been imprudently incurred. In recent years, in recognition of the shortcomings of this form of regulation, there has been a shift to price cap regulation,

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prices and service offerings; (2) process and service innovation; (3) a contribution to recovery of the deeply depressed producers of network equipment; and (4) resilient networks essential for national security.

[8] The CRTC's acknowledgement that it had selected national fill factors higher than those proposed by the ILECs (Decision CRTC 2001-238, paragraph 102) and that these national parameters may produce less spare capacity than is present in the carrier's networks (paragraph 103) strongly suggests that it has intentionally produced costs for purposes of setting unbundled local loop rates and determining high-cost support levels lower than the actual costs of the ILECs. In Telecom Decision 2000-745, although issued before release of the costing determinations at issue here, the CRTC stated that its mark-up decision would allow for efficient entry (paragraph 68). Presumably that continues to be its goal. Yet, manifestly, the two—the intentionally low determinations of incumbents' costs and the goal of encouraging efficient entry—conflict with one another.

with rates indexed to some such exogenous factor as economy-wide inflation—a shift that I have enthusiastically supported. Typically, the beginning point for price- capped rates has been the rates that had prevailed under traditional regulation and were presumed therefore to be both just and reasonable and consistent with financial viability. Typically, also, the subsequent indexations were adjusted downward for improvements in productivity that were believed to be achievable—currently 3.5 percent in Canada for certain services.[9] This means that (under the CRTC's current price cap plan) the effective prices charged by the ILECs for unbundled local loops and the revenues from residential services would decrease in real terms by 3.5 percent per year—implying, that real prices are expected to fall by 30 percent in ten years.

In contrast, the CRTC's departure from measuring the ILECs' actual costs looks like an abandonment of the rationale of price caps and a return to a perverse version of cost-based regulation. Contrary to the hopes attending the introduction of price caps, it puts regulators back in the business of, in effect, judging the prudence of utilities' investments and operating costs and penalizing them in so far as they fall short of the arbitrary national standard—in contrast with actual average performance—on particular parameters such as fill factors and per line operating expenses. Instead of placing its reliance on market incentives, which price cap regulation was attempting to emulate, to induce management to choose the efficient path, it attempts to determine and effectuate the *results* that those incentives are intended to produce by using national standard cost element values that result in costs lower than actual costs at the outset of the second price cap period.

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[9] In the United States, the average target in plans approved by state regulators—based generally on actual

While it might appear that these two (applying a productivity offset and cutting costs at the outset) are merely alternative ways of achieving the same result, a comparison of the prices produced by these two kinds of regulation demonstrates immediately how radical is the difference between them: In contrast with the two to three percent annual cost reductions typically contained in price cap plans—which purport, at least, to be based on historical experience of productivity improvements actually achieved and therefore presumed to be achievable *over time*—TELUS informs me the results of the CRTC's use of national values for fill, maintenance and functional operating expenses implicitly assumes that it should be able immediately to reduce its long run incremental costs of providing unbundled local loops and basic residential service by twenty to twenty-five percent per line, *while also* continuing from that point onward with a further annual 3.5 percent real decrease on an already significantly reduced cost base—a seemingly egregious double-counting of what is supposed to be achievable.

Moreover, this immediate prescription of a 20 to 25 percent lower cost, based on what the CRTC might think would be the *outcome* of a competitive process, *short-circuits* that process: why would competitors (including ILECs entering geographic areas served by other ILECs) undertake the risks of major investments in their own facilities if they can instead lease them from the incumbent firms at what regulators speculate would be the minimum costs that an ideally efficient firm would incur constructing them afresh?[10] An even more perverse possibility is that by declaring those lower costs in

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historical experience—was in the range of 2 to 3 percent per year.

[10] See the evidence that it has had such an effect in footnote 7, above.

2002, four years after having opened the local market to competition, the CRTC may well have pulled the rug out from under CLECs that have already done exactly what it had hoped they would do—constructed some of their own facilities, misled by its own previous adoption of actual company-specific long run incremental costs as the basis for ILECs' charges for use of their facilities.

IV. CONCLUSION

There is no economic principle more fundamental than that efficient prices must be based on the actual incremental costs of incumbent suppliers. In competitive markets, where prices are equated to the marginal costs of supply, each supplier produces and offers product to the market up to the point at which its marginal cost is equal to the market-clearing price. In this way the function of production is performed at the minimum cost; purchasers, guided by those competitively driven prices, are induced to distribute their purchases in such a way as to derive the maximum consumer satisfaction from our limited resources; and the competitive process is guided by the correct signals.

The CRTC's decision now to base the prices it prescribes for unbundled loops of incumbent carriers and for the calculation of universal service subsidies not on their individual actual long run incremental costs, *not even on national averages of the actual experiences of the several companies*—which would be too high for some companies but also equivalently too low, in the aggregate, for others—but on national standard values that significantly understate the ILECs' actual incremental costs, violates this fundamental principle. It also bypasses and frustrates the competitive process.

Statement of
Mr. Patrick B. Meneley
TD SECURITIES INC.

Appendix F

Petition of TELUS Communications Inc. to
the Governor in Council
Government of Canada
to vary
Telecom Decision CRTC 2002-67
*TELUS Communications Inc. – Application to review and vary Decision 2000-745 and Decision 2001-2*38

January 22, 2003

INTRODUCTION

TELUS Corporation ("TELUS" or the "Company") is filing a Petition to the Governor in Council seeking an order requiring, among other things, that the Canadian Radio-television and Telecommunications Commission ("CRTC") employ actual company-specific costs for the regulation of TELUS and the other incumbent telephone companies in Canada. TD Securities has been asked to provide a capital markets perspective with respect to the implications of the CRTC regulating the telecommunications industry on an incorrect assessment of the incumbent local telephone companies' cost structures. It should be noted that we have not directly assessed TELUS' cost structure as part of this analysis.

IMPLICATIONS TO CANADIAN TELECOMMUNICATIONS CARRIERS OF CRTC TELECOM DECISION 2002-67

Where a company is required to invest funds to provide services to the public at regulated rates, there is an expectation that the regulator will provide shareholders a reasonable opportunity to recover the costs of providing those services through the regulated rates. On the strength of this fundamental understanding between the regulated service provider and the regulator, companies attract capital and make investments to provide mandated services. Once these investments are made they cannot be recovered except by way of the rates approved by the regulator. Consequently, investors have a valid expectation that the regulator will base the regulated rates of the company on the actual company-specific costs of the company.

Before the telecommunications market was open to competition, the regulator satisfied the expectation of investors that the company would have an opportunity to recover its actual costs by establishing an overall revenue requirement equal to the total prudent costs of the company,

and setting rates to recover that revenue requirement. In a competitive market, investors rely on the regulator to set rates for specific services based on the actual company-specific costs to provide those services. This is because, in a competitive market, if rates are set below the actual costs of the company, it is not possible for the company to make up a shortfall elsewhere in the market by charging rates that exceed their actual costs. The company's return on capital employed will be undermined and shareholders, who are thereby required to subsidize the regulated rates of the company, will discount their expected returns from the company. Consequently, the company's cost of capital will rise and the value of the company's debt and equity securities will fall.

Because the rates established for the incumbent telephone companies impacts the new entrants as well, setting those rates on costs that are other than the incumbents' actual costs will adversely affect the investment community's assessment of the entire industry. Accordingly, the implications of using a cost model that relies on costs other than the actual company-specific costs of the incumbent telephone companies to assess the appropriate pricing structure for those companies are significant for the companies specifically, and for the industry as a whole.

Dr. Richard Emmerson has asserted that by deviating from using company-specific costs the CRTC has imposed upon the Canadian telecommunications industry a price cap system that does not accurately reflect the costs of all carriers. The regulatory pricing model developed by the CRTC imposes a price structure that is below the true costs for TELUS and may be below the true costs for the other ILECs as well. Under these conditions, telecommunications carriers will be unable to earn a return on capital that is acceptable to investors.

By not allowing TELUS and the other ILECS to recover their true costs for providing services, the CRTC is undermining the ability of these companies to attract the necessary capital to continue to provide these and other services.

As a result of CRTC Decision 2002-67, telecommunications carriers may be forced to choose between their obligations to their shareholders and their customers, in particular their highest cost customers. In response to this regulatory pricing environment, capital markets theory holds that industry participants should reduce their cost profiles and / or reduce the amount of capital employed so that a return on capital that is acceptable to equity investors can be earned. Shareholders, if given the choice, would assert that these reductions should logically be first applied to those regions that represent the highest cost to serve. Customers in those regions would thus have their service level dramatically reduced or withdrawn altogether, since the cost to serve those customers exceeds the available revenue based on the regulatory pricing structure.

If telecom carriers are not able to increase their prices or reduce their capital and operating costs associated with serving customers in high cost regions, capital markets theory implies that the industry's collective cost of capital will increase and its access to capital will decline. Ironically, this would further reduce the carriers' ability to serve customers in high cost regions, as capital would have to be conserved to ensure corporate survival.

In addition, by creating a situation in which ILEC's are unable to recover their investment in high cost areas, the CRTC will also be reducing the potential for competition in these regions. As a means of encouraging competition in rural and remote areas, the CRTC established a fund available to new entrants and based on costs prescribed by the CRTC. Because these costs, and

consequently the fund, are lower than required, the CRTC has effectively ensured that a competitor without efficiencies greater than the incumbent will also be unable to recover its investment.

Over time, shareholder value in the entire telecommunications market would be destroyed and the market value of all equity and debt securities issued by the Canadian telecommunications industry as a group would decline.

In a practical context, the extent of the capital market's negative response to perceived under-performance will depend, in part, on the magnitude of the under-performance, investor perception regarding the fundamental merits of each company and a perspective on the outlook for the capital markets.

CURRENT CAPITAL MARKETS ENVIRONMENT

Given the relatively poor capital market conditions which currently prevail, particularly with respect to the telecommunications industry, we would expect a more severe reaction to this CRTC decision than would otherwise be observed under more robust market conditions. From January 1, 2000 to December 31, 2002 the TSE/S&P 300 Index, S&P 500 Index and Nasdaq Composite Index fell 19.4%, 39.5% and 67.7%, respectively, making this period the worst bear market on record for the TSE and the worst since 1938 for the S&P 500. Over this same three-year period, indices of incumbent telecommunications carriers in Canada, the United States and Europe were down 17.2%, 40.6% and 69.9%. The telecommunications industry has been among the worst performing sectors as investors determined that market growth expectations inherent in the sector's stock prices were unachievable. Making matters worse for the sector, over US$100

billion of telecom industry loans and debt securities in North America have defaulted over the past 24 months.

Because of this poor market performance, investors have become more cautious regarding investments in telecommunications companies, resulting in an upward revision of their required rates of return due to a higher perceived level of industry and company-specific risk. Investors have become more cognizant of early warning signs of under-performance and are more likely to react quickly to negative news. Accordingly, the risk that markets will react swiftly and decisively to a perception regarding negative changes in the operating environment for telecommunications companies is even greater today than it has been in the past. Accordingly, as a result of Decision 2002-67, the Canadian industry may be left behind as international telecommunications markets begin to recover. The resulting decrease in capital expenditures could threaten Canada's leadership role in telecommunications.

SUMMARY

Widely-accepted corporate finance theory suggests that a situation in which a company is not able to earn its investors' expected return on capital would have a negative impact on its cost of capital and on its ability to raise capital in both the equity and debt markets. The matter of degree to which the company is impacted by such a circumstance would depend on investors' awareness of the situation, their collective assumptions regarding the time required for the company's management team to resolve the situation and overall market sentiment towards the company. In the event that the market perceives that earning an appropriate return on capital is impossible, management may be encouraged to reduce customer service levels or capital expenditures, or both, in the highest cost areas in order to enhance overall returns. However, in a

regulated environment, these alternatives may not be fully available to management. Consequently, shareholders will discount the returns available from incumbent telephone companies, as a result of CRTC Decision 2002-67, and reduce the market value of all equity and debt securities issued by the Canadian telecommunications industry as a group. In addition, the current state of the capital markets and the negative sentiment towards the telecommunications sector may exacerbate the market's negative reaction if the market were to perceive that Canadian telecommunications carriers were unable to earn the market's return on capital over a sustained period of time.

The combination of factors discussed herein increases the risk that Canada will be bypassed in the international race for telecommunications investment. As a result the Canadian telecommunications policy objective of efficiency and competitiveness would be jeopardized.

BIOGRAPHY - PATRICK B. MENELEY, HEAD OF INVESTMENT BANKING CANADA

Patrick is Head of Investment Banking Canada, with responsibility for client relationship management, transaction origination and execution for investment banking services, corporate lending and mergers and acquisitions in Canada. In addition, Patrick is a member of the Strategic Council, which sets the strategy for TD Securities. Prior to assuming this role, Patrick headed TD Securities' Communications & Media group as it established a leading position in this sector, completing transactions encompassing a range of strategic advisory services and equity and debt financing for clients in the telecom, wireless, broadcasting, media and cable sectors. Prior to joining TD Securities in June 1997, Patrick spent six years with Salomon Brothers providing international financing and advisory services to Canadian companies. Patrick is a member of the Young Presidents' Organization, Upper Canada Chapter.

Patrick holds an MBA (with distinction) from the University of Western Ontario and a Bachelor of Commerce (with honours) from the University of British Columbia.