Canadian Radio-television and Telecommunications Commission
Conseil de la radiodiffusion et des télécommunications canadiennes

Telecom Decision CRTC 2008-14

Ottawa, 21 February 2008

Regulatory policy

Review of certain Phase II costing issues

Reference: 8652-C12-200704636

In this Decision, the Commission renders its determinations with respect to the appropriate expense inclusions and the associated approaches and methodologies to estimate causal expenses for inclusion in regulatory economic studies. The Commission also determines the appropriate asset lives to be used in regulatory economic studies. Further, the Commission sets out follow-up processes with respect to the filing requirements of this Decision and the incumbent local exchange carriers' regulatory economic studies manuals.

1. On 30 March 2007, the Commission issued Telecom Public Notice 2007-4 to initiate a proceeding to review certain Phase II costing issues.

Background

2. In Telecom Decision 79-16, the Commission set out the basic approach, including directives, for costing new telecommunications services based on prospective incremental costs (Phase II costing). As a result of that Decision, telecommunications companies subject to Commission regulation at the time filed Phase II costing manuals (regulatory economic study manuals) to be applied in the preparation of their economic studies for telecommunication services (regulatory economic studies). Subsequently, various modifications were made to the Phase II costing directives. Further, the requirement to file and apply a regulatory economic study manual was extended to other telecommunications companies that became subject to the Commission's jurisdiction.

3. While Rogers Communications Inc. (RCI), Cogeco Cable Inc., Shaw Communications Inc., and Videotron Ltd. (the cable companies) do not have regulatory economic study manuals, they have applied Phase II costing with respect to their third-party Internet access (TPIA) service, consistent with Telecom Decision 99-8.

The proceeding

4. The following participated in this proceeding: Bell Aliant Regional Communications, Limited Partnership (Bell Aliant) and Bell Canada (collectively, Bell Canada et al.), MTS Allstream Inc. (MTS Allstream), Saskatchewan Telecommunications (SaskTel), and TELUS Communications Company (TCC) (collectively, the incumbent local exchange carriers (ILECs)); the cable companies; Cybersurf Corp. (Cybersurf); Télébec, Limited Partnership (Télébec);[1] and

[1] By letter dated 4 May 2007, Télébec proposed that it not be required to participate in this proceeding, primarily due to a lack of resources to provide the required information in the short time frame allotted. Télébec requested that it be given an opportunity to show cause, once the Decision had been issued, why the Commission's conclusions should not apply to it.

Télécommunications Xittel Inc., on behalf of itself and the Coalition des Fournisseurs d'Accès à Internet inc. (Xittel). The record of the proceeding closed 5 November 2007. The public record is available on the Commission's website at www.crtc.gc.ca under "Public Proceedings."

The issues

5. The Commission has identified the following seven issues to be addressed in its determinations:

   A. What are the appropriate expense inclusions in regulatory economic studies and should they be reflected consistently across companies?

   B. What approaches are acceptable for estimating expenses to be included in regulatory economic studies and what adjustments to expenses derived from the companies' system of accounts are necessary to ensure that expenses are included consistently?

   C. What are appropriate specific methodologies associated with the two general approaches to estimating causal expenses and what methodological adjustments are necessary to ensure that causal expenses are reflected consistently?

   D. Should asset lives be updated and if so, what asset lives should be used in regulatory economic studies?

   E. What cost of equity, cost of debt, and debt ratios should be used in the cable companies' regulatory economic studies?

   F. What follow-up action is required with respect to regulatory economic study manuals?

   G. Are the determinations in this Decision consistent with the Governor in Council's Policy Direction?[2]

A. What are the appropriate expense inclusions in regulatory economic studies and should they be reflected consistently across companies?

Introduction

6. In Telecom Decision 79-16, the Commission defined the resources associated with the provision of a new product/service under four categories, as follows:

   - The direct resources are the major additional resource quantities to provide a service over the study period. They consist of those units of management, labour, plant, equipment, material, and supplies which can be readily identified and quantified.

[2] *Order Issuing a Direction to the CRTC on Implementing the Canadian Telecommunications Policy Objectives*, P.C. 2006-1534, 14 December 2006

- The indirect resources are generally minor in nature and are those resources that can be readily identified in support of the direct resources.

- The variable common (VC) resources are those remaining resources where the quantities of or payments for the resources are variable with the scale of operations of which the service represents a portion. The costs associated with these resources include proportions of the variable costs of all operations involved in providing a service which are not identified and estimated as direct or indirect costs.

- The fixed common (FC) resources primarily consist of plant and equipment which are employed to provide the service but the cost of which will not vary over the life of the service.

7. The costs of the resources used for a new product/service within the first three categories are to be attributed to the new product/service and are referred to in this Decision as causal costs or Phase II costs and, if expenses, as causal expenses or Phase II expenses. In contrast, the costs of the resources in the fourth category used by the new product/service, namely fixed common costs (FCCs), are not required to be included in regulatory economic studies.

8. The Commission notes that Bell Canada et al. employ demand-driven, service-driven, and non-service specific categories of costs. The Commission considers that demand-driven and service-driven costs reflect direct costs, indirect costs, and variable common costs (VCCs) and are synonymous with causal costs.

9. Parties expressed different views as to what expenses are causal expenses to be included in regulatory economic studies, and, in particular, with respect to expenses characterized as portfolio expenses. To address this matter, the Commission will first consider the preliminary issue of what constitutes FC resources and associated costs for the purpose of developing regulatory economic studies. The Commission will then consider the treatment of expenses characterized as portfolio expenses. Finally, the Commission will address what expenses should be included in regulatory economic studies and whether such inclusions should be reflected consistently across companies.

a) What constitutes FC resources and associated costs for the purpose of developing a regulatory economic study?

10. Certain ILECs considered that the Telecom Decision 79-16 definition of FC resources was flawed, and submitted that costs causal to a service, not including those which were causal to demand for the service, were invariant with respect to demand and may well be invariant over time. They further stated that such costs would however be avoided if the service were discontinued and, therefore, certain costs which were fixed over the life of a service may well be causal. Further, certain ILECs considered that there may be resources which vary over the life of the service but which were non-causal, and these costs were not captured by the definition of FC resources.

11. MTS Allstream submitted that whether a cost element was properly characterized as an FCC depended on the operational increment being studied. MTS Allstream was of the view that the purpose of the FCC definition was to identify those costs which were not causal to the operational increment under study, which was that of an individual service. MTS Allstream also submitted that FC resources were resources that were not expected to change as the result of the introduction of a new service, or the continuation or discontinuation of an existing service. Similarly, Bell Canada et al. indicated that FCCs consisted only of those costs which would not vary as a result of the introduction of a new service or the continuation of an existing service.

12. In contrast, TCC submitted that FCCs were costs that did not vary with the output or addition of any single service or group of services other than the addition of all the services of the firm as a whole, and would be avoided only by shutting the firm down in its entirety. TCC also submitted that the definitions of FCCs proposed by Bell Canada et al. and MTS Allstream were overly inclusive in that they captured costs that would vary as a result of the introduction of a group of services. MTS Allstream submitted that there was no dispute that Phase II costing was designed as a methodology for establishing the costs of individual services and that TCC had not proposed to change the increment under study to portfolios or groupings of services, as reflected in TCC's proposed definition of FCCs. MTS Allstream further submitted that TCC's approach to causality was inconsistent with the ILECs' Phase II costing manuals, including TCC's May 2002 manual.

13. The Commission notes that most parties recognized that the determination of causal costs for regulatory economic studies must be considered in reference to the course of action under consideration. The Commission considers that the course of action under consideration in regulatory economic studies is with respect to an individual service. Because TCC's proposed definition of FCCs is not confined to an individual service, the Commission finds that it is not appropriate.

14. Consistent with the individual service framework noted above and the views of Bell Canada et al. and MTS Allstream, the Commission confirms that FC resources and associated costs are those that do not vary either with the introduction of a new service, or the continuation or discontinuation of an existing service.

b) Are expenses characterized as portfolio expenses to be included in regulatory economic studies?

15. Parties addressed the characterization of portfolio expenses and the extent to which they should be included in regulatory economic studies. TCC defined two types of portfolio expenses, namely, variable portfolio expenses, which were variable with the volume of the portfolio services sold, and fixed portfolio expenses, which were caused by the portfolio as a whole but for which expenses would not vary with the demand for services within the portfolio. In contrast, other ILECs generally characterized portfolio expenses as costs common to a group of services which were not causal to any one of the individual services within the group. The other ILECs further submitted that, under this definition, portfolio expenses remained constant when a particular service was removed from or added to the portfolio, and when demand for any of the services in the portfolio increased or decreased, and were thus treated as FC expenses.

16. TCC submitted that portfolio expenses were costs that were incremental to a group of services and to individual services but could not be directly identified with individual services other than through their contribution to the costs of the portfolio. TCC also submitted that these costs needed to be recovered through inclusion in Phase II costs, absent which they would need to be recovered in the mark-up used to establish rates, thereby allocating costs to services that did not cause the costs.

17. TCC further submitted that portfolio expenses, in particular, variable portfolio expenses, exhibited similar characteristics to expenses included as VCCs in Phase II costs. TCC stated that most of its portfolio expenses were variable portfolio expenses. TCC indicated that approximately 50 percent of its portfolio expenses were assigned to individual products and services based on demand, while the remainder of its portfolio expenses were assigned by loadings, which were applied using the direct/indirect expenses assigned to the service in question as the initial base.

18. The other ILECs indicated that they treated expenses that TCC characterized as variable portfolio expenses as expenses that could be causally attributed to services. Both SaskTel and MTS Allstream submitted that it was not possible for a cost item to be variable with the demand for a portfolio of services and yet not be variable with the demand for the individual services within the portfolio.

Commission's analysis and determinations

19. The Commission notes TCC's submission that categorizing expenses as variable portfolio expenses is premised on the notion that such expenses are shared costs caused by individual services which cannot be directly identified with individual services other than through their contribution to the costs of the portfolio. The Commission notes that the Phase II costing directives addressed the costing of shared resources. In the case of VC resources, the Commission specified that the associated VCCs were to be estimated as follows:

> Annual cost estimates for each major category of variable common resources employed in the provision of the service shall be provided. Such estimates shall be based on studies designed to determine and assign the relevant proportion of these categories of costs to specific services.

20. The Commission notes that the costs assigned on this basis are the VCCs associated with a service's use of a particular category of VC resources.

21. The Commission notes that VCCs are a residual category of causal costs that are not reflected as direct or indirect costs. The Commission considers that TCC's treatment of its variable portfolio expenses that are assigned based on demand is consistent with the above-noted approach for assigning VCCs. The Commission notes that MTS Allstream and SaskTel generally treat and assign expenses that are in the nature of TCC's variable portfolio expenses as direct/indirect expenses and, in the case of Bell Canada et al., through their causal cost categories which, as noted above, reflect direct, indirect, and VC expenses.

22. The Commission considers that the cost category definitions in paragraph 6 permit ILECs to classify the expenses that TCC characterizes as variable portfolio expenses as either direct/indirect expenses or as VC expenses. Accordingly, the Commission considers that there is no need to define these expenses as variable portfolio expenses for the purposes of recognizing them for inclusion in regulatory economic studies.

23. The Commission notes that, unlike other ILECs, TCC treats what it characterizes as fixed portfolio expenses as causal expenses to be included in regulatory economic studies. The Commission further notes that Bell Canada et al., MTS Allstream, and SaskTel consider such expenses to be FC expenses. TCC indicated that one such type of expense is market research that is associated with a portfolio of services but which is not related to any particular service in the portfolio.

24. As indicated in paragraph 13, FC expenses are determined on the basis of the course of action evaluated in a regulatory economic study which is with respect to an individual service. Accordingly, the Commission determines that expenses associated with a portfolio of services which do not vary with the demand for services or services within the portfolio satisfy the definition of an FC expense. The Commission notes that, consistent with the views of MTS Allstream and SaskTel, these expenses are addressed through pricing rather than costing.

25. In light of the above, portfolio factors are not to be used in regulatory economic studies.

c) Is there a requirement for consistency of expense inclusions across ILECs, and if so, how should it be achieved?

26. Consistent with the views generally expressed by the parties, the Commission determines that the classification of individual causal expenses in accordance with the Phase II cost categories is not required.

27. The Commission considers that the more important issue is whether causal expenses, in aggregate, should consistently be included in regulatory economic studies across ILECs. The Commission notes that parties generally agreed that regulatory economic studies should reflect consistent expense inclusions. The Commission considers that a fundamental regulatory requirement is for expense inclusions to be consistent across ILECs on the basis of prospective incremental costing. This requires that only expenses causal to the course of action associated with a service are to be included. The Commission notes that, consistent with its letters dated 27 November 1998 and 5 January 2001 regarding regulatory filing information requirements, causal expenses in a regulatory economic study are to be broken down into expenses causal to the service and expenses causal to demand.

28. TCC submitted that all forward-looking costs are either Phase II costs or are FCCs. TCC further submitted that in order to have a uniformly applicably set of cost principles it must be clear what is and is not properly included in FCCs. SaskTel submitted that if the Commission intended to mandate a method of inclusion of the various categories of costs, it should provide clear and unambiguous definitions of the cost categories. The Commission determines that the cost category definitions in paragraph 6, along with the clarification regarding FCCs in paragraph 14, provide the appropriate framework to determine the causal expenses to be included in regulatory economic studies. With respect to the matter of consistency of

expense inclusions across companies, the Commission considers that, consistent with the views of TCC and SaskTel, it would be helpful to focus initially on the expenses that are to be excluded from regulatory economic studies.

29. In this proceeding, most ILECs treated certain forward-looking expenses as FCCs to be excluded from regulatory economic studies. These consist of expenses associated with corporate entities such as finance and legal, as well as other expenses associated with research, planning, design, and development associated with new products/services. The Commission determines that the expenses set out in Appendix 1 of this Decision do not vary with the introduction, continuation or discontinuation of a service and, accordingly, satisfy the definition of a FC expense. Further, the Commission notes that pre-introduction expenses are also to be excluded from regulatory economic studies as they are sunk in nature and accordingly are not forward-looking cash flows.[3] These expenses as well as other sunk expenses, as set out in Appendix 1 of this Decision, are also not to be included in regulatory economic studies.

30. The Commission notes that all ILECs agreed to treat certain ongoing expenses, such as Billing and Collection expenses, as expenses caused by services and to be included in regulatory economic studies. However, there was no such agreement over the inclusion of expenses in the following five categories: Maintenance and Provisioning, Information Services and Information Technology (IS/IT), Marketing and Sales, Network Operations, and Network Design and Development. The Commission notes that it identified these expense categories in interrogatory (CRTC)10Aug07-1201 PN 2007-4 (CRTC-1201). In their responses to this interrogatory, the ILECs expressed different views over whether certain expenses were to be treated or not as causal expenses. For example, TCC indicated that the expenses in the five categories were causal expenses and should be included in regulatory economic studies. In contrast, Bell Canada et al., MTS Allstream, and SaskTel identified a number of expenses within these five expense categories that were considered as FCCs to be excluded from regulatory economic studies.

31. For each of the five above-noted expense categories, the Commission has provided below its assessment and determination of the associated ongoing expenses that are to be treated as causal expenses for inclusion in regulatory economic studies, along with appropriate methods to assign causal expenses to services. The Commission considers that, with respect to the assignment to services of VC expenses, including those associated with the five above-noted expense categories, it is appropriate to assign these expenses to individual services on the basis of studies which determine the relevant proportion of expenses to be assigned to a service. The Commission considers that the assignment of such VC expenses to services is best accomplished by means of determining the appropriate cost driver.

32. In this Decision, the Commission uses the term appropriate cost driver to reflect either the natural or practical driver which closely approximates the underlying causal relationship and is used to causally assign expenses to services. The Commission considers that the use of such cost drivers more accurately reflects the underlying causal link, rather than assigning VC expenses by means of the variable common cost factor (VCCF), which simply assigns VC

[3] However, consistent with current practice, pre-introduction expenses that are incurred prior to the decision to offer a service are to be identified and quantified separately in a regulatory economic study.

expenses to services on the basis of the service's direct and indirect costs. Given this, the Commission determines that the VCCF is no longer required as a means to estimate VC expenses.

33. Maintenance and Provisioning category: The Commission notes that, unlike the other ILECs, MTS Allstream and SaskTel indicated that all of their maintenance and provisioning expenses can be causally attributed to services. Consistent with this approach, the Commission determines that ongoing expenses associated with this category relate to the maintenance and provisioning of various network components utilized by services and are to be causally assigned to services on the basis of the appropriate cost driver. For example, the maintenance expense associated with a company's local network access facilities could be assigned on the basis of the corresponding access investment or network accesses.

34. IS/IT category: The Commission considers that if an ongoing IS/IT activity supports specific services, the related expenses satisfy the definition of a VC expense and are to be assigned to services on the basis of the appropriate cost driver. For example, the IS/IT expenses for a particular service's assurance system could be assigned on the basis of the related maintenance expenses for the services covered by that system.

35. Marketing and Sales category: The Commission considers that if an ongoing marketing and sales activity supports specific services, the related expenses satisfy the definition of a VC expense and are to be assigned to services on the basis of the appropriate cost driver. The Commission notes that Bell Canada's response to CRTC-1201 includes an activity, namely Project and Solutions Management, which relates to structuring and delivery of complex solutions/projects associated with satisfying large scale customer needs and demand. Based on Bell Canada's description, the Commission considers that this activity relates to the provision of specific services to customers with large scale requirements and that the associated expenses are generally to be assigned directly to the related services or reported as pre-introduction expenses.

36. Network Operations and Network Design and Development categories: The Commission considers that if an ongoing expense for an activity within these categories supports specific services (e.g. access, switching, transport components of a service), the related expenses satisfy the definition of a VC expense and are to be assigned to services on the basis of the appropriate cost driver. The Commission notes that Bell Canada's response to CRTC-1201 includes activities which incorporate special requests for network resources, providing technical support for customers, developing special facilities tariff solutions, identifying network characterization for marketing requests and network interconnection requirements for other carriers. The Commission determines that for any of the above-noted activities, the associated expenses are generally to be assigned directly to the related services or reported as pre-introduction expenses.

37. In addition to the expenses discussed above, the Commission notes that certain ILECs identified other expenses that they treated as VCCs.

38. SaskTel and MTS Allstream identified a number of VC expenses, including, in the case of SaskTel, credit card fees, bad debt, customer services operations associated with operating retail stores in small urban areas, trunking support associated with network technical assistance,

network methods and support, network transmission support and network standards, information technology management, and revenue settlement activities, and in the case of MTS Allstream, credit card surcharges, collections processing activities, employees transferred to meet service demand, and network services program management. The Commission determines that the above-noted expenses that are ongoing in nature are to be included in regulatory economic studies through the appropriate cost methodologies. The Commission further determines that the other VC expenses identified by SaskTel and MTS Allstream are FC expenses, and are therefore to be excluded from regulatory economic studies, consistent with the expense exclusions identified in Appendix 1 of this Decision.

39. TCC identified three VC expenses, namely, generic TCC advertising, security of employees and assets, and administrative support associated with travel service expenses. The Commission determines that, except for administrative support for travel service expenses associated with employees below the third level of supervision, these expenses are FC expenses and are therefore to be excluded from regulatory economic studies consistent with the expense exclusions identified in Appendix 1 of this Decision.

40. The Commission notes that under TCC's costing approach, approximately 50 percent of the expenses it characterizes as portfolio expenses are assigned to services using homogeneous demand cost drivers, and that the balance of these expenses is allocated using the dollar value of a given service's direct/indirect expenses. The Commission notes MTS Allstream's concerns regarding the magnitude of expenses which are driven by TCC to services using the dollar value of direct/indirect expenses, rather than by the appropriate cost driver. The Commission also notes TCC's submission that, consistent with MTS Allstream's costing approach, it is entirely appropriate to use different drivers to estimate cash flows in a regulatory economic study depending on the classification of the cost and the type of expense, and that identifying the appropriate cost driver is the essence of cost analysis. TCC submitted that, for example, the assignment of basic local service maintenance expenses on the basis of local access lines, or the assignment of long distance billing expenses on the basis of long distance messages and/or minutes of use, would be appropriate.

41. The Commission concurs with TCC's view regarding the importance of identifying the appropriate cost driver. The Commission finds that homogeneous units of demand represent an appropriate cost driver for the purpose of assigning certain expenses to services. With respect to the balance of expenses characterized by TCC as variable portfolio expenses and allocated using the dollar value of a given service's direct/indirect expenses, the Commission finds that this cost driver does not sufficiently reflect cost causality. For these expenses, the Commission determines that, consistent with the other ILECs' approach to assign expenses which are in the nature of TCC's variable portfolio expenses, TCC is to identify and employ appropriate cost drivers.

Documentation

42. Each ILEC is to document and file for Commission approval the methodologies reflecting the above determinations in the relevant company-specific appendices of its regulatory economic study manual.

B. What approaches are acceptable for estimating expenses to be included in regulatory economic studies and what adjustments to expenses derived from the companies' system of accounts are necessary to ensure that expenses are included consistently?

43. In this proceeding, the Commission notes that two general approaches were identified to estimate causal expenses in regulatory economic studies. The first is the labour unit cost (LUC) approach which estimates expenses by applying the time estimate to perform an activity to the LUC. The second is the operating expense (OE) unit cost approach which estimates expenses by applying a unit cost or cost factor of an activity to the appropriate cost driver for that activity. Under both approaches, the LUCs and OE unit costs and/or OE cost factors (OE unit costs/factors) are derived based on cost data obtained from a company's system of accounts or other accounting-based systems such as an Activity-Based Costing (ABC) system.

44. Bell Canada et al. indicated that their preferred approach to developing causal expenses was the LUC approach. Bell Canada et al. further indicated that for those situations where they used OE unit costs, the vast majority of Bell Canada's OE unit costs/factors and all of Bell Aliant's OE unit costs/factors were developed directly from each company's system of accounts, including where Bell Canada's ABC system did not provide an appropriate level of expense disaggregation.

45. TCC indicated that it developed causal expenses for the majority of its products and services using unit costs derived from its ABC system, and that it only used LUCs when the required data were not available. TCC submitted that its ABC system was sufficiently disaggregated to map expenses to activities, services, and expense categories as the system was based on data collected from hundreds of different cost centres with different functional responsibilities. TCC submitted that each cost centre was mapped to one or more activities (and their associated drivers) and in parallel, where applicable, to the product(s) or group of products that the activity supported. TCC stated that activity costs were identified by extracting them from time reporting systems which contained the actual current costs associated with each activity and product. TCC indicated that the next step in its process was to identify the cost drivers for each activity. Finally, the total current cost associated with each product and activity was divided by demand for the product which produced a unit cost for the product and activity.[4]

46. MTS Allstream submitted that for labour-related expenses, accurate estimates of causal expenses could be achieved either through the application of LUCs or by estimating OE costs per unit of the activity. MTS Allstream stated that it preferred to use LUCs, both from the perspective of arriving at the best estimate of forward-looking costs and from a transparency perspective, but that it was not opposed to the use of alternative methods as long as they were fully consistent with cost causality.

47. SaskTel submitted that where there was a clear and measurable connection between drivers and costs incurred and it was practical to estimate the volume of such drivers in relation to the service being studied, an LUC approach which relied on explicit forward-looking time and cost estimates was the preferred alternative for the estimation of causal costs.

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[4] The Commission considers that TCC's approach to developing unit costs based on its ABC system is equivalent to an OE unit cost/factor approach.

Commission's analysis and determination

48. The Commission determines that either the LUC or OE unit cost/factor approach can be used by the companies to estimate their causal expenses for regulatory economic studies so long as the resulting expense inclusions are consistent with the principle of cost causality.

a) What adjustments to historical costs are required to reflect forward-looking expenses associated with the two general approaches?

49. All ILECs indicated that where historical information was used as a basis for estimating forward-looking expenses, adjustments had to be made to reflect forward-looking expenses. The Commission notes that while some adjustments may be routine, such as those reflecting the most current third-party supplier agreements and expenses, other adjustments, such as estimating the impact of prospective organizational structure changes, may be more complex.

50. The Commission notes TCC's position that it would exclude costs associated with one-time events, such as corporate restructuring, from regulatory economic studies. TCC further indicated that where there had been events of a significant impact, such as the 2005 work stoppage, the ABC study for that year would not be considered representative and would not be used. TCC further indicated that the data would be adjusted to reflect any process improvements or the most current forward-looking supplier agreements and contracts. However, the Commission notes TCC's submission that the analyst may choose to, but would not necessarily, adjust the ABC output.

51. If historical cost data is to be relied on to estimate forward-looking expenses, the Commission determines that the ILECs are to make the specific adjustments set out in the following paragraph, and propose methodologies to allow the Commission to verify that the adjustments have been properly made.

52. The Commission directs each ILEC to document and file for Commission approval, in the relevant company-specific appendices of its regulatory economic study manual, for each of the LUC and OE unit cost/factor approaches, the methodologies used to convert historical costs into forward-looking expenses to be included in regulatory economic studies, for each of the following:

i) removal of events such as strikes or corporate restructuring;

ii) adjustments to reflect the most current information (e.g. current contracts and other prices);

iii) adjustments to reflect process improvements;

iv) adjustments to reflect prospective changes that are expected to occur;

v) the application of inflation factors (e.g. labour rate changes) and productivity increase factors;

vi) adjustments to remove expenses associated with cancelled projects; and

vii) adjustments to remove pre-introduction service expenses.

b) In what circumstances are adjustments required to reflect an appropriate level of disaggregation of expenses derived from the system of accounts?

53. Bell Canada et al. and TCC indicated that ABC expenses must be sufficiently disaggregated in order to properly estimate causal expenses.

54. MTS Allstream questioned whether, under TCC's and Bell Canada's use of OE unit costs/factors, the disaggregated unit costs based on the system of accounts represent accurate estimates of the costs per unit of activity. MTS Allstream stated that this was largely determined by whether the source data was tracked at the necessary degree of disaggregation and, if not, whether the mapping of expense accounts to activities, services, or expense categories could be achieved using cost-causing natural drivers of the expense being mapped, or practical drivers which were close approximations of the underlying causal relationship. MTS Allstream submitted that Bell Canada's and TCC's OE unit costs/factors might include a degree of non-causal cost allocation when the disaggregation of expenses extracted from the system of accounts was insufficient and may in turn produce unit average demand-driven costs that inappropriately include FCCs.

55. Subject to the determination set out in paragraph 56, the Commission considers that if an expense includes a mixture of causal and FC expenses (a blended expense), this expense is not sufficiently disaggregated to develop a reasonable estimate of causal expenses for a service. In this event, the Commission considers that the expense is to be further disaggregated to permit the causal expense to be identified.

56. With respect to expenses that TCC characterizes as portfolio expenses, the Commission notes TCC's submission that, as a practical matter, the fixed portfolio expenses cannot be separated from the variable portfolio expenses. The Commission also notes MTS Allstream's submission that the ability to distinguish between these two expense types is the essence of determining causal expenses consistent with Phase II principles and directives. The Commission acknowledges that the cost of further disaggregating certain blended expenses may outweigh the associated benefit of estimating the appropriate causal expenses. In these circumstances, the Commission considers that, subject to the limitations in the following paragraph, it would be appropriate to permit a deemed estimate of the associated causal expenses.

57. In light of the above, the Commission finds it appropriate to use a percentage of a blended expense to reflect the associated causal expenses to be included in regulatory economic studies. The Commission determines that any expense subject to this allocation factor is to include the adjustments to historical costs prescribed in paragraph 52 of this Decision to reflect forward-looking expenses. Further, the Commission determines that any expenses subject to this allocation factor are not to include any of the following:

- expenses associated with corporate entities listed in Appendix 1 a)i) to a)viii) of this Decision;

- maintenance or provisioning expenses;
- IS/IT development expenses;
- expenses for services offered under special tariffs and customer-specific pricing arrangements;
- expenses for services that satisfy large scale customer needs and demands;
- expenses associated with wireless services;
- expenses associated with consulting services;
- expenses associated with network interconnection arrangements or settlements with other service providers; and
- non-recurring service-specific expenses for functionalities provided by a third party.

58. The Commission notes that the above-noted list of expenses to which the allocation factor is not to be applied includes the majority of FC expenses. The Commission further considers that the magnitude of the associated causal expenses which will be estimated using the allocation factor will be minimal. In light of this, the Commission finds it appropriate to set the deemed causal expense allocation factor to a level of 80 percent.

59. Each ILEC is to document and file for Commission approval, in the relevant company-specific appendices of its regulatory economic study manual: (a) a detailed description of each blended expense that is proposed to be subject to the 80 percent allocation factor; and (b) its proposed cost driver to assign these expenses to services. In addition, each ILEC is to identify the magnitude of the total blended expenses in its relevant company-specific appendix. Due to the inherent difficulties in determining an appropriate cost driver for a blended expense, the Commission considers it appropriate that ILECs be permitted to use the dollar value of direct/indirect expenses to assign these expenses to services.

C. What are appropriate specific methodologies associated with the two general approaches to estimating causal expenses and what methodological adjustments are necessary to ensure that causal expenses are reflected consistently?

60. The Commission notes that while direct and indirect expenses can be estimated under either the LUC or OE unit/cost factor approach, VC expenses are to be estimated by applying an OE unit cost/factor to the corresponding cost driver, as required by this Decision.

61. To ensure that expenses are appropriately included in regulatory economic studies, the Commission will examine below the specific methodology issues raised in this proceeding, for both the LUC and the OE unit/cost factor approach, and any required adjustments to ensure that the resulting expenses are reflected consistently across ILECs.

a) What specific LUC methodological adjustments are necessary to ensure that the resulting expenses are included consistently?

i) Should LUCs be calculated for each job classification across ILECs?

62. MTS Allstream calculated LUCs for 81 job functions or base groups, similar to that for Bell Canada et al., while SaskTel calculated 9 LUCs out of 47 job classifications. MTS Allstream submitted that most of SaskTel's LUC groupings exhibited a substantial degree of variation in the wage per hour across the constituent job classifications, and requested that SaskTel be directed to calculate LUCs for each of its job classifications. The Commission notes that many job classifications have similar labour rates and associated loadings and would lead to LUCs that would not differ materially. Accordingly, the Commission considers that it is not necessary to require LUCs for each job classification.

63. The Commission notes that SaskTel indicated that it would create two Craft[5] LUCs (low and high) to recognize the large wage variations in its initial Craft LUC. The Commission considers that this would result in more accurate estimates of causal costs. The Commission notes, however, that SaskTel's proposed Craft LUC (high) includes both outside plant and inside plant job classifications. The Commission considers that SaskTel's proposed approach for its Craft LUC (high) will inappropriately result in loadings applicable to outside plant activities, such as motor vehicle costs, being applied to inside plant costs. The Commission directs SaskTel to disaggregate its Craft LUC (high) into inside plant and outside plant job classifications and file for Commission approval the associated values.

64. The Commission notes that TCC indicated that it generally does not use LUCs but instead relies on its ABC methodology to develop expense estimates for regulatory economic studies. However, the Commission notes that TCC has used LUCs to develop expenses for several recent regulatory economic studies. The Commission directs TCC to document and file for Commission approval its LUC methodology. Further, the Commission determines that, in the event that TCC files a regulatory economic study in the future that uses LUC(s) to develop certain expenses, it is to provide the LUC value(s) used, by job classification, at the time the study is filed with the Commission.

ii) Should investment-related cost loadings be included in LUCs and if so what are the appropriate methods to include these costs?

65. While parties did not object to the inclusion of non-investment-related expense loadings in LUCs, several issues were raised regarding the inclusion of the associated investment-related expenses. Cybersurf objected to the inclusion of capital costs in the ILECs' LUCs because this would lead to the expensing of capital costs, contrary to Telecom Decision 79-16, and could lead to the possibility of double-counting. Cybersurf also submitted that the use of historical average unit costs for investment-related components in the LUCs as a proxy for incremental costs was not appropriate.

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[5] Occupation which requires special manual skills and a thorough knowledge of the processes involved in the work.

66. The Commission notes that the ILECs indicated that they include a number of capital costs through investment-related cost loadings such as premises costs and motor vehicle costs, in their calculation of LUCs.

67. With respect to possible double-counting, the Commission notes the ILECs' submission that the costs for investment-related expense items are not included elsewhere in regulatory economic studies through unique capital cash flows. Based on this clarification, the Commission considers that this particular approach would not lead to double-counting of such costs.

68. With respect to Cybersurf's concern that the use of investment-related cost loadings in LUCs would lead to the expensing of capital costs, the Commission agrees with Bell Canada et al. that the use of loadings for investment-related items provides an appropriate approach to estimate capital costs that are causally-related to an additional hour of employee time. The Commission also considers that, for many of these investment-related costs such as motor vehicles and personal computers, the associated costs for certain ILECs are based on the related lease rates and would be properly considered as an expense for financial reporting purposes as well as for economic study purposes. The Commission further notes that where capital costs have been included as an expense loading, they have either been converted into annual equivalent costs (AECs) or have been approximated through the depreciation expense or a market-based leased rate. This, in the Commission's view, provides equivalent or conservative estimates of the causal incremental costs. In light of the above, the Commission considers that the ILECs' use of the above-noted investment-related cost loadings included in LUCs are appropriate.

69. With respect to Cybersurf's concern that historical average unit costs for investment-related components in the LUCs do not represent appropriate proxies for prospective incremental costs, the Commission considers that AECs, leased rates, or proxies through the use of depreciation expense or market-based leased rates, can be adjusted to reflect forward-looking costs.

70. In light of the above, the Commission finds that, with the adjustments to reflect forward-looking costs identified in paragraph 52 above, the ILECs' proposed approach to including the above-noted investment-related costs is appropriate. Accordingly, the Commission directs each ILEC to document and file for Commission approval, in the relevant company-specific appendices of its regulatory economic study manual, the methodologies used to convert the historical cost data into forward-looking data associated with its specific investment-related cost loadings.

iii) What level of management expenses should be included in LUCs?

71. Bell Canada et al. and TCC indicated that they generally limit the number of supervision levels used in the development of their LUCs to two or three, while MTS Allstream and SaskTel indicated that the management levels contained in their LUCs were limited to the immediate level of supervision. The Commission notes that these costing practices recognize that management expenses beyond a certain level are considered as FC expenses. The Commission further notes that the recognition of different levels of supervision in LUCs across ILECs would give rise to different and inconsistent levels of cost inclusions in regulatory economic studies across ILECs.

72. In light of the above, the Commission determines that management expenses beyond two levels of supervision are FC expenses. Accordingly, each ILEC is to document and file for Commission approval changes to its methodology, as required, in the relevant company-specific appendices in its regulatory economic study manual, to reflect two levels of supervision in the development of its LUCs.

iv) What IS/IT expenses should be included in LUCs and should they be estimated consistently across ILECs?

73. The Commission notes that the ILECs, with the exception of MTS Allstream, generally agreed to include certain IS/IT expenses in their LUCs or OE unit costs/factors, including IS/IT expenses related to desktop or notebook computers and the associated servers costs, software licenses, help desk, other technical support and the expense portion of systems development and data processing costs. In contrast, MTS Allstream submitted that all expenses associated with its IS/IT operations and maintenance, except for the capital recovery component of personal computers, should be treated as FC expenses and excluded from its LUCs.

74. The Commission disagrees with MTS Allstream that IS/IT operations and maintenance expenses are FC expenses because, in the Commission's view, such expenses can be expected to vary with the introduction, continuation or discontinuation of an individual service. The Commission determines that the ongoing IS/IT expenses identified in the above paragraph constitute causal expenses that should be included in LUCs. The Commission directs each ILEC to modify its LUC methodology, as necessary, to ensure that these IS/IT expenses are reflected. Alternatively, ILECs may separately estimate and include the above-noted IS/IT expenses in their regulatory economic studies. Each ILEC is to document and file for Commission approval, in the relevant company-specific appendices of its regulatory economic study manual, its approach to estimate these IS/IT expenses.

v) Are the IS/IT expenses included in Bell Canada's LUCs appropriate?

75. Cybersurf submitted that Bell Canada's LUCs may be distorted due to the company's application of its IS/IT support loading factor to both the basic salary expenses and other LUC loadings.

76. The Commission notes Bell Canada's submission that it has no practical way, at this time, of developing the IS/IT support loading factor for only the portion of expenses related to salaries, and therefore develops a factor that contains both salary and other loading expenses in both the numerator and the denominator. The Commission further notes Bell Canada's submission that in order to ensure that the loading expenses associated with the IS/IT salaries are properly captured, it is necessary to apply the IS/IT support loading factor not only to the basic labour costs but also to other LUC loadings such as the associated benefits and taxes.

77. The Commission notes that, based on Bell Canada's submission, it is not clear whether the other LUC loadings such as furniture and office equipment over $1,500, and tools and work equipment over $1,500, have been included in the denominator of the IS/IT support loading factor calculation. In order to ensure that the IS/IT loading factor is applied only to appropriate costs, the Commission determines that Bell Canada's IS/IT loading is to only apply to basic labour costs and LUC loadings that have been included in the denominator of the IS/IT support loading factor calculation.

78. Bell Canada is to document and file for Commission approval changes to its methodology, as required, in the relevant company-specific appendices to its regulatory economic study manual to reflect this determination.

vi) Should official telephone service costs be included in LUCs and should they be reflected consistently across ILECs?

79. MTS Allstream submitted that SaskTel's LUC methodology included a loading for official telephone service (OTS)[6] which, unlike Bell Canada and Bell Aliant's OTS loadings, reflected the retail value, rather than the estimated causal costs, of such use. SaskTel acknowledged that retail price was not the most accurate proxy for this cash flow and stated that it would modify its OTS loading calculation in its next LUC update, so that all inclusions were based on costs. The Commission finds that SaskTel's proposed approach to modifying its OTS loading to reflect causal costs rather than the retail value is appropriate.

80. The Commission notes that, based on the record of this proceeding, it is not clear whether MTS Allstream and TCC included OTS costs in the development of their respective LUCs. The Commission considers OTS to be an appropriate loading in the development of LUCs.

81. The Commission directs each of SaskTel, MTS Allstream, and TCC to document and file for Commission approval, in the relevant company-specific appendices of its regulatory economic study manual, its revised LUC methodology reflecting the inclusion of an OTS loading based on causal costs, as necessary.

vii) What cost inclusions should be reflected in LUCs?

82. To ensure consistency, the Commission considers that direct expenses used in the calculation of a LUC should include the following: salaries or wages of the base group, premium salaries, paid absence expenses, associated benefits and taxes, training, travel, supervision, minor tools under $1,500, miscellaneous employee-related expenses such as membership fees and safety footwear, and motor vehicle costs as applicable. The Commission further considers that indirect loadings should include costs for the following: support staff costs, benefits and taxes for support staff, premises (administrative space), stationary and office supplies, miscellaneous rentals, OTS, IS/IT, as well as general furniture and office equipment over $1,500 and other tools and work equipment over $1,500, as applicable.

Documentation

83. Each ILEC is to document and file for Commission approval, in the relevant company-specific appendices of its regulatory economic study manual, its LUC methodology reflecting the determinations of this Decision and to provide all LUC values. The Commission notes that if an ILEC chooses to separately estimate the specific expenses that are to be included as a result of the above determinations, as opposed to modifying its LUC, it is to describe the approach in its documentation.

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[6] The OTS element represents telecommunication services provided by a company for its internal operations.

b) What specific OE unit cost/factor methodological adjustments are necessary to ensure that expenses are included consistently?

i) What direct/indirect cost inclusions should be reflected in the OE unit costs/factors?

84. Bell Canada et al. indicated that the direct/indirect expense components included in their LUCs were generally the same as those included in their OE unit costs/factors. For example, Bell Aliant submitted that the only difference in cost inclusions between its LUCs and OE unit costs was with respect to Other Minor Expense Accounts which were included in OE unit costs but not in LUCs, which amounted to 0.5 percent of total expenses. Bell Aliant also submitted that it would exclude this amount from the OE unit costs in the future to resolve the differences in inclusions between OE unit costs and LUCs.

85. Given that either general approach can be used to develop expense estimates, the Commission considers that for cost consistency, OE unit costs/factors and LUCs should, to the extent feasible, reflect the same direct/indirect cost components. For example, consistent with this Decision, two levels of supervision are to be included under either approach in the estimation of expenses for regulatory economic studies. However, the Commission considers that where a particular cost component is missing from an ILEC's OE unit cost compared to the LUC, this missing component can be estimated separately and included in the regulatory economic study.

86. Accordingly, each ILEC is to document and file for Commission approval, in the relevant company-specific appendices of its regulatory economic study manual, the direct/indirect cost components that are included in LUCs but not in the OE unit costs/factors, and the associated methodologies where such costs are estimated separately.

ii) How should maintenance expenses be estimated?

87. Concerns were raised over the ILECs' use of OE maintenance factors expressed as a percentage of plant-in-service (PIS) to estimate maintenance expenses for regulatory economic studies as well as the methodology used by TCC to estimate certain maintenance expenses. Cybersurf submitted that the ILECs' OE maintenance factors expressed as a percentage of PIS reflected the historical average maintenance expense, that PIS was associated with a blend of older technologies, and that using these factors would not reflect the prospective incremental unit costs associated with growth technologies, resulting in an overstatement of maintenance expenses.

88. Bell Canada et al. replied that, for practical reasons, these factors were developed as a percentage of PIS and not growth demand, and that their systems of accounts did not provide data for maintenance expenses for growth capital alone but for the total of in-service and growth capital. Bell Canada et al. submitted that since the maintenance expense was for both in-service and growth capital, it must be divided by the total of the in-service and growth capital, if it was expressed as a percentage.

89. The Commission notes that the ILECs' system of accounts typically provides data for maintenance expenses in an asset class for all technologies rather than a particular growth technology. Accordingly, since the maintenance expense is for both existing and growth technologies, to express this amount as a percentage, the Commission agrees that it must be

divided by the PIS associated with all technologies included in the asset class. The Commission considers that this is a reasonable approach to estimate forward-looking maintenance expenses provided that the necessary adjustments as outlined in paragraph 52 are made such as those to reflect productivity gains, labour rate changes, and anticipated process improvements.

90. The Commission further considers that if a regulatory economic study for a service relies on growth technology(ies) having maintenance characteristics that are expected to differ from those represented by the maintenance factor used, the ILEC is to document in its study the required adjustments to determine the forward-looking maintenance expenses associated with the growth technology(ies) used in that study.

91. The Commission notes TCC's submission that under its ABC-based methodology, some forward-looking maintenance expenses are identified from TCC's time reporting system and are assigned as direct expenses for the service in question, and that the remaining maintenance expenses which are attributable to multiple-related products are treated as portfolio expenses and assigned to individual services based on direct/indirect expenses or using a demand cost driver.

92. With respect to TCC's portfolio maintenance expenses, the Commission notes MTS Allstream's concern that certain expenses are driven by selected homogeneous units of demand or as a loading by dollar value of direct/indirect expenses instead of by their natural drivers or by practical drivers that closely approximate causality. Consistent with its determination in paragraph 41, the Commission finds that the use of homogeneous units of demand to assign certain maintenance expenses is an appropriate cost driver. However, the assignment of TCC's maintenance expenses based on the dollar value of direct/indirect expenses of a given service does not sufficiently reflect cost causality. In light of this, for the maintenance expenses that are not assigned to a service as direct expenses or using a demand cost driver, TCC is to assign these maintenance expenses to individual services using appropriate cost drivers (e.g. investment, access lines).

iii) Are the ILECs' maintenance expenses properly causally-assigned between wireline and Internet services?

93. The Commission posed interrogatories to Bell Canada et al. and TCC regarding their assignment of maintenance expenses associated with copper facilities to wireline basic services and to other wireline services (e.g. digital subscriber line (DSL) services). Bell Canada et al. and TCC generally indicated that the other wireline services did not drive the deployment of copper facilities, and that the maintenance expense for these facilities would not be included in regulatory economic studies for those services.

94. The Commission considers that an ILEC's DSL service may generate incremental maintenance expenses associated with the use of the copper facilities even if this service were assumed to not drive any incremental copper-related capital. The Commission considers that this matter requires further examination. Given this, each ILEC is to conduct and provide an analysis of its copper-based maintenance activities and associated expenses, for its residential and business primary exchange services and DSL service, including an identification of all events and activities which result in a requirement for maintenance of copper facilities.

iv) Is Bell Canada's use of gross revenues to assign Acquire and Manage Customers expenses an appropriate cost driver?

95. Cybersurf expressed concern over Bell Canada's use of gross revenues instead of revenue growth as the cost driver to estimate expenses associated with Acquire and Manage Customers. The Commission considers that while revenue growth may be an appropriate cost driver in the case of acquiring new customers, it would not be an appropriate cost driver in the case of managing the current in-service customer base. Since gross revenues reflect the revenues of both the in-service and growth demand of a given service, the Commission considers that such revenues represent an appropriate cost driver to assign Acquire and Manage Customers expenses.

v) Is Bell Canada et al.'s use of organizational analysis to develop the Product and Service Development OE unit cost appropriate?

96. Cybersurf questioned Bell Canada et al.'s use of organizational analysis for the development of the Product and Service Development OE unit cost. Cybersurf stated that if an organizational analysis was needed to assign these activity costs to products, these costs must be common to more than one product and by the nature of the activity (product and service development) there was no assurance that the product mix going forward would be similar. Cybersurf submitted that, accordingly, the developed unit cost would likely be distorted because it would not reflect the prospective activities of the company.

97. Bell Canada et al. replied that in the absence of a time reporting system which tracks the amount of time each individual spends on performing each of the various activities, an organizational analysis provided an appropriate alternative means of determining the amount of time spent on a particular activity by employees.

98. The Commission considers that, in light of the determinations in this Decision regarding the adjustments to historical costs to reflect forward-looking expenses, Bell Canada et al.'s approach to causally assign ongoing product and service development expenses with respect to an existing service is appropriate.

vi) Should SaskTel modify its costing methodology to estimate Billing and Collection expenses?

99. Cybersurf questioned SaskTel's application of a Billing and Collection loading factor to all expense cash flows in a regulatory economic study to estimate Billing and Collection expenses associated with a service and submitted that such a methodology was inappropriate.

100. The Commission notes that SaskTel's loading factor approach, whereby the causal Billing and Collection expenses are estimated by applying a loading factor to all other direct/indirect expenses in a regulatory economic study, assumes that the level of Billing and Collection expenses are in the same proportion to any service's other direct/indirect expenses. The Commission is of the view that this assumption is not valid with respect to all services. For example, the Commission considers that the billing and collection activities associated with a flat-rated service would generally be less complex than those of a usage-base rated service, and hence the associated expenses would not always be expected to be in the same proportion to a service's other direct/indirect expenses. The Commission therefore finds that SaskTel's approach does not sufficiently reflect the principle of cost causality.

101. Accordingly, the Commission directs SaskTel to propose a revised costing methodology for the estimation of Billing and Collection expenses that recognizes the service-specific cost causation attributes. Further, SaskTel is to document and file for Commission approval, in the relevant company-specific appendices of its regulatory economic study manual, the associated methodology to explicitly estimate these expenses to be included in regulatory economic studies.

Documentation

102. The Commission notes the parties' concerns over the lack of documentation with respect to the development of certain OE unit cost/factor approaches, and in particular the ABC-based methodologies, and considers that further documentation is necessary with respect to these approaches. Further, in this Decision, the Commission has made determinations with respect to (a) the inclusion of causal expenses to be reflected in regulatory economic studies, (b) specific methodologies to estimate such expenses, and (c) the requirement to develop and apply appropriate cost drivers.

103. In light of the above, each ILEC is to document and file for Commission approval, in the relevant company-specific appendices of its regulatory economic study manual, a description of the methodologies for the estimation of expenses for each of the following: (a) OE unit costs by service; (b) corporate average OE unit costs; and (c) corporate average OE cost factors or loadings that are used to estimate expenses for regulatory economic study purposes.[7] The documentation is to also provide for each OE unit cost or cost factor, the source data, a description of the activity(ies) included along with the associated appropriate cost driver. The documentation should also include a description of the process for developing unit costs by rate band, if developed. Further, each ILEC is to include in its relevant company-specific appendices, a list of all OE unit costs by service and corporate average OE unit costs/factors or loadings, including the current values and associated vintages that are used for regulatory economic studies, and is to further provide similar information by band, if developed.

104. The Commission notes that, in this proceeding, it was indicated that certain ILECs may develop OE unit costs/factors which rely on source expense data that differs from data for that ILEC's current operating territory (i.e. Bell Canada's transfer of certain operating territories to Bell Aliant, Bell Aliant's amalgamation of its operating territories in the Atlantic provinces and in Ontario and Quebec, TCC's amalgamation of its operating territories in Alberta, British Columbia, and Quebec). To the extent that an ILEC develops OE unit costs/factors by relying on source expense data that differs from that ILEC's current operating territory, it is to document and file for Commission approval, in the relevant company-specific appendices of its regulatory economic study manual, the methodologies used to estimate the OE unit costs/factors for its operating territory, with supporting rationale.

[7] The Commission considers that an OE unit cost/factor refers to any unit cost or cost factor developed based on data from either the system of accounts or other accounting-based systems such as an ABC system.

105. Further, the ILECs are directed to file updated information to that filed in response to paragraph 11, parts f) and g) of Attachment 1 of Telecom Public Notice 2007-4, reflecting the determinations in this Decision. This expense information is to be broken down and reported into the following categories: direct/indirect, VC, FC expenses (or demand-driven, service-driven, FC expenses), and blended expenses.[8]

106. With respect to the ILECs that rely on ABC-based systems and methodologies to estimate causal expenses, each of these ILECs is to document and file for Commission approval, in the relevant company-specific appendices of its regulatory economic study manual, the different methodologies used to map the related expenses from the system of accounts to activities (or activity groupings), processes and/or services/products, describing the activities, processes and services/products, with supporting rationale. Each ILEC is to further provide an illustrative detailed example of each methodology used. Further, each ILEC is to provide the classification of each activity or activity grouping or process by the categories identified in paragraph 105 and the associated appropriate cost driver as applicable.

D. Should asset lives be updated and if so, what asset lives should be used in regulatory economic studies?

Introduction

107. The Commission notes that the asset life reflects the period over which an asset is expected to be used by a company for its services. When an asset life is used for economic study purposes it is referred to as an economic life estimate. Asset lives are also used for accounting purposes. The accounting life of an asset, also referred to as the average service life (ASL), similarly reflects the period over which an asset is expected to be used by the company. The Commission notes that there is a common conceptual basis for accounting and economic life estimates in that they both reflect estimates of an asset's physical life, along with adjustments to reflect the impact of obsolescence and technology substitution.

108. With respect to the ILECs' use of asset lives in regulatory economic studies, the Commission notes that in Telecom Decision 98-22, it determined that ILECs should use economic lives equal to the accounting lives approved in Telecom Decision 98-2. The Commission determines that since the asset lives currently used in regulatory economic studies are approximately 10 years old, they should be reviewed, and updated where appropriate.

109. With respect to the cable companies, the only regulated service that they provide that is subject to a regulatory economic study is TPIA service. The Commission notes that cable companies are required to file regulatory economic studies on an infrequent basis. The Commission further notes that it has recently approved economic life estimates for the cable companies' TPIA service in Telecom Decision 2006-77. Accordingly, the Commission determines that updates to the cable companies' economic asset lives at this time are not required.

[8] Expenses are to reflect expenses prior to the application of the deemed causal 80 percent allocation factor.

110. In light of the above, the Commission will review proposed updates to the asset lives with respect to the ILECs only. The Commission will first consider the appropriate basis to establish asset lives and associated survivor curves (asset life characteristics), following which the appropriate asset life characteristics of existing and next-generation assets for each ILEC will be examined. The Commission will then address the process for the review of future updates of asset life characteristics.

a) What should the basis be for establishing the ILECs' asset life characteristics for use in regulatory economic studies?

111. Consistent with the determination in Telecom Decision 98-22, the ILECs submitted that accounting lives were the most appropriate and practical estimates of economic lives. The ILECs further submitted that the proposed accounting lives in this proceeding represented the values that they used for financial reporting purposes. The ILECs generally submitted that accounting lives were developed in accordance with Generally Accepted Accounting Principles (GAAP) guidelines, which provided a common, nationally accepted methodology for determining lives which publicly-audited businesses were to follow in the creation of their financial statements.

112. MTS Allstream recognized that the application of GAAP provided an element of discipline in establishing appropriate asset lives, but submitted that GAAP introduced a conservative bias because financial statements required that assets not be overstated and expenses not be understated. MTS Allstream submitted that as a result, a particular accounting life could embody bias that was acceptable from a GAAP perspective but unacceptable from a Phase II perspective. MTS Allstream further submitted that asset life characteristics used in regulatory economic studies should, in some cases, be subject to Commission scrutiny and approval.

113. Bell Canada et al. submitted that, contrary to MTS Allstream's assertion, it was incorrect to claim that GAAP would encourage or even permit the over-weighting of uncertain forward-looking factors and introduce a bias in establishing asset lives. Bell Canada et al. further submitted that GAAP clearly required that financial information be both in agreement with the actual underlying transactions and events and reasonably free from errors and bias.

114. The cable companies also submitted that accounting lives used for financial reporting purposes might assist them in assessing the economic life of an asset. However, the cable companies submitted that, where the accounting life for financial reporting purposes was associated with a larger pool of assets versus a specific asset used to provide the regulated service, it would be necessary to determine what adjustments, if any, were required to the accounting life of the asset pool to reflect the economic life of the asset included in the regulatory economic study.

115. The Commission notes that Bell Canada et al. indicated that they had also relied on independent studies such as studies by Technology Futures Inc. (TFI) to establish life estimates for certain assets. While asset life estimates from independent studies or other organizations may be useful as a guide in developing asset life estimates, the Commission considers that the circumstances of each ILEC should be the primary factor to be taken into account when determining its asset life estimates.

116. The Commission acknowledges that GAAP provides a common framework which all companies understand and use. The Commission considers that financial accounting lives are developed for audited financial reporting purposes and thus may be relied on to produce appropriate asset life estimates. The Commission therefore considers that it is generally appropriate for the ILECs to rely on their current estimates of accounting asset lives as the appropriate asset lives for use in regulatory economic studies. The economic lives that are approved in this Decision reflect the ILECs' proposed accounting asset lives with the exception of copper cable assets and certain other assets discussed below.

b) What are the appropriate asset life characteristics for each ILEC?

117. The Commission notes that the ILECs proposed asset life characteristics for more than 350 assets. Except for the specific assets discussed below, the Commission finds the ILECs' proposed asset life characteristics to be appropriate and **approves** them for use in regulatory economic studies. With respect to the specific assets discussed below, the Commission **approves** the associated life characteristics as modified below for use in regulatory economic studies. Each ILEC's approved asset life characteristics are set out in Appendix 2 to this Decision.

i) Asset life characteristics associated with copper cable assets

118. For copper underground cable, Bell Aliant proposed reducing the ASL from 18 to 16 years and Bell Canada proposed reducing the ASL from 16 to 14 years. For copper aerial cable, Bell Aliant proposed reducing the ASL from 19.5 to 16 years and Bell Canada proposed reducing the ASL from 21 to 16 years. For copper buried cable, Bell Aliant and Bell Canada both proposed reducing the ASL to 16 years, from 18 and 20 years, respectively.

119. RCI submitted that, based on its analysis of Bell Canada's 1996 and 2005 depreciation data, it would be inappropriate to reduce the asset life for Bell Canada's copper cable plant since: (1) both the average life and average remaining lives for aerial, underground and buried copper plant had increased over time, and (2) there had been no change in the deployment of fibre between the studies that would lead to a reduction in copper asset lives with the exception of underground copper in the feeder access network.

120. Bell Canada et al. replied that it was inappropriate to conclude that, on the basis of increases in copper cable ASLs, Bell Canada's proposal to reduce lives was unsupported as the increase in historical ASLs was not reflective of the useful lives of the assets in question. Bell Canada et al. further submitted that facilities-based competition in the local market had significantly accelerated, and that the industry was characterized by significant changes. Accordingly, the ILECs were required to evolve their copper-based networks towards fibre-based networks.

121. With respect to Bell Canada et al.'s proposed changes to their copper cable ASLs, the Commission notes that the asset lives to be approved in this proceeding are for the purpose of developing economic studies. The Commission further notes that the economic studies of local network services typically include feeder and distribution plant. The Commission considers that the forward-looking investments to replace the feeder portion of the local network will be typically based on fibre-cable investments and that for regulatory economic study purposes,

local feeder cable will typically be costed using fibre cable costs. In this respect, the Commission notes that the asset lives proposed by Bell Canada et al. for their copper cable assets are not specific to distribution plant but reflect a composite average of feeder and distribution plant. In the Commission's view, the expected life of copper distribution will exceed the average expected life for feeder and distribution combined. As a result of the inclusion of feeder plant, the Commission considers that some of the proposed ASLs for copper cable plant are lower than they should be.

122. The Commission notes that the telecommunications environment has changed since Telecom Decision 98-2, and that such changes have had an impact on the asset lives approved in that Decision. In light of this, the Commission finds it appropriate to set, for use in regulatory economic studies, Bell Aliant's and Bell Canada's copper cable asset lives as follows: 16 years for underground cable; 18 years for aerial cable; and 18 years for buried cable. The life characteristics for these assets are set out in Appendix 2 of this Decision. The Commission notes that these asset lives for the purposes of regulatory economic studies are consistent with those approved for other ILECs for these assets.

ii) Asset life characteristics for application software assets

123. Bell Aliant, Bell Canada, and TCC proposed to substantially reduce most of their application software asset lives from five to three years. SaskTel and MTS Allstream proposed retaining a five-year life for application software assets. Bell Aliant and Bell Canada supported their request by referring to a benchmarking study carried out in 2006 by the Telecommunications Technology Forecasting Group (TTFG), wherein plant application software accounting lives were compared with three U.S. telephone companies which used a life of three years. TCC did not provide supporting rationale for the reduction in its software asset lives.

124. Given that the TTFG benchmarking study is heavily influenced by the experience in the U.S., the Commission considers that it should be given little weight with respect to determining the appropriate asset lives for application software. The Commission is not persuaded by the submissions of Bell Aliant, Bell Canada, and TCC to substantially reduce the application software lives. The Commission considers it appropriate to set the asset life associated with software application at five years for Bell Aliant, Bell Canada, and TCC, consistent with the level proposed by MTS Allstream and SaskTel.

iii) Asset life characteristics associated with towers, traffic operator position systems (TOPS), and Outside Service Wire

125. TCC proposed an ASL of 15 years for towers applicable to its operating territories. The Commission notes that the range of asset lives for towers previously approved for TCC varies from 33 years for British Columbia to 20 years for Alberta, which, based on the company's data, yields a company ASL of 28 years. Based on the depreciation study provided by TCC, the Commission is not persuaded that TCC's proposed ASL of 15 years is appropriate. The Commission further notes that TCC's ASL of 28 years is comparable to the asset lives approved for other ILECs for similar assets. In the circumstances, the Commission determines that the life for use in regulatory economic studies for TCC's tower assets is to be set at 28 years.

126. TCC proposed an ASL of 4 years for TOPS applicable to its operating territories. The Commission notes that the range of lives for this asset previously approved for TCC varies from 12 years for British Columbia to 8 years for Alberta, which based on the company's data yields a company ASL of 8 years. Based on the depreciation study provided by TCC, the Commission is not persuaded that TCC's proposed ASL of 4 years is appropriate. The Commission further notes that TCC's average ASL of 8 years is comparable to the asset lives approved for other ILECs for this asset. In the circumstances, the Commission determines that the life for use in regulatory economic studies for TCC's TOPS is to be set at 8 years.

127. The Commission notes that Bell Aliant and Bell Canada proposed a reduction to the asset life for Outside Service Wire from 18 to 16 years and from 20 to 16 years, respectively. The Commission notes Bell Canada et al.'s submission that the outside service wire typically connected a customer's premises to its aerial distribution terminals and that, therefore, the life characteristics of Outside Service Wire were similar to those of aerial cable. The Commission agrees with Bell Canada et al.'s submission that the life characteristics of Outside Service Wire assets are similar to the copper cable ASLs. Accordingly, consistent with its determination regarding aerial copper, as set out in paragraph 122, the Commission determines that the ASL for Outside Service Wire for Bell Aliant and Bell Canada is to be set at 18 years.

128. The Commission directs each ILEC to document and file for Commission approval, in the relevant company-specific appendices of its regulatory economic study manual, the economic asset lives and associated survivor curves approved in this Decision.

c) How should life characteristics be established for next-generation assets or certain other assets?

129. Xittel submitted that it was essential to understand in which asset category a next-generation asset would be assigned and requested that the Commission order the companies to publish, for each type of next-generation equipment and facility, the assigned ASL.

130. The Commission considers it appropriate to permit the ILECs to submit for approval the proposed life characteristics of a next-generation asset at the time the asset is first used in a regulatory economic study. When filing such a study, the ILEC is to provide the necessary justification for its proposed life characteristics.

131. The Commission further notes that for a specific asset that is included in a regulatory economic study for which the company considers that the associated life is not properly represented by the ASL of the asset pool, the company may submit for approval its proposed asset life characteristics in the associated regulatory economic study. In that event, the company should provide at that time the proposed life characteristics of the particular asset along with the necessary justification for a deviation from the ASL of the asset pool.

132. The Commission directs each ILEC, as part of its annual regulatory economic study filing requirements, to document the lives and associated survivor curves of next-generation assets or other specific assets that have been approved through the regulatory economic study process during that year in its relevant company-specific appendix.

d) What should be the process for review of future updates to asset life characteristics?

133. Bell Canada et al. and TCC proposed to update economic asset life characteristics on an annual basis. Bell Canada et al., SaskTel, and TCC submitted that, provided they were consistent with updated financial accounting lives, the updated lives could be filed with the Commission without the need to obtain Commission approval, or intervener comments. Bell Canada et al. submitted that the asset lives would reflect their updated financial accounting lives which should be sufficient to permit the Commission to ensure that the lives and curves were reasonable without resorting to an approval process, such as the process that led to Telecom Decision 98-2. In contrast, MTS Allstream submitted that Commission scrutiny and approval of proposed changes in financial accounting lives used in regulatory economic studies was necessary but that public process was not needed with respect to matters such as proposed increases to asset lives.

134. SaskTel proposed to include in each regulatory economic study a list of the asset classes used and their lives and survivor curves. SaskTel submitted that financial accounting lives should be used and that this implied that any changes to a company's financial accounting lives should be immediately reflected in Phase II studies. SaskTel indicated that, in the alternative, it was willing to support Bell Canada et al.'s annual filing approach with the modification that only those asset classes typically used in Phase II costing would be filed and that exceptions would be noted in each regulatory economic study filed between annual updates.

135. The cable companies submitted that any process for updating asset lives used in TPIA service regulatory economic cost studies should recognize the infrequency of conducting such studies, and thus would minimize the burden and associated cost of complying with regulatory requirements.

136. The Commission notes that while accounting lives generally provide an appropriate proxy of economic lives, they may not always represent suitable life estimates for use in regulatory economic studies. For example, as determined in paragraph 121 above, the proposed asset life changes to certain ILEC copper cable assets based on accounting plant lives were found to represent inappropriate changes to these asset lives for use in regulatory economic studies. The Commission therefore disagrees with the proposal that to the extent that proposed asset lives are consistent with accounting lives, they may be updated and used in regulatory economic studies without Commission review and approval. In the Commission's view, given the multitude of factors that potentially impact the expected future ASL of an asset class, and the significance of life estimates in establishing the capital-related costs to be used in a regulatory economic study, it is necessary that the Commission review as part of a public process, and approve, asset life characteristics prior to, or coincident with, their use in regulatory economic studies. However, due to the complexity of the analysis and assessment associated with a review of asset lives for regulatory economic study purposes, the Commission does not consider it appropriate to undertake such review on an annual basis. In the circumstances, the Commission determines that the review of ILECs' asset lives be undertaken not more frequently than once every four years.

137. With respect to the cable companies' asset lives, consistent with current practice, the Commission considers that the cable companies should not be subject to the same update process as the ILECs for the reasons discussed in paragraph 109 above. However, where a cable company proposes an update to an asset class life estimate as part of a regulatory economic study, such update is to be accompanied by supporting rationale.

E. What cost of equity, cost of debt, and debt ratios should be used in the cable companies' regulatory economic studies?

138. The Commission notes that the rates approved in Order 2000-789 and, more recently in Telecom Decision 2006-77, reflect a cost of equity of 13 percent, and the cost of debt and the debt ratios proposed by the cable companies. The Commission notes that in this proceeding no parties submitted that the cable companies' financial parameters for regulatory economic studies should be changed. In light of the above, the Commission determines that, the cost of equity of 13 percent, cost of debt, and the debt ratios currently used by cable companies in TPIA regulatory economic studies remain appropriate.

F. What follow-up action is required with respect to regulatory economic study manuals?

Introduction

139. The Commission notes that each ILEC is required to submit a Phase II manual for approval which describes the procedures, methods and data sources used in conducting regulatory economic studies.

140. In this proceeding, the Commission attached as Appendix 3 to Telecom Public Notice 2007-4 a draft regulatory economic study manual prepared by the Commission for use by all ILECs. The Commission notes that Bell Canada et al. supported the concept of a common regulatory economic study manual to be used by all parties in developing regulatory economic studies, submitting that it was necessary to ensure a consistent application of Phase II principles and cost inclusions. The Commission agrees with Bell Canada et al. that the development and use of a common manual supplemented by company-specific appendices will allow for a consistent application of Phase II costing principles and cost inclusions across ILECs.

141. The Commission stated in Telecom Public Notice 2007-4 that it intended to issue a revised manual that would incorporate company-specific appendices reflecting the determinations in this proceeding. These company-specific appendices are to include each company's specific costing methodologies and approaches to estimate costs for use in regulatory economic studies. The draft manual attached to Telecom Public Notice 2007-4 identified appendices that each ILEC will be required to develop. The Commission notes that as a result of this Decision, certain of these appendices will not be necessary. The remaining company-specific appendices identified in the draft manual will need to be modified or developed. The ILECs are therefore required to document and file for Commission approval the company-specific appendices identified in Appendix 3 of this Decision.

142. The Commission notes that a revised manual incorporating the determinations in this Decision and other relevant Commission decisions since the issuance of Telecom Public Notice 2007-4 will be issued shortly, followed by an expedited process to solicit comments from parties. In addition, comments will be sought on the appropriate process with respect to future updates of the manual and/or updates to the associated company-specific appendices.

143. The Commission notes that the determinations made in this Decision with respect to the treatment of expenses will come into effect at a date to be determined by the Commission following the submission of documentation required by this Decision.

G. Are the determinations in this Decision consistent with the Governor in Council's Policy Direction?

144. Parties generally supported their positions by references, as appropriate, to applicable provisions of the Governor in Council's Policy Direction (the Policy Direction).

145. With respect to subparagraph 1(*a*)(i) of the Policy Direction, the Commission notes that market forces cannot be relied on to determine the appropriate costing methodologies that are the subject of this proceeding as a means of achieving the telecommunications policy objectives identified in paragraph 147 below.

146. With respect to subparagraph 1(*a*)(ii) of the Policy Direction, the Commission considers that the determinations in this Decision reflect measures that are efficient and proportionate to their purpose and that interfere with the operation of competitive market forces to the minimum extent necessary to meet the policy objectives set out below. The Commission considers that the determinations set out in this Decision are necessary to establish consistent and reasonable estimates of prospective incremental costs. In this respect, the Commission considers that its determinations will contribute to a streamlined regulatory economic study process resulting in tariff approval mechanisms that are as minimally intrusive and as minimally onerous as possible, consistent with subparagraph 1(*c*)(i) of the Policy Direction.

147. With respect to subparagraph 1(*b*)(i) of the Policy Direction, the Commission considers that the determinations in this Decision advance the telecommunications policy objectives set out in paragraphs 7(*b*), 7(*c*) and 7(*f*) of the *Telecommunications Act*, namely

> 7(*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;
>
> 7(*c*) to enhance the efficiency and competitiveness, at the national and international levels, of Canadian telecommunications; and
>
> 7(*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.

148. The Commission considers that the determinations in this Decision will lead to the estimation of causal costs that will support the setting of prices that will neither deter economically competitive efficient entry nor promote economically inefficient entry consistent with the criteria set out in subparagraph 1(*b*)(ii) of the Policy Direction.

Follow-up process

149. The ILECs are to file the material required pursuant to this Decision by **21 April 2008**, serving a copy on the parties to this proceeding. Parties may file comments, serving a copy on the relevant ILECs, by **12 May 2008**. ILECs may file replies, serving a copy on the party that submitted comments by **2 June 2008**.

150. Télébec is directed, by **12 March 2008**, to show cause why the determinations in this Decision should not apply to it.

151. Where material is to be filed by a certain date, the material must be actually received, and not merely sent, by that date.

Secretary General

Related documents

- *Review of certain Phase II costing issues*, Telecom Public Notice CRTC 2007-4, 30 March 2007
- *Cogeco, Rogers, Shaw, and Videotron – Third-party Internet access service rates*, Telecom Decision CRTC 2006-77, 21 December 2006
- *Terms and rates approved for large cable carriers' higher speed access service*, Order CRTC 2000-789, 21 August 2000, as amended by Order CRTC 2000-789-1, 31 January 2001
- Commission Letter dated 5 January 2001 regarding *Decision CRTC 2000-150 SaskTel – Transition to Federal Regulation Imputation Test Methodology*
- *Regulation under the Telecommunications Act of cable carriers' access services*, Telecom Decision CRTC 99-8, 6 July 1999
- *Final rates for unbundled local network components*, Telecom Decision CRTC 98-22, 30 November 1998, as amended by Telecom Decision CRTC 1998-22-1, 10 December 1998

- Commission Letter dated 27 November 1998 regarding the imputation test methodology for local services applicable to Bell Aliant, Bell Canada, MTS Allstream, and TCC

- *Implementation of price cap regulation and related issues*, Telecom Decision CRTC 98-2, 5 March 1998, as amended by Telecom Decision CRTC 98-2-1, 20 March 1998

- *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

Expense Exclusions From Regulatory Economic Studies

1. The following are the expenses that are to be excluded from regulatory economic studies. They consist of ongoing expenses associated with corporate entities and other ongoing expenses that satisfy the definition of a fixed common (FC) expense, as well as sunk expenses such as pre-introduction expenses.

a) FC Expenses

i. Corporate Finance

2. Accounting services, treasury and risk management: expenses associated with accounts payable, general accounting, tax management, asset project accounting, treasury management, risk and cash management, and external reporting.

3. Budget forecast, analysis and business performance: expenses associated with the creation, analysis, review, and support of annual financial budgets and non-financial targets to meet management's expectations and overall corporate objectives. The process also includes the preparation of consolidated and business section financial results for assessment and performance review.

4. Expenses associated with the Board of Directors.

5. Cost management: expenses associated with the process by which business information is captured at a greater level of detail than that needed for basic accounting purposes including product, region, contract phase, project, line of business, or resale inventory accounting. The process also includes analyzing cost accounting data for recovery rate development, variance analysis, activity-based management, and incorporates financial and economic costing.

6. Financial application support: expenses associated with supporting the financial groups in managing their financial database and computer systems.

ii. Human Resources

7. With the exception of expenses directly related to staffing, all human resource expenses associated with providing support for the integration of human resource strategy, policy and planning, such as human resource, industrial relations, and human rights consultants expenses, and expenses for innovation, employment equity and diversity expenses; expenses associated with directing staffing solutions and the recruitment and selection of candidates; expenses associated with facilitating the administration of employee services in the areas of benefits and compensation and the company pension plan; expenses associated with directing policies and programs to meet legal and contractual obligations, as well as to ensure due diligence in health and safety for employees, such as government interface and managing employee assistance programs, employee health and medical services, benefit claims and medical case disability management, and workers compensation; activities associated with directing and establishing competitive industrial relations strategies and collective bargaining including conducting research and serving as official government interface regarding labour legislation.

iii. Legal

8. Expenses associated with the provision of legal services, such as handling claims involving corporate interests, addressing legislation affecting the company, patent trademark and copyright matters, accident and damage claims, acquisitions of right-of-way and grade separations, and preparing legal documents associated with the sale and purchase of plant.

iv. Corporate Security

9. Expenses associated with internal auditing, security, and external auditing.

v. Corporate Communications

10. Expenses associated with public, business, and investor relations, such as corporate programs in the field of news and information, employee information on corporate policy, and speech writing, communications with the investment community and shareholders, expenses associated with the company's financial statements, annual shareholders meeting, maintaining shareholder records, and capital stock registration exchange.

vi. Corporate Advertising

11. Expenses associated with business advertising and promotion of local, competitive and brand management products, expenses associated with sponsorship and/or event marketing, and tradeshows, broad advertising expenses associated with enhancing company's reputation & image as well as positioning the company in the marketplace using media, and the development, management, and protection of a company's brand and product/ service trademarks.

vii. Regulatory

12. Expenses associated with activities regarding services subject to the regulatory jurisdiction of the Commission, the Competition Bureau, and other similar government authorities, such as developing regulatory strategy, monitoring government/regulator views, interpreting decisions, co-ordinating responses to decisions and public notices, preparation and presentation of material to support the company's position in regulatory filings and proceedings, preparation of responses to interrogatories, training and preparation of witnesses as well as participation in legislative and policy processes.

viii. Real Estate, IS/IT and other expenses associated with FC entities

13. Expenses associated with real estate, information systems and related data processing, and other resources used to support FC entities described in a)i) to a)vii) above.

ix. Executive and Management

14. Expenses associated with executives and other levels of management above two levels of supervision.

x. Executive and Management Support

15. Expenses associated with resources used to support executives and other levels of management above two levels of supervision.

xi. Research & Development (R & D) of new technologies/service

16. Expenses associated with developing and testing of new products/services, including R & D expenses performed by employees for in-house projects; billing from universities, research organizations or companies for R & D expenses; and billing for services rendered to the company in the process of claiming R & D tax credits.

xii. Product/Service Development and Market Research of new products/services and technologies

17. Expenses (which are not R & D) associated with development of new products/services and technologies and associated market research, including acquiring market intelligence (e.g. plans, pricing, customer requirements) and the identification of related strategies.

xiii. Network Planning, Design and Development

18. Expenses associated with long-range network planning, research, design, and development activities (e.g. engineering planning including the development of long-range plans for the provisioning of services and expansion and replacement of telecommunications plant), and technology development (e.g. associated with access, switch, transport, broadband and IP), including establishing future network hierarchy and structure, preliminary definition of major new network systems, and administration of technical contracts with suppliers.

xiv. IS/IT Systems Development

19. Expenses associated with the development of information systems and information technologies.

b) Sunk expenses

i. Pre-Introduction Expenses

20. Expenses incurred prior to the decision to introduce a service which are associated with the development and testing of new products/services, including expenses associated with the related data processing, system development, sales design, network design and development, service evaluation, preparation of material for filing of tariff applications, etc.

ii. Expenses Associated With non-Recurring Events

21. Expenses associated with cancelled projects, strikes, corporate restructuring, or reorganization (including separation allowances, counselling, and training support), process improvements, and catastrophic events.

Asset life characteristics for use in regulatory economic studies (LE: Life Estimate)

Bell Canada and Bell Aliant – Central Region

Asset Class/Code	Asset Class Description	Dispersion Curve	LE
1C	Pole Lines	Iowa S-0	25
2C	Aerial Cable – Other (Exchange)	Iowa S-0	18
4C	Conduits	Iowa S-0	50
5C	Underground Cable – Other (Exchange)	Iowa S-0	16
14C	Standardized OP Housings	Iowa S-0	50
32C	Building Cable – Other	Iowa S-0	16
42C	Aerial Cable – Fibre Optic	Iowa S-0	20
45C	Underground Cable – Fibre Optic	Iowa S-0	20
55C	Submarine Cable – Other	Iowa S-0	18
65C	Buried Cable – Other (Exchange)	Iowa S-0	18
78C	Outside Service Wire – New Installations – Residence	Iowa S-0	18
94C	Manholes	Iowa S-0	50
178C	Outside Service Wire – New Installations – Business	Iowa S-0	18
278C	Outside Regular Wire – New Installations – Coin	Iowa S-0	18
432C	Building Cable – Fibre Optic	Iowa S-0	20
455C	Submarine Cable – Fibre Optic	Iowa S-0	20
465C	Buried Cable – Fibre Optic	Iowa S-0	20
187C	Frame/Cell Transfer Systems (ATM Tandem Switch, ATM Service Node at DS-3 and STS-3C access rates, ATM Multiplexer/Private Line Gateway, Wellfleet Concentrator Node, Verilink CSU)	Iowa R-2	3
207C	Common Equipment – Power	Iowa S-0	18
377C	Digital Switch – Digital Multiplex System – Toll (DMS-200, DMS-250)	Iowa S-0	12
387C	Data Switching – ATM Hubs and Routers	Iowa R-2	7
477C	Digital Switch – TOPS – Auxiliary Operator Service System (AOSS)	Iowa S-0	12
487C	Data Switching – Head-End Equipment (Servers, Antennas, Dishes, Video Servers)	Iowa R-2	7
577C	Digital Switch – Digital Multiplex System – Local (DMS 10, DMS 100)	Iowa S-0	12
607C	Common Equipment – Fibre Connectors	Iowa S-0	20
677C	Local Switching Application Software (For 477C and 577C)	RECT	5
687C	Toll Switching Application Software (For 377C)	RECT	5
787C	Asynchronous Transfer Mode (ATM) – Application Software (For 187C)	RECT	5
877C	Message & Conference Services (Envoy, iNet, IVMS, MDS, Teleconference services)	GM4	10
987C	Application Software – ATM protocol – Multimedia	RECT	5
227C	Transmission – Analog (Deferrable Plug-Ins)	Iowa S-0	7
257C	Transmission – Other – Analog (Including T1)	Iowa S-0	3
357C	Transmission – Video Analog	Iowa S-0	3
427C	Transmission – Digital Data Network (Deferrable Plug-Ins)	Iowa S-0	9

Bell Canada and Bell Aliant – Central Region

Asset Class/Code	Asset Class Description	Dispersion Curve	LE
457C	Transmission – Digital Data Network (Excluding LD1, T1)	Iowa S-0	9
467C	Transmission – Radio (Toll) (RS4/40 Systems, DRS 8 Systems, Other)	Iowa S-0	10
557C	Transmission – Digital Multiplexing (ML12, ML13, ML23, ML34, DMX-13C, DMT-300 multiplexers, DX2, DX3, DNX-33 cross-connect panels)	Iowa S-0	9
567C	Transmission – Wireless – Exchange	Iowa S-0	10
587C	Transmission – Hardwired – Video Digital	R2	10
627C	Transmission – Fibre Optics (Deferrable Plug-Ins) (DPI for FMT 150D, Other Asynchronous, Synchronous)	Iowa S-0	9
657C	Transmission – Fibre Optics (Optical equipment terminals and terminations, Optical intermediate office repeaters and performance monitors, FD-565 type plant, OC192)	Iowa S-0	11
667C	Transmission Application Software (For 457C, 467C, 557C, 567C, 657C, 757C)	RECT	5
727C	Transmission – Digital Network – ATM and Other Digital (Line Cards, Deferrable Plug-ins for Digital Echo Canceller, DMT-300, FOTS Repeaters, Mega)	Iowa S-0	9
757C	Transmission – Other – Digital (Channel banks (DE4, D5), DNX 100, LD-1 Carrier Equipment, DSX-1 Cross-Connect Panels, Digital Program or Video Equipment, DVACS Equipment)	Iowa S-0	12
827C	Transmission – S/DMS Access Node (Deferrable Plug-ins)	Iowa S-0	9
857C	Transmission – Digital Access Services Remote Equipment (AMAS)	Iowa S-0	12
927C	Transmission – Digital Remotes (Deferrable Plug-Ins) (For 957C)	Iowa S-0	9
957C	Transmission – Digital Remote Concentrators (DMS-1 including CCT and RCT, DMS-1U including both CT and RT terminals, RCTs associated with SCM 10, RCUs associated with SCM 100)	Iowa S-0	10
48C	Inside Wiring – Coin	Iowa S-0	16
108C	QVF and HDSL on Customer Premises (I&R Provisioned)	RECT	6
128C	Telephone and Miscellaneous – Single Line and Non-Exclusive	RECT	4
138C	Radio Mobile (Exchange Radio Telephone Service (ERTS), Remote Communication Services (RCS), Fixed Radio Access (FRA) (Proximity), Code Division Multiple Access (CDMA), Walkie-Talkie system, Cellular type equipment)	RECT	7
148C	Coins & Booths – Telephone – Material	RECT	10
168C	Data – Competitive Network	RECT	3
228C	Vista 350 Sets	RECT	4
248C	Coin & Booths – Internet	RECT	10
268C	Consumer's Equipment – Broadband Sympatico (Modems, Controllers, Filters and related inside wiring)	RECT	3
428C	IP Terminal Devices	RECT	4
468C	Data – Gateways	RECT	3
808C	Dedicated Hubs and Routers on Customer Premises	RECT	6
10C	Buildings	RECT	30

Bell Canada and Bell Aliant – Central Region

Asset Class/Code	Asset Class Description	Dispersion Curve	LE
30C	Buildings Equipment – Cellular & Radiotelephone	RECT	30
54BA	Motor Vehicles (Automobiles and trucks, Special-purpose vehicles such as TV and microwave emergency power plant vehicles)	RECT	9
54BB	Garage & Motor Vehicles Shop Equipment Provisioning	RECT	9
54BD	Logistic – Tools & Work Equipment	RECT	15
54CA	Furniture	RECT	12
54CB	General Purpose Computers (Main Frame, LAN and WAN server computers)	RECT	5
54CD	Office Equipment	RECT	3
54CE	Computerized Office Equipment and Personal Computers	RECT	4
54CF	System Furniture	RECT	12
54CG	Application Software (General Purpose Computers – Other)	RECT	5
54CJ	Leasehold Improvement	See note below[9]	
116C	OSS – Digital – ATM – Application Software (NAVIS S/W)	RECT	5
126C	OSS – Digital – ATM – Computer Hardware (NAVIS Element Manager H/W)	GM4	10
156C	OSS – Digital – ATM – Non-Computer (Other)	GM4	10
216C	OSS – Digital – Regular – Application Software	RECT	5
226C	OSS – Digital – Regular – Computer Hardware	GM4	10
256C	OSS – Digital – Regular – Non-Computer (Other)	GM4	10

Bell Aliant – Atlantic Region

Asset Class/Code	Asset Class Description	Dispersion Curve	LE
BK&MSN BLG	Brick and Masonry Company owned buildings	RECT	30
LEAS PREM	Leasehold improvements in offices & Phone Ctrs	Iowa S-5	10
RADIO TWRS	Towers for various analog & digital transmission radio	Iowa R-3	30
SIGNAGE	Aliant brand capitalized signs on company buildings or in dealer locations	RECT	3
WD&MTL BLG	Wood frame & metal buildings	Iowa S-2	30
WIC	Prewired walk-in cabinets for DMS, fibre, HSI and DTV. Concrete, anchored to pads	RECT	25
ATM	Packet-switched broadband services (voice, data & video)	Iowa R-3	5
DATAPAC	"Point of sale" card readers in stores; national service, no alternatives; mature	Iowa L-2	2
DIG SW DMS	Digital Switch – DMS100 & Remotes	Iowa R-1	12
	Remote Switching Center (RSC)	Iowa R-1	12
	Digital Switch – Toll	Iowa R-1	12
DIG SW OTH	Non-DMS Digital Switches – Redcom, Vidar	Iowa R-2	12
ENH SERV	Enhanced Services	Iowa R-2	5

[9] Asset Class 54CJ reflects a default value of 10 years; whenever applicable, however, a study specific value is used.

Bell Aliant – Atlantic Region

Asset Class/Code	Asset Class Description	Dispersion Curve	LE
FRM RELAY	Frame Relay	Iowa R-3	4
GATEWAY	Gateways	Iowa R-2	10
MDF	Framework in CO's – distribution, protector, relay racks, frame lighting	RECT	20
NEWREACH	Frame ATM & packet switched data protocols; Ethernet transceivers, routers	Iowa R-2	5
NTK ROUTER	Network Routers	Iowa R-2	10
NTK SERVER	Network Servers	Iowa R-2	10
NTWK PG SW	Network Paging Switch	RECT	7
TEL POWER	Telephone Power	Iowa R-3	15
TOPS	Traffic Operator Position Systems, MDA	Iowa S-1	10
VMS	Voice Mail Systems	Iowa R-2	5
ANLG MULTP	Analogue Multiplex	Iowa S-2	12
BRCST HD	Servers, receivers, antennas, dishes, splitters, scramblers for TV	Iowa R-5	7
DDN	Digital Data Network	Iowa R-2	10
DIG MLPPLX	Digital Multiplex	Iowa L-4	11
DSL	Digital Subscriber Line	Iowa S-0	10
EXCH FACIL	Exchange Facilities	Iowa L-3	11
EXCH MICRO	Exchange Microwave	Iowa L-2	11
FO SONET	Fibre Optics Terminal Equipment	Iowa R-2	12
IDN	Multiplexes voice, data & image to DS-1 Rate (1.533mps), e.g. Newbridge 3600	Iowa R-2	11
INTERNET	Access & Computer equipment providing low speed Sympatico	Iowa R-5	5
SATELLITE	Satellite Earth Station – Sable Island	Iowa L-5	10
TOL MIC AN	Analogue Radio Equipment	Iowa R-3	2
TOLL MICRO	Digital Radio Equipment	Iowa L-3	11
TOLL VIDEO	Toll Video	Iowa R-2	11
TRK MOBILE	Trunk Mobile	RECT	10
VDEOA&BB	Computer systems providing videoactive & broadband services	Iowa R-2	5
BCST STOP	PC control units & multimedia controllers	Iowa L-5	3
COIN BOOTH	Coin Booths	Iowa L-5	10
CPE ROUTER	Customer Premise Equipment – Routers	RECT	6
DATA APP	Datacom, datasets, vucom, telescript and facsimile equipment	Iowa L-5	7
DIG PBX	Digital PBX	RECT	5
DSL MODEM	Digital Subscriber Line Modems	Iowa L-5	3
FIX WIRLS	Fixed Wireless	RECT	7
IP SET	IP Set	Iowa L-5	3
MLTLN SET	Multiline Set	Iowa L-5	5
PA/ARM SYS	Alarm Systems	Iowa L-5	10
PUBL MOBL	Public Mobile	Iowa L-5	7
SN OS WIRE	Single Line Outside Wire	Iowa S-1	18
SNGLN SET	Single Line Set	RECT	4

Bell Aliant – Atlantic Region

Asset Class/Code	Asset Class Description	Dispersion Curve	LE
AER COAX	Aerial coaxial access cables	Iowa R-3	10
AER COPPER	Copper cable feeder & distribution cable, also cabinets, case coil loadings	Iowa L-1	18
AER FBR	Fibre cable for use in a fibre cable system also assoc items for placing, splicing	Iowa R-3	20
BRD COAX	Buried coaxial access cables	Iowa L-5	19
BRD COPPER	Feeder and distribution cable buried directly in the ground incl terminals & ld coils	Iowa R-1	18
BRD FBR	Buried fibre optic cables	Iowa R-3	20
POLES	Material costs for install of poles, push braces, guy wire, anchors & wooden poles	Iowa R-1	27
SUB COPPER	Sheath cable placed under a permanent body of water	Iowa R-0.5	20
SUB FBR	Fibre cable placed under a permanent body of water	RECT	20
UG COAX	Underground coaxial access cable	Iowa R-3	18
UG CONDUIT	Pipe, fibre, conduit, manholes, handholes, service boxes and cable racks	Iowa R-5	40
UG COPPER	Copper cable in underground conduit	Iowa L-2	16
UG FBR	Underground fibre optic cables	Iowa R-3	20
FRN & OFEQ	Non-computerized furniture & office equip valued greater than $1,500	RECT	10
G/P COMPUT	Computer equipment used for the internal management of the company	RECT	4
ICN	Integrated Communications Network includes computers, application servers	Iowa R-3	4.5
LGT RD VEH	Passenger cars, mini & full size vans, small trucks under 2 tons	Iowa L-4	7
NTWK APPL	Computerized systems that gather information from the switch	Iowa L-4	5
OTH VEHCLS	Equipment used in laying cable, trailers, snowmobiles, winches, derricks	Iowa L-3	9
TEST SETS	Individual test sets valued over $1,500, and not classified as a CO function	Iowa R-2	15
TRK>2TONS	Line and gang trucks, road type tractors	Iowa R-3	11
UTLTY BODY	Truck caps not permanently mounted to trucks	Iowa L-4	14
WRK EQUIP	Work and shop equipment where the individual cost exceeds $1,500	Iowa R-2	15
A/S ATM	Application Software – ATM	RECT	5
A/S DSL	Application Software – DSL	RECT	5
A/S G&A 36	Application Software – General Administration	RECT	5
A/S INTRNT	Application Software – Internet	RECT	5
A/S NTK PF	Application Software – Network Performance	RECT	5
A/S STN	Application Software – Station	RECT	5
A/S SWTCH	Application Software – Switching	RECT	5
A/S TRMSN	Application Software – Transmission	RECT	5
A/S VMS	Application Software – Voice Mail Systems	RECT	5

MTS Allstream

Asset Class/Code	Asset Class Description	Dispersion Curve	LE
Z107	MDF (Main Distribution Frame)	GM #5	20
Z207	DC Power	GM #5	17
Z087	Dig:Swtch Exch- Hardware	GM #4	12
Z871	Dig:Swtch Exch- Software	RECT	5
Z873	Dig:Swtch Exch- Competitive Software	RECT	5
Z687	Dig:STP.(Com. Channel Signalling 7)	GM #4	12
Z887	Dig:Toll – Hardware	GM #4	10
Z872	Dig:Toll – Software	RECT	5
Z987	ATM	GM #4	9
Z874	ATM – Software	RECT	5
Z417	Msg Relay Service – Hardware	GM #4	7
Z517	Msg Relay Service – Software	RECT	5
Z617	Operator Services – Hardware	GM #5	6
Z717	Operator Services – Software	RECT	5
Z027	CCT:Digital:Toll – Other	GM #3	12
Z127	CCT:Digital:Toll – Multiplexing	GM #3	12
Z227	CCT:Digital:Exchange	GM #2	12
Z271	CCT:Application Software	RECT	5
Z327	CCT:Fibre Optics – Toll	GM #3	10
Z427	CCT:Fibre Optics – Local	GM #3	10
Z527	CCT:Digital – Local – Multiplexing	GM #3	12
Z627	CCT:Adsl Central Office	GM #5	5
Z057	CCT:Analogue – Toll – Other	GM #2	10
Z157	CCT:Analogue – Toll – Radio Mux	GM #4	10
Z257	CCT:Analogue – Exchange	GM #4	10
Z357	CCT:Toll – Video	GM #2	7
Z827	CCT:Digital – Subscriber Carrier	GM #3	12
Z767	Radiotelephone:Digital – Toll	GM #4	8
Z867	Radiotelephone:Digital – Exchange	C:1.010565, G:-39.62557, S:.404775	10
Z428	Coin Stations	GM #5	8
Z781, Z782, Z783 & Z788	Telephones – Drops And Arrestors	Manual Study	18
Z001	Pole Lines:Exchange & Foreign	GM #2	19
Z002	Aerial Cable: Paired	GM #3	18
Z042	Aerial Cable:Fibre Optic	GM #4	20
Z032	Building Cable: Paired Plant	GM #3	17
Z432	Building Cable: Fibre Optic	GM #3	17
Z005	Underground Cable:Paired	GM #3	16
Z045	Underground Cable:Fibre Optic	GM #3	20
Z065	Buried Cable:Paired	GM #2	18

MTS Allstream

Asset Class/Code	Asset Class Description	Dispersion Curve	LE
Z465	Buried Cable:Fibre Optic	GM #4	21
Z095	Buried Wire	GM #2	12
Z003	Aerial Wire	GM #5	16
Z004	Underground Structures	GM #5	45
Z901	Office Furniture	GM #4	20
Z902, Z905	Office Equipment, Security Devices	GM #4	11
Z903	Word Processors, PC's (Competitive)	GM #5	5
Z906	Word Processors &PC's-Software	RECT	5
Z907	Office Furniture – Capital Lease	Manual Study	10
Z026, Z226	Gen. Purp. Computers: Plant App. (Competitive)	GM #5	8
Z326	Gen. Purp. Computers: IVR	GM #5	6
Z526	Gen. Purp. Computers: SAS	GM #4	6
Z626	Gen Purp. Computers -WDC	GM #5	5
Z726	Gen Purp. Computers- E911 Hardware	GM #4	8
Z826	Gen Purp. Computers- E911 Software	RECT	5
Z908	Gen. Purp. PC's:-Other:Hardware (Competitive)	GM #5	6
Z910	Gen Purp. Computers – Faneuil	GM #5	7
Z911	Gen Purp. Computers – Faneuil/MTS Database	RECT	5
Z912	Gen. Purp. Computers:-Other:Software	RECT	5
Z156	Internet Hardware	GM #5	4
Z256	Internet Software	RECT	5
Z950	Motor Vehicles:Composite	GM #4	8
Z951	Garage & Vehicle Shop Eqpt	GM #4	12
Z953	Architects' Work Eqpt	GM #4	12
Z954	Shop Tools – Over $1,500	GM #4	12
Z955, Z956, Z961	Shop Tools – Other	GM #4	12
Z959	Warehouse Work Eqpt	GM #4	12

SaskTel

Asset Class/Code	Asset Class Description	Dispersion Curve	LE
X005	Messaging Equipment	Iowa R-2	7
X010	Application Software – Messaging equipment	RECT	5
X015	Packet Service	RECT	8
X030	Digital Switching – Local	Iowa R-3	14
X035	Application Software – Digital Switching – Local	RECT	5
X040	Digital Switching – Toll	Iowa R-2	10
X041	Interactive Multi-media Equipment	RECT	5
X042	Application Software – Interactive Multi-media Equipment	RECT	5
X045	Broadband Core – Asynchronous Transfer Mode – ATM	Iowa R-3	9
X046	Broadband, Packet Access (DSL)	Iowa R-3	6
X047	Broadband Core – IP	Iowa L-3	6
X050	Application Software – Digital Switching Toll	RECT	5
X055	Circuit – Other	Iowa R-1	15
X060	Video	Iowa L-3	10
X065	Circuit – Packet Service Access	Iowa R-2	8
X080	Network Radio Facilities	Iowa S-3	15
X085	Circuit, Frame Relay	Iowa R-1	10
X090	Multiplex, Digital	Iowa R-2	10
X095	Subscriber Access Radio	Iowa S-4	15
X100	Next Generation Digital Loop Carrier (NGDLC)	Iowa R-3	12
X105	Fibre Optics Electronics	Iowa R-3	12
X110	Application Software – Loop Carrier (NGDLC)/Fibre Transport	RECT	5
X115	Circuit, Subscriber Transmission	Iowa R-3	12
X120	Common equipment	Iowa S-6	35
X125	Power Equipment	Iowa S-1	17
X130	Network Monitoring Equipment	Iowa R-3	15
X132	Network Computer Equipment	RECT	5
X135	Application Software – Network Computer Equipment	RECT	5
X145	Public Access	Iowa R-2	10
X150	Customer Premise Equipment – Voice	Iowa R-1	9
X175	Large Terminal Equipment	Iowa L-3	8
X194	Customer Premise Equipment – IP	Iowa R-3	5
X195	Customer Premise Equipment – Data	RECT	6
X200	Outside Service Wire	Iowa R-2	20
X205	Fibre Cable – Aerial	Iowa R-3	20
X210	Fibre Cable – Underground	Iowa R-3	22
X215	Fibre Cable – Buried	Iowa R-3	20
X220	Copper Cable – Aerial	Iowa R-2	19

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Asset Class/Code	Asset Class Description	Dispersion Curve	LE
X225	Copper Cable – Underground	Iowa R-2	20
X230	Copper Cable – Buried	Iowa R-3	20
X235	Poles	Iowa R-4	23
X240	Underground Duct & Conduit	Iowa R-5	50
X245	Network Buildings	Iowa R-2	35
X250	Towers	Iowa R-3	35
X255	Furniture	RECT	17
X260	Office Equipment	RECT	12
X265	Personal Computers	RECT	4
X270	General Purpose Computers	RECT	5
X275	Application Software – Administrative	RECT	5
X280	Vehicles and Construction Equipment	Iowa S-4	14
X290	Auxiliary Vehicles	Iowa R-5	18
X295	Network Test Equipment	RECT	8
X305	Vehicle Outfitting	RECT	10

TCC

Asset Class/Code	Asset Class Description	Dispersion Curve	LE
A10	Cable – Aerial Copper	Iowa R-1	17
A12	Cable – Aerial Fibre	Iowa R-3	18
A20	Cable – Buried Copper	Iowa R-2	18
A22	Cable – Buried Fibre/Ubiquity	Iowa R-3	18
A30	Cable – Underground Copper	Iowa R-2	17
A31	Cable – Underground Coaxial	Iowa R-2	17
A32	Cable – Underground Fibre	Iowa R-3	18
A40	Cable – Submarine Copper	Iowa R-1	20
A42	Cable – Submarine Fibre	Iowa R-3	18
A50	Cable Closures and Terminals	Iowa R-2	17
A60	Poles – Wholly Owned	Iowa R-1	20
A61	Poles – Jointly Owned	Iowa R-2	27
A70	Conduit Structures	Iowa R-4	40
A80	Customer Drops	Iowa R-1.5	18
B10	Circuit Switching – Digital Host	Iowa R-3	13
B11	Circuit Switching – Digital Remote	Iowa R-3	13
B12	Circuit Switching – Digital Toll	Iowa R-2.5	9
B20	Adjunct Switching Platforms	Iowa R-4	5
B30	Plug-in Units – Switching	Iowa R-3	13
C10	Fibre Optic Transmission System (FOTS)	Iowa R-3	8
C21	Radio – Network Digital	Iowa R-3	14
C40	Multiplex/DACS/PCM (copper based)	Iowa S-3	10
C50	Operator Services Platforms	Iowa R-1.5	8
C60	Plug-in Units – Transport	Iowa R-2	10
D10	Network Management	Iowa R-3	9
D12	Network Application Software	RECT	5
D20	Power – DC & UPS	Iowa R-3	16
D21	Power – AC Standby	Iowa R-3	15
D22	Power – Batteries	Iowa R-3	10
D30	Framework & Support	Iowa R-3	15
D40	Plug-in Units – Loop Improvement	Iowa R-3	14
D41	Plug-in Units – Network Management	Iowa R-3	9
E10	Packet Switching	Iowa S-2	8
E11	Legacy Packet Switching	Iowa S-2	15
E12	Network Servers and Peripherals	Iowa S-2	4
E20	Radio – Subscriber	Iowa R-4	12
E30	Broadcast Equipment	Iowa R-2	8
E40	Data Termination	Iowa R-3	7

TCC

Asset Class/Code	Asset Class Description	Dispersion Curve	LE
E50	Plug-in Units – Frame Relay	Iowa R-2	8
F10	Subscriber Line & Carrier (CTRT based)	Iowa S-3	12
F11	Digital Subscriber Line	Iowa S-3	6
F20	Plug-in Units – Subscriber Line & Carrier	Iowa S-3	12
H10	Terminal Devices – Wireless	Iowa R-3	7
H11	Terminal Devices – Wireline	Iowa S-3	5
H20	Business Systems (location based)	Iowa S-3	7
H30	Payphones	Iowa S-4	10
H31	Payphone Enclosures	Iowa S-4	10
H40	Digital Subscriber Terminal	Iowa S-4	4
J10	Land Vehicles – Light	Iowa L-2	7
J11	Land Vehicles – Heavy	Iowa L-1	12
J20	Vehicle & Aircraft Components	Iowa L-1	10
J30	Aircraft	RECT	15
K10	Tools & Test Equipment	Iowa S-1	10
K20	Furniture & Office Equipment	Iowa L-1	6
K21	Internal Communication Systems	Iowa L-3	5
K40	General Administrative Software	RECT	5
K41	Enterprise Administrative Software	RECT	5
K50	Mainframes & Peripherals	Iowa R-3	5
K51	Administrative Servers & Peripherals	Iowa S-4	4
K52	Desktop/Laptop Devices & Peripherals	Iowa L-4	4
L11	Land Improvements	RECT	20
L20	Buildings	Iowa L-1	20
L21	Buildings – Portable	Iowa R-5	20
L22	Buildings – Plant Support & Security Systems	Iowa R-4	15
L30	Towers	Iowa R-5	28
L40	Access Roads, Tramways & Wharves	Iowa R-3	30
L50	Leasehold Improvements	RECT	5

Company-Specific Appendices

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