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Conseil de la radiodiffusion et des
télécommunications canadiennes

Telecom Decision CRTC 2005-6

Competitor Digital Network Services

3 February 2005

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**Public examination room
CRTC
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**Mailing address:
CRTC
Ottawa, Ontario
K1A 0N2**

**Telephone: (819) 997-2429
1 (877) 249-2782**

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Ottawa, 3 February 2005

Competitor Digital Network Services

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Appendix 1 – Finalized CDN Rates – Tables 1 to 16

In this Decision, the Commission renders its determinations in the proceeding initiated by Competitor Digital Network Access service proceeding, Telecom Public Notice CRTC 2002-4, 9 August 2002. The Commission determines that the incumbent local exchange carriers (ILECs) shall provide to competitors the following services and facilities as part of Competitor Digital Network (CDN) services: DNA access and links, DNA intra-exchange, central office (CO) channelization, non-forborne metropolitan IX, copper and optical co-location links and other CO connecting links.

The Commission also classifies each of the CDN services as either a Category I Competitive Service or Category II Competitor Service, and establishes the appropriate pricing treatment for each service.

Finally, the Commission sets the rates, terms and conditions applicable to CDN services, as well as the appropriate compensation to be provided to the ILECs for their provision of CDN services to competitors.

I Background

1. In *Regulatory framework for second price cap period*, Telecom Decision CRTC 2002-34, 30 May 2002 (Decision 2002-34), the Commission established two categories of Competitor Services. A Category I Competitor Service (Category I service) was defined as a service in the nature of an essential service and comprises essential, near-essential or other interconnection and ancillary services required by Canadian carriers and resellers interconnecting to the incumbent local exchange carriers' (ILECs') networks. A Category II Competitor Service (Category II service) was defined as a Competitor Service that is not a Category I service. In Decision 2002-34, the Commission found it would determine the rate of a Category I service by applying a mark-up of 15% to that service's Phase II costs, and that it would determine the rate of a Category II service on a case-by-case basis.
2. The Commission also concluded in Decision 2002-34 that there was a need for Aliant Telecom Inc. (Aliant Telecom), Bell Canada, MTS Communications Inc. (MTS), Saskatchewan Telecommunications (SaskTel) (collectively, Bell Canada et al.) and TELUS Communications Inc. (TELUS) (collectively, the ILECs) to develop a service for competitors called the competitor-Digital Network Access service (the CDNA service). The Commission ordered the development of the CDNA service, with a view to fostering facilities-based competition, because competitors were at a competitive disadvantage relative to the ILECs in the absence of such a service. The Commission further required that each ILEC file interim tariffs for that service containing rates based on Phase II costs plus a 15% mark-up.
3. In Decision 2002-34, the Commission also initiated a number of follow-up proceedings to examine issues related to the CDNA service. In addition to directing the ILECs to file proposed tariffs and related cost studies, the Commission also invited parties to comment on whether the ILECs should make the intra-exchange channel component of the Digital Network Access (DNA) service and the access component of that service, when used in circumstances other than those described in Decision 2002-34, available to competitors as part of the CDNA service.

4. In *Competitor Digital Network Access service proceeding*, Telecom Public Notice CRTC 2002-4, 9 August 2002 (Public Notice 2002-4), the Commission provided clarification of, and certain procedural changes to, the follow-up proceedings initiated in Decision 2002-34. The Commission found it appropriate to review and vary Decision 2002-34, of its own motion, in order to include consideration of additional matters and to combine the follow-up proceedings into one CDNA proceeding, comprised of a policy portion and a tariff portion. As a result, the ILECs were not required to file final tariffs for CDNA service, but were still required to file Phase II cost studies, as directed in Decision 2002-34.
5. In Public Notice 2002-4, the Commission also invited comments on, among other things, whether channelization and intra-exchange facilities ILECs use to provide their DNA service, non-forborne digital interexchange (IX) services in metropolitan and extended area service (EAS) areas (metropolitan IX) and central office (CO) optical connecting link services should be made available as part of the CDNA service. Accordingly, the purpose of this proceeding was to determine which type of facilities or services should constitute the CDNA service and the rates, terms and conditions applicable to this service. In view of the determinations in the present Decision, the Commission considers that the CDNA service established on an interim basis in Decision 2002-34, which the Commission noted in paragraph 2 above, and the services and facilities set out in this paragraph should be referred to collectively as Competitor Digital Network (CDN) services.
6. Bell Canada et al. and TELUS were made parties to this proceeding. The following companies registered as parties and also participated in the proceeding: Allstream Corp., now known as MTS Allstream, (Allstream), Call-Net Enterprises Inc. (Call-Net), Equant Canada Inc. (Equant Canada), Futureway Communications Inc. operating as FCI Broadband (FCI Broadband), LondonConnect Inc. (LondonConnect), Microcell Solutions Inc. (Microcell), Primus Telecommunications Canada Inc. (Primus Canada), Rogers Wireless Inc. (RWI), Vidéotron Télécom ltée (VTL), 4089316 Canada Inc., operating as Xit télécom, on its own behalf and on behalf of Télécommunications Xittel Inc. (Xit télécom).
7. On 30 October 2003, the Commission placed on the public record 12 Tables that contained aggregated information relating primarily to the provision and use of facilities by competitors (the aggregated supply data). The information in these Tables was based solely on an aggregation of information filed by certain parties in response to Commission interrogatories. The competitors that provided the information in Tables 1, 2 and 3 were Allstream, Call-Net, FCI Broadband, LondonConnect and each ILEC in respect of its out-of-territory operations.
8. Final comments were filed by 12 December 2003 and comments in reply were filed by 23 December 2003.
9. The Commission issued four Decisions concerning related matters during the course of the CDNA proceeding.
10. In *TELUS Communications Inc. – Application with respect to the scope of Telecom Public Notice CRTC 2002-4*, Telecom Decision CRTC 2002-75, 5 December 2002 (Decision 2002-75), the Commission responded to TELUS' request for clarification on the scope of the proceeding and established revised dates for the proceeding.

11. In *Interim Competitor Digital Network Access service*, Telecom Decision CRTC 2002-78, 23 December 2002 (Decision 2002-78), the Commission approved revised interim CDNA service rates and addressed issues raised by parties in response to the interim CDNA service tariffs issued by the ILECs on 14 June 2002.
12. In *Procedural determination in the Competitor Digital Network Access service proceeding with respect to an application made by the Canadian Cable Television Association*, Telecom Decision CRTC 2003-52, 1 August 2003 (Decision 2003-52), the Commission directed Cogeco Cable Canada Inc. (Cogeco), Bragg Communications carrying on business as EastLink (EastLink), Shaw Communications Inc. (Shaw), Rogers Cable Inc. (Rogers Cable) collectively, (Cogeco et al.) and VTL to respond to two Commission interrogatories that had also been addressed to competitors (Allstream, Call-Net, FCI Broadband, LondonConnect, Microcell and RWI) and the ILECs in respect of their out-of-territory operations.
13. In *Part VII application by Call-Net Enterprises Inc. with respect to the Interim Competitor Digital Network Access service*, Telecom Decision CRTC 2003-60, 29 August 2003 (Decision 2003-60), the Commission made findings with respect to the circumstances in which the CDNA service rates would apply and how those rates should be applied to certain facilities. The circumstances in which the CDNA service was available are described below.
14. In addition, in *TELUS Communications Inc.'s – Application to reopen the record of the proceeding initiated by Telecom Public Notice CRTC 2002-4*, Telecom Decision CRTC 2005-5, 3 February 2005 (Decision 2005-5), issued today, the Commission denied an application by TELUS to reopen, update and supplement the factual record of the CDNA proceeding, prior to the Commission reaching its determinations in the proceeding.
15. In Decision 2002-34, the Commission determined that the access component of the CDNA service should provide a transmission facility at DS-0, DS-1, DS-3, OC-3 and OC-12 transmission speeds from a customer premise to a competitor's switch within the same ILEC serving wire centre area or to the ILEC serving wire centre, in which case it must terminate on the competitor's co-located equipment. The Commission further determined that the link component, being an integral part of the access, should allow for connection at transmission speeds up to the OC-12 level.
16. If the competitor was co-located at the ILEC wire centre, the CDNA service could be used to provide an access facility (the customer access) between the competitor's customer's premises and the competitor's co-located equipment at the ILEC wire centre. If the competitor's customer and the competitor's switch were located in the same ILEC wire centre area, the CDNA service could also be used to provide an access facility (the carrier access) between the ILEC wire centre and the competitor's switch.
17. In Decision 2002-78, the Commission confirmed that competitors might use the CDNA service in conjunction with any other ILEC service at its tariffed rate, or with services self-supplied or provided by others. Accordingly, if the competitor's customer premise and the competitor's switch were located in areas served by different ILEC wire centres, the CDNA service would continue to apply, with respect to the customer access. The ILEC would then transport the competitor's traffic on an intra-exchange or IX facility from its serving wire centre to the

wire centre where the competitor had established a co-location site (second ILEC wire centre). If the competitor was not co-located at the second ILEC wire centre, the competitor would obtain another access facility, not available as part of the CDNA service, to connect to its switch.

18. In Decision 2003-60, the Commission determined that if the competitor's traffic passed through an intermediate point of presence (POP) before reaching its switch, the interim CDNA service would apply in respect of the customer access. However the CDNA service would not provide for the carrier access between the ILEC serving wire centre and the competitor's POP.

II CDN services

19. In this section, the Commission deals with five issues, each of which was addressed by the parties, although not always separately: a) whether CDN services are necessary; b) if so, the services and facilities that should be included as CDN services; c) whether, although the interim CDNA service was classified as a Category I service, each of the CDN services should be classified as a Category I or a Category II service; d) the pricing treatment that should apply to each Category II CDN service; and e) other terms and conditions applicable to CDN services.

A. The need for CDN services: general considerations

20. As previously noted, in Decision 2002-34 the Commission determined that there was a need for the ILECs to develop the CDNA service because competitors were at a competitive disadvantage relative to the ILECs in the absence of such a service. In the present proceeding, a number of general considerations related to the need for CDN services are addressed, including those related to supply, constraints on facilities construction, the state of competition, and competitor reliance on ILEC facilities.

Position of parties

Aggregated supply data

21. Before commenting specifically on the numbers contained in the 12 Tables of aggregated supply data, various parties, notably the ILECs, Allstream and Call-Net commented on the nature, and debated the validity, of the data.
22. Bell Canada et al. and TELUS argued that the aggregated supply data understated the availability of competitive DNA services because hydro telecommunications service providers (hydro TSPs) were not requested to provide information and because the aggregated supply data did not contain information supplied by cable companies.
23. TELUS also submitted that because access and intra-exchange facilities were reported in a combined manner, the data could substantially under-represent the actual state of competitive supply for intra-exchange facilities.
24. Competitors generally argued the availability and utility of third-party sources of supply was limited. Allstream argued that, contrary to the ILECs' position, the aggregated supply data reflected all significant sources of supply for DNA services. Allstream argued further that hydro TSPs, for the most part, were in their early stages of developing their network and

associated service infrastructure. Allstream submitted that its objective was to use third-party alternatives to the greatest extent possible, but that it had identified third-party alternatives only at the building level and not at the exchange or wire centre area level. Various competitors such as Allstream, Call-Net, FCI Broadband, LondonConnect and Primus Canada argued that significant issues limited the usefulness of hydro TSPs alternative to DNA facilities at this time. Certain competitors submitted that the lack of ubiquitous facilities from hydro TSPs and other third-party suppliers also made this alternative impractical.

25. Allstream and Call-Net submitted that the aggregated supply data overstated self-supplied and third-party supplied DNA-equivalent services relative to the total market because it excluded ILEC DNA services provided to retail customers and because data for third-party supply included ILEC facilities supplied on a resold basis.
26. TELUS argued that the overall wholesale and retail capacity of the incumbents was irrelevant to the determination of whether competitors could self-supply or acquire from third parties the digital services in question, and that only the non-ILEC supply data was relevant.

Supply of DNA access and intra-exchange facilities

27. Bell Canada et al., TELUS and VTL argued that the aggregated supply data showed that third parties supplied 23% of the demand for DNA service, and that, therefore, there existed many alternatives to ILEC facilities. Bell Canada et al. argued that the state of alternative supply in Bands A and B (and Band C for Bell Canada) did not justify the classification of DNA access facilities as Category I services, or the expansion of the scope of the interim CDNA service. TELUS argued that it was clear from the supply data that there existed significant competitive supply of all components of DNA service on a national and regional band-specific basis, and, accordingly, the DNA facilities were not in very limited competitive supply. TELUS noted however that competitive supply was not uniform nationally and argued that the Commission should make its determinations on an ILEC-specific and band-specific basis.
28. LondonConnect argued the record demonstrated that competitors had provisioned significant quantities of DNA facilities in certain areas, particularly facilities equivalent to carrier access and intra-exchange facilities, and that in other areas the necessary conditions existed for the economic provision of these facilities. VTL, a competitive provider of DNA-equivalent services, submitted that the ILECs' retail DNA service rates were used as a benchmark for VTL's rates.
29. Competitors generally argued that the ILECs were dominant in the provision of DNA service in all rate bands. Call-Net and RWI submitted that, while some competitive capacity existed in certain densely populated urban wire centre areas, capacity was very limited, even in Band A, and did not exist throughout the entire band. Microcell and RWI emphasized that, as wireless carriers, they provided service in rural as well as urban areas, and argued that competitive alternatives to the ILECs' DNA did not exist in all areas.
30. Competitors disagreed with the ILECs' position that the aggregated supply data indicated that a large amount of third-party supply of DNA service existed. Call-Net submitted that such supply was concentrated in a very limited number of large metropolitan exchanges and, even in those exchanges, this supply was limited to less than a dozen wire centres.

31. Parties discussed the significance to be given to the fact that a relatively large number of facilities were self-supplied in Quebec's Band A. Allstream argued the aggregated supply data for self-supplied facilities in the Montréal and Quebec City exchanges were inflated because much of the self-supplied facilities were put in place by TELUS Québec, an incumbent. TELUS, supported by Bell Canada et al., submitted that these facilities were correctly included in the aggregated supply data as part of overall non-ILEC supply, because TELUS Québec would be considered a competitor in Bell Canada's serving territory.
32. Various competitors argued that facilities constructed by other competitors were not necessarily available in the wholesale market (the construction of facilities representing a competitive advantage for the owner), and would not necessarily be available in locations where they would be required. Call-Net, RWI and Primus Canada submitted that the competitive supply that was available may not offer the same level of service as the ILEC offering. Allstream, Call-Net and FCI Broadband argued that costs associated with using third-party suppliers could be significant. Allstream, Call-Net, Primus Canada, and RWI further argued that it was often more expensive to combine ILEC DNA components with third-party-supplied components than to lease all of the components from the ILECs.
33. Bell Canada et al. argued that the evidence of self-supply and use of third-party facilities did not support claims by parties such as Allstream or Call-Net that competitors' wholesale facilities were less technically attractive than the ILECs', or that access to rights-of-way presented substantial impediments to self-supply.

General constraints on facilities construction

34. LondonConnect argued that the process of facilities-based entry was essentially the process of raising and deploying capital. FCI Broadband argued that facilities-based network expansion was extremely capital intensive. Allstream, Call-Net, FCI Broadband, Microcell, Primus Canada and RWI argued that competitors had limited capital resources relative to ILECs and their out-of-territory operations, which they argued were well financed due to the ILECs' incumbency in their own territories.
35. Call-Net submitted that information in the Commission's November 2003 *Report to the Governor in Council – Status of Competition in Canadian Telecommunications Markets, Deployment /Accessibility of Advanced Telecommunications Infrastructure and Services* (the 2003 Competition Report) reflected competitors' reduced ability to fund new capital construction projects. LondonConnect submitted that serving customers directly over its own network was becoming increasingly difficult because financing for new construction was not readily available.
36. FCI Broadband and Microcell argued that competitors had to deploy their capital strategically. FCI Broadband argued that, given the current investment climate, competitors were unable to sustain both aggressive service expansion into new areas and equally aggressive network build programs.
37. TELUS submitted that its entry as a competitor in central Canada was based on the assumption that it is more economic in the long-term to be a facilities-based provider than a reseller, and that self-supply permitted a competitor to provide services that were uniquely responsive to a

customer's needs. Call-Net agreed and submitted further that, for a competitor that was not an ILEC affiliate, the availability of capital to fund construction was an overriding factor affecting its decision to build or lease facilities.

38. The ILECs and VTL argued that incentives for facilities construction would be undermined if the services under consideration were found to be Category I services, and submitted that this would be counter to the Commission's objective of facilities-based competition. LondonConnect, the ILECs and VTL argued that expanding the scope of the CDNA service would discourage facilities-based entry in the wholesale market for DNA and other services.
39. Bell Canada et al., LondonConnect and VTL generally argued that the Commission's objective in this proceeding should be to provide the ILECs and their competitors with certainty as to the viability of their investments in digital facilities, including access facilities, to minimize regulatory risk associated with investments and to encourage competitors in particular to continue to invest in these facilities.
40. Competitors generally argued that provision of the facilities under consideration as Competitor Services was required to foster facilities-based competition. Allstream and Call-Net submitted that providing competitors with the facilities used to provision the DNA and metropolitan IX services under consideration in this proceeding at Category I rates would not undermine the continued construction of facilities for various reasons. They stated that these reasons included the fact that, as an entrant's customer base grew, ongoing investment in the expansion of its network reach would continue to be driven by the need to become more efficient by taking advantage of economies of scale, scope and density.
41. Competitors argued that ILEC facilities were ubiquitous relative to those of other suppliers and argued further that this had significant implications for the development of facilities-based competition. Competitors generally argued the aggregated supply data supported their position that the geographic reach of competitors' networks was very limited relative to the ILECs'.
42. VTL stated that as a facilities-based carrier operating a fibre optic network, it self-supplied more than 95% of its DNA services.
43. Competitors argued they faced significant barriers to network expansion, including funding (both in terms of limited capital resource and insufficient cash flow to finance construction), economic limitations (such as inadequate customer base or traffic volumes), difficulty obtaining access to space in buildings and rights-of-way, and time constraints.
44. Allstream argued that it needed to take return on investment, customer commitment (length of contract or potential future business) and time required to self-supply into account, including the need to negotiate rights-of-way agreements, construction time and municipal regulations. Allstream also submitted that time delays associated with negotiating space within a building and the associated start-up costs made some facilities construction uneconomic.

45. FCI Broadband submitted that municipalities had a key role to play as competitors attempted to expand their self-supply of facilities. LondonConnect also submitted that, even if financial restrictions did not exist, access to both public and private property was needed to build the infrastructure necessary to provide access for customers, and submitted further that obtaining the required access was becoming more difficult and expensive.
46. TELUS argued that, despite FCI Broadband's submission that municipal regulations were an impediment to facilities construction, the evidence demonstrated there was competitive self-supply and third-party supply for the services under consideration and that, therefore, competitors could make the necessary arrangements with municipalities. The ILECs generally indicated that, because self-supply had occurred, the facilities under consideration were not Competitor Services.

State of competition

47. Call-Net generally submitted that in previous decisions the Commission had underestimated the extent of the financial and technical impediments to the reproduction of the ILECs' network infrastructure and, consequently, the resulting reliance by competitors on ILEC facilities. Call-Net argued the result was minimal competition, which was concentrated in the business market of major urban areas. Call-Net submitted further that the competitive market had weakened compared to the first stages of competition because most of the early entrants had failed and there was far less capital available. Call-Net argued that expanding the scope of the CDN service would foster a significant expansion of residential local competition and accelerate competition in the business local market in a manner consistent with the Commission's objectives.
48. Allstream submitted that, although the local market had been open to competition for years, the development of competitive alternatives had been very limited to date, as evidenced by the 2003 Competition Report.
49. TELUS argued that the evidence of self-supply and third-party supply of the services under consideration showed unequivocally that the Commission's policy of facilities-based competition was working.

Competitor reliance on ILEC facilities

50. Allstream and Call-Net submitted that, if a competitor did not have facilities in close proximity to a customer, it relied on an ILEC's DNA service to provide service to that customer. Allstream and Call-Net argued that, while competitors constructed co-location facilities in some ILEC wire centres, doing so was costly and provided only limited coverage, even after six years of local competition. Allstream stated that, for example, it had 100 co-location sites, but this represented facilities in only 3% of the ILECs' wire centre areas.
51. Call-Net submitted that the provision of local service typically required a competitor to connect to all wire centres in the local serving area. Call-Net further submitted that the intra-exchange and metropolitan IX facilities provided the transport functionality between ILEC wire centres

within an exchange or across exchanges. Call-Net argued that there was initially little economic justification for building such facilities due to an insufficient customer base. Call-Net submitted that, accordingly, transport facilities should be included as part of the CDN service.

52. TELUS argued that the Commission had clearly defined near-essential facilities to be critical inputs required by competitors in light of the very limited competitive supply for these services. TELUS further argued that the key considerations in determining whether a facility was near-essential were the presence of third-party supply and evidence to indicate that carriers could self-supply. TELUS further argued that the evidence on the record of this proceeding clearly demonstrated that competitors were self-supplying facilities, and the facilities in question were therefore not near-essential.

Commission's analysis and determinations

Aggregated supply data

53. The Commission notes the aggregated supply data did not include information supplied by hydro TSPs. The Commission determined in Decision 2003-52 that, with the exception of certain cable companies, information was not required from hydro TSPs and other non-dominant carriers. The Commission further notes the aggregated supply data did not contain information supplied by certain cable companies. However, while this information was not placed on the public record for reasons of confidentiality, it was available to the Commission. The Commission notes that it also relied on other information on the record that was provided in confidence.
54. Parties commented that the aggregated supply data on self-supply and third-party supply combined the data for DNA access and intra-exchange facilities. However, the Commission notes that competitors provided information on the percentage of their DNA facilities that are customer accesses. Therefore, this information was available to the Commission and was considered in its analysis and determination in this proceeding. The Commission further notes that it also relied on information available to it on the record with respect to other characteristics of self-supply and third-party supply, including the bandwidth of competitors' DNA access and intra-exchange facilities, sources of supply for third-party DNA facilities, and supply at the wire centre area level.

Supply of DNA access and intra-exchange facilities

55. The Commission notes that the ILECs and VTL, which characterized itself as a wholesale provider of DNA facilities, argued that the aggregated supply data supported the position that DNA facilities should not be required to be provided as Competitor Services. Competitors generally argued this data supported their position that DNA services should be required to be provided as Competitor Services.
56. In *Restructured bands, revised loop rates and related issues*, Decision CRTC 2001-238, 27 April 2001 (Decision 2001-238), the Commission established revised rate Bands for each ILEC. In that Decision, the rate Bands for each ILEC were set out based on homogeneous groupings of each ILEC's exchanges and/or wire centres. ILEC wire centre areas assigned to

Band A contain geographic areas in major urban cores. Wire centre areas assigned to Band B typically contain relatively dense urban centres, while wire centre areas assigned to Band C contain smaller population centres, including for example, suburban areas. In contrast, wire centre areas in Bands D to G capture small towns, rural and remote areas.

57. In order that supply information could be aggregated at the exchange level and placed on the public record, each competitor was asked to provide information at the exchange level and to assign all wire centre areas in a multi-wire centre exchange to the highest-density Band designation of any wire centre area in that exchange. For example, if a multi-wire centre exchange contained wire centres assigned to Bands A and B, the information on self-supply and third-party supply in the aggregated supply data for these wire centre areas would be reflected as Band A data.
58. As a result, the Commission notes that self-supply data for Bands A of the aggregated supply data is overstated, and self-supply data in Band B understated, relative to data that would have been presented had it been possible to aggregate supply data on a wire centre area basis. The Commission has taken this into account in its assessment of the state of self-supply.
59. In *Local competition: Sunset clause for near-essential facilities*, Order CRTC 2001-184, 1 March 2001 (Order 2001-184), the Commission noted that competitors must acquire a critical mass of customers to make construction of facilities economic in a given geographic area. Wireline competitors have generally focused their activities in Canada's largest population centres.
60. Accordingly, greater self-supply of DNA access and intra-exchange facilities and less competitor use of ILEC-supplied DNA facilities would be expected in those ILEC territories with the largest population centres and in Bands A and B, the highest-density ILEC bands. The aggregated supply data confirms this is the case.
61. The aggregated supply data showed that 95% of all DNA access and intra-exchange facilities used by competitors were in ILEC Bands A to C. Nationally, 57% of all access and intra-exchange facilities competitors used were located in Band A, 32% were located in Band B, while only 6% were located in Band C.
62. Competitors' use of ILEC facilities increases greatly beyond Band B. By band, the ILECs provided the following percentage of access and intra-exchange facilities used by competitors: 72.2% in Band A; 79.7% in Band B; 91.4% in Band C and 94.2% in Bands D to G.
63. The aggregated supply data showed that in Bands A to C, each ILEC supplied the following percentage amounts of access and intra-exchange facilities to competitors relative to the total of ILEC-supplied, self supplied and third-party-supplied equivalent DNA access and intra-exchange facilities:
 - TELUS in British Columbia: Band A, 69.5%; Band B, 80%; Band C, 97.1%.
 - TELUS in Alberta: Band A, 76.3%; Band B, 83.5%, Band C, 78.6%.

- SaskTel: Band A, 99.7%; Band B, N/A¹; Band C, 100%.
 - MTS: Band A, 92.9%; Band B, N/A; Band C, 100%.
 - Bell Canada in Ontario: Band A, 85.3%, Band B, 92.9%; Band C, 98.2%.
 - Bell Canada in Quebec: Band A, 58.2%, Band B, 65.6%; Band C, 80.5%.
 - Aliant Telecom in New Brunswick: Band B, 89.5%; Band C, 93.4%.
 - Aliant Telecom in Prince Edward Island (PEI): Band B, 98.8%, Band C, 100%.
 - Aliant Telecom in Nova Scotia: Band A, 93.3%; Band C, 96.8%.²
 - Aliant Telecom in Newfoundland and Labrador: Band B, 68.3%, Band C, 97.9%.
64. Nationally, the aggregated supply data showed that competitors leased 4.4% of their requirements for DNA access and intra-exchange facilities from third parties, such as hydro TSPs, cable companies and other competitors. If broken down by rate band, competitors leased the following percentages of these facilities from third parties: Band A, 4.4%; Band B, 5.0%; Band C, 2.8%, Bands D to G, 3.1%. Competitors leased the greatest number of third-party facilities in Bands A and B. Overall, third parties provided 3,145 access and intra-exchange facilities in Bands A and B, compared to 13,906 facilities that were self-supplied by competitors and 50,780 facilities that were provided by the ILECs in these bands.
65. Bell Canada et al., TELUS and VTL submitted that the aggregated supply data showed that, nationally, the non-ILEC supply (self-supply and third-party supply) of DNA or equivalent facilities constituted 23% of the total (non-ILEC supply and ILEC-supply) DNA or equivalent facilities provided to competitors, and argued this demonstrated there were many alternatives to these ILEC-supplied facilities. The Commission notes, however, that the aggregated supply data excludes facilities that ILECs use to provide DNA services to their in-territory affiliates. Based on the confidential demand data provided by each ILEC for its retail DNA access and intra-exchange services in response to the 20 March 2003 Commission 3000 series interrogatories, the Commission notes that the percentage of non-ILEC supply of access and intra-exchange facilities would drop from 23% to approximately 15%, if the data were adjusted to include DNA service demand associated with in-territory affiliates. The Commission further notes that the percentage of non-ILEC supply of access and intra-exchange facilities would drop to approximately 10%, if the aggregated supply data were adjusted to include the additional ILEC retail demand. This percentage would be even lower if the data were adjusted to include DNA or equivalent facilities used by ILECs to provide their own retail (non-DNA) services.

¹ The Commission notes that in the Band B exchanges in SaskTel and MTS, competitors reported no demand for the ILEC-supplied and non-ILEC supplied DNA access and intra-exchange facilities. The Commission considers that this result indicates that the DNA-related competitive activity in Band B was all reported in Band A.

² The Nova Scotia region contains the only Band A exchange in Aliant Telecom territory. The Nova Scotia region does not contain a Band B exchange.

66. The Commission also notes that industry consolidation, such as the acquisition of the Canadian portion of 360networks Corporation and Allstream by Bell Canada and MTS respectively, could well result in a reduction in the amount of third party facilities available to competitors.
67. The Commission notes that the reported level of competitive supply in Quebec is significantly higher than that reported for other provinces. Based on the information provided in confidence, the Commission notes that the high level of competitive supply in Quebec is mostly due to self-supply by out-of-territory ILECs in Quebec. Further, the Commission notes that most of such self-supply was restricted to a very limited number of wire centres, located primarily in the Montréal exchange.
68. The Commission notes that in the large majority of the Bands the aggregated supply data shows that each ILEC is the dominant provider of DNA access and intra-exchange facilities used by competitors in each province and Band served by that ILEC. With respect to those bands, where non-ILEC supply is greater, such as Bands A in Quebec and British Columbia, the Commission considers that the ILEC is nonetheless the dominant supplier of DNA access and intra-exchange facilities.
69. In light of the above, the Commission finds that, in each Band of their operating territories, the ILECs are the dominant suppliers of DNA access and intra-exchange services used by competitors. Based on the record of this proceeding, the Commission finds that self-supply of DNA-equivalent access and intra-exchange facilities is limited and that third-party supply of such facilities is even further limited.
70. The Commission considers that hydro TSPs and cable companies are at this time insignificant suppliers of DNA access and intra-exchange services.

General constraints on facilities construction

71. The Commission reviews the state of competition in telecommunications markets annually in its November Competition Report. The 2003 Competition Report, referred to by parties in this proceeding, was recently updated by the *Report to the Governor in Council – Status of Competition in Canadian Telecommunications Markets, Deployment /Accessibility of Advanced Telecommunications Infrastructure and Services*, November 2004 (the 2004 Competition Report).
72. The Commission notes that the 2003 Competition Report acknowledged that the construction of telecommunications facilities is capital intensive. The 2003 Competition Report indicated that in 2002, capital expenditures of wireline competitors declined, relative to their operating revenues, to 18.5% from 39.9% in the previous year. The Report stated that this reduction stemmed in part, from the difficult environment competitors encountered in the capital markets and resulted, in part, in increased competitor reliance on other service providers in the provisioning of their services.
73. As noted in the 2003 Competition Report, ILECs are generally able to rely more on internally generated funds to finance their capital expenditures, while competitors have to rely to a greater extent on external financing. The Commission considers that competitors' financial resources for

facilities construction are generally limited and represent a constraint with respect to the construction of their facilities. The Commission also considers that competitors are subject to financial constraints related to facilities construction to a greater extent than the ILECs.

74. The Commission notes that, relative to the ILECs, the competitors' presence in the market is recent. Further, unlike the ILECs, they do not have an established customer base from which to grow their operations. Accordingly, they are not in a position to take advantage of economies of scale, scope and density, to the same extent as the ILECs, which constrains their ability to construct facilities.
75. Competitors' submissions generally emphasized the disadvantage they experience in light of the ILECs' network ubiquity and discussed the significance of this ubiquity in relation to the use of third-party alternatives to the type of facilities under consideration in this proceeding. The Commission agrees with competitors that the ILECs' networks and facilities, in particular the copper facilities, used to provide retail DNA services, are ubiquitous in nature relative to the networks and facilities established by competitors.
76. In the Commission's view, ILECs can more readily expand their networks given the ubiquitous nature of the copper-based network and the wide-spread deployment of their fibre facilities in their serving territories. By contrast, the size and reach of the competitors' networks are significantly less, which places the competitors at a disadvantage with respect to the expansion of their networks. In addition, ILECs can rely on existing support structures such as poles, conduits and entrance conduits to more readily expand their networks. On the other hand, the competitors have significantly fewer support structures, and accordingly rely on the ILECs' support structures to expand their networks. The use of the ILEC support structures is subject to availability and provisioning intervals, which in turn will generally impact the competitors' provisioning intervals with respect to their own customers. In the Commission's view, such considerations constitute an additional constraint for competitors.
77. Competitors and ILECs made submissions with respect to the need to negotiate and obtain relevant municipal agreements and approvals in order to construct facilities. *In Leducor/Vancouver – Construction, operation and maintenance of transmission lines in Vancouver*, Decision CRTC 2001-23, 25 January 2001, the Commission developed principles to address the specific municipal access agreement dispute before it in that proceeding. In that Decision, the Commission anticipated that the principles it enunciated would also assist carriers and municipalities in negotiating terms and conditions relevant to future facilities construction. However, to the extent ILECs have agreements in place that they may rely on to construct additional facilities, the Commission considers that competitors will likely continue to experience disadvantages relative to ILECs with respect to the need to negotiate and obtain relevant municipal agreements regarding the construction of such facilities.
78. The Commission notes parties' submissions with respect to the significance to be given to the level of self-supply in certain Quebec exchanges. The Commission considered information provided by TELUS in confidence relevant to the level of self-supply in Quebec as well as other information on the record with respect to other exchanges. The Commission is of the view that the constraints competitors face with respect to DNA-equivalent facilities construction apply to all bands, which is the relevant geographic area considered in this proceeding.

79. In light of the above, the Commission considers that competitors are subject to greater constraints with respect to facilities construction than the ILECs.

State of competition

80. The Commission notes Call-Net's submission that the competitive markets have generally not improved and in some cases deteriorated. The Commission notes that Call-Net's submission is consistent with the information with respect to the local wireline market contained in the 2003 Competition Report, which was updated in 2004.
81. The 2003 Competition Report indicated that the local wireline market continues to be the largest, and accounts for over 30% of the industry's telecommunications revenues. Overall, local wireline competitors made little progress, as the incumbents continued to hold over 95% of both local revenues (excluding contribution) and lines in 2002. Competition in this market was primarily confined to the urban centres. Local wireline competitors continued to rely heavily on the ILECs' facilities and services in order to serve their customers, spending on average approximately \$0.78 in 2002 on these services for every local revenue dollar earned. The Commission notes that the 2004 Competition Report revealed little, if any, change to the state of competition with respect to the local wireline market.
82. In the Commission's view, as revealed in the 2003 and 2004 Competition Reports, competition in the local wireline market continues to be very limited.

Competitor reliance on ILEC facilities

83. The Commission considers that in wire centres where there is no co-location, competitors are significantly reliant on ILEC-leased DNA access and intra-exchange transport facilities in order to provide retail services. The Commission notes that this view is consistent with the 2004 Competition Report, which states that competitors remain heavily dependent on the ILECs' local facilities.
84. The Commission notes that competitors are co-located in only a small percentage of the ILEC wire centres. In light of, among other things, the co-location start-up costs, the Commission does not expect that this situation will change significantly in the foreseeable future. The Commission considers that even if competitors are co-located in ILEC wire centres, the evidence in this proceeding shows that they are nonetheless reliant on ILEC DNA carrier access and intra-exchange facilities.

Conclusion

85. In light of the foregoing analysis with respect to DNA supply, constraints on facilities construction, the state of competition, and competitor reliance on ILEC facilities, the Commission concludes that there is a need for the ILECs to develop and offer CDN services. The Commission notes that this conclusion reaffirms its determination in Decision 2002-34 that a digital network access service be made available to competitors.

B. The services and facilities to be included as CDN services

86. In their submissions relating to particular services and facilities to be included as CDN services, parties addressed a number of general considerations set out above, as well as the characteristics of particular services and facilities.

Position of parties

Access and intra-exchange facilities

87. The ILECs, LondonConnect and VTL were opposed to the competitors' general position regarding the need to develop a Competitor Service with respect to the facilities under consideration. Parties' characterizations of the supply of facilities, and their positions on the anticipated negative or positive impact of a Competitor Service on facilities construction, generally aligned with their perspective as providers or users of these facilities.
88. Most parties, including Bell Canada et al. and TELUS, did not distinguish between DNA and intra-exchange facilities in their submissions. Other parties, notably Call-Net and LondonConnect, provided its supply data disaggregated between DNA-equivalent accesses and intra-exchange facilities. The ILECs and LondonConnect were opposed to the competitors' general position regarding the significance to be attributed to non-ILEC supply of DNA access and intra-exchange facilities.
89. Bell Canada et al. submitted that the definition for CDNA service should be finalized without revision.
90. Bell Canada et al. submitted that intra-exchange facilities could be duplicated, both economically and technically, and that there was no evidence to support pricing of these services as essential services. Bell Canada et al. argued competitors had been able to self-supply intra-exchange facilities as observed by the fact that carriers had negotiated municipal access agreements and had constructed their own facilities.
91. TELUS argued, supported by VTL, that access and intra-exchange services should not be Competitor Services in any Band of its serving territory. TELUS submitted the aggregated supply data showed that 27.8% of reported facilities in Band A in its territory and 20.3% of reported facilities in Band B were either self-supplied or obtained from a third-party supplier. TELUS argued that, even in the higher bands, the extent of competitive supply was significant and was, accordingly, not in very limited competitive supply.
92. Competitors generally argued that access and intra-exchange services should be Competitor Services. Competitors generally argued the ILECs were dominant in the provision of DNA facilities in all bands. Microcell argued that when customer access was made available in a given wire centre area, carrier access should be made available as well.
93. FCI Broadband argued that in many cases traffic volumes generated by new customers or new geographic areas did not economically justify an immediate network build. FCI Broadband submitted that its key concern was to build a customer base.

94. Call-Net argued that, to attract significant new capital, competitors needed to first establish a viable retail business and argued further that lack of scale made it difficult to attract the capital necessary to grow and attain the needed scale. Call-Net submitted that the Commission reached a similar conclusion with respect to the local market in Order 2001-184.
95. Call-Net submitted that all carrier accesses and intra-exchange facilities should be included as CDN services. Call-Net submitted that including intra-exchange facilities in CDN services would foster a significant expansion of residential local competition and accelerate competition in the business local market.
96. LondonConnect argued that different economic considerations applied to a competitor's Decision to construct a customer access compared to a carrier access or an intra-exchange facility. LondonConnect submitted this was primarily because of a competitor's inability to aggregate traffic on a customer access facility, rendering construction of such a facility less economic.
97. LondonConnect submitted that the nature of the facilities under consideration was important because both the risk of capital recovery and the impact of various barriers to entry varied depending on the nature of the facilities and that, therefore, the homogeneity of entry conditions across a given area within a Band or wire centre would also depend on the facilities being considered. LondonConnect submitted that a customer access facility was, with the exception of OC-level bandwidth facilities, much more likely to be dedicated to particular customers and/or locations than other aspects of the network. LondonConnect argued that, accordingly, there was a much greater risk that investment in these facilities may become non-revenue-generating, due to, for instance, the loss of a particular customer or the failure to attract customers in particular locations, than in the case of non-loop facilities. LondonConnect concluded that investment in customer access facilities was thus fundamentally different from, and riskier than, other network facilities.
98. With respect to the issue of whether or not the ILEC DNA facilities should be a Competitor Service, parties did not distinguish between DS-level and OC-level bandwidth services. Bell Canada et al. submitted that the majority of the DS-level and OC-level bandwidth services under consideration were developed for retail customers and were available on a non-discriminatory basis to all classes of customers regardless of speed or capacity. Bell Canada et al. submitted that, therefore, it would not be appropriate to make distinctions in Competitor Service classification on the basis of customer capacity requirements.
99. Allstream argued that the assessment of competitive alternatives should include consideration of the number of "on-net" buildings³ because it provided a clear indication of competitors' facilities.
100. LondonConnect argued that, in most cases, constructing access facilities involved obtaining agreement from the owner of multi-tenant buildings. VTL submitted that it had declined business, primarily in the Toronto market, because it could not obtain access to buildings on reasonable terms.
101. TELUS referred to the Commission's statement in *Local competition*, Telecom Decision CRTC 97-8, 1 May 1997 (Decision 97-8) that if the facility is economically duplicable

³ A building is considered to be "on-net" if the competitor provisions facilities to that building.

in part of the rate Band then it was likely to be so elsewhere in that Band and argued that competitive supply of a facility in one part of an ILEC rate Band indicated that self-supply was possible throughout that rate band. Bell Canada et al. argued that, if a competitor had provisioned facilities in a wire centre area or an exchange, it was very likely feasible to do so elsewhere in that wire centre area or exchange.

102. Competitors disagreed with the proposition that facilities construction in one part of an ILEC rate Band meant a competitor could be expected to deploy facilities throughout that band. FCI Broadband and RWI characterized this position as a theoretical notion of competitive supply that bore no relation to the actual existence of competitive alternatives throughout a band.
103. LondonConnect argued that barriers to entry could either be non-location-specific or location-specific, for example, the location of existing customers, a competitor's fibre ring and the location of significant concentrations of potential customers. LondonConnect further argued that, if non-location-specific barriers to entry could be overcome in one portion of a wire centre area or rate band, the same barrier could likely be overcome elsewhere in that wire centre area or rate band. LondonConnect submitted that location-specific barriers may however still be a factor, depending on whether the facility in question was a customer access, carrier access and intra-exchange facility. LondonConnect also argued that the ability to provision customer access facilities on a wide-spread basis within the same Band or even within the same wire centre area was constrained primarily by the need to maximize the likelihood of cost recovery of the associated facility costs from the customer causing such costs and by the need to limit overall capital recovery risk.

Metropolitan IX facilities

104. Bell Canada et al., LondonConnect, TELUS, VTL and Xit télécom argued there was no evidence to support the classification of digital IX facilities as an essential or near-essential service. Bell Canada et al. argued further that, because the basic unit of administration and provision of telephone service by an ILEC was the exchange, there was no rationale to justify defining of a "metropolitan" area with respect to the provision of IX services.
105. LondonConnect argued there were likely to be traffic aggregation opportunities between a competitor's POPs and switches sufficient to warrant supply alternatives by the competitor or another supplier. LondonConnect submitted that such aggregation opportunities were likely to be greater at the exchange level than at the wire-centre level.
106. Allstream, Call-Net, FCI Broadband and Microcell supported the inclusion of IX service as CDN services. Call-Net argued that intra-exchange and metropolitan IX services were equivalent and that including metropolitan IX facilities as CDN services would foster a significant expansion of residential local competition and acceleration of competition in the business local market. FCI Broadband submitted that expanding the CDNA tariff to include IX service outside EAS areas would promote competition in non-urban areas.
107. Call-Net argued that the distinction made by the ILECs between local and IX channels was a definitional matter that was based on the ILECs' network architecture. Call-Net further argued that there was no functional difference between an intra-exchange channel and an IX channel.

108. Call-Net proposed that, given the size of current EAS areas, metropolitan IX service should be defined to be less than 100 miles. Allstream did not agree that a mileage criterion was appropriate. Bell Canada et al. replied that Call-Net's proposal to apply a 100 mile criterion did not recognize the substantial difference in the competitive market conditions that can arise between and within geographic areas that might be encompassed within a 100 mile radius. LondonConnect argued that Call-Net's proposed criterion of 100 miles would encompass areas greater than any combined urban area that could reasonably be considered to be the aggregate local market area. TELUS argued that Call-Net's proposed 100 mile criterion was arbitrary.

Links associated with access

109. Allstream and Call-Net submitted that all DNA links should be included as CDN services. Bell Canada et al. proposed that the link facilities should be included in the access component of any Competitor Service for rating purposes. By contrast, TELUS proposed that the link component be provided separately from the CDN access component.

Channelization facilities

110. Allstream, Call-Net, Microcell and Primus Canada generally argued that ILEC channelization facilities should be a Competitor Service. Allstream submitted the aggregated supply data showed competitors virtually always relied on ILEC channelization even in exchanges where they had constructed facilities and self-supplied channelization at some location in that exchange. Call-Net submitted that a competitor required sufficient demand to cost-justify self-supply of channelization facilities. Call-Net, Microcell and Primus Canada proposed that channelization should be a Competitor Service if it was associated with a CDN-eligible facility.
111. LondonConnect submitted channelization equipment was widely available and the aggregated supply data showed self-supply of channelization was prevalent. LondonConnect submitted, however, that ILEC channelization should be a Competitor Service if channelization of CDN customer accesses from multiple end-user premises served by the same wire centre was required, and the competitor was not co-located at that ILEC serving wire centre. LondonConnect submitted further that ILEC channelization of intra-exchange facilities from multiple wire centres for delivery to the competitor over carrier access facilities should be a Competitor Service if the channelization was used to aggregate only intra-exchange facilities eligible for Competitor Service treatment, and the competitor was not co-located at the wire centre where the channelization occurred.
112. TELUS argued that, because the ILEC rate Band and not the wire centre area was the geographic market for determining whether an ILEC's facility was a Competitor Service, LondonConnect was not correct that only an ILEC could economically provision channelization facilities in certain situations.
113. Bell Canada et al. and TELUS submitted that channelization was not a Competitor Service because competitors self-supplied their channelization facilities in virtually all Bands in all ILEC serving territories. TELUS submitted further that competitors could self-supply channelization at their customer's premise. Bell Canada submitted further that, in some situations, a competitor that was co-located in a wire centre could choose not to self-supply the channelization function for accesses in that wire centre for reasons of convenience. Bell Canada estimated that the cost

of self-supplying the equipment required to channelize 28 DS-1s up to a DS-3 would be \$8,700. Bell Canada submitted that \$3,000 of that cost (for power) could be shared-use to meet other requirements and that much better arrangements could likely be negotiated.

Co-location link facilities

114. Competitors that commented generally argued that optical co-location links (referred to in this proceeding as optical CO connecting links) should be a Competitor Service.

Commission's analysis and determinations

115. With respect to facility construction, the Commission considers that competitors face similar constraints in all metropolitan exchanges in each ILEC's territory.
116. The Commission notes that the ILECs' retail DNA and IX channel services are used by both ILECs and competitors to provide a broad range of retail services, including business services and local and long distance residential services. The ILECs and competitors typically use intra-exchange and IX facilities to transport their customers' traffic between ILEC wire centres and their network locations. Although competitors may self-supply these facilities or obtain them from ILECs or third parties, the Commission notes its views that the ILECs are dominant supplier of DNA access and intra-exchange facilities used by competitors, that self-supply of DNA-equivalent facilities is limited, and that third-party supply of such facilities is further limited.
117. The Commission recognizes that a wireline competitor that has constructed its own customer access facilities would typically provide service to customers directly from its own POP and hence would not require ILEC transport facilities. In this Decision, the term POP hereinafter refers to any competitor location which the competitor has designated as an interconnection site, and may or may not contain a switch.
118. The Commission notes that a competitor that is not co-located and leases an ILEC customer access facility will require transport facilities to its own POP from the ILEC wire centre that serves the customer access. The Commission further notes that if a competitor leases the customer access and transport facilities from the ILEC, the transport facilities it requires will depend on the location of its POP relative to the ILEC wire centre that serves the leased customer access. If the POP and the customer access are in the same wire centre serving area, the required transport facility would consist of the ILEC's carrier access facility. If the POP is in a different wire centre serving area than the customer access but within the same multi-wire centre exchange, the required transport facilities would consist of the ILEC's intra-exchange and carrier access facilities. If, on the other hand, the POP is in a different exchange than the customer access, the required transport facilities would further include the ILEC's IX facilities.
119. Accordingly, the Commission notes that the competitor's POP location relative to the ILEC's wire centre serving area and exchange structure will dictate the type of ILEC transport facility required by competitors.

Access and intra-exchange facilities

120. The Commission considers that it is not reasonable to assume that competitors will be able to deploy DNA equivalent access and intra-exchange facilities throughout an ILEC rate Band because they have self-supplied them in one part of that band.
121. The Commission notes that based on submissions by competitors, building access continues to be a constraint. The Commission considers that there may be circumstances in which building access will be a constraint, especially with respect to the construction of customer access facilities.
122. As noted previously, the Commission considers that competitors are at a disadvantage vis-à-vis the ILECs with respect to matters such as municipal approvals, network ubiquity, and access to support structures.
123. The Commission considers that the size of a competitor's customer base, which is significantly smaller than that of an ILEC, constitutes a greater constraint on the competitor's ability to recover DNA-equivalent facility construction costs, because such costs are recoverable from fewer customers. This constraint applies particularly with respect to the recovery of customer access facility, as distinct from transport facility, construction costs due to the need to maximize recovery of those costs from the specific customer(s) causing such construction. In the Commission's view, such constraints apply especially with respect to DS-level accesses as noted by LondonConnect.
124. As previously noted, the Commission also considers that competitors are subject to financial constraints related to facilities construction to a greater extent than the ILECs.
125. The Commission notes that the construction of carrier access and intra-exchange equivalent facilities between its POP and the ILEC wire centre will require that the competitor be co-located at that particular ILEC wire centre. Accordingly, if the competitor is not co-located at that wire centre, it will be required to incur co-location start-up costs. In the Commission's view such co-location costs constitute an additional constraint with respect to the construction of carrier access and intra-exchange equivalent facilities. The Commission further notes that this constraint may also apply with respect to construction of customer access facilities.
126. The Commission notes LondonConnect's position that transport facilities differ from customer access facilities in that they provide competitors with the opportunity to economically justify the construction of facilities based on the aggregated traffic of multiple customer accesses.
127. In light of the above, the Commission considers that it will generally be more difficult for a competitor to cost-justify the construction of customer access facilities compared to transport facilities.
128. Certain competitors argued that the high level of mark-ups associated with the ILECs' retail DNA service rates supported their position that they are reliant on the ILECs' DNA facilities. The Commission notes, based on the cost information filed in this proceeding, that the mark-ups associated with retail DS-level and OC-3 and OC-12 access service rates are very high in all rate bands, ranging between approximately 125% and 500%. Because the ILEC's retail DNA access

tariffs do not distinguish between customer and carrier access services, these mark-ups apply equally to customer accesses and carrier accesses. The Commission further notes that the mark-ups associated with retail intra-exchange service rates are generally very high.

129. As previously noted, the Commission considered that competitors rely on ILEC DNA access and intra-exchange facilities to provide retail services. The Commission considers the fact that competitors continue to use these facilities, despite the high mark-ups on them, is an indication of the degree of reliance by competitors on the ILECs' facilities. In the Commission's view, such reliance reflects, among other things, the constraints competitors face with respect to the construction of such facilities.
130. LondonConnect's proposed criteria regarding the eligibility of carrier access facilities as a Competitor Service linked the Competitor Service status of those facilities to those of the associated customer access facilities. The Commission notes that LondonConnect's approach would make the implementation of a Competitor Service for carrier accesses unduly complex because each ILEC would need to determine the volume of CDN-eligible customer accesses carried on a carrier access for billing purposes.
131. LondonConnect's proposed criteria regarding the eligibility of intra-exchange facilities as a Competitor Service included the criterion that a competitor could not use the ILEC's intra-exchange service at Competitor Service rates if any other competitor was co-located at the wire centre. The Commission considers this proposal would be unduly arbitrary and restrictive.
132. Based on the record of this proceeding, including the supply data, the Commission considers that the reliance by competitors on DNA access and intra-exchange facilities is significant.
133. In light of the above, the Commission finds that the ILECs' DNA access and intra-exchange facilities for DS-level, OC-3 and OC-12 transmission speeds should be part of CDN services.

Metropolitan IX facilities

134. The Commission notes that the metropolitan IX services under consideration in this proceeding are IX digital services that have not been forborne and are provided within metropolitan local calling areas.
135. In *Stentor Resource Centre Inc. – Forbearance from regulation of interexchange private line services*, Telecom Decision CRTC 97-20, 18 December 1997 (Decision 97-20), the Commission forbore with respect to digital IX services at DS-3 and greater bandwidths provided by all ILECs except SaskTel on each route on which a terrestrial service provider supplies at least one such service in competition with the ILEC. Consistent with Decision 97-20, in *SaskTel – Transition to federal regulation*, Decision CRTC 2000-150, 9 May 2000, the Commission forbore with respect to IX services provided by SaskTel.
136. Pursuant to these Decisions, the Commission has forborne for higher bandwidth IX services on numerous IX routes. Based on the forbearance criterion set out in Decision 97-20, the ILEC is considered to be the only supplier to the public of DS-3 and OC-level IX channel services on

non-forborne routes. The Commission notes that competitive supply of DS-0 and DS-1 services may nonetheless exist on such routes. The Commission further notes that competitors may be self-supplying services on non-forborne routes.

137. As previously noted, the ILEC's wire centre serving area and exchange structure will dictate the type of ILEC transport facility required by competitors. To the extent that a POP is located outside the serving wire centre, competitors may require intra-exchange and/or IX facilities to transport their traffic from one ILEC wire centre to another ILEC wire centre. Accordingly, the transport functionality of an IX facility is essentially the same as that of an intra-exchange facility.
138. In this Decision, the Commission has determined that a competitor needs to acquire a critical mass of customers to make construction of carrier access and intra-exchange facilities economic in a given ILEC exchange. The Commission considers that this determination applies equally to the competitors' construction of metropolitan IX facilities.
139. In the Commission's view, the ILECs' mark-ups associated with retail IX channel service rates are high and significantly greater than mark-ups associated with retail DNA intra-exchange service rates, notwithstanding that there may be competitor self-supply or third-party supply on non-forborne IX routes.
140. The Commission notes that the number of forborne IX routes within metropolitan local calling areas is limited. Based on the data filed with the Commission, the Commission further notes that competitor demand for the ILECs' non-forborne IX services within the metropolitan local calling areas is significant.
141. In light of the above, the Commission considers that competitors rely significantly on such facilities to transport their traffic between ILEC exchanges within the metropolitan local calling areas.
142. Given this degree of reliance, the Commission finds that ILECs' metropolitan IX facilities should be provided as part of CDN services.
143. The Commission notes that as a separate matter, parties disagreed as to the definition of metropolitan areas associated with the IX facilities found to be part of CDN services. Call-Net proposed that a mileage-based limit be used. The Commission considers that such a limit would not recognize differences in the size of population centres that would be encompassed within the area created by that definition. Further, in the Commission's view, the use of a mileage-based limit as a criterion does not recognize that population densities and geographic distribution change over time.
144. Bell Canada et al. submitted there was no reason to define metropolitan areas with respect to IX transport services because the underlying concept is foreign to the provision and rating of telecommunications services. In this connection, the Commission notes that most major metropolitan areas have their own local calling areas, which are typically defined based on EAS exchanges.

145. The Commission notes that each ILEC's tariff identifies pairs of exchanges between which calls are considered to be part of customers' local service (EAS exchange pairs). The criteria for the identification of EAS exchange pairs include a criterion to assess whether there is a community of interest between the exchanges. The Commission further notes that the criteria used to identify such exchanges recognize that population densities and calling patterns change over time.
146. With respect to competition in local services, the Commission notes that Decision 97-8 permitted competitive local exchange carriers (CLECs) to define their local service areas without reference to ILEC exchange boundaries. As a result, an ILEC and competitor's local serving areas may be different. In the Commission's view, the definition of a metropolitan area should capture, to the extent possible, competitors' local service areas. The Commission considers that a definition based on ILECs' EAS areas would be the most practical approach with respect to this matter.
147. Although EAS exchange pairs exist throughout all bands, the Commission notes that competitive activity occurs primarily in Bands A and B. The Commission further notes that Band A exchanges reflect the core centres in metropolitan areas, and multi-wire centre Band B exchanges reflect the non-core areas of large metropolitan areas as well as other metropolitan areas. In the circumstances, the Commission considers that, for the purpose of defining a metropolitan area, and hence, the metropolitan IX service included in the CDN services one of the exchanges should be a multi-wire centre exchange that contains at least one Band A or B wire centre. The Commission further considers that each of these multi-wire centre exchanges should be identified as a core metropolitan exchange. Accordingly, the Commission finds that metropolitan IX facilities included in the CDN services are ILEC IX facilities between a core metropolitan exchange and any other exchange within the same EAS area.
148. The Commission concludes that each ILEC should provide metropolitan IX facilities as part of CDN services between each core metropolitan exchange in its territory and each exchange in which it provides EAS service for the following major metropolitan areas:
- British Columbia: Ladner, North Vancouver, Richmond, Saanich, Victoria, West Vancouver, Vancouver
 - Alberta: Calgary, Edmonton, Fort McMurray, Lethbridge, Medicine Hat, Red Deer, Sherwood Park, St. Albert
 - Saskatchewan: Regina, Saskatoon
 - Manitoba: Winnipeg
 - Ontario: Brampton, Burlington, Cooksville, Hamilton, Kingston, Kitchener-Waterloo, London, Malton, Oakville, Ottawa-Hull, Sarnia, Sault Ste. Marie, St. Catharines-Thorold, Streetsville, Sudbury, Toronto, Windsor
 - Quebec: Lachine, Longueuil, Montréal, Ottawa-Hull, Pointe-Claire, Québec, St-Lambert

- New Brunswick: Fredericton, Moncton, Saint John
- Nova Scotia: Halifax
- Prince Edward Island: Charlottetown
- Newfoundland and Labrador: St. John's.

149. The Commission notes that expanded local calling areas identified pursuant to *Framework for the expansion of local calling areas*, Telecom Decision CRTC 2002-56, 12 September 2002 (Decision 2002-56) have not been used for the purpose of defining metropolitan IX services.

Links associated with access

150. The Commission notes that Bell Canada et al.'s proposed rate structure for the access and associated link facilities in this proceeding treated the link as part of the access component. Bell Canada et al. noted that the link functionality was available solely for use in conjunction with the access component. The Commission determines that Bell Canada's proposed approach with respect to this link functionality is appropriate.

151. Accordingly, consistent with its conclusion that access facilities should be provided as part of CDN services, the Commission concludes that each ILEC should include the associated link functionality in the CDN service that provides access facilities.

Channelization facilities

152. Call-Net, Microcell and LondonConnect proposed that the Commission link the development of a Competitor Service for channelization to the Competitor Service status of the leased ILEC circuits to be channelized. The Commission disagrees, and notes that it has stated that each type of service and facility under consideration in this proceeding must be evaluated individually and classified accordingly.

153. Channelization equipment may be used to channelize traffic from multiple lower bandwidth circuits to a single higher bandwidth circuit or to dechannelize traffic from a higher bandwidth circuit to multiple lower bandwidth circuits. The aggregated supply data showed that, in many cases, co-located competitors self-supply channelization facilities in wire centres where they have established co-location. The aggregated supply data also showed that, while competitors co-locate in an exchange, they may rely on ILEC channelization facilities in that exchange.

154. The Commission notes that a service provider can self-supply channelization if it is co-located in the same ILEC wire centre as the circuits to be channelized (first situation) or if all circuits to be channelized are at its customer's premises (second situation). The competitor would self-supply channelization at its co-location site in the first situation and at its customer's premises in the second situation.

155. With respect to the first situation, the Commission agrees with parties that submitted channelization equipment is widely available in a competitive market, generally scalable to volume requirements and is a comparatively minor cost element both in absolute terms and

relative to the cost of co-location. The Commission therefore considers that a competitor would not likely require additional capital funding to self-supply channelization at an ILEC wire centre where it has co-located. The Commission further considers that, once a competitor has co-located at a given ILEC wire centre, other constraints on competitors with respect to facilities construction do not represent a significant barrier to the self-supply of channelization facilities.

156. Accordingly, the Commission determines that ILECs should not be required to provide channelization facilities to a competitor as a Competitor Service at a wire centre if that competitor has co-located at that wire centre.
157. With respect to the second situation, the Commission notes that a competitor may self-supply channelization at its customer's premises regardless of whether it has co-located at the ILEC wire centre that serves that customer. Accordingly, the Commission determines that ILECs should not be required to provide channelization facilities as part of a Competitor Service at the premises of a competitor's customer.
158. A competitor cannot, however, self-supply channelization if it is not in the same location as the ends of the circuits to be channelized. This would be the case if the competitor has not co-located at the ILEC wire centre of the leased ILEC circuits that require channelization. The Commission agrees that a competitor's costs to co-locate are high relative to the costs associated with the self-supply of channelization and that other considerations are associated with a competitor's Decision to co-locate at a given ILEC wire centre.
159. In view of these considerations, the Commission considers it reasonable for a competitor that has co-located at a given ILEC wire centre to self-supply channelization facilities it may require at that wire centre. Conversely, the Commission does not consider it reasonable to require a non-co-located competitor to do so.
160. Accordingly, the Commission concludes each ILEC should provide channelization facilities at the relevant wire centre as part of CDN services to each competitor that has not co-located at a wire centre, regardless of whether the competitor self-supplies channelization facilities at the customer's premises.

Co-location link facilities

161. A competitor uses an ILEC's CO co-location link, whether DS-level or OC-level bandwidth, to connect transmission equipment at its co-location site to the ILEC's network services located at that wire centre.
162. In *Interconnection tariffs for carriers and telephone companies at a central office*, Telecom Order CRTC 99-1201, 22 December 1999 (Order 99-1201), the Commission found that the ILECs' DNA link service did not provide the link facilities required by co-located competitors and determined that the ILECs' copper DS-level bandwidth co-location links (referred to in that Order as CO connecting links) were a necessary component of competitor co-location.
163. The Commission finds that this determination applies equally to CO copper and optical co-location link facilities. Given the nature of these facilities, the Commission notes that only the ILEC can supply them.

164. Accordingly, the Commission concludes each ILEC should provide copper and optical co-location link facilities as part of CDN services.

Other CO connecting link facilities

165. The Commission notes that a separate link service is needed in service configurations that require the copper-based connection of any two of the following CDN services: ILEC intra-exchange, metropolitan IX and channelization services (other CO connecting link). The Commission further notes that, because the services that require connection would both be ILEC services, the ILEC is the only supplier of this connection.
166. Accordingly, the Commission finds that ILECs should also provide the other CO connecting link service as part of CDN services.

Conclusions with respect to the services and facilities to be included as CDN services

167. The Commission notes its determinations, set out above, that the following services and facilities must be included as CDN services: DNA access and links, DNA intra-exchange, CO channelization, non-forborne metropolitan IX, copper and optical co-location links, and other CO connecting links.
168. Based on the circumstances of this case, the Commission finds that these CDN services are necessary and appropriate to, among other things, prevent the ILECs from subjecting competitors to an undue or unreasonable competitive disadvantage, and from conferring upon themselves an undue or unreasonable preference by providing retail DNA services and IX metropolitan services to competitors, at the same rates and on the same terms and conditions as to their retail customers. This requirement is also necessary and appropriate to prevent ILECs from conferring upon themselves an undue preference and unreasonable competitive advantage by providing to their own customers retail DNA services and other retail services and by requiring competitors to obtain these facilities pursuant to the ILECs' retail tariffs. Further, the Commission finds that this requirement is also necessary and appropriate to ensure that rates charged to competitors for these services and facilities are just and reasonable.
169. The Commission considers that the requirement to offer these CDN services will advance facilities-based competition and ensure that telecommunications services are provided in a manner consistent with the Canadian telecommunications policy objectives in the *Telecommunications Act* (the Act).

C. Classification of CDN services as Category I or II services

170. In Decision 2002-34, the Commission determined that the CDNA service should be assigned as a Category I service. However, in light of the parties' comments, the Commission considers that each service and facility included as part of CDN services in this proceeding must be evaluated individually and classified, as either a Category I or Category II service, based on the criteria set out in a number of Commission determinations and discussed below.

Category I services

Criteria

171. In Decision 97-8, the Commission set out three criteria that a facility, function or service, must satisfy to be identified as an essential service: the service must be monopoly-controlled, a CLEC must require it as an input to provide services, and a CLEC cannot duplicate it economically or technically.
172. In Decision 97-8, the Commission found that certain ILEC local facilities, such as unbundled loops, were essential services in some rate bands. The Commission also stated that there was competitive supply of these facilities, in other bands, but that it was very limited and that CLECs would not be able to provide a significant number of these loops in the early stages of competition. The Commission concluded that CLECs also required the use of these ILEC loops at reduced rates if they were to compete effectively in the short term and made them available to competitors for a five-year period at Category I rates.
173. In Order 2001-184, referring to these services as near-essential, the Commission extended the five-year period established in Decision 97-8. In that Order, the Commission concluded the ILEC facilities in question remained in very limited competitive supply and that they would continue to be so until the market for these facilities was sufficiently competitive. The Commission considered that entrants in the local market faced substantial barriers to entry that limited their ability to expand their networks and acquire customers through self-supply of the facilities in question. The Commission also considered that the development of competition in the local exchange market would be limited significantly if it did not extend the five-year period.
174. Consistent with its determinations in Decision 97-8 and Order 2001-184, in Decision 2002-34 the Commission described near-essential services as critical inputs required by competitors in light of the very limited competitive supply for these services.
175. The Commission recognized in Decision 97-8 that an overly broad or overly narrow definition of essential services could impair the development of competition. In that Decision, the Commission noted that if the definition was too narrow, competitors might not be able to obtain the necessary network components to enter the market, and if it was too broad, competitors might not have sufficient incentives to invest in their own facilities.

Position of parties

176. Parties' comments tended to focus on whether or not a given ILEC facility could be considered a Category I service, based on whether or not it was in very limited competitive supply. Parties that were opposed in interest, notably the ILECs and most competitors, generally reached different conclusions on this issue.
177. Bell Canada et al., LondonConnect and TELUS submitted that potential supply had to be taken into account in assessing whether a facility was in very limited competitive supply.

178. TELUS argued that a facility was not a near-essential Category I service in an ILEC rate Band if one or more competitors or other suppliers offered the facility in that band. TELUS submitted that a facility could not be found to be in very limited competitive supply if a non-ILEC alternative existed, or could exist, within an ILEC rate band.
179. Bell Canada et al. indicated that customer access facilities terminating at customer premises may meet the criteria for near-essentiality in certain rate bands.
180. Competitors generally argued that self-supply was constrained by numerous barriers, and that third-party alternatives existed only in limited circumstances. Competitors also generally argued that the geographic coverage of competitor facilities relative to the ILECs' facilities needed to be taken into account. Allstream submitted that an analysis of competitive alternatives based only on a count of DNA facilities would be incomplete.
181. LondonConnect proposed that the DS-level bandwidth DNA customer accesses should remain a Category I service because of the difficult economics associated with provisioning these customer access facilities, and further proposed that OC-3 and OC-12 customer accesses should not be Category I services.
182. LondonConnect submitted that carrier accesses and intra-exchange facilities should not be a Category I service in Band A, given the high customer density in that band. LondonConnect further submitted that these facilities should only be made a Category I service in other Bands if a non-co-located competitor required an carrier access to connect to its POP in the same wire centre serving area, or if no competitor was co-located in the wire centre serving area and the competitor required an intra-exchange facility to connect to its POP in another wire centre serving area.
183. Call-Net argued that LondonConnect's proposal was inconsistent with the principles underlying the provision of essential and near-essential services and would also be very complex to administer. Call-Net submitted that, under LondonConnect's proposal, a determination of CDN eligibility would be specific to a competitor rather than to the type of facility.
184. Allstream proposed that the Commission apply the criteria it had developed with respect to forbearance under section 34 of the Act to assess whether to develop a Competitor Service for the ILEC facilities under consideration. Allstream argued that the same criteria could be used to evaluate whether a facility was subject to very limited competitive supply.
185. LondonConnect and TELUS disagreed with Allstream's position, submitting that the purpose of the forbearance criteria was very different from the purpose of the Competitor Service Category I test. TELUS argued that application of the forbearance criteria in this proceeding would lead to the unjustified provision of many additional ILEC facilities at Competitor Service rates, to the detriment of facilities-based competition.
186. With respect to the geographic area relevant to the classification of a Competitor Service, the ILECs argued that the Commission determined in Decision 97-8 that an ILEC rate Band was the relevant geographic area to consider in determining whether an ILEC facility was a Category I service. LondonConnect and Call-Net proposed that the Commission classify certain or all CDN service components as a Category I service at the exchange or wire centre level.

Commission's analysis and determinations

187. The Commission notes that parties to this proceeding took different approaches to the interpretation of what constitutes a Category I service. The Commission further notes that the criteria for identification of a Category I essential service, referred to above in this Decision, was set out in Decision 97-8. Consistent with its statement in Decision 97-8 that an overly broad or overly narrow definition of essential services could impair the development of competition, the Commission considers that the balance it identified in that Decision, with respect to the definition of essential services, also applies to the classification of near-essential Category I services in this proceeding.
188. With respect to the proposals of LondonConnect and Call-Net that the Commission classify some or all CDN services as Category I services at the exchange or wire centre level, the Commission notes that, in this proceeding and consistent with its approach in Decision 97-8, near-essential services are classified at the rate Band level.
189. With respect to Allstream's submission regarding the application of the forbearance criteria, the Commission notes that these criteria, established in *Review of regulatory framework*, Telecom Decision CRTC 94-19, 16 September 1994 (Decision 94-19), relate to determining whether the Commission should exercise its powers pursuant to section 34 of the Act to forbear from regulating an ILEC service. Because they address the issue of forbearance, the Commission considers that these criteria are neither relevant nor appropriate for the purpose of determining service classification and the associated rates, terms and conditions.

Category I essential services

190. In accordance with the criteria defined in Decision 97-8, and outlined above, the Commission assessed whether each of the CDN services should be classified as an essential Category I service.
191. Having regard to non-ILEC supply and potential supply of DNA access, intra-exchange and channelization facilities and metropolitan IX facilities, identified on the record of this proceeding, the Commission concludes that these CDN services do not meet the criteria for an essential service. However, as per the analysis below, the Commission concludes that the optical CO co-location link and other CO connecting link are to be classified as Category I essential services.

Optical CO co-location link

192. In Order 99-1201, the Commission noted that it had approved the ILECs' major co-location service rates at cost plus a 25% mark-up and approved the ILECs' copper co-location links at rates based on cost plus a 25% mark-up. In Decision 2002-34, the Commission reduced ILEC mark-ups for these services to 15%. The Commission therefore approved each ILEC's copper co-location link service at Category I services rates.
193. Consistent with this approach, and because the CDN services to be connected by the optical CO co-location link are all ILEC services, the ILEC is the only provider of this service. Therefore, the Commission classifies the optical co-location link as an essential, Category I service in all bands.

Other CO connecting link

194. The Commission notes that because the CDN services to be connected by the CO connecting link component of the CDN services are all ILEC services, the ILEC is the only provider of this service component.
195. Accordingly, the Commission classifies the other CO connecting link as an essential, Category I service in all bands.

Category I near-essential services

196. The Commission assessed whether each of the access, intra-exchange, metropolitan IX, and channelization services and facilities was a critical input required by competitors in light of its very limited competitive supply and should, therefore, be classified as a near-essential Category I service.
197. The Commission notes that ILECs typically provision DS-3 access, OC-level bandwidth access, intra-exchange and IX services on fibre facilities. However, ILECs provision DS-0 and DS-1 customer accesses almost exclusively on copper facilities. The Commission further notes that competitors, hydro TSPs and cable companies typically construct fibre facilities. These factors are also relevant to the Commission's assessment of the significance to be attributed to existing supply of DNA access and intra-exchange facilities and to its consideration of their potential supply.

DS-0 and DS-1 accesses

198. The Commission notes its determinations with respect to the constraints competitors face in relation to the construction of customer access facilities, including the need to generally recover the associated capital costs from customers causing such construction and the constraint associated with the need to obtain building access. The Commission considers these constraints may be less significant in respect of higher bandwidth DS-3, OC-3 and OC-12 customer access facilities.
199. As noted, ILECs typically provision DS-0 and DS-1 customer access services on copper facilities. The Commission further considers that, for historical reasons, each ILEC is the only service provider in its territory with a ubiquitous base of copper facilities. In this connection, the Commission also notes that in Decision 97-8 and Order 2001-184 it required each ILEC to make unbundled copper-based loops (between the ILEC wire centre and the competitor's customer premises) available as a Category I service. However, even if an ILEC provisions certain DS-0 or DS-1 customer access services on fibre facilities, the Commission considers the constraints competitors face would not justify the construction of these lower-bandwidth access services relative to the alternative of leasing the ILEC's service.
200. A competitor that leases an ILEC DS-0 or DS-1 customer access but is not co-located at the ILEC wire centre that provides that customer access will typically also require an ILEC DS-0 or DS-1 carrier access facility to connect to its POP. Given the relatively low bandwidth of such carrier access facilities and the fact that the competitor is not co-located at the wire centre in question, the Commission does not consider it reasonable to expect that such a competitor to construct a transport facility as an alternative to using the ILEC's facility.

201. In the Commission's view, its consideration in this Decision of circumstances with respect to the state of the wireline competition, the high level of competitor reliance on the ILEC supply of DS-0 and DS-1 access facilities, the limited competitive supply of equivalent accesses, and the various constraints facing competitors that limit their ability to self-supply their own facilities at these transmission speeds supports the conclusion that each ILEC's DS-0 and DS-1 DNA access facilities are in very limited competitive supply.
202. Accordingly, the Commission classifies DS-0 and DS-1 access, including associated links, as a near-essential Category I service in all bands.

Category II services

203. In Decision 2002-34, the Commission determined that any Competitor Service that is not classified as a Category I (essential or near-essential) service is assigned as a Category II service. Consistent with that approach, the Commission classifies each of the remaining CDN services and facilities as Category II services and determines the appropriate pricing for each, on a case-by-case basis. Before the Commission sets out the classification and pricing treatment for each of the Category II services, it considers parties' submissions with respect to Category II services.

Position of parties

204. With respect to the relationship between the Competitor Service framework and a pre-existing retail service, LondonConnect and TELUS argued that the Competitor Service under consideration in this proceeding would be merely a re-priced retail service and, as such, would not properly be a Competitor Service.
205. Allstream, Bell Canada et al., TELUS, LondonConnect and VTL commented on the appropriateness of classifying the services as Category II services. Allstream argued there was no rationale to classify the services under consideration as Category II services and stated, therefore, that it would not address this option further.
206. LondonConnect argued that Category II services had been designed from the outset specifically for use by competitors. Bell Canada et al., supported by TELUS in reply, submitted that if, despite the evidence, the Commission concluded that a requirement continued to exist for CDN services, they should be classified as Category II services, and the access component rates be equivalent to retail DNA service rates in certain ILEC rate bands. VTL submitted that intra-exchange and metropolitan IX services should be characterized as Category II Competitor Services and therefore should not be included in the final CDN services.

Commission's analysis and determinations

207. Parties made submissions with respect to the relevance of a pre-existing retail service to the development of a Competitor Service and to its classification as a Category II service. The Commission has never found that the existence of an ILEC retail service precludes making the facilities that support the provision of that service available as a Competitor Service. Further, the Commission has never found that an ILEC service must be developed from the outset for competitor use in order to be classified as a Category II service.

DS-3, OC-3 and OC-12 accesses and intra-exchange

208. Competitors typically provision DS-3 customer accesses on fibre, and provision OC-level bandwidth customer accesses exclusively on fibre. The Commission also notes its view that third-party fibre-based suppliers have the potential to supply these services to competitors in greater quantities.
209. In the Commission's view, while the aggregated supply data and other supply information show that the ILEC's DS-3, OC-3 and OC-12 accesses and intra-exchange services are significant inputs, they are not in sufficiently limited competitive supply to justify their classification as Category I services. In this connection, the Commission also considers that the incentives to construct these facilities would be unduly diminished if DS-3, OC-3 and OC-12 accesses and intra-exchange services were classified as Category I services.
210. Accordingly, the Commission considers that the DS-3, OC-3 and OC-12 accesses, including associated links, and the intra-exchange service of each ILEC's CDN services should be classified as Category II services.
211. As set out in Decision 2002-34, the rate of a Category II service is determined on a case-by-case basis and is generally determined based on Phase II costs plus an appropriate mark-up in excess of 15%.
212. In establishing the mark-ups for each of the CDN DS-3, OC-3 and OC-12 access services and the CDN intra-exchange services, the Commission weighed the competitors' need to build a customer base to cost-justify construction of facilities against the need to have mark-ups that are sufficiently high to provide competitors with appropriate incentives to build DNA-equivalent facilities.

DS-3, OC-3 and OC-12 access mark-ups

213. The Commission notes that the mark-ups associated with the retail DNA DS-3, OC-3 and OC-12 access service rates are in the range of approximately 125% to 500%, depending on the ILEC and transmission speed.
214. The Commission notes that a competitor that self-supplies DS-level carrier access equivalent facilities, and in particular DS-0 and DS-1 accesses, will generally require a greater customer demand to justify construction as compared to OC-level bandwidth facilities. This is due to the smaller demand and revenue opportunities of the DS-level bandwidth services compared to OC-level bandwidth services.
215. The Commission also notes LondonConnect's position that DS-level customer accesses, including DS-3 accesses, should be classified as a Category I service, because of the difficult economics associated with provisioning these facilities.
216. The Commission considers that the economics of provisioning DS-3 facilities are more difficult than with respect to OC-level bandwidth facilities. In light of this additional constraint, the Commission considers that a lower mark-up for the CDN DS-3 access service should be applied as compared to the mark-ups applicable to the CDN OC-3 and OC-12 access services.

217. Accordingly, the rates approved in this Decision for the CDN OC-3 and OC-12 access services reflect higher mark-ups than those reflected in the rates approved for the CDN DS-3 access service. The Commission notes that, consistent with its rating practice with respect to Category I services, for each of the CDN DS-3, OC-3 and OC-12 access services, the same mark-up has been applied for all ILECs and in all rate bands.

Intra-exchange mark-ups

218. The Commission notes that the mark-ups associated with the ILECs' retail DS-0, DS-1 intra-exchange service rates are very high while the mark-ups for its retail DS-3, OC-3 and OC-12 intra-exchange service rates are significantly lower.
219. The competitor's construction of an intra-exchange equivalent facility between its POP and an ILEC wire centre within the exchange will generally depend on whether it has sufficient demand/bandwidth requirements, current or anticipated, at the ILEC wire centre to warrant the facility construction. The Commission notes that a competitor that self-supplies DS-level carrier access equivalent facilities, and in particular at DS-0 and DS-1 speeds, will generally require a greater customer demand to justify construction as compared to OC-level bandwidth facilities.
220. In light of these constraints with respect to the lower DS-level intra-exchange service, the Commission considers that a lower mark-up associated with the CDN DS-0 and DS-1 intra-exchange service rates should be applied as compared to the mark-up applicable to the CDN DS-3 intra-exchange service rate.
221. Accordingly, the rates approved in this Decision for the CDN DS-0 and DS-1 intra-exchange services reflect lower mark-ups than those reflected in the rates approved for the CDN DS-3 and OC-level intra-exchange service. The Commission notes that, consistent with its rating practice with respect to Competitor Services, for each of the CDN DS-0, DS-1 and DS-3 intra-exchange services, the same mark-up has been applied for all ILECs and in all rate bands.
222. As previously noted, the competitors' constraints are relatively less with respect to the construction of OC-3 and OC-12, as compared to DS-3, DNA intra-exchange equivalent facilities. This would suggest that the rates for the ILECs' CDN OC-3 and OC-12 intra-exchange service should reflect higher mark-ups than those reflected in the rates approved for CDN DS-3 intra-exchange service. However, the Commission notes that the mark-ups reflected in the retail rates for Bell Canada's and TELUS' retail OC-level intra-exchange services are markedly lower than those included in their retail DS-3 level service rates. The Commission considers that the lower mark-ups for the CDN intra-exchange OC-level retail services reflect greater competitive facilities-based supply of such services arising from the more favourable economics of constructing and providing for these larger scale services.
223. In light of the above, the Commission considers it appropriate to approve rates that are equal to the retail rates for Bell Canada's and TELUS' CDN OC-3 and OC-12 intra-exchange services, and to approve DS-3 intra-exchange service rates that reflect similar mark-ups to those included in the CDN OC-level intra-exchange rates. In this connection, the Commission notes that there is currently no demand for the OC-3 and OC-12 intra-exchange service in Aliant Telecom's, MTS' and SaskTel's territories, and has therefore not determined CDN intra-exchange rates at these speeds for these ILECs.

Metropolitan IX

224. The Commission notes its determinations that competitors use the ILECs' metropolitan IX facilities and the ILECs' intra-exchange services for the same purpose when providing retail services.
225. In the Commission's view, the relevant supply information filed on the record of this proceeding, show that while the ILEC's DS-0, DS-1 and DS-3 metropolitan IX facilities are significant inputs, they are not in sufficiently limited competitive supply to justify their classification as Category I services. In this connection, the Commission also considers that the incentives to construct metropolitan IX facilities would be unduly diminished if these facilities were classified as Category I services.
226. Accordingly, the Commission classifies the metropolitan IX service of each ILEC's CDN services as a Category II service.
227. The Commission notes the very high mark-ups for each ILEC's retail IX channel service. The Commission considers that these high mark-ups are indicative of the competitor's constraints with respect to the construction of their own IX facilities in metropolitan local calling areas. The Commission also notes that to the extent that IX services on a particular route are forborne, a competitor that decides to supply IX services on that route may have difficulty recovering the costs associated with that facility in the event that the ILEC retail rate is adjusted as a competitive response.
228. Consistent with the objective of encouraging facilities-based competition, the Commission considers it appropriate to apply mark-ups that are sufficient to provide incentives for carriers to build IX facilities on non-forborne routes.
229. The Commission notes the current large rate discrepancies between the DNA intra-exchange service rates and the retail IX channel service rates. For example, the monthly rate for a DS-1 intra-exchange channel between the Ottawa downtown CO and the Britannia CO is approximately one-third of the monthly rate for a similar DS-1 IX channel between the Ottawa downtown CO and the Orleans CO. As noted, the Commission considers that in the context of CDN services, the functionality of an IX facility is essentially the same as that of an intra-exchange facility. Given this, the Commission considers that the rate disparity in the ILEC retail tariffs between these two services is not appropriate in the case of CDN services.
230. In the circumstances, the Commission considers it appropriate to adopt a rate structure for the metropolitan IX service included as part of CDN services that mirrors the mileage-based retail rate structure of the ILECs' IX channel service. In the Commission's view, such a rate structure will cause the least disruption to the retail ILEC IX market.
231. The Commission notes that Aliant Telecom and Bell Canada provide IX channel service at distinct rates depending on whether or not the exchanges are adjoining. The mileage-based rates for adjoining exchanges is based on a single rate structure and has significantly lower rates than the rates for non-adjoining exchanges. By contrast, TELUS and SaskTel provide retail IX channel service at rates that do not distinguish between adjoining and non-adjoining exchanges.

232. In light of the above, the Commission considers that, for each ILEC, the CDN metropolitan IX service rates should be set equal to the current retail mileage-based digital IX rates for DS-0, DS-1 and DS-3 IX facilities for adjoining exchanges associated with Bell Canada, Aliant Telecom and MTS, less a percentage deemed appropriate by the Commission.

CO channelization

233. The Commission noted that a competitor that is co-located in an ILEC wire centre can self-supply channelization facilities. The Commission concluded, however, that it was not reasonable to require a competitor to co-locate at an ILEC wire centre in order to self-supply channelization and required each ILEC to provide channelization as a Competitor Service to a competitor that is not co-located in the wire centre in question. However, the Commission finds that ILEC channelization facilities are not in very limited competitive supply because a competitor can self-supply channelization facilities at an ILEC wire centre once it has co-located at that wire centre.
234. Accordingly, the Commission classifies the CO channelization service included as part of each ILEC's CDN services as a Category II service.
235. The Commission finds that a relatively low-mark-up is appropriate for this CDN service because it would, for example, permit a competitor that is not co-located in all ILEC wire centres in a multi-wire centre area exchange to increase its customer base by providing service in all areas of that exchange in an efficient manner.
236. Accordingly, the Commission determines that rates for CO channelization should be approved based on Phase II costs plus a relatively low mark-up greater than 15%.

D. Terms and conditions of CDN services

Use with other services

Position of parties

237. Call-Net requested the Commission clarify that, if a service configuration conforms to CDN eligibility requirements, then any DNA component embedded in that service be made eligible for CDN rates. Call-Net submitted the retail DNA service, as well as being a stand-alone service, was also bundled with various other services, such as Bell Canada's Megalink service, which incorporates by reference the retail DNA tariff in respect of the access portion of that service.
238. Bell Canada et al. replied that a number of retail services, such as Bell Canada's Megalink and Megaplan services incorporate DNA rates for the access portion of the service. Bell Canada et al. argued that such retail services had not been unbundled and that therefore it would not be appropriate to mandate that the access component of such a retail service be rated using CDN rates when a competitor used that retail service.

Commission's analysis and determinations

239. In Decision 2002-78, the Commission determined that competitors' ability to use any or all components of the interim CDNA service in conjunction with other ILEC services and with non-ILEC services and facilities would foster competition because it increased the competitors' flexibility to offer retail services. In the Commission's view, this consideration applies to the CDN service.
240. Accordingly, the Commission confirms that a competitor may use any service included as part of CDN services in conjunction with other ILEC services or non-ILEC services and facilities.
241. Given its findings regarding the services and facilities to be included as CDN services, the Commission finds that where an ILEC retail service tariff cross-references its retail DNA or IX services tariff, a competitor will pay CDN, not retail, rates for the DNA service or metropolitan IX service in question.

Simple resale

Position of parties

242. Parties generally agreed that simple resale did not add value to the resold service and also generally agreed that the current prohibition of simple resale of the CDNA service should be retained. Bell Canada et al. submitted that the purpose of this restriction was to mitigate distortions in the retail DNA service market. TELUS submitted that the termination of an ILEC-provided CDN service at a competitor's switch was the primary means by which a competitor added value to the resold ILEC service.
243. Call-Net submitted that the location of a POP should not be relevant to the treatment of ILEC DNA facilities as a Competitor Service. Bell Canada et al. argued that, since the ILEC lost the ability to monitor traffic carried over a CDN access facility that terminated at a competitor location outside its territory, it would be unable to determine if the access circuit met the terms and conditions of the CDN services, such as the prohibition on simple resale.
244. Call-Net argued that, to be eligible for CDN services, it would be sufficient if the ILEC's access facility terminated on equipment and at a site operated by the competitor that leased that facility. Microcell further submitted that simple resale be enforced by requiring that one end of each CDN channel ultimately terminate on a competitor switch.
245. TELUS, supported by Bell Canada et al., proposed several mechanisms for verifying competitor compliance with the simple resale prohibition, including the requirement for quarterly affidavits from competitors using CDN services and annual audits to verify compliance with the terms, conditions and rules for the CDN services.
246. LondonConnect and Call-Net disagreed with respect to whether simple resale of CDN services would be economic. LondonConnect submitted that, given the economic incentive that competitors could have to engage in arbitrage through simple resale, the filing of yearly affidavits attesting to competitor compliance should be required, as should annual independent audits.

247. Allstream submitted that in order to enforce the prohibition, a requirement that a CDN service terminate on equipment at a site operated by a competitor would be adequate. Allstream submitted further that, if additional measures were considered necessary, an annual filing of an affidavit by a senior officer of the company obtaining CDN service attesting to the fact that the simple resale prohibition was being respected would be sufficient.

Commission's analysis and determinations

248. In Decision 2002-34 the Commission prohibited simple resale of the CDNA service in order to avoid distortions in the retail DNA market. Consistent with this approach, the Commission determines that simple resale of the CDN services is prohibited. For this purpose, the Commission defines simple resale as resale without added value and notes that simple resale includes rebilling.
249. Parties took different positions with respect to the enforcement of the prohibition against simple resale. The Commission notes that under the interim CDNA service tariffs, traffic carried on a CDNA customer access may terminate outside the ILEC wire centre area in which that access is located, but must terminate within that ILEC's territory. The Commission further notes that, in this situation, the ILEC can determine whether the traffic ultimately terminates at a competitor's network site.
250. Facilities-based competitors provide services using facilities and services leased from ILECs and other suppliers in combination with self-supplied facilities and services. The Commission considers this approach promotes facilities-based competition, and notes its finding above that a competitor may use services included as part of CDN services in conjunction with other ILEC or non-ILEC services and facilities. In the Commission's view, it would be inappropriate to restrict use of CDN services because the competitor network site at which CDN traffic terminates is located outside the territory of the ILEC that provides the CDN services.
251. Accordingly, the Commission determines that a competitor should not be prevented from using CDN services, notwithstanding that the traffic may ultimately terminate at a POP outside the territory of the ILEC that provides the CDN services.
252. The Commission agrees that if the POP is outside the territory of the ILEC that provided the CDN services, the ILEC would not know whether the traffic ultimately terminated on the competitor's network. The Commission therefore considers it appropriate to require each competitor that uses CDN services to provide an affidavit confirming that it is complying with the prohibition against simple resale. The Commission considers that audits of competitor compliance with respect to the simple resale prohibition should be undertaken only where circumstances so warrant.
253. Accordingly, to enforce the prohibition on simple resale, the Commission determines that the chief executive officer (CEO) of each competitor that uses an ILEC's CDN services must file an affidavit within 30 days of the date of this Decision and annually thereafter with respect to that competitor's compliance with the prohibition against simple resale of CDN services. The Commission determines that each competitor's affidavit must also attest that the route or pathway associated with each leased access facility included as part of CDN services ultimately connects at the POP.

Eligibility to use CDN services

Position of parties

254. LondonConnect argued that a regulatory regime that discriminated between competitors and retail customers by pricing ILEC facilities as Category II services could be open to abuse by large customers. TELUS submitted that, if resellers with no switching equipment were eligible to use CDN services, any retail customer could declare itself a reseller and obtain service at CDN rates instead of retail DNA service rates. Call-Net argued that any retail customer could acquire a switch and become a reseller. Call-Net submitted that restricting CDN services eligibility to Canadian carriers would be the appropriate way to address these concerns.
255. Call-Net and Bell Canada et al. argued that CDN services should be available only to Canadian carriers because the availability of CDN services is an important factor in supporting the regulatory policy objective of facilities-based competition. Call-Net further submitted that allowing resellers to be eligible to use CDN services would not further this policy objective.
256. Primus Canada disagreed and argued that, because all Canadian carriers use resold facilities to varying degrees, restricting the availability of CDN services only to Canadian carriers would result in competitive inequity to resellers. Primus Canada stated that while the majority of its leased DNA services were used to connect POPs to ILEC central offices, it also used end-customer facilities that were currently eligible for CDNA tariffs.

Commission's analysis and determinations

257. The Commission notes that resellers are eligible to use the interim CDNA service.
258. With respect to the concern expressed by certain parties that large customers could become resellers, the Commission considers that the record does not suggest this is a significant concern. The Commission also considers that, if a large customer, whose primary business is not telecommunications and whose revenues from telecommunications activities exceed \$10 million per year, chose to resell CDN services, then that customer would be required to register as a reseller with the Commission and pay contribution.
259. The Commission notes that the availability of CDN services to registered resellers will allow resellers to increase their customer base. The Commission considers that the benefits of making CDN services available to registered resellers outweigh any disadvantages. Given that resellers are prohibited from simple resale of the CDNA service, the Commission considers that retail DNA and IX rates would not be undermined if resellers are permitted to use CDN services.
260. Accordingly, the Commission determines that all competitive Canadian carriers and all resellers registered with the Commission are eligible to use CDN services.

Wireless carriers

Position of parties

261. Microcell and RWI argued strongly that the CDNA service was not technologically neutral because wireless competitors could not acquire access services they use under the terms of the service. Microcell submitted that, while Microcell used a wireless interface to reach end-customers, wireless carriers were also dependent on wireline DNA services.
262. Microcell and LondonConnect argued that a wireless circuit between a cell site and ILEC wire centre did not present opportunities for significant traffic aggregation and that the wireless circuit between a cell site and an ILEC wire centre was analogous to a customer access circuit in a wireline network environment.
263. TELUS and LondonConnect argued that the interim CDNA service did not discriminate against wireless competitors because such competitors did not need the service as it was configured. Bell Canada et al. argued that the CDNA service configured as requested by Microcell and RWI would represent a substantial modification to that service.

Commission's analysis and determinations

264. The Commission notes that wireless carriers, by definition, use wireless technology for the "last mile" to their end-customer and so do not require the ILECs' customer access facilities for that purpose. The Commission finds that the facility between a wireless carrier's cell site or tower and the ILEC wire centre that Microcell seeks to use at competitor service rates, and which it characterized as a customer access facility, is in fact a carrier access facility, as described in this Decision.
265. The Commission notes that the purpose of the CDNA proceeding included the possibility of making carrier access facilities available at competitor service rates. The Commission considers that the terms of the CDN services are consistent with the principle of technological neutrality.

Competitors as end-customers

Position of parties

266. Bell Canada et al. and TELUS submitted that a competitor should not be eligible for CDNA service whenever the end-customer that the competitor provided service to was also eligible for CDNA service. The ILECs argued that this approach would be consistent with the terms of the CDNA service specified in Decision 2002-34 and Decision 2003-60.
267. Allstream, supported by Call-Net and LondonConnect, submitted that this proposed "end-customer" defined CDNA eligibility restriction was not consistent with the terms of the CDNA service. LondonConnect submitted that the ILECs refused to provide CDNA in situations in which LondonConnect's customer was an entity that had registered with the Commission as a carrier or reseller. LondonConnect argued this approach unnecessarily limited competitors' flexibility in making wholesale arrangements. These parties argued that permitting the use of the facilities under CDNA rates, even if the end-customer was also eligible to obtain the CDNA service, would foster the development of wholesale competition in DNA-equivalent services.

Commission's analysis and determinations

268. In Decision 2002-34, the Commission found that the development of a wholesale market was important to the overall development of facilities-based competition. The Commission considers that competitors' use of CDN services, including access, in combination with non-ILEC facilities and functions to provide service to other competitors will foster facilities-based competition.
269. Accordingly, the Commission determines that the description of "end-customer" includes a customer that is eligible in its own right for the customer access service included as part of CDN services.

ILEC special equipment costs or unusual expenses

Position of parties

270. Xit télécom requested that the Commission deny Bell Canada's request for compensation for special equipment costs and unusual expenses. Xit télécom submitted that such a provision would permit Bell Canada too great a discretion with respect to charges applied to competitors.
271. Bell Canada et al. replied that Xit télécom's comments reflected a misunderstanding of the extraordinary expense provisions in its tariffs. Bell Canada submitted that the application of such charges was meant to provide for proper cost recovery of extraordinary costs incurred during installation of new circuits. Bell Canada submitted further that competitors could, at their option, decide whether or not to accept responsibility for such charges before the associated costs were incurred. Bell Canada et al. argued further that such provisions had been included in their other service tariffs for many years.

Commission's analysis and determinations

272. The Commission notes that a provision for ILEC special equipment costs or unusual expenses is a standard provision in ILEC tariffs. Accordingly, the Commission determines that the CDN services tariffs should continue to include a provision that allows the ILECs to recover special equipment costs and unusual expenses.

Repair intervals

Position of parties

273. Allstream proposed that the final CDN tariff should not include the current four-hour mean-time-to-repair (MTTR) provision, arguing that setting a four-hour MTTR in the CDN tariff could have the unintended affect of lowering service quality standards rather than improving them.
274. Allstream stated that it provided comments on a range of quality of service issues in the context of the proceeding initiated by follow-up process associated with *Incumbent local exchange carrier service intervals for various competitor services*, Telecom Decision CRTC 2003-48, 18 July 2003 (Decision 2003-48), and in those comments Allstream submitted that the appropriate MTTR standard for CDN services should be established through the follow-up process to Decision 2003-48.

275. Bell Canada et al. submitted that, depending on the final definition of CDN services, they could propose changes to the MTTR standard.

Commission's analysis and determinations

276. In Decision 2002-34, the Commission stipulated that the interim CDNA service should be provisioned on a monthly basis with an average four-hour MTTR. By letter dated 13 December 2003, addressed to Allstream and other parties involved in the follow-up process to Decision 2003-48, the Commission stated that the issue of determining the appropriate MTTR for the CDNA service was within the scope of the process begun by *Finalization of the Quality of Service rate adjustment plan for competitors*, Telecom Public Notice CRTC 2003-9, 30 October 2003 (Public Notice 2003-9). The Commission notes that Allstream and other parties did not comment with respect to the MTTR for the CDNA service in the proceeding initiated by Public Notice 2003-9.
277. The Commission considers that the average four-hour MTTR continues to be appropriate for CDN services, pending its final determinations in the process initiated by Public Notice 2003-9.

III Costing

278. The cost studies filed in this proceeding by the ILECs set out the economic parameters, costing assumptions and unit costs proposed for CDN services.
279. Allstream and Call-Net (collectively, Allstream et al.), the main parties that commented on the ILEC costs for CDN services, filed a joint submission that dealt exclusively with costing issues. Bell Canada et al. and TELUS responded to Allstream et al.'s arguments.

Position of parties

280. Allstream et al. emphasized the importance of scrutinizing the ILECs' Phase II cost studies that supported the proposed CDN rates. Allstream et al. expressed concern that, since competitors would be paying these cost-based rates, there was an incentive to overestimate these costs. Allstream et al. noted that, in some instances, specific cost estimates for the services in question were not directly available and were approximated based on other available information considered appropriate by the ILEC. Allstream et al. noted that if the ILECs' Phase II cost estimates reflected inappropriate methodologies and assumptions, or were in any way inaccurate, then the resulting rates established for CDN services would not be correctly set and the Commission's goal of fostering competition would be thwarted.
281. Allstream et al. noted that it had compared the ILEC's assumptions and methodologies and the cost estimates filed for the various key elements associated with CDN services. Allstream et al. submitted that there were wide cost discrepancies among ILECs for delivering the same service to competitors, as well as wide cost variances across Bands within the territories of individual ILECs. Allstream et al. contended that many of the cost variances were not adequately explained by the ILECs. In a number of instances, Allstream et al. recommended that the lowest cost among ILECs be used to estimate the costs for each ILEC.

282. Bell Canada et al. argued that Allstream et al.'s comments were an attempt to understate the ILECs' incremental costs. In Bell Canada et al.'s view, the purpose of this proceeding was to accurately establish the incremental costs of offering CDN services, not to provide competitors with the cheapest possible service regardless of the costs incurred by the ILECs to deliver such services.
283. TELUS requested that the Commission ensure that all ILECs properly apply the Commission's Phase II costing methodologies to help ensure efficient facilities-based competitive entry. TELUS expressed concern that some of the Phase II costs may be understated, which would create a wholesale price squeeze for TELUS and other facilities-based competitors.

General economic parameters

284. In this section, the Commission considers issues with respect to each ILEC's general economic parameters such as the cost of debt, cost of capital, and tax rates used in Phase II cost studies. These economic parameters apply to all cost studies for CDN services.

Cost of debt

Position of parties

285. Allstream et al. submitted that TELUS' cost of debt estimate of 9.5% was inappropriate as it was out-of-date and was impacted by non-related operations, such as TELUS Mobility. Allstream et al. noted that TELUS' debt levels had increased substantially as a result of TELUS Corporation's acquisition of Clearnet, which resulted in a downgrade of the company's credit rating. Allstream et al. noted that TELUS Communications Inc. was the prime generator of internal cash, and therefore it bore most of the responsibility to support TELUS' \$6.8 billion of debt.
286. Allstream et al. also submitted that other ILECs, regardless of size, had significantly lower costs of debt than TELUS. Allstream et al. noted that TELUS' proposed cost of debt was 294 basis points higher than Aliant Telecom's, the ILEC with the next highest cost of debt. Allstream also noted that TELUS' proposed cost of debt was 465 basis points higher than the benchmark Government of Canada 10-year bond rate, which was approximately 4.85%. Allstream et al. submitted that such a large difference for the purpose of establishing Competitor Services cost-based rates was inappropriate.
287. Allstream et al. argued that TELUS' Phase II cost studies should use an average of the cost of debt of the other ILECs. Allstream et al. submitted that based on the ILECs' cost studies provided in response to the Commission's 25 July 2003 interrogatories, the simple average rate for Bell Canada, MTS, Aliant Telecom and SaskTel was 6.16%, which was more reflective of the cost of debt associated with the services being studied. Allstream et al. further submitted that the cost-based rates for Bell Canada, MTS, Aliant Telecom and SaskTel should be based on their most recent submissions to the Commission since the cost of debt had decreased for each of these ILECs in comparison to the rates used in the initial Phase II cost filings for the CDNA service.

288. In response, TELUS submitted that it had incorporated information to reflect a forward-looking cost of debt. TELUS indicated that its cost of debt calculations, and calculations for other components of the weighted average cost of capital used in its Phase II cost studies, had been described in its response to the City of Calgary in the proceeding related to the use of an after-tax weighted average cost of capital approach in Phase II studies, initiated by Bell Canada et al.'s Part VII application, dated 17 July 2002.

Commission's analysis and determinations

289. The Commission considers that Allstream et al.'s proposal to use the ILEC-average cost of debt for TELUS is inconsistent with the Commission's costing practice to incorporate ILEC-specific economic parameters.
290. Contrary to Allstream et al.'s claim, the Commission considers that the cost of debt for TELUS Corporation and the cost of debt associated with the operations of TELUS Communications Inc. are the same. The Commission notes that TELUS, in its 25 July 2003 submission, did not update its initial cost of debt estimate of 9.5% as the other ILECs did. The Commission further notes that TELUS did update its cost of debt to 8.35% on 10 November 2003.
291. The Commission considers it appropriate, except in the case of TELUS, to rely on the cost of debt proposed by each ILEC in response to the Commission's 25 July 2003 interrogatories. With respect to TELUS, the Commission considers it appropriate to rely on the company's latest cost of debt of 8.35%.

Cost of capital

Position of parties

292. Allstream et al. submitted that the weighted average cost of capital used in Phase II cost studies should be reflective of each ILEC's cost of capital applicable to the types of service under study. Allstream et al. further submitted that Category I services were those services that were essential in nature for which the Commission had found there were few, if any, competitive alternatives. Allstream et al. expressed the view that the associated business risks to the ILECs in providing these services were minimal.
293. Bell Canada et al. argued that changes to the methodology for establishing the cost of capital for Phase II studies should not be determined in this proceeding. TELUS submitted that Allstream et al.'s proposal for the implementation of service-specific cost of capital calculations was outside the scope of this proceeding. In Bell Canada et al.'s and TELUS' view, assessing the suitability of financial parameters in Phase II cost studies was a complex issue that could only be resolved in a proceeding dedicated to that purpose.

Commission's analysis and determinations

294. The Commission determines that the issue of revising the cost of capital to reflect lower business risks to the ILECs in providing CDN services is outside the scope of the proceeding.

Income tax and other charges

295. Corporate income tax and other taxes and revenue charges form part of the corporate parameters used in Phase II economic studies to determine costs associated with the provisioning of services.

Position of parties

296. Parties did not comment on the appropriate tax rates to be used in each ILEC's Phase II cost studies.

Commission's analysis and determinations

297. The Commission notes that in cost studies provided in response to the Commission's 25 July 2003 interrogatories, TELUS submitted a corporate income tax rate of 37.4%, which included 1.12% for federal surtax. The Commission notes that, based on the federal *Income Tax Act*, the federal surtax is deductible in the calculation of the large corporation tax payable, and as a result should be excluded in the income tax rate calculation. The Commission is of the view that, consistent with the other ILECs, the 1.12% for federal surtax should be excluded in the case of TELUS. Accordingly, the Commission has relied on the corporate income tax rate of 36.3% to determine TELUS' CDN cost study estimates.
298. The Commission notes that the ILECs included subsidy revenue-percent charges of 1.3% in their cost studies provided in response to the Commission's 25 July 2003 interrogatories. The Commission notes that, effective 1 January 2003, the subsidy revenue-percent charge is 1.1% as a result of *Final 2003 revenue-percent charge and related matters*, Telecom Decision CRTC 2003-84, 19 December 2003. The Commission considers it appropriate to use this rate, which represents the forward-looking subsidy revenue-percent charge covering the five-year study period 2003 to 2007, to determine each ILEC's CDN cost study estimates.

General costing assumptions

Expense increase factors, capital increase factors and productivity improvement factors

Position of parties

299. Allstream et al. submitted that the Commission should ensure that the ILECs had not overstated the estimated increase in historical costs by using capital increase factors (CIFs) and expense increase factors (EIFs) that exceeded reasonable estimates. Allstream expressed concerns regarding the impact of overstating cost increases and understating productivity gains which, in combination, would overstate cost estimates used in the Phase II studies. Furthermore, in Allstream et al.'s view, these cost overstatements would become entrenched in the CDN rates unless the appropriate adjustments were made.
300. To illustrate the impact of these factors, Allstream et al. noted that Bell Canada had used EIFs of over 3% for various maintenance activities while only assuming a productivity improvement factor (PIF) of 1.4%, resulting in an estimated net cost increase of at least 1.9% for 2001/2002.

301. Allstream et al. also claimed that the ILECs had overstated the installed first costs (IFCs) used for capital costs by using inappropriately low or no capital productivity estimates to restate historical year costs to 2003 costs. To illustrate this point, Allstream noted that Bell Canada used a PIF of only 1.4% to restate SONET hardware IFCs. Allstream et al. also noted that, in the case of a number of hardware cost items, MTS employed a PIF of only 1.4% and a CIF of 3%, resulting in the application of a net increase in the restatement of these historical costs.
302. Allstream et al. submitted that Bell Canada had acknowledged that capital productivity had reduced service costs in its CDNA cost study dated 17 September 2002, and that it had stated that new equipment deployment practices as well as reductions in supplier's contract prices for material and installation of SONET equipment had reduced the costs of providing DNA services.
303. Allstream et al. also submitted that Aliant Telecom, SaskTel, and TELUS had overstated 2003 transmission capital costs by using 2002 costs as a proxy rather than adjusting 2002 costs to account for transmission capital productivity. Allstream et al. recommended that the reported capital costs for Aliant Telecom, SaskTel, and TELUS, along with the associated costs such as maintenance, be re-stated to correct for this overstatement in the Phase II cost studies.
304. Allstream noted that, in Decision 2002-34, the Commission established a productivity offset of 3.5% for the ILECs for the second price cap period. Allstream et al. submitted that the application of general productivity and inflation/price increase factors to restate cost estimates for the CDN services should be consistent with those applicable to the ILECs' price cap filings. Allstream et al. recommended that this productivity offset be used to restate any prior period costs of the ILECs to current year costs and that the productivity offset from the initial price cap period be applied to historical costs.
305. Bell Canada et al. submitted that Allstream et al. had mischaracterized the productivity offset established by the Commission as a measure of productivity gain. Bell Canada et al. noted that, as indicated in its response to interrogatory The Companies(GT)26Jun01-14 PC, Statistics Canada's weighted gross domestic product price index (GDP-PI) was used as the measure of "I" in the I-X formula. Bell Canada et al. argued that this price index was not a measure of inflation, but rather a measure of inflation net of economy-wide productivity growth (i.e., the difference between the input price inflation of the general economy and the total productivity factor of the general economy). Bell Canada et al. further submitted that the productivity offset "X" in the I-X formula captured the extent to which the ILECs outperformed, or under-performed, the general economy in two dimensions: the productivity performance of the ILECs and the prices the ILECs paid for their inputs. Bell Canada et al. submitted that, accordingly, "X" was not a measure of productivity gain and therefore it was inappropriate to use "X" as the PIF in economic studies.
306. TELUS noted that, in a letter to the ILECs concerning Phase II costing information requirements, the Commission had directed that no productivity offset should be applied to costs in Phase II cost studies for Competitor Services. TELUS also submitted that capital productivity was reflected in Phase II cost studies by the use of growth technologies.

Commission's analysis and determinations

General application of EIFs, CIFs, and PIFs

307. In a letter dated 14 July 2003 concerning Phase II costing information requirements, Commission staff stated that each ILEC would be expected to file Competitor Service cost studies that excluded the application of inflation and productivity factors within the study period. Under this approach, the Competitor Service rate resulting from the revised cost study would be subject to the annual I-X pricing constraint. Commission staff also stated that if retrospective EIFs, CIFs and PIFs were used to restate historical unit costs to current unit costs, each cost study should identify the retrospective EIFs, CIFs and PIFs used for each major cost element.
308. The Commission notes that, in this proceeding, ILECs estimated their current 2003 costs, representing the first year of the study period, based on unit cost data from mostly 2001 and 2002. The Commission further notes that Bell Canada, MTS, and SaskTel restated their historical unit costs to current unit costs through the application of retrospective EIFs, CIFs, and PIFs, while Aliant Telecom and TELUS generally set their current unit costs equal to their historical unit costs without explicit EIF, CIF, or PIF adjustments.
309. The Commission notes that in Decision 2001-238, the Commission rejected the ILECs' proposal to restate historical capital unit costs based on cost increase factors without the recognition of explicit productivity improvements. In that Decision, the Commission reduced the ILECs' capital forecasts by amounts equal to each ILEC's assumed historical capital cost increase factor in order to take account of likely efficiency improvements and price reductions over that historical period.
310. The Commission notes that Bell Canada and MTS proposed PIFs of 1.4% while SaskTel assumed its factor to be 0%. The Commission further notes that these PIFs are significantly lower than the PIFs proposed by the ILECs in the proceeding that led to *Final rates for unbundled local network components*, Telecom Decision CRTC 98-22, 30 November 1998 (Decision 98-22). For example, in that proceeding, Bell Canada and the former TELUS operating in Alberta (TELUS-Alberta) proposed PIF values of 4.1% and 4.7%, respectively, based on each ILEC's total implied productivity factor estimates. The Commission notes that in Decision 98-22, the Commission used an annual PIF of 3.5% applicable to each ILEC's Phase II expenses.
311. The Commission is not persuaded that the PIF values proposed by Bell Canada, MTS and SaskTel are appropriate for the purposes of re-stating historical unit expenses to current unit expenses for Phase II cost studies. The Commission considers it appropriate to set the 2003 unit expenses for Bell Canada, MTS and SaskTel equal to their historical unit expenses, consistent with Decision 2001-238 and the approach taken by TELUS and Aliant Telecom in this proceeding.

Application of CIFs and PIFs for capital costs

312. The Commission notes that the supplier prices of optical transmission equipment reported by Aliant Telecom, Bell Canada, and SaskTel varied greatly from those reported by TELUS and MTS.

313. The Commission notes that in response to the 25 July 2003 Commission interrogatories, Aliant Telecom, Bell Canada, and SaskTel reported significant 2003 supplier price reductions, generally ranging from 10% to 30% as compared to the material prices assumed in their CDN access cost studies. By contrast, TELUS reported minimal changes, and MTS reported smaller price decreases, as well as some price increases.
314. The Commission notes that the material price is the largest component of the capital unit cost, which typically consists of the material price, applicable taxes, installation and engineering. In light of the recent supplier price reductions presented by most ILECs, the Commission considers that the ILECs' proposed use of historical optical transmission unit costs as adjusted by the proposed CIFs and PIFs would lead to a significant cost overstatement. The Commission has accordingly adjusted the proposed optical transmission capital unit costs for Aliant Telecom, Bell Canada, and SaskTel to reflect their 2003 current material prices.
315. As noted above, the supplier price information reported by TELUS and MTS differs significantly from that reported by the other ILECs for essentially the same equipment. The Commission considers that the information provided by Aliant Telecom, Bell Canada and SaskTel reflects more accurately the 2003 prices for this equipment. However, in light of the different equipment configurations used by each ILEC, the Commission does not consider it appropriate to apply, with respect to MTS and TELUS, the 2003 prices reported by Aliant Telecom, Bell Canada and SaskTel.
316. The Commission also notes that in response to the 14 July 2003 Commission letter concerning Phase II costing information requirements, Bell Canada and Aliant Telecom proposed to apply a negative prospective CIF for 2004/2003 and beyond for all optical and copper-based transmission equipment. Bell Canada and Aliant Telecom further proposed that the optical and copper transmission capital unit cost for Phase II costing purposes would be estimated for any year beyond 2003 by applying this negative prospective CIF combined with an annual PIF of -1.4%, resulting in a sizeable net annual decrease.
317. In light of the above, the Commission considers it appropriate to apply in the case of MTS and TELUS, a net cost reduction of 6% in order to restate these proposed optical transmission capital unit costs to reflect 2003 current unit costs.
318. With respect to copper transmission capital costs, the Commission notes that only Aliant Telecom and SaskTel reported supplier price changes in 2003. While the Aliant Telecom data suggested very little change in the 2003 supplier prices compared to the material prices assumed in its CDN access cost studies, the data provided by SaskTel reflected considerable supplier price reductions for this type of equipment.
319. The Commission considers that, based on SaskTel's 2003 supplier price information and in light of the information provided by Aliant Telecom and Bell Canada with respect to the prospective annual copper-transmission CIFs and PIFs noted above, the Commission considers it appropriate to restate each ILEC's copper-based historical transmission capital unit costs to current unit costs by applying a net cost reduction of 6%.

320. The Commission notes that the ILECs' 2003 supplier price comparisons for their outside plant fibre cable capital reflected significant material price reductions. However, certain ILECs failed to incorporate these lower material prices in their cost studies. The Commission has accordingly adjusted outside plant fibre cable capital unit costs that relied on the use of historical unit costs, to incorporate the current material prices.

TELUS' plant life estimate

321. Life estimates represent the duration over which plant, property or equipment is expected to provide service in an economic study. Life estimates are important cost elements as they determine the period over which the related capital expenditures are amortized.

Position of parties

322. Allstream et al. submitted that the equipment lives used in the CDN Phase II cost studies should reflect the accounting plant lives approved in *Implementation of price cap regulation and related issues*, Telecom Decision CRTC 98-2, 5 March 1998 (Decision 98-2), consistent with the Commission's approach to determining costs for unbundled loop facilities.
323. Allstream et al. noted that Bell Canada, Aliant Telecom and MTS had applied the Decision 98-2 equipment lives and that SaskTel had used the equipment lives that were in place when SaskTel came under federal regulation. Allstream et al. noted that, by contrast, TELUS had failed to apply these equipment lives. Allstream et al. submitted that this would partially explain why TELUS' cost estimates for CDN services were higher than the other ILECs. Allstream et al. submitted that the reasonableness of the lives proposed by TELUS in its CDN cost studies had not been subject to the full scrutiny of the Commission as in the case of the lives established in Decision 98-2. Allstream et al. submitted that TELUS' CDN costs should be adjusted downward to reflect, as closely as possible, the equipment lives approved in Decision 98-2.
324. In its response, TELUS noted that it used economic lives for Phase II economic evaluation studies as it was the methodology accepted by the Commission, except where the Commission had explicitly directed the ILECs to use accounting plant lives. TELUS explained that the move from the average service lives approved in Decision 98-2 to the lives used in its cost study captured the natural evolution of technology. TELUS submitted that the differences between its economic and accounting lives for the fibre outside plant facilities were not significant.

Commission's analysis and determinations

325. The Commission notes that in this proceeding, each ILEC, except TELUS, developed its CDN cost studies using the accounting plant lives approved in Decision 98-2 for all plant accounts. By contrast, TELUS proposed economic lives for its Phase II cost studies. Under TELUS' proposal, the economic plant lives would apply for TELUS' operating territory covering both the provinces of Alberta and British Columbia.
326. The Commission notes that separate accounting plant lives were approved for the Alberta and British Columbia operating territories in Decision 98-2. The Commission is of the view that, consistent with the approach adopted by the other ILECs, TELUS should have relied on the plant life estimates approved in Decision 98-2 to develop the CDN cost studies in this proceeding.

327. The Commission notes that TELUS' accounting plant life estimates for TELUS-Alberta approved in Decision 98-2 are more comparable to the life estimates used by other ILECs. Given this, the Commission considers it appropriate to adopt for TELUS one set of accounting plant lives applicable to both Alberta and British Columbia, and has used TELUS-Alberta's accounting plant lives to determine TELUS' CDN service cost estimates.

Portfolio expenses

328. While the definition of portfolio was a matter for consideration in this proceeding, Commission staff has recently proposed that portfolio expenses be defined as expenses directly related to the development of marketing/promotional sales activity associated with a common group of retail and/or Competitor Services.⁴

Position of parties

329. Allstream et al. stated that Bell Canada had not included a portfolio expense loading factor in its initial CDN cost filing, but had subsequently incorporated a non-retail portfolio loading factor. Allstream et al. submitted that it would be inappropriate to include a portfolio loading factor in the CDN costs because, among other things, Bell Canada did not support the inclusion of such expenses in Phase II cost studies. Allstream et al. submitted that it would be unfair that Competitor Service rates recover a cost that was not recovered for retail services.
330. Allstream et al. further submitted that Bell Canada's estimate of a portfolio loading factor was flawed in that any allocation of portfolio costs between retail and non-retail service categories was arbitrary because the vast majority of these costs were common to both categories. Allstream et al. further submitted that because neither SaskTel, Aliant Telecom, nor MTS had been able to identify or quantify any portfolio costs, there was insufficient evidence to conclude that there were distinguishable portfolio costs for these companies that were not already reflected in the Phase II costs filed with the Commission or recovered through the mark-up.
331. Allstream et al. argued that the level of non-specific portfolio costs was excessive and could result in the double-counting of costs.
332. Bell Canada et al. submitted that the inclusion of portfolio costs was in direct compliance with the Commission directive set out in *TELUS Communications Inc. – Application to review and vary Decision 2000-745 and Decision 2001-238*, Telecom Decision CRTC 2002-67, 25 October 2002 (Decision 2002-67). Bell Canada et al. stated that at the time of the initial CDNA cost study, a portfolio loading factor had not yet been developed and therefore these costs had not been included in the initial study. Bell Canada et al. stated that since then, and in accordance with a Commission interrogatory to develop separate retail and non-retail portfolio loading factors, Bell Canada had developed a Competitor Services loading factor of 14.4% which was incorporated in the costs

⁴ The matter of portfolio expenses and associated portfolio loading factors was recently addressed in Commission interrogatories to the major ILECs in a letter dated 11 June 2004 in the context of the Phase II housekeeping process dealing with generic economic parameters. In that letter, Bell Canada, MTS Allstream, Aliant Telecom, and SaskTel were asked to determine a portfolio expense factor based on the following portfolio expense definition: "expenses directly related to the development and management of marketing/promotional/sales programs associated with a common group of retail and/or Competitor Services, which cannot be attributed (as direct/indirect expenses) to any specific service within that group."

provided in response to the Commission's 25 July 2003 interrogatories. Bell Canada et al. stated that its retail DNA service did not include a portfolio loading factor, because it had preceded the Commission's directive to include such a factor.

Commission's analysis and determinations

333. The Commission notes that TELUS' Phase II cost studies include portfolio expenses in direct/indirect expenses under each expense line item.
334. The Commission notes that in Decision 2002-67, it directed that, pending a review as to whether or not portfolio expenses should be included in Phase II cost studies, all ILEC Phase II cost studies were to include such expenses, consistent with previous Commission directives.
335. In accordance with this directive, Bell Canada developed a portfolio loading factor to reflect the inclusion of portfolio expenses in its Phase II cost studies. The Commission notes that Bell Canada's cost studies provided in response to the Commission's 20 March 2003 interrogatories included an average portfolio loading factor of 9.7%, while its cost studies provided in response to the Commission's 25 July 2003 interrogatories included a non-retail portfolio loading factor of 14.4%.
336. By contrast, MTS, Aliant Telecom, and SaskTel indicated that they were unable to develop a portfolio expense factor estimate due to either the lack of a precise definition of portfolio expenses, or due to the lack of detail to fully quantify portfolio costs at the time of performing the CDN cost studies.
337. The Commission notes that each ILEC, except TELUS, was invited to provide comments on a proposed definition of portfolio expenses as set out in a Commission staff letter dated 11 June 2004 and to submit a loading factor, expressed as a percentage of total direct and indirect costs, based on such a definition. The factors submitted were 3.6% for Bell Canada, 1.78% for MTS, and 8.25% for SaskTel. Aliant Telecom indicated that to the extent that the Commission determined that it would be appropriate to include a portfolio factor in Phase II cost studies, it would be appropriate to use Bell Canada's portfolio loading factor until the company was able to develop an Aliant Telecom-specific factor.
338. Consistent with the directive in Decision 2002-67, the Commission considers that portfolio expenses are variable and causal to each service included as part of CDN services, and that such expenses should be reflected in the cost estimates applicable to CDN services. The Commission also notes that the inclusion of portfolio expenses is consistent with the Commission's findings in *Primary inter-exchange carrier processing charges review*, Telecom Decision CRTC 2004-72, 9 November 2004 (Decision 2004-72). The Commission is not persuaded by Allstream et al.'s submission that the inclusion of these expenses will lead to an over-recovery of costs.
339. The Commission finds that, for the purposes of this proceeding, it would be appropriate to apply the definition of portfolio expenses proposed in the Commission staff's letter of 11 June 2004 and the specific loading factors identified by Bell Canada, MTS and SaskTel in response to that letter. With respect to Aliant Telecom, the Commission considers that it would be appropriate to

apply the factor identified by Bell Canada. As noted above, no portfolio loading factor is required with respect to TELUS given that its Phase II direct/indirect expenses applicable to CDN services reflect portfolio costs.

Average working fill factors

340. Average working fill factors (AWFFs) are applied to the ILECs' cost estimates for the various transmission equipment configurations to recognize the spare capacity of the equipment in Phase II cost studies, by apportioning the average non-service producing capacity to the per unit cost of the service producing capacity.

Position of parties

341. Allstream et al. raised concerns regarding the ILECs' various fill factor assumptions underlying the capital cost estimates for transmission equipment. Allstream et al. submitted that some cost differences were due to differences in the methodology used to estimate fill factors. Allstream et al. noted that Bell Canada used a fill at relief measure⁵ for the working fill factors of CO equipment, while MTS used an AWFF measure. Allstream et al. noted that at the customer premise (CP) site, Bell Canada unitized costs over its average service demand, while MTS assumed an average service demand of one access per CP site. Allstream et al. submitted further that under MTS' approach, each access assumed the entire cost of the required equipment, regardless of whether multiple accesses were provisioned at the same customer location.
342. Allstream et al. argued that in establishing the rates for CDN services, the working fill factors applied should reflect the most efficient provisioning practices among the ILECs. Allstream et al. further argued that unreasonably low estimates of fill or end-user demand estimates should be corrected to ensure that CDN rates were based on accurate estimates of costs and reflected efficient practices. Allstream et al. submitted that, without correction, competitors would be penalized through higher CDN rates. In Allstream et al.'s view, working fill factors should account for the achievable fills over the study period and not solely reflect historical results, which could be impacted by lower fill factors.
343. Allstream et al. noted that TELUS' cost studies used actual working fill measures of the equipment in question and not fill at relief measures. Allstream et al. also noted that TELUS had applied lower fill factors than Bell Canada for the same type of optical common transmission equipment. In Allstream et al.'s view, TELUS' fill factor led to a significant increase in its estimated capital costs compared to Bell Canada's.
344. Bell Canada et al. noted that the Commission had been provided with CDN study results that were based on Commission-mandated AWFFs, as well as ILEC-specific working fill measures. Bell Canada et al. submitted that, notwithstanding this, it was imperative that the Commission recognize that working fill factors would vary across ILECs and across Bands for a given ILEC, because of the operating characteristics of the serving territory. Bell Canada et al. explained that

⁵ The fill at relief factor reflects the fill measure or the trigger point which will be used by the company to add relief facilities.

the existence of such differences did not necessarily mean that one operator was more efficient than the next. Bell Canada et al. asserted that it was more likely that varying fill factors reflected equipment utilization differences caused by varying demand levels.

345. Bell Canada et al. noted SaskTel's response to the interrogatory SaskTel(CRTC)25Jul03-PartB-1 CDNA, which stated that it was inappropriate to arbitrarily use common or minimum fill factors when performing Phase II cost studies, as these factors may not represent fills that are attainable in all ILEC operating territories or in all rate Bands of a given ILEC's operating territory. Bell Canada et al. submitted that this was especially true in those areas with low volumes of demand.
346. Bell Canada et al. further submitted that establishing rates using fill factors that did not recognize legitimate variations in fill factors would be inconsistent with the Phase II costing principles established in *Inquiry into Telecommunications Carriers' Costing and Accounting Procedures – Phase II: Information Requirements for New Service Tariffs Filings*, Telecom Decision CRTC 79-16, 28 August 1979 (Decision 79-16). Bell Canada et al. further argued that the approach proposed by Allstream et al. would be inconsistent with the findings of the Governor in Council which emphasized the importance of recognizing regional differences and company-specific information when it upheld Decision 2002-67.
347. In response to interrogatory Bell Canada(CRTC)25Jul03-3B CDNA, Bell Canada explained that it had so far been unable to demonstrate that any one facility type had attained a Table utilization level for a sufficient period of time to justify its appropriateness as a long-term AWWF. Bell Canada submitted that it subsequently used the AWWFs of 80% for CO equipment and 70% for OP fibre strands and equipment for all regulatory Phase II cost filings, consistent with the Commission's letter of 18 July 2003 regarding customer-specific arrangements (CSAs) cost studies.
348. Bell Canada et al. also noted that the concept of working fill factors did not apply to equipment at the CP site. Bell Canada et al. submitted that the ILECs reflected the average service demand for purposes of determining costs at the CP site.
349. In response to interrogatory TELUS(CRTC)25Jul03-4 Part B, TELUS argued against the use of mandated AWWFs that differed from TELUS' specific AWWF measures. TELUS argued that these mandated AWWFs were too high and would lead to the establishment of incorrect rates that would not provide the company a reasonable opportunity to recover its costs.
350. In its reply comments, TELUS submitted that Allstream et al.'s suggested fill at relief costing approach would understate costs and would be inconsistent with the Commission's Phase II costing methodology.

Commission's analysis and determinations

351. The Commission notes that in a letter dated 14 July 2003 concerning Phase II costing information requirements, Commission staff indicated that the use of fill at relief measures was contrary to Directive 5.2 of Decision 79-16 and to the procedures specified in the ILECs'

currently-recognized procedures manuals and past practice. In that letter, Commission staff indicated that ILECs were to use AWWF values in the context of regulatory filings, and requested each ILEC to report on the AWWF measures by facility used for this purpose.

352. The Commission further notes that in *Review of Bell Canada's customer-specific arrangements filed pursuant to Telecom Decision 2002-76*, Telecom Decision CRTC 2003-63, 23 September 2003 (Decision 2003-63), it noted that Bell Canada had generally used fill at relief factors in its CSA cost studies. In that decision, the Commission indicated that an earlier Commission staff letter dated 18 July 2003 had advised Bell Canada to use in CSA cost studies actual AWWFs for equipment that had reached provisioning stability in the network, and AWWFs of 80% for CO equipment and 70% for OP equipment.
353. The Commission notes that, while certain ILECs such as Aliant Telecom and Bell Canada initially proposed the use of fill at relief factors in their CDN cost studies, they subsequently incorporated AWWF values.
354. The Commission notes that there are large variations in the AWWFs proposed by the ILECs. As submitted by Allstream et al., these variations result in differences in the corresponding capital costs.
355. The Commission notes that SaskTel's proposed AWWF measures for certain CO transmission equipment were higher in the higher-density bands. For example, SaskTel's evidence indicated that the average AWWF value for Bands A and B of its Alcatel 1603SM common equipment was approximately 10% higher than the average AWWF over the remaining Bands C to G.
356. The Commission considers that an appropriate AWWF should reflect the appropriate forward-looking average working fill measure over the economic study period. As noted in Decision 2001-238, the Commission may disallow the inclusion of spare capacity that is implicit to the use of AWWFs if it is viewed to be excessive.
357. Based on the record of this proceeding, the Commission is of the view that the ILECs will make efficient use of the capabilities of optical CO equipment to support multiple service accesses, particularly in Bands A and B.
358. The Commission considers that the demand for fibre-based access services in Bands C to G will be initially lower than in Bands A and B. However, the Commission is of the view that the ILECs can make efficient use of their optical CO equipment in these lower-density Bands by exploiting the multi-service capabilities of their selected equipment.
359. The Commission notes the difficulties facing the ILECs in estimating appropriate AWWF measures for the various types of shared fibre-related plant given the versatile nature of this equipment.
360. Based on the AWWF evidence provided by the ILECs in this proceeding, the Commission is of the view that the various ILEC transmission equipment configurations identified in the CDN cost studies are similar and generally support the efficient use of facilities. The Commission is not persuaded that AWWFs lower than those proposed by Bell Canada and Aliant Telecom are appropriate to use for determining Phase II costs with respect to CDN services in Bands A and B.

361. In light of the evidence presented concerning variances among bands, the Commission also considers it appropriate to establish minimum AWWFs for Bands A and B separately from Bands C to G.
362. The Commission further recognizes a lower average working fill factor for the fibre drop/distribution segment since it is expected to be dedicated to a building. The Commission considers that the fibre drop/distribution facility will have similar characteristics to the copper distribution facility for which AWWFs of 56%-60% were approved in Decision 2001-238. The Commission notes that in this proceeding, the fibre drop/distribution AWWFs proposed by the ILECs were much lower than the copper distribution AWWFs, reflecting lower current usage of fibre-based services compared to copper-based.
363. In light of the above, the Commission determines that the following minimum AWWF values are appropriate for cost studies which include CO optical transmission equipment, CO copper-based transmission equipment, fibre loop, fibre drop, and copper loop: (a) for CO optical and copper-based transmission equipment, minimum AWWFs of 80% for Bands A and B and 70% for Bands C to G; (b) for fibre and copper loops in Bands A and B, minimum AWWFs of 70% for Bands A and B and 60% for Bands C to G; and (c) minimum AWWFs of 50% for fibre drop/distribution in all bands.
364. In light of the above minimum AWWF values, the Commission considers that the AWWF measures proposed by Bell Canada meet or exceed the AWWF minimums, and are appropriate. However, in the case of Aliant Telecom, MTS, SaskTel and TELUS, the Commission made adjustments to the proposed AWWF values in order to comply with the use of the minimum AWWFs.

Costs causal to service

365. The ILECs proposed costs causal to service for each of the services included as part of CDN services: access, co-location links, channelization service, intra-exchange service, and metropolitan IX service. These costs include various service introduction costs (the information systems and information technology (IS/IT) costs associated with the development of, and/or modifications to, billing systems) and various service development costs such as network planning and provisioning, service assurance, and methods and procedures.

Position of parties

366. Allstream et al. submitted that SaskTel had overestimated its costs causal to service. Allstream et al. submitted that SaskTel's costs causal to service increased by more than five times from its 13 September 2002 cost study to its 20 December 2002 revised cost study. Allstream et al. further submitted that SaskTel had included CDNA repair costs in both its costs causal to service and in the maintenance cost estimates of costs causal to demand.
367. In response, Bell Canada et al. submitted that SaskTel initially developed demand estimates and related service introduction costs based on the restrictive CDNA service definition set out in Decision 2002-34. Bell Canada et al. further submitted that SaskTel's costs provided in its revised cost study reflected the expanded CDNA service definition proposed by Bell Canada in its 13 September 2002 letter, which led to a significant increase in the demand estimates and implementation costs, including a more robust process to support the Competitor Service.

368. Regarding SaskTel's inclusion of repair costs in both the costs causal to service and costs causal to demand, Bell Canada et al. submitted that none of the actual repair costs had been included in the estimates of costs causal to service. Bell Canada et al. argued that the increases in the costs causal to service resulting from the four-hour MTTR requirement pertained to process and system changes required to manage and report CDN repair activities rather than retail DNA repair activities. Bell Canada et al. noted that these changes were required in order to comply with the Commission's mandated repair time intervals. Bell Canada et al. submitted that Allstream et al.'s concerns were unfounded and should be rejected.

Commission's analysis and determinations

369. The Commission notes that for certain CDN services, the costs causal to service are large relative to the costs causal to demand, causing the per-unit costs causal to service to be high. For example, Bell Canada's proposed costs causal to service for its optical co-location link service, when unitized over the anticipated service demand, exceed the per unit costs causal to demand. The Commission therefore considers it appropriate to combine the proposed costs causal to service of all CDN services and facilities.
370. The Commission notes that, as determined in this Decision, revised rates for the copper co-location link service are not required. Accordingly, the proposed costs causal to the CDN services have been adjusted to exclude the costs causal to service proposed for the copper co-location link service.
371. The Commission considers that regardless of the CDN services ordered, a competitor will generally require one or more accesses. In light of this, the Commission considers that access is the primary demand driver. The Commission therefore considers it appropriate that the total costs causal to service for the CDN services should be recovered through the rates associated with the access service.
372. Given that the CDN services will be provided to competitors under the same tariff pages, the Commission considers that the ILECs will derive cost efficiencies in systems mechanization and implementation and has accordingly included a -10% adjustment to the relevant costs.
373. The Commission further notes that the ILECs generally assumed that the costs causal to service would be recovered over a five-year period. As the Commission expects CDN services to be in place for a minimum of 10 years, it considers it appropriate to assume a ten-year service amortization period to recover these costs.
374. Aliant Telecom, Bell Canada and MTS included costs causal to service associated with billing/order systems modifications, creation of universal service order codes (USOCs), and service development including the creation of methods and procedures. By contrast, TELUS only included service development costs in its costs causal to service. The Commission notes that TELUS' combined proposed CDN costs causal to service, when expressed on per-access basis, represented only a small part of the costs proposed by other ILECs.
375. The Commission notes that SaskTel's costs causal to service increased by about five times compared to its initial submission. The Commission further notes that SaskTel's combined proposed CDN costs causal to service, expressed on per-access basis, are higher than the other

ILECs. The Commission does not consider that the reasons given justify the cost increase proposed by SaskTel. In the circumstances, the Commission finds SaskTel's proposed costs causal to service to be inappropriate.

376. In light of the above, the Commission considers it appropriate for TELUS and SaskTel to determine CDN costs causal to service for TELUS and SaskTel based on the average of Bell Canada's, MTS' and Aliant Telecom's proposed total CDN costs causal to service, as revised to include the above-noted adjustments and as expressed on a per-access basis.

CDN access costs

Access configurations

Position of parties

377. Parties did not comment on this item.

Commission's analysis and determinations

378. The Commission notes that the ILECs proposed their CDN access services using different technologies and incorporating their own provisioning practices. The Commission further notes that these differences impact the service cost estimates, the service protection capabilities, and service restoration guarantees.
379. The Commission notes that the ILEC's proposed fibre-based CDN access service configurations do not reflect uniform levels of protection/redundancy and restoration time guarantees. The Commission considers that such differences in service levels should be specified in the tariffs in order to inform competitors.
380. Accordingly, the Commission directs the ILECs to provide the following information in their CDN tariffs, to be filed for approval as determined in this Decision, for each fibre-based CDN access service: protection status, whether included or excluded; the availability of protection upgrades; interface redundancy, whether standard or optional; the required number of optical ports and the number of customer interface ports for CO and CP equipment, and the number of fibre strands required for interconnection; and identification and description of all other service options and their rates.
381. The Commission further directs each ILEC to file for approval, within 45 days from the date of this Decision, rates, terms and conditions for any additional protection or improvement of restoration time guarantees that it intends to provide, along with supporting cost studies for each additional proposed rate element.

Access inclusive of links

Position of parties

382. Allstream et al. submitted that DNA links should be available as Competitor Services.

Commission's analysis and determinations

383. The Commission notes that each ILEC except TELUS proposed to combine the access and the link functionality because each access requires a corresponding link. In this Decision, the Commission has determined that a CDN access and its associated link are to be combined into the access service of the CDN services.
384. The Commission therefore directs TELUS to combine its link service, including its functionality and costs, with the access service to form the access component of CDN services, consistent with the approach taken by the other ILECs.

Copper-based capital costs

Position of parties

385. Allstream et al. noted that Aliant Telecom's cost estimates were generally higher than the other ILECs for DS-0 and DS-1 CO transmission equipment.
386. Allstream et al. commented that the ILECs had used two different approaches for estimating the copper loop costs associated with DS-0 and DS-1 access services. Allstream et al. observed that Bell Canada, Aliant Telecom, MTS and SaskTel estimated the cost of copper loops by imputing the unbundled loop costs for each Band using the approved unbundled loop rates, while TELUS directly estimated the copper loop costs and therefore had not complied with the costing determinations in *Issues related to imputation test methodology – Rebanding Decision follow-up*, Decision CRTC 2001-737, 29 November 2001 (Decision 2001-737).
387. Allstream et al. submitted that the Type A unbundled loop costs imputed in the CDN studies for DS-0 and DS-1 accesses reflected a combination of loop costs associated with residential and business primary exchange services (PES). Allstream et al. further submitted that CDN services were provided almost uniquely to business customers. Allstream et al. submitted that, to the extent business service loops were shorter than the Type A loops imputed in the CDN Phase II cost studies for DS-0 and DS-1 accesses, these costs would be overstated.
388. Allstream noted that MTS' proposed fibre loop costs in Band B had assumed that the average fibre loop length would be the same as the average length of a business copper loop. Allstream also noted that Aliant Telecom indicated that it had used the customer records for existing DS-1 access services to estimate the fibre lengths for DS-3, OC-3 and OC-12 accesses on the basis that these were the customers most likely to order fibre-based CDN service. Allstream concluded that both of these statements further supported the use of business loop lengths for estimating of costs for all CDN access speeds.
389. With respect to Allstream et al.'s objections to the use of imputed loop costs, Bell Canada et al. submitted that in Decision 2001-238, the Commission established rates for unbundled loops that were not service-specific. Bell Canada et al. further submitted that, in a follow-up proceeding, the Commission determined that the ILECs were required to incorporate band-average loop costs or rates, depending on the rate band, into future Phase II costing studies for retail services that relied on unbundled loops. Bell Canada et al. noted that these rules replaced the previous imputation test requirements that permitted the ILECs to utilize service-specific loop costs.

Bell Canada et al. further noted that Type A unbundled loop costs that reflected the costs of both residential and business loops were imputed by Bell Canada et al. whenever a non-forborne residential or business service that made use of a copper loop was filed with the Commission. Bell Canada et al. submitted that, when developing costs for CDN services, the same unbundled loop costs had been imputed in the CDN cost study.

Commission's analysis and determinations

390. The Commission notes that Aliant Telecom's CDN access service cost studies included economic cost factors used by Aliant Telecom to convert copper-based CO capital into monthly equivalent costs (MECs). The Commission further notes that the factors used for DS-0 accesses were significantly higher than the factors used for DS-1 accesses, and those used by other ILECs for this conversion. In the circumstances, the Commission considers it appropriate to employ Aliant Telecom's CO copper-based economic cost factors used for DS-1 accesses to determine its copper-based CO capital MECs associated with its DS-0 accesses.
391. The Commission is of the view that Bell Canada's approach of imputing the per-Band average loop costs to estimate the outside plant capital costs of its CDN DS-0 and DS-1 accesses is consistent with the Commission's earlier determinations set out in Decision 2001-737. In that decision, the Commission directed each ILEC to impute the per-Band average loop costs or rates, depending on the rate band, in order to develop future Phase II costing studies for retail local exchange services.
392. The Commission notes that by contrast, TELUS estimated the OP capital costs of its CDN DS-0 and DS-1 accesses based on specific estimates of the OP cost characteristics (e.g., construction mix and loop lengths) for those accesses. The Commission considers that these CDN accesses are more comparable to business loops rather than the average business and residence unbundled loops.
393. The Commission notes that while Allstream et al. argued that the approach taken by Aliant Telecom, Bell Canada, MTS and SaskTel of using the average business and residence loop overstated the OP costs for DS-0 and DS-1 CDN accesses, recent costing evidence filed in the proceeding initiated by *CRTC to review revised loop and primary exchange service cost filings*, Public Notice CRTC 2001-119, 30 November 2001 (Public Notice 2001-119) suggests a different conclusion. The Commission notes that the evidence in that proceeding indicated that, despite the shorter estimated business loop lengths, Bell Canada's OP costs per single-business loop were approximately the same as residence loop costs in Bands A and B, due to the different construction mix consisting of a greater proportion of underground cabling and the associated higher costs of construction and support structures.
394. The Commission further considers that either the TELUS approach or the imputed loop cost approach used by the other ILECs lead to comparable capital costs for CDN DS-0 and DS-1 accesses.
395. In light of the above, the Commission considers both approaches of estimating the Phase II cost estimates of the copper OP costs for CDN DS-0 and DS-1 access services to be acceptable.

396. The Commission notes that each ILEC determined its copper-based OP costs reflecting its own application of specific technologies and provisioning practices for each of DS-0, and DS-1 CDN accesses, resulting in differences in costing assumptions and costing issues. The Commission considers it appropriate to determine each ILEC's DS-0 and DS-1 CDN copper-based access costs based on each ILEC's provisioning practice.
397. Accordingly, the Commission finds the copper-based capital costs for CDN DS-0 and DS-1 accesses based on the ILECs' cost estimates submitted in response to the Commission's 25 July 2003 interrogatories, as adjusted to reflect the costing determinations in this Decision, to be appropriate.

Fibre-based CO capital costs

Position of parties

398. Allstream et al. raised concerns over the sizeable and unexplained differences in CO transmission equipment cost estimates for certain access speeds. Allstream et al. reasoned that these differences were likely due to the costing assumptions associated with economic lives, working fill factors and financial parameters, since equipment supplier prices and installation costs were probably similar for all ILECs, although equipment configuration could vary.
399. Allstream et al. submitted that there were instances of significant cost variations for the various access speeds among ILECs based on ILEC responses to Commission interrogatories dated 25 July 2003. Allstream et al. submitted that its comparison of CO transmission equipment costs for OC-3 and OC-12 access service illustrated cost differences among ILECs ranging up to \$1,000.00 per month.
400. Allstream et al. submitted that there were instances of cost variations across the Bands within each ILEC territory that had not been adequately explained or were inconsistent with expectations. Allstream submitted that Bell Canada's estimated costs varied significantly from Band to Band for CO transmission equipment. Allstream also noted that for the DS-3 access service, Bell Canada indicated that it had incorporated a Digital Cross Connect (DCC) in the service configurations for Bands A and B. Allstream et al. submitted that Bell Canada had not substantiated these cost increases. In Allstream et al.'s view, DCC equipment would only be incorporated into an access arrangement if it led to an overall reduction in access costs or an increase in functionality, not an increase in costs.
401. Bell Canada et al. submitted that Allstream et al.'s assumption that the transmission equipment deployed for CDNA was similar for all transmission speeds was misleading. Bell Canada et al. explained that differences in the type of equipment and the configurations of equipment across Bands as well as among ILECs could make a significant difference in transmission costs. Bell Canada et al. submitted that, contrary to Allstream et al.'s claim, the detailed costing information that it had provided by Band and transmission speed clearly demonstrated that there were valid reasons for differences in transmission costs.
402. In response to Allstream et al.'s specific comments regarding Bell Canada's CDN DS-3 access costs, Bell Canada noted that it had provided descriptions of equipment configuration changes affecting the costing results for all Bands of its proposed DS-3 access service, including the

increase in DCC requirements in Bands A and B. Bell Canada et al. added that it also specified that the DCC was not required to provision DS-3 access service in Bands C and D. Bell Canada et al. submitted that these changes resulted in transmission equipment cost increases in Bands A and B and decreases in Bands C and D.

Commission's analysis and determinations

403. The Commission notes that based on the information provided by the ILECs there were significant differences in CO optical transmission equipment cost estimates among ILECs for certain access speeds.
404. The Commission notes that, similar to the approach used to derive copper-based capital costs, Aliant Telecom's CDN access service cost studies included economic cost factors used to convert Aliant Telecom's fibre-based CO capital into MECs. The Commission further notes that the factors used for OC-3 accesses were significantly higher than those used for OC-12 accesses, and those used by other ILECs. In the circumstances, the Commission considers it appropriate to employ Aliant Telecom's CO fibre-based economic cost factors used for OC-12 accesses to determine its fibre-based CO capital MECs associated with its OC-3 accesses.
405. The Commission notes that each ILEC determined its CO optical transmission equipment costs reflecting its own application of specific technologies and provisioning practices for each of DS-1, DS-3, OC-3 and OC-12 CDN accesses, resulting in differences in costing assumptions and costing issues. The Commission considers it appropriate to determine each ILEC's CO fibre-based capital costs based on each ILEC's provisioning practice.
406. Accordingly, the Commission finds the CO capital cost estimates for CDN DS-1, DS-3, OC-3, and OC-12 fibre-based accesses based on the ILECs' cost estimates submitted in response to the Commission's 25 July 2003 interrogatories, and as adjusted to reflect the costing determinations in this Decision, to be appropriate.

Fibre-based CP capital costs

Position of parties

407. Allstream et al. submitted there were sizeable and unexplained differences in transmission equipment cost estimates for the various access speeds. Allstream et al. submitted that its comparison of CP transmission equipment costs for OC-3 and OC-12 access service illustrated cost differences among ILECs ranging up to \$1,000.00 per month.
408. Allstream et al. indicated a concern that the variety of approaches taken by ILECs to derive the cost per access for CP equipment had led to an overstatement of the cost per access. Allstream et al. noted Bell Canada's approach of unitizing CP equipment costs based on the demand at the customer site and MTS' contrasting approach of dedicating the CP equipment cost to a single customer, with no indication of unitizing the cost over a demand estimate.

409. Bell Canada et al. noted that it had provided details of CP transmission equipment configurations, including the percentage of time each configuration was used for each band, by transmission speed and for each ILEC. Bell Canada et al. submitted that, contrary to Allstream et al.'s claim, this information clearly demonstrated that there were valid reasons for differences in transmission costs among ILECs and across bands.

Commission's analysis and determinations

410. The Commission notes that based on the information provided by the ILECs there were significant differences in CP fibre-based capital costs among ILECs for certain access speeds.
411. The Commission notes that in its CDN access cost studies, MTS assumed the use of CP equipment that could support multiple units of DS-3 access demand but, contrary to the approach of other ILECs with similar CP equipment, assumed that each customer site would have a single DS-3 access demand. The Commission further notes that other ILECs such as Bell Canada assumed that their CP equipment would serve two or more DS-3 accesses in the higher-density Bands A and B. The Commission has accordingly adjusted MTS' CP unit costs associated with its DS-3 accesses in Bands A and B to reflect the assumption that the CP transmission costs would be shared by a minimum of two end-customer accesses.
412. The Commission notes that, with respect to the provisioning of CP equipment for OC-3 and OC-12 accesses, TELUS, Aliant Telecom, MTS, and SaskTel assumed that each site would be dedicated to a single unit of service, while Bell Canada assumed that the CP equipment for sites in Bands A and B would be shared over multiple end-customer OC-3 or OC-12 accesses. For example, in its access cost studies, Bell Canada assumed that its CP equipment would be shared by 2.16 units of demand in Band A and 1.26 units of demand in Band B for each of the CDN OC-3 and OC-12 accesses.
413. The Commission considers that, similar to the assumption used by Bell Canada, it would be appropriate to assume that the demand with respect to CP equipment for other ILECs should be greater than one in the higher-density Bands A and B. Consistent with this view, the Commission considers Bell Canada's multiple demand assumptions with respect to its costing of CP equipment for the CDN OC-3 and OC-12 CDN accesses to be appropriate. With respect to the other ILECs, the Commission considers it appropriate to determine the CP equipment costs for each of the CDN OC-3 and OC-12 accesses based on a minimum of 1.5 units of demand in Band A and 1.2 units of demand in Band B.
414. The Commission considers it appropriate to determine each ILEC's CP fibre-based capital costs based on each ILEC's provisioning practice, subject to the adjustments noted above.
415. The Commission notes that TELUS incorporated lower-speed interfaces in their proposed OC-3 and OC-12 service definitions. These lower-speed interfaces are currently provided under the ILECs' CP channelization services. The Commission considers that these lower-speed interfaces cause TELUS' OC-3 and OC-12 service definitions to be inconsistent with those of the other ILECs and lead to unjustified higher OC-3 and OC-12 CP capital costs.
416. The Commission accordingly denies TELUS' proposal to include lower-speed interfaces in its proposed CDN OC-3 and OC-12 access services.

417. Accordingly, the Commission finds the CP fibre-based capital cost estimates for CDN DS-1, DS-3, OC-3, and OC-12 accesses based on the ILECs' cost estimates submitted in response to the Commission's 25 July 2003 interrogatories, as adjusted to reflect the costing determinations in this Decision, to be appropriate.

Fibre-based OP capital costs

Position of parties

418. Allstream et al. submitted that the ILECs used fibre-based OP to provision CDN access services at speeds of DS-3, OC-3 and OC-12. Allstream noted that, in some instances, ILECs also provisioned DS-1 facilities over fibre. Allstream et al. claimed that there were substantial, unexplained differences among ILECs for fibre-based OP cost estimates.
419. Allstream et al. submitted that TELUS' fibre-based OP costs were significantly higher than the fibre costs of the other ILECs. Allstream et al. argued that the differences in fibre costs for TELUS could not be explained by differences in loop characteristics or installed material costs per metre of fibre. Allstream et al. further submitted that TELUS' fibre costs for its DS-3 accesses had been overstated and should be adjusted to reflect the costs reported by other ILECs.
420. Allstream et al. noted that TELUS' fibre costs reflected the use of 12-fibre cable. Allstream et al. submitted that TELUS had not indicated whether it had adjusted this 12-fibre cable cost to a per fibre cost. Allstream expressed concern regarding the possible overstatement of costs if TELUS assumed that each fibre access for CDN services made use of a 12-fibre cable since this approach ignored the fact that each fibre access only required 2 fibres and that multiple accesses could make use of the same set of fibre pairs.
421. In response, TELUS noted that it had used the costs for 12-fibre cable as a proxy for the average fibre cable cost for all of its Phase II cost studies completed for regulatory purposes during the period from 2000 to 2002. TELUS argued that this reflected TELUS' standard fibre provisioning practice and, therefore, should properly be reflected in TELUS' Phase II costs.
422. TELUS noted Allstream et al.'s submission that the Commission should adjust TELUS' fibre OP costs for DS-3 accesses and, by implication, also adjust the costs of OC-3 and OC-12 accesses to reflect the costs reported by other ILECs. In TELUS' view, this proposal was an attempt to have the Commission ignore each ILEC's specific costs and instead adopt the lowest cost on the record of this proceeding for each particular cost element. TELUS submitted that the fibre OP costs that it had used in its CDN cost studies were the proper costs to be considered by the Commission.
423. Allstream et al. noted anomalies in the OP cost per metre across Bands for some ILECs. Allstream et al. noted that Bell Canada's OP cost per metre in Band C was approximately half of the cost in Bands A and B. Allstream et al. further noted that Bell Canada increased its DS-3 OP per month costs in Bands A and B, but left the average circuit length unchanged and significantly shortened the loop length in Bands C and D, but left the monthly costs unchanged.

424. In response, Bell Canada stated that it had inadvertently misstated the loop lengths used for DS-3 service in Bands C and D, but that it had used the correct loop lengths in its revised access cost studies. Bell Canada further stated that the OP cost increases in Bands A and B resulted from equipment configuration changes that Bell Canada had addressed in its responses to interrogatories.
425. Allstream et al. noted that MTS' OP cost per metre in Band A was approximately twice the cost for Band B. Allstream et al. expected that the costs per metre would be similar across all bands. Allstream et al. submitted that it would be appropriate to use the lower cost per metre to determine OP costs in Band A.
426. In response, MTS submitted that the fibre costs per metre differed between Bands A and B because of differences in average circuit length, fibre drop length, and construction methods.
427. Allstream et al. noted that, in its initial cost study filing, Bell Canada used 1996 fibre cable costs, while in its later filings it used lower 1999 costs. Allstream et al. submitted that it would be appropriate to apply a reduction to the fibre costs from 1999 to 2002 similar to that observed from 1996 to 1999.

Commission's analysis and determinations

428. The Commission notes that the ILECs have filed cost estimates for OP facilities that reflect their application of their specific technologies and provisioning practices for each of the DS-3, OC-3 and OC-12 CDN access speeds. The Commission considers it appropriate to determine each ILEC's OP fibre-based capital costs based on each ILEC's provisioning practice, subject to the adjustments noted below.
429. The Commission notes that Bell Canada identified that there would be demand for more than one access at the customer site for its CDN OC-3 and OC-12 access services in Bands A and B, and that the OP fibre strands interconnecting the CP site to the CO would accordingly be shared. By contrast, other ILECs assumed that each customer site would have a single access for their CDN OC-3 and OC-12 access services.
430. The Commission considers Bell Canada's demand assumptions for its CDN OC-3 and OC-12 CDN accesses to be appropriate. The Commission considers that, similar to the assumption used by Bell Canada, it would be appropriate to assume that the demand with respect to CP equipment for other ILECs should be greater than one in the higher-density Bands A and B. Consistent with this view, with respect to the other ILECs, the Commission considers it appropriate to determine the costs of OP facilities between the CO and CP sites for each of the CDN OC-3 and OC-12 accesses in Bands A and B based on a minimum of 1.5 units of demand in Band A and 1.2 units of demand in Band B.
431. As noted above, the Commission also adjusted MTS' CP costs for DS-3 accesses to reflect the assumption that such costs would be shared by a minimum of two customer accesses. In the Commission's view, it would be appropriate to make the same adjustments with respect to MTS' OP costs between the CO and CP sites.

432. Accordingly, the Commission finds the OP fibre-based capital cost estimates for CDN DS-1, DS-3, OC-3, and OC-12 accesses based on the ILECs' cost estimates submitted in response to the Commission's 25 July 2003 interrogatories, as adjusted to reflect the costing determinations in this Decision, to be appropriate.

Maintenance expenses

Position of parties

433. Allstream et al. noted that in Decision 2001-238, the Commission established a cap on annual loop maintenance expense of 10% of the total unbundled loop capital costs, with the exception of remote bands.
434. Allstream et al. submitted that transmission equipment included in the cost studies consisted of digital-based equipment that required little, if any, ongoing maintenance.
435. Allstream et al. argued that, since transmission equipment represented the most significant capital component of the CDN service, when combined with the Commission's estimate of annual maintenance costs from the unbundled loop proceeding, the ratio of maintenance expense to capital cost should fall below 10%. Allstream et al. further noted that MTS' estimated ratio of maintenance to capital costs for its CDNA DS-3 access service in Band A was 3.7%, a ratio consistent with Allstream et al.'s expectations.
436. Allstream et al. noted that Bell Canada's proposed maintenance estimates for retail DNA service were 5% of capital for DS-3, OC-3 and OC-12 service, while its maintenance ratio proposed for CDN service was between the levels of 7% to 11% of capital cost. Based on MTS' estimate and Bell Canada's retail DNA estimate, Allstream et al. submitted that the Commission should adopt a maintenance cap of 5% of capital costs for CDN services.
437. Allstream et al. noted that TELUS' maintenance expense estimates for CDN services also exceeded Allstream's expectations. TELUS' estimate of monthly maintenance expense for DS-3 was \$74.31 based on 14% of capital for Band A in British Columbia versus \$21.81 per month based on 4% for MTS for Band A. Allstream et al. submitted that TELUS' higher ratio combined with TELUS' high capital cost estimates led to monthly maintenance expense estimates well in excess of other ILECs for DS-3 CDNA service. Allstream et al. also noted that Aliant Telecom's maintenance expense estimates for OC-3 service were approximately 21% of its capital costs, well in excess of the 5% level. Allstream et al. further submitted that Aliant Telecom's maintenance expense estimates for OC-12 service were in the 11% range and substantially lower than its OC-3 estimates.
438. Bell Canada et al. submitted that the maintenance costs included in the cost studies for CDN services were the costs causal to offering these services and accordingly represented the appropriate inclusions of the cost estimates for the services. Bell Canada et al. further submitted that capping these expenses, where the incremental costs were higher than the cap ceiling would result in an underestimation of Phase II costs. Bell Canada et al. submitted that, as such, the company-specific Phase II maintenance expenses should be reflected in the CDN cost studies as they reflected the company's true incremental cost.

439. With regard to Allstream et al.'s claim that Bell Canada's CDN maintenance ratio was overstated, Bell Canada et al. noted that Bell Canada's maintenance costs were developed using corporate average operating expense maintenance unit costs. Bell Canada submitted that these unit costs were based on maintenance expenses incurred by the company.
440. With respect to the comparison of maintenance ratios between services, Bell Canada argued that this comparison was not valid. Bell Canada submitted that the costs relating to retail DNA included the access, channelization and intra-exchange rate components, while its CDN service filing reflected only the access rate component.
441. TELUS explained that it generally estimated its maintenance expenses based on the direct maintenance costs, and only employed factors when sufficient service experience was not available. TELUS further explained that it estimated its maintenance expense associated with its copper loop facilities on the basis of its experience with business loops and used factors to estimate maintenance for its fibre equipment. TELUS submitted that, although TELUS' maintenance factors were actually well below the 10% cap suggested by Allstream et al. for loop or OP capital, TELUS was opposed in principle to the capping of expenses. TELUS added that the imposition of a cap did not reflect company-specific costs.

Commission's analysis and determinations

442. The Commission notes that the differences in the monthly maintenance expense per access estimates among ILECs are significant, with differences ranging by a factor of approximately three among DS-level accesses, to a factor of approximately 15 for OC-level accesses.
443. The Commission notes that in their CDN access cost studies, Bell Canada and TELUS generally developed their estimates of maintenance expenses based on their accounting results or activity-based costing data. By contrast, Aliant Telecom, MTS, and SaskTel developed their maintenance expenses estimates based on an analysis of the anticipated annual maintenance rates by major asset class. Except MTS, the ILECs proposed maintenance expenses, expressed as a percentage of capital on a present worth basis, that generally varied between 8% and 12% of the capital present worth of annual costs (PWAC) across all speeds. By contrast, MTS proposed maintenance expenses of approximately 7.7% of its copper-based capital PWAC costs and approximately 3.7% of its fibre-based capital PWAC costs.
444. The Commission notes that Aliant Telecom, MTS, and SaskTel used costing methodology that is consistent with the methodology generally used to develop expenses for use in Phase II cost studies. By contrast, TELUS, in general, and Bell Canada relied on accounting-based data. The Commission is not persuaded that, in the circumstances of this case, the use of accounting-based data reflects accurate estimates of the prospective incremental causal Phase II costs associated with the access service. For example, this method relies principally on historical data for the forecast of future estimates and does not contemplate a disaggregated analysis of forward-looking maintenance rates by asset class. In the Commission's view, the use of this costing approach in this instance, results in inappropriate maintenance expenses.
445. The Commission further notes the large and unexplained differences in the maintenance rates proposed by Aliant Telecom, MTS, and SaskTel for similar equipment classes. For example, Aliant Telecom's and SaskTel's proposed annual maintenance rates for optical transmission

equipment were more than twice the rates proposed by MTS. In light of the maintenance rates proposed by MTS, the Commission is not persuaded that the rates proposed by Aliant Telecom and SaskTel reflect efficient provisioning practices. Accordingly, the Commission considers it appropriate for the purposes of assessing the ILECs' maintenance expenses to rely on the maintenance expenses information provided by MTS.

446. In light of the large discrepancies reflected in the ILECs' maintenance cost estimates and in order to ensure that unreasonable maintenance costs are not used, the Commission considers it appropriate to apply a maintenance expense cap expressed as a percentage of the PWAC capital for the CDN service, consistent with the approach adopted in Decision 2001-238.
447. The Commission notes that the maintenance estimates provided by certain ILECs varied significantly between estimates associated with copper-based transmission plant and those for optical transmission plant. In this connection, the Commission notes that copper-based accesses are provisioned using digital transmission equipment and OP copper cabling, while fibre-based accesses are provisioned using optical transmission equipment and OP fibre cabling. Given the significant differences between copper-based and fibre-based transmission plant, the Commission considers it appropriate to apply different caps to the maintenance expenses associated with each of copper-based accesses and fibre-based accesses.
448. Based on the record of this proceeding, the Commission considers it appropriate to cap the maintenance expenses for fibre-based accesses at 4% of the corresponding PWAC capital costs, and to cap the maintenance expenses for copper-based accesses at 7.5% of the corresponding PWAC capital costs.
449. The Commission notes that unlike the other ILECs, TELUS' estimated maintenance expenses included portfolio expenses as defined by the company. In recognition of this different costing approach, the Commission considers it appropriate at this time to adjust TELUS' maintenance expense cap to reflect the inclusion of these expenses.

Other functional operating expenses

Position of parties

450. The competitors generally submitted that a number of other functional operating expenses (FOEs) proposed by the ILECs for the access component of the CDN services, were excessive.
451. Bell Canada et al. argued that the competitors had failed to justify their view that FOEs were excessive. Bell Canada et al. submitted that the time estimates for various activities included in the CDNA cost study were either based on Bell Canada et al.'s experience with similar services or based on actual expense data. Accordingly, Bell Canada et al. submitted that the expenses were reasonable and appropriate for inclusion in their cost studies.

Commission's analysis and determinations

452. The categories of FOE expenses other than maintenance expenses related to the access service included as part of CDN services primarily include service provisioning, sales management and billing, and other expenses.

453. The Commission notes that Bell Canada developed its CDN access FOE estimates based on the activity costs allocated to the retail DNA service using the activity-based costing (ABC) 2001 expense results. The detailed retail DNA activities captured in the CDN access cost study included service provisioning activities such as handling non-billing inquiries and disconnecting digital accesses, and sales management activities such as selling products/services, handling billing inquiries, collection and billing systems development. The Commission notes that several of the above-mentioned FOE activities related to billing, non-billing inquiries and sales management are applicable to the retail service only. In the Commission's view, this will lead to an overstatement of the competitor CDN access FOEs.
454. The Commission also notes that Bell Canada determined its portfolio expenses explicitly and included this expense in the FOE category under the line Item Expense - Other. By contrast, Aliant Telecom, MTS and SaskTel assumed no portfolio expenses in their cost studies, while TELUS' portfolio expenses were captured under each FOE line entry. The Commission further notes that Bell Canada's proposed monthly total FOE per access excluding portfolio expenses in Bands A to F were estimated to be less than \$8.00 for its DS-0 accesses and greater than \$10.00 for its higher-speed accesses.
455. The Commission also notes that TELUS stated that its CDN access service expenses causal to demand under the line item, Expense – Other were primarily based on FOEs developed using 2001 actual costs for sales and marketing and group B labour expenses associated with the capital labour component of local business service. The Commission considers that some of the sales and marketing expenses associated with the local business service are retail in nature, which, in the Commission's view, will lead to an overstatement of the competitor CDN access FOEs. The Commission notes that TELUS' proposed monthly total FOE per access was estimated to be greater than \$12.00 for its DS-0 accesses and less than \$7.00 for its DS-3, OC-3 and OC-12 accesses.
456. The Commission notes that most ILECs developed their 2003 FOE unit cost estimates by applying their retrospective annual net increase factors to their 2001 or 2002 unit expenses to restate them to current 2003 unit costs. For example, under Bell Canada's proposal, its expense increase factors, net of productivity, were estimated to be positive for each of the years 2002 and 2003. In the Commission's view, this approach will overstate costs since, as determined in this Decision, the current 2003 FOE estimate should be no greater than the historical FOE estimate.
457. The Commission also notes several large and unexplained discrepancies in the proposed per access monthly FOE levels across ILECs and across accesses of varying speed. For example, the ILECs' proposed monthly total FOEs were observed to be as low as \$2.73 per access and as high as \$141.12 per access depending on the ILEC and access speed. The Commission further notes that Bell Canada's and Aliant Telecom's FOE forecasts showed that the per access monthly total FOEs generally increased at the higher access speeds, while the FOEs of TELUS, MTS and SaskTel remained constant or declined slightly as the access speed increased. The Commission further notes that no explanations were provided by Bell Canada or Aliant Telecom to justify why FOEs excluding portfolio expenses would be expected to increase as the access speed increases.

458. In light of the above, the Commission considers it appropriate to cap the monthly total FOE, including portfolio expenses, at \$8.00 per access for each ILEC, each access speed and each of Bands A to F. The Commission notes that this cap is consistent with the approach adopted in Decision 2001-238 which capped the FOE associated with residential primary exchange service.
459. The Commission further notes the generally higher monthly FOE estimates per access proposed for each ILEC's remote Band G. In light of the higher FOE expenses proposed for Band G, the Commission considers it appropriate to cap the monthly total FOE level in Band G at \$12.00 per CDN access for each ILEC and each access speed.

Other CDN services costs

Co-location link costs

Position of parties

460. The Commission received comments from Allstream Corp. on behalf of itself and Call-Net Enterprises Inc. (collectively, Allstream et al.) dated 30 September 2003 on the record of Tariff Notice 6621A, as well as in its final comments in this proceeding.
461. Bell Canada, TELUS, Aliant Telecom, MTS and SaskTel submitted that the capital costs causal to demand reflected the installed cost of the optical cable running between the co-located competitor and the ILEC's fibre distribution facility, and the cost of terminating the optical co-location link.
462. Bell Canada, TELUS, Aliant Telecom, MTS and SaskTel submitted that expenses causal to demand reflected the ongoing maintenance costs associated with the installed capital and other expenses, for example, service provisioning and sales management. SaskTel further submitted that maintenance costs for all capital items were developed based on a percentage of plant in service method. SaskTel estimated its maintenance costs to be 5% of the capital causal to demand.
463. Allstream et al. noted the Commission's statement in Order 99-1201 and Decision 98-22, that recurring maintenance costs for connecting links were minimal.
464. Allstream et al. submitted that the Phase II cost studies filed in this proceeding in support of Bell Canada's proposed copper and optical co-location link service rates contained components for which Bell Canada had not provided any substantive explanation.
465. Allstream et al. submitted that the copper and optical co-location link services were provisioned using connecting cables and related hardware and did not require any electronic components, resulting in little on-going maintenance. Allstream et al. submitted that if maintenance costs were estimated using company wide factors that incorporated the maintenance of plant facilities outside of the CO, this approach would lead to an over-estimation of costs.
466. Allstream et al. submitted that Bell Canada et al.'s assumptions regarding the non-fungibility and life of copper and optical co-location link facilities were inappropriate and would result in an overstatement of the Phase II monthly costs for co-location links. Allstream et al. submitted further that as an alternative, each ILEC could use pre-fabricated cables, in lengths greater than

were initially needed, in the provisioning of the co-location link service. Allstream et al. submitted that this alternative would permit these pre-fabricated cables to be re-used, resulting in an efficient alternative to the custom cable solution.

467. Bell Canada et al. submitted that the ILECs should not be required to provision higher bandwidth, such as DS-3, OC-3 and OC-12, optical co-location links in advance of the CLECs ordering access circuits to avoid the needless installation of non-revenue generating facilities.
468. In response to Bell Canada et al.'s comment, Allstream et al. argued that the competitors' co-location links should be provisioned in advance because a competitor could not order co-location access arrangements without providing a co-location link assignment to the ILEC. Allstream et al. further argued that ILECs would be fully compensated for the costs of provisioning co-location links.
469. With respect to Allstream et al.'s comments regarding the fungibility of co-location links and the use of pre-fabricated cables, Bell Canada et al. submitted that the co-location links could not be re-used since the cables were pre-fabricated to meet the specific distance requirements of the original co-locator.
470. With respect to Allstream et al.'s claim that the capital costs causal to demand for Bell Canada's co-location links were higher than other ILECs' and therefore incorrect, Bell Canada et al. submitted that each ILEC had different labour rates supplier prices and network configurations, all of which resulted in different capital costs.
471. Bell Canada et al. submitted that co-location link maintenance costs were adjusted to remove activities that did not apply to cable placed within the CO. Bell Canada et al. submitted further that variations in maintenance costs across ILECs reflected not only differences in the capital costs for links but also in CLEC-specific maintenance factors applied to those capital costs.

Commission's analysis and determinations

472. As previously noted, the Commission has determined that the approved copper co-location service rates remain appropriate for CDN services and other competitor services. Accordingly, the Commission's analysis and determinations with respect to CDN co-location link costs set out below are limited to the ILECs' proposed optical co-location link service.
473. The Commission notes that the Phase II cost estimates for the optical co-location link service proposed in this proceeding showed significant differences across ILECs. These differences were in part due to several differences in costing assumptions, including link length, standard size of optical cable deployed, AWWF values associated with the optical cable, installed cost of the optical cable and the type and size of the associated optical termination equipment.
474. The Commission notes further that the proposed monthly rates for optical co-location links included service introduction costs directly related to billing system and other related modifications deemed necessary to provide a monthly recurring rate structure. The Commission notes that, as discussed above, service introduction costs have been excluded from the optical co-location link costs and have been transferred to the CDN access service component for cost recovery purposes.

475. Given the Commission's determinations, provided later in this Decision, to adopt SaskTel's co-location interconnection arrangement proposal, the Commission has used SaskTel's proposed optical co-location link service cost estimate for each ILEC's optical co-location link service.
476. Accordingly, the Commission has determined the optical co-location link service costs for each ILEC based on SaskTel's 29 August 2003 cost estimate, as adjusted to reflect the costing determinations in this Decision, and using a maximum cable length of 50 metres, consistent with Decision 98-22.

Intra-exchange and channelization costs

Position of parties

477. Allstream et al. submitted that although its comments were focused on the cost studies for CDNA access and co-location links, its comments were equally applicable to the cost estimates for other components including CDNA channelization and intra-exchange service. Allstream et al. submitted that the Phase II cost estimates for these other CDN services should similarly be adjusted to ensure that the rates for these services reflected the appropriate costs of providing these services.

Commission's analysis and determinations

478. The Commission notes that in this proceeding, in addition to filing CDNA access service cost studies, the ILECs provided cost studies for their intra-exchange and channelization services in response to Commission interrogatories.
479. The Commission notes that adjustments were made to reflect the costing determinations in this Decision. In addition, the Commission has made the following adjustments as set out below with respect to the proposed costs for the channelization and intra-exchange components of CDN services:
- for 2003 expense costs that relied on the use of historical expense unit costs, the historical unit costs were used as proxies for 2003 expense unit costs, under the assumption that the historical expense increase factors were offset by matching efficiency improvements;
 - for optical transmission capital costs that relied on the use of historical capital unit costs, for Aliant Telecom, Bell Canada and SaskTel, the proposed 2003 optical transmission unit costs were adjusted to reflect the current 2003 material supplier prices;
 - for MTS and TELUS, the historical optical transmission capital unit costs were restated in 2003 current dollars by applying a net cost reduction of 6% per year;
 - for copper-based transmission capital unit costs that relied on the use of historical unit costs, the historical copper-based transmission capital unit costs were restated in 2003 current dollars by applying a net cost reduction of 6% per year; and

- for fibre cable capital costs that relied on the use of historical unit costs, the proposed 2003 unit costs were adjusted to reflect the current 2003 material supplier prices.

480. Accordingly, the Commission finds that the cost estimates for the CDN channelization and intra-exchange service proposed by the ILECs in response to the Commission's 25 July 2003 interrogatories, with the adjustments identified above, are appropriate.

IV Rates

481. This section sets out the rates for CDN services. These include the accesses, co-location connecting links and other CO connecting links, intra-exchange, channelization and metropolitan IX services.

482. This section first deals with a request by Bell Canada et al. to approve rates for CDN services for Aliant Telecom, MTS and SaskTel on an interim basis only.

Bell Canada et al.'s interim CDN rates proposal

Position of parties

483. Bell Canada et al. noted that the cost studies filed by Aliant Telecom, MTS and SaskTel in this proceeding did not include portfolio expenses and were inconsistent with the determinations of Decision 2002-67. Bell Canada et al. submitted that, in light of Decision 2002-67, as long as the Commission deemed it appropriate to include portfolio costs in Phase II cost studies, these costs should be considered in the setting of the final CDNA service rates. Bell Canada et al. requested that the Aliant Telecom, MTS and SaskTel CDNA tariffs remain in effect on an interim basis, pending the development of reliable methods to incorporate portfolio costs into the Phase II cost estimates underlying the tariffed rates.

484. Bell Canada et al. also noted that the other CDNA-related cost studies filed by Aliant Telecom, MTS and SaskTel in this proceeding did not reflect the inclusion of portfolio costs. Bell Canada et al. further submitted that should the Commission direct the ILECs to issue competitor-specific tariffs for these services, such rates for Aliant Telecom, MTS and SaskTel should be made interim, pending the development of processes to incorporate portfolio costs into the Phase II cost estimates.

485. Allstream et al. submitted that it did not support the inclusion of portfolio costs in the development of CDNA or co-location link service rates. In addition, Allstream et al. submitted that further delaying the finalization of the CDNA and optical connecting link rates as proposed by Bell Canada et al. would also be inappropriate and argued that this request should be denied.

Commission's analysis and determinations

486. As previously noted, the Commission considers that the inclusion of portfolio expenses in the CDN costs will ensure that these expenses are appropriately recognized in a consistent manner by each ILEC.

487. The Commission notes that the resolution of the issue of reflecting consistent levels of portfolio expenses in Phase II studies among all ILECs would require an in-depth examination of each ILEC's categorization of numerous expense types. In addition to the examination of portfolio expenses, the Commission would need to consider each ILEC's categorization of direct and indirect expenses, variable common expenses and fixed common expenses. Moreover, this examination would require a full understanding of the current ILEC differences in the functional operating expense definitions, databases and methods used to estimate Phase II expenses.
488. The Commission notes that Bell Canada et al.'s proposal to finalize CDN service rates only after a review of the processes to incorporate portfolio expenses in Phase II cost studies for Aliant Telecom, MTS and SaskTel, would unduly delay the final approval of the CDN service rates applicable to those ILECs. In the circumstances, the Commission considers that it would not be appropriate to approve the CDN service rates for Aliant Telecom, MTS and SaskTel on an interim basis only.

General CDN rate considerations

Position of parties

Category I and II rates

489. The competitors generally submitted that all of the components normally provided under the ILECs' retail DNA service, including non-forborne IX digital channels, should be made available under the final CDNA tariff. They generally argued that, consistent with the Commission's interim CDNA ruling, all components of the final CDNA tariff should be priced on the basis of Phase II costs plus a 15% mark-up, consistent with Category I Competitor Service prices.
490. LondonConnect submitted that the interim CDNA classification resulting from Decisions 2002-34, 2002-78 and 2003-60 of certain customer accesses used by entrants as Category I services be modified to exclude OC-level customer accesses. LondonConnect also submitted that carrier accesses and intra-exchange facilities should only be made available at Category I rates in certain situations. LondonConnect further submitted that there was no justification for treating non-forborne IX facilities between points in metropolitan/EAS areas as Category I services. LondonConnect also submitted that in certain situations, for example where a competitor was not co-located in a wire centre, channelization of facilities eligible for CDNA in that wire centre could only be economically or efficiently provided by the ILEC, and would thus be a Category I service. LondonConnect submitted that in other cases, channelization should be available at retail DNA rates.
491. In its comments, Bell Canada et al. argued that the interim CDNA rates established by the Commission in Decision 2002-78 were not appropriate. Bell Canada et al. submitted that Decision 2002-78 inappropriately classified the CDNA access service as a Category I Competitor Service, and as a result the rates for the CDNA service reflected inappropriate levels of mark-up. Bell Canada et al. further submitted that, if the Commission concluded that a requirement continued to exist for the CDNA service, the CDNA service should be classified as a Category II Competitor Service, and at a minimum, the access components in Bands A and B and in Band C for Bell Canada should be priced at rates equivalent to retail DNA service rates.

492. In its comments, TELUS submitted that the channelization and intra-exchange components of TELUS' DNA tariff as well as digital IX transport were not essential or near-essential facilities in any Band of its serving territory, and that they should not be made available as Category I services. TELUS requested that the Commission make an explicit finding that its access and link components were not essential facilities to ensure that these components would be included in TELUS' retail imputation tests at Phase II cost without mark-up.
493. In its reply comments, TELUS submitted that while it recognized in its initial comments that the Commission had already determined that CDNA access and link were Category I Competitor Services, evidence on the record of the proceeding had raised doubt as to this Competitor Service classification. TELUS further submitted that if CDNA access and link remained as Competitor Services, they should be designated as Category II services and be priced at market rates in Bands A and B at a minimum.

Co-location link services

494. Allstream et al. noted that Bell Canada et al. proposed to change the rate structure of the optical co-location link service as well as the copper co-location link service from a one-time charge rate structure to a monthly recurring rate structure.
495. Allstream et al. noted that the Commission approved the use of one-time charge rates for the copper co-location link service in Decision 98-22, and approved rates for the co-location link service in Order 99-1201, which had been subsequently modified as a result of Decision 2002-34.
496. Allstream et al. submitted that the monthly rating approach proposed by Bell Canada et al. was contrary to the established Commission precedent and completely ignored the fact that virtually all of the costs associated with the co-location link service were installation-related and were incurred on a one-time basis. Allstream et al. further submitted that the one-time IS/IT development costs and the related methods and procedures were associated with billing. Allstream et al. submitted that competitors should not be forced to pay a higher rate for a service simply to be billed monthly instead of one-time as currently was the practice.
497. Allstream submitted that the proposed charges would result in excessive and inflated rates well beyond those appropriate for a Category I service. Allstream et al. requested that the Commission deny Bell Canada et al.'s proposed change from a one-time service charge rate structure to a monthly recurring rate structure.
498. Bell Canada et al. submitted that in Decision 2002-34, the Commission determined that CDNA service was to include provisioning of facilities that could be terminated on competitors' co-located equipment and that these specific configurations required that the co-location links be available to competitors at speeds of DS-1, DS-3, OC-3 and OC-12.
499. Bell Canada et al. noted that in *Optical link arrangements*, Telecom Order CRTC 2003-450, 7 November 2003 (Order 2003-450), the Commission indicated that Bell Canada's optical link service was an important feature that would be used by competitors in conjunction with the existing OC-3 and OC-12 CDNA service, and accordingly, approved, on an interim basis, Bell Canada's optical co-location link service proposed in Tariff Notice 6621 on the basis of a one-time charge, consistent with the approved copper co-location link service.

500. Bell Canada et al. submitted that where currently available, the co-location links were provided on a one-time charge basis. However, Bell Canada et al. submitted it did not consider that the one-time charge was an appropriate rate structure.
501. Bell Canada et al. submitted that the one-time charges currently applicable for copper co-location links established by the Commission in Order 99-1201 were insufficient to adequately compensate Bell Canada for the costs it incurred in provisioning these copper CO links.
502. Bell Canada et al. submitted that the competitors were misguided in their claims that the adoption of monthly rates instead of one-time service charges would result in rates at a level well beyond those appropriate for a Category I service. Bell Canada et al. submitted that rate levels for Category I services were to be determined based on Phase II costs plus the regulated mark-up. Bell Canada et al. added that the determination as to whether specific rates were appropriate for a given Category I service was not made on the basis of the rates being represented by one-time service charges versus monthly rates.

Commission's analysis and determinations

CDN rates for Category I services

503. Rates for Category 1 services are determined based on Phase II costs plus a 15% mark-up. As determined in this Decision, the Category 1 services are CDN DS-0 and DS-1 accesses, co-location connecting links and other CO connecting links.
504. Subject to paragraph 505 below, the Commission approves on a final basis, effective the date of this Decision, for each ILEC, the CDN DS-0 and DS-1 monthly access rates, set out in Tables 1 and 2, respectively, of Appendix 1 to this Decision. As determined in this Decision, by contrast with other ILECs, SaskTel's CDN DS-0 and DS-1 access rates apply to new competitor demand only. The Commission notes that these approved rates reflect the ILECs' cost estimates submitted in response to the Commission's 25 July 2003 interrogatories, as adjusted to reflect the costing determinations in this Decision, and the application of the I-X pricing constraints for the period preceding the date of this Decision, plus a 15% mark-up.
505. Except for SaskTel, with respect to the CDN DS-0 and DS-1 access and link arrangements that were the subject of the interim CDNA service, the rates are effective 1 June 2002. For the period preceding the date of this Decision, the approved rates for CDN DS-0 and DS-1 accesses are to reflect the application of the I-X pricing constraints applicable to the year in question.

Copper co-location links

506. The Commission notes that Bell Canada et al. proposed to change the current one-time service charge rate structure for the copper co-location link services to a recurring monthly rate structure. By contrast, TELUS did not propose to change its one-time service charge rate structure for the service.

507. The Commission notes that the monthly rates for copper co-location links proposed in this proceeding included service introduction costs directly related to billing system and other related modifications necessary to convert from a one-time service charge rate structure to a monthly recurring rate structure.
508. The Commission is of the view that, if a monthly recurring rate structure for copper co-location link arrangements were to replace the current one-time service charge rate structure, the competitors' rates for the use of these facilities would unnecessarily increase as a result of the additional service introduction costs caused by the change in the rate structure.
509. The Commission further notes that based on current provisioning practices, each copper co-location link that is provided to a co-located competitor is secured in cable racks and dedicated to that competitor. Therefore, the Commission considers that the current approach, which treats copper CO links as non-fungible and recovers the associated costs through an up-front one-time charge, remains appropriate.
510. Accordingly, the Commission denies Bell Canada et al.'s proposal to adopt monthly recurring rates instead of the current one-time charges for the ILECs' DS-1 and DS-3 copper co-location links.
511. The Commission directs that the CDN tariffs to be issued pursuant to this Decision state that the copper co-location link tariffs are incorporated by reference.

Optical co-location links

512. The Commission notes that it approved Bell Canada's proposed optical co-location link one-time charge on an interim basis in Order 2003-450, consistent with the one-time charge rate structure approved for copper co-location link tariffs.
513. The Commission notes that while Bell Canada et al. is proposing to change the current one-time charge rate structure to a recurring monthly rate structure for the optical co-location link service in this proceeding, very little justification has been provided for this proposed change with the exception of SaskTel.
514. The Commission notes that each ILEC, except SaskTel, assumed that the optical cable facilities used to provision optical co-location links would, similar to the copper co-location links, be customized and dedicated to each co-locator, would not be easily reusable for other service applications, and thus deemed to be non-fungible.
515. By contrast, in response to Commission interrogatories, SaskTel indicated that its current policy was to establish "co-locate rooms" in wire centres where co-location occurred. SaskTel characterized its co-locate rooms as dedicated interconnection points in which its cable facility entered a space controlled by SaskTel at which point SaskTel's cable was interconnected to a panel accessible from the space controlled by its co-located competitors. SaskTel submitted this arrangement permitted it to physically connect its portion of an optical co-location link to the panel in the co-locate room without the need for the co-located competitor to be present. SaskTel submitted further that the co-located competitor could then complete the circuit within its own space at its convenience.

516. SaskTel argued this meant that all optical co-location link facilities would be fungible since they would not be dedicated to a given co-located competitor. SaskTel submitted that it did not consider it appropriate to establish the rates for optical links based on a one-time charge since all capital components required to provide the service would be fungible.
517. The Commission is of the view that SaskTel's proposed optical co-location link provisioning solution for co-located competitors is preferable to the solutions proposed by the other ILECs for the following reasons. In the Commission's view, SaskTel's proposed solution will:
- permit the ILEC to interconnect the ILEC portion of an optical co-location link without requiring the co-locator to be present;
 - reduce the ILEC provisioning, engineering and installation costs when compared to the costs associated with provisioning a single optical co-location connecting link;
 - reduce the provisioning intervals for the competitor as the ILEC will likely provision the links in multiple quantities when competitor demand is present;
 - allow the ILEC to optimize the use of optical facilities between itself and the competitors in each co-location-based on forecasted demand; and
 - allow the co-located competitor to interconnect with additional ILEC unbundled services at its convenience.
518. The Commission further considers that SaskTel's proposed optical link arrangement will allow CO links to be re-used and therefore extend the life of the associated plant. The Commission also notes that no objections were raised regarding SaskTel's proposed provisioning solution for the optical co-location link service. In light of this, the Commission considers it appropriate to adopt, for each ILEC, SaskTel's proposed co-location optical link arrangement and a monthly rate structure for this service.
519. The Commission is of the view that the CDN optical co-location link service should be made available to competitors for use with services, other than the CDN services, that use an optical co-location link service. Accordingly, the Commission determines that the CDN optical co-location link service be made available for use with other competitor services that require the use of an optical co-location link.
520. The Commission notes that the monthly rate of \$12.20 for the co-location optical link service component of the CDN services determined in this Decision reflects SaskTel's 29 August 2003 monthly cost estimates, as adjusted to reflect the costing determinations in this Decision, and the application of the I-X pricing constraints for the period preceding the date of this Decision, plus a 15% mark-up. In the Commission's view, under SaskTel's proposed optical co-location link arrangement, this rate will provide adequate compensation of the associated service costs for each ILEC at each optical transmission speed.

521. The Commission therefore approves on a final basis the CDN optical co-location link monthly service rate of \$12.20 for each ILEC and each optical transmission speed, effective the date of this Decision. Each ILEC's tariff pages for this service are to reflect a link interconnection arrangement that is comparable to SaskTel's proposed model. The Commission further notes that under this arrangement the proposed reference to the term "co-located room(s)" should be modified by the term "co-locate area(s)" to permit additional flexibility in the implementation of this co-location link arrangement.
522. The Commission notes that the current optical co-location link service was approved on an interim basis for Bell Canada only in Order 2003-450. The Commission notes further that co-located competitors that have acquired optical co-location links under this interim rate arrangement would have paid up-front for these links through a one-time service charge. The Commission considers it impractical to apply the new optical co-location link monthly rate retroactively to the current optical co-location links given the dedicated nature of these link arrangements and given that such links have already been recovered fully through the one-time charges.
523. However, the Commission finds that on a retroactive basis, Bell Canada's one-time charge of \$2,733.26 for the current optical co-location link service should be revised to reflect the costing determinations in this Decision, plus a 15% mark-up. The adjustments to Bell Canada's proposed optical co-location link costs include: (a) the use of a CO link length of 50 metres, consistent with Decision 98-22, (b) capping of maintenance expenses to 4% of the associated capital, consistent with the maintenance caps established in this Decision; (c) use of the imposed minimum AWWF values set out in this Decision; (d) the exclusion of the costs causal to service; and (e) the inclusion of Bell Canada's portfolio expense factor. The resulting one-time charge for Bell Canada's optical co-location link based on the revised cost plus a 15% mark-up is \$1,868.00.
524. Accordingly, the Commission determines that the one-time charge for Bell Canada's optical CO link should be revised to \$1,868.00, and that this new rate be applied on a retroactive basis to Bell Canada's customers that have acquired optical co-location links for the period 7 November 2003 to the date of this Decision. The Commission determines further that, effective the date of this Decision, all new optical co-location links are to be provisioned using the optical co-location link CDN service.

Other CO connecting link services

525. The Commission further notes that separate copper-based CO connecting links, also classified as Category I services, may be required in certain service configurations that involve competitor requests for links between the following CDN services: intra-exchange, metropolitan IX and channelization. The Commission therefore directs each ILEC to file for approval, within 45 days from the date of this Decision, rates for this CO connecting link service, with a supporting cost study.

CDN rates for Category II services

526. Rates for Category II services are determined based on Phase II costs plus variable mark-ups. As determined in this Decision, the Category II services are DS-3, OC-3 and OC-12 accesses, intra-exchange, channelization and metropolitan IX.

527. Subject to paragraph 528 below, the Commission approves on a final basis, effective the date of this Decision, for each ILEC, the CDN DS-3, OC-3 and OC-12 monthly access rates, set out in Tables 3, 4, and 5, respectively, of Appendix 1 to this Decision. As determined in this Decision, by contrast with other ILECs, SaskTel's CDN DS-3, OC-3 and OC-12 monthly access rates apply to new competitor demand only. The Commission notes that these approved rates reflect the ILECs' cost estimates submitted in response to the Commission's 25 July 2003 interrogatories, as adjusted to reflect the costing determinations in this Decision, plus the appropriate mark-ups.
528. Except for SaskTel, with respect to the CDN DS-3, OC-3 and OC-12 access and link arrangements that were the subject of the interim CDNA service the rates are effective 1 June 2002.
529. The Commission approves on a final basis, effective the date of this Decision, for each ILEC, the CDN intra-exchange and channelization monthly rates, set out in Table 6, and Tables 7 to 12, respectively, of Appendix 1 to this Decision. As determined in this Decision, by contrast with other ILECs, SaskTel's CDN intra-exchange and channelization monthly service rates apply to new competitor demand only. The Commission notes that these approved rates reflect the ILECs' cost estimates submitted in response to the Commission's 25 July 2003 interrogatories, as adjusted to reflect the costing determinations in this Decision, plus the appropriate mark-ups.
530. The Commission approves on a final basis, effective the date of this Decision, for each ILEC, the CDN metropolitan IX monthly rates, set out in Table 13 of Appendix 1 to this Decision. As determined in this Decision, by contrast with other ILECs, SaskTel's CDN metropolitan IX monthly service rates apply to new competitor demand only. The Commission notes that these approved rates reflect the ILECs' retail IX mileage-based rates for adjoining exchanges, less 50%.

Allstream's fixed margin proposal

Position of parties

531. Allstream requested that the Commission approve a fixed margin between retail DNA service rates and CDNA service rates by linking the rate structure for the CDNA service to the incumbents' retail service equivalents. Allstream submitted that, without some form of linkage between the rate structures for the two services, the ILECs would be able to reduce margins available to competitors.
532. Allstream submitted further that the ILECs have the flexibility to reduce retail DNA service rates under the current price cap regime, while any CDNA rate reductions that may be required would be minimal, if not non-existent. Allstream submitted that, where an ILEC proposed significant reductions in retail DNA service component rates, but none to the CDNA service rates, there should be a requirement to file an updated DNA service Phase II cost study.
533. Bell Canada et al. submitted that there was already a regulatory requirement to file Phase II cost studies in support of such proposed rate changes.

534. TELUS submitted that the Commission has previously denied Allstream's proposal for a fixed margin between retail DNA and wholesale CDNA rates in *TELUS Communications Inc. – 2002 Annual price cap filing*, Telecom Decision CRTC 2003-18, 18 March 2003 (Decision 2003-18), and should reject it in this proceeding.

Commission's analysis and determinations

535. In Decision 2003-18, the Commission considered that AT&T Canada's request to establish a link between price reductions to services with retail and wholesale counterparts was inconsistent with Decision 2002-34. The Commission notes that retail and competitor DNA services fall into separate service baskets, and are subject to different pricing constraints. The Commission further notes that Competitor Service rates are typically based on Phase II costs plus prescribed mark-ups and are not subject to the overall price cap formula.
536. The Commission finds that the circumstances under which AT&T Canada's request in Decision 2003-18 was denied exist with respect to the request in this proceeding. Accordingly the Commission denies Allstream's request to approve a fixed margin between retail DNA and CDN service rates. The Commission notes, however, that any future ILEC retail DNA repricing requests will be examined to ensure that CDN service rates would remain just and reasonable if requested retail rate changes were approved.

Service order charges

Position of parties

537. Allstream et al. expressed concern over the different levels of service order charges proposed by each ILEC, and submitted that in certain instances the proposed CDNA cost estimates exceeded that of the retail service order charges. Allstream et al. noted that this wide variation in service order cost estimates may be due to the proposed time estimates associated with service connection activities, and the use of retail cost estimates in lieu of competitor cost estimates. Allstream et al. submitted that since the CDNA service was a Competitor Service it was unlikely that the service order activities and associated costs would be similar to those of a retail service. Allstream et al. noted that Bell Canada had assumed that order processing costs for the CDNA service were the same as the retail DNA service. Allstream et al. submitted that this assumption was erroneous as Competitor Service orders were handled through the ILEC's Carrier Services Group (CSG) and not through its retail Business Office.
538. Allstream et al. submitted that SaskTel had explicitly estimated the service order costs for the CDNA service, and therefore considered the explicit cost approach superior to the adaptation of DNA service order costs because explicit costing reflected the unique characteristics and service requirements of competitors. Allstream et al. submitted further that it agreed with SaskTel's explicit cost approach and suggested that it would be appropriate to adopt SaskTel's estimated service order costs for the other ILECs. Allstream et al. also submitted that the CDNA service order charges should not exceed the service order charges applicable to the comparable retail DNA service.

539. Bell Canada et al. submitted in its reply comments that the difference in service order costs across ILECs reflected the difference in company processes and labour rates. Bell Canada et al. noted that, in response to Commission interrogatories, extensive detail had been provided on the activities reflected in the service order costs, including both time estimates and labour rates. Bell Canada et al. submitted further that the service order processes, identified in the interrogatory responses, reflected each ILEC's specific ordering and provisioning practices.
540. Bell Canada et al. submitted that with regard to the activities which had been included in the ILECs' CDNA service order charge cost studies, SaskTel had included only those activities related to receiving and processing an order, while Aliant Telecom, Bell Canada and MTS had similar order processing activities plus the activities related to the installation and activation of a CDN access circuit. Bell Canada et al. suggested that SaskTel had taken this approach because the costs associated with the installation and activation of a circuit had been capitalized and included in their calculation of the access costs. Bell Canada et al. noted that Aliant Telecom, Bell Canada and MTS did not capitalize these costs and had therefore included them in the calculation of the service order costs.
541. Bell Canada et al. noted that the comparison of CDNA service order costs by Allstream et al. was misleading. Bell Canada et al. pointed out that Bell Canada's costs were expressed as a cost per order, whereas SaskTel's service order cost estimates were on a per circuit basis, and as such, the conclusions drawn by Allstream et al. were not valid.
542. Bell Canada et al. claimed that for Bell Canada, the process required for retail DNA was considered a good proxy for the CDNA service. Bell Canada et al. submitted that, for example, while it was true that CDNA service orders were handled through each ILEC's CSG and not the retail business office group, the time taken to process the order was the same. Furthermore, Bell Canada et al. explained that SaskTel did not have current cost information available for its retail DNA service order processes, and as a result, SaskTel undertook a CDNA-specific cost study because this approach was considered the most efficient means available to develop cost estimates for CDNA service order charges.

Commission's analysis and determinations

Service order charges: access

543. The Commission notes that the ILECs proposed a wide range of service order cost estimates for their CDN access service. The Commission analyzed the various service order cost inputs for both consistency and completeness. The Commission found inconsistencies in both the approach used to recover service order costs and in the time estimates required to perform similar service order activities across the various access speeds and among ILECs.
544. The Commission is of the view that a consistent approach in developing service order costs is preferred, where all service order cost elements are consistently included in the service order charge tariff and not partially captured in other tariffs. The Commission notes that SaskTel's proposed service order costs were significantly lower than those of the other ILECs. The Commission notes that the approach SaskTel used to recover service order costs differed from the approach used by other ILECs. SaskTel's service order cost component included the activities

associated with project management and co-ordination, service representative activities, and order tracking, but excluded fieldwork activities and costs, which were to be captured in their proposed monthly recurring CDN access service.

545. Accordingly, the Commission finds it appropriate to transfer SaskTel's fieldwork activity costs from the access cost studies to the service order charge tariff component consistent with the other ILECs. However, the Commission notes that SaskTel did not specifically identify its fieldwork activity costs in its monthly recurring CDN access cost studies. The Commission has accordingly relied on the average service order costs of the other ILECs to estimate SaskTel's total service order costs. In the Commission's view, use of these ILEC-average service order costs will allow SaskTel to recover the same level of service order costs as other ILECs and will further establish a benchmark of the costs to be excluded from SaskTel's monthly recurring CDN access cost studies.
546. The Commission notes that by contrast with the other ILECs, Bell Canada's time and cost estimates for DS-1 accesses were significantly higher than DS-0 accesses. The Commission considers these time and cost differences for service order activities involving comparable access facilities to be inappropriate. Accordingly, the Commission relied on Bell Canada's forecasted time and cost estimates of DS-0 accesses, and on other ILECs' estimates to determine the appropriate time and cost estimates for Bell Canada's DS-1 accesses.
547. The Commission notes that Aliant Telecom's service order time and cost estimates associated with DS-1 accesses provisioned on fibre were higher than for its DS-3 accesses. The Commission considers these time and cost differences for service order activities involving comparable access facilities to be inappropriate. Accordingly, the Commission relied on Aliant Telecom's forecasted time and cost estimates for DS-3 accesses to determine the appropriate time and cost estimates for Aliant Telecom's DS-1 accesses.
548. The Commission notes that while the other ILECs had similar time estimates for the completion of service order activities at the DS-3, OC-3, and OC-12 access speeds, Aliant Telecom's OC-3 and OC-12 service order time estimates were higher than those assumed at the DS-3 speed. The Commission considers these time and cost differences for service order activities involving comparable access facilities to be inappropriate. Accordingly, the Commission relied on Aliant Telecom's forecasted time and cost estimates for DS-3 accesses and on other ILECs' estimates to determine the appropriate time and cost estimates to complete service order activities for Aliant Telecom's OC-3 and OC-12 accesses.
549. For CDN DS-0 and DS-1 accesses, each ILEC's service order charge reflects the respective service order costs plus a 15% mark-up. For CDN DS-3, OC-3 and OC-12 accesses, each ILEC's service order charge reflects the respective service order costs plus the appropriate corresponding mark-up. These mark-ups correspond to those used for the recurring rate elements of the DS-3, OC-3 and OC-12 access services included as part of CDN services.
550. The Commission approves on a final basis, effective the date of this Decision, for each ILEC, the CDN access service order charges, for each of the DS-0, DS-1, DS-3, OC-3 and OC-12 speeds, set out in Table 14 of Appendix 1 to this Decision. The Commission notes that these approved service order charges reflect the ILECs' cost estimates submitted in response to the Commission's

25 July 2003 interrogatories, as adjusted to reflect the costing determinations in this Decision, and the application of the I-X pricing constraints for the CDN DS-0 and DS-1 accesses for the period preceding the date of this Decision, plus the appropriate mark-ups.

Service order charges: intra-exchange and channelization

551. The Commission notes that the current service order costs associated with retail intra-exchange service are recovered by the CDN access service order charges since both are generally ordered together. The Commission is of the view that when an unbundled CDN service is ordered separately, such as the CDN intra-exchange service, it would be appropriate to allow ILECs to recover the corresponding service order costs.
552. In this proceeding, Bell Canada, MTS and TELUS proposed that the service order charges of the CDNA service would serve as appropriate proxies for the other CDN services such as the channelization service and the intra-exchange service. By contrast, Aliant Telecom proposed separate service order charges based on cost studies for each of the intra-exchange and channelization services. SaskTel also proposed a separate service order cost study for its channelization service. The Commission further notes that the service order activities and costs that Aliant Telecom proposed for its channelization and intra-exchange services were significantly less than those proposed for its CDN access service.
553. The Commission notes that the channelization and intra-exchange services are generally limited to CO service provisioning activities while those of the CDN access service involve CO and outside plant service provisioning activities. Accordingly, the Commission considers that the service order costs for the channelization and intra-exchange services should be less than those of the CDN access service component.
554. The Commission considers Aliant Telecom's CDN channelization service order costs more accurately reflect the service order costs for the proposed access service order charges for channelization and intra-exchange services than the proxy costs proposed by Bell Canada, MTS and TELUS or the cost estimate provided by SaskTel. Accordingly, the Commission considers it appropriate to approve service order charges for each ILEC based on Aliant Telecom's proposed channelization service order charge costs plus the appropriate mark-up.
555. The Commission considers that the service order charges associated with the CDN channelization service will serve as suitable proxies for the service order charges associated with the CDN intra-exchange channel service. The Commission notes that where the corresponding channelization or intra-exchange service order charges based on this approach are higher than the existing retail channelization service order charges, the retail channelization service order rate has been used. The Commission notes that this approach is consistent with that proposed by certain ILECs such as Bell Canada and MTS, which proposed to approximate the service order charges for their channelization and intra-exchange services based on those of another service.
556. The Commission approves on a final basis, effective the date of this Decision, for each ILEC, the CDN channelization and intra-exchange service order charges, set out in Tables 16 and 15, respectively, of Appendix 1 to this Decision. The Commission notes that these approved service

order charges reflect the ILECs' cost estimates submitted in response to the Commission's 25 July 2003 interrogatories, as adjusted to reflect the costing determinations in this Decision, plus the appropriate mark-ups.

Metropolitan IX service order charges

557. The Commission notes that Bell Canada also proposed to use its CDNA access service order charges as a proxy for the IX channel service order charges in the event such a service was required for competitors.
558. The Commission considers that the service order activities and costs of the metropolitan IX service to be similar to those of the CDN channelization and intra-exchange services. The Commission considers that the CDN channelization service order charges approved in this Decision more accurately reflect the service order charges for the metropolitan IX service than the proxy charges proposed by Bell Canada. Accordingly, the Commission approves on a final basis, effective the date of this Decision, for each ILEC, the CDN metropolitan IX service order charges, set out in Table 15 of Appendix 1 to this Decision.

Optical co-location link service order charges

559. The Commission notes that the ILECs did not propose to apply separate service order charges for their optical co-location link services under their proposed monthly recurring rate structure. The Commission determines that a competitor ordering an additional optical co-location link will cause the ILEC to perform service order activities. The Commission therefore considers that there should be a separate service order charge for the optical co-location link service.
560. The Commission notes that certain ILECs filed costing information with respect to the optical CO link that included the service order activities. In the circumstances, the Commission considers that these costs are the most appropriate basis to determine the optical CO link service order costs. These costs have been determined based on the Commission's analysis of the range of costs provided by these ILECs.
561. Accordingly, the Commission finds it appropriate to determine a service order charge of \$170.00 per optical co-location link for each ILEC, based on the associated service order cost estimate plus a 15% mark-up. Accordingly, the Commission approves on a final basis, effective the date of this Decision, for each ILEC, the service order charge of \$170.00 for each optical transmission speed.

V Compensation

ILEC compensation

Position of parties

562. Bell Canada et al. submitted that the Commission should deal with compensation for the ILECs as previously determined in Decision 2002-34. Other parties did not make submissions on this matter.

Commission's analysis and determinations

563. In Decision 2002-34, the Commission approved rates for CDNA service effective 1 June 2002. This reduced the ILECs' revenues because eligible competitors were able to obtain access and link services at lower rates than the retail DNA rates that they would otherwise have been required to pay. The Commission determined in that Decision that the ILECs should be compensated for the reduction in their DNA service revenues attributable to the introduction of the CDNA service because it resulted from policy considerations and not cost reductions. The Commission found it appropriate to compensate the ILECs for lost revenues associated with demand that migrated from the retail DNA service to the CDNA service, effective 1 June 2002.
564. The Commission determined in Decision 2002-34 that the creation of a deferral account for residential local services would assist in achieving the objective of balancing the interests of customers, competitors and ILECs, the three main stakeholders in telecommunications markets. The Commission further determined in Decision 2002-34 that the funds to compensate each ILEC for the revenue reduction resulting from, among other things, the introduction of CDNA service, should be drawn from its deferral account.
565. The Commission notes that in this Decision it has approved revised rates for the access and link components previously made available under the interim CDNA service, retroactive to 1 June 2002. The Commission concludes that the compensation for the CDNA-eligible migrated demand, as at 1 June 2002, should be based on the difference between the retail DNA access and link rates and the CDN access and link rates that are effective 1 June 2002, as a result of this Decision. The Commission further notes that this compensation applies only to the existing access and link arrangements that were the subject of the interim CDNA service.
566. The Commission notes that the scope of CDN services established in this Decision includes services in addition to those that were part of the interim CDNA service. Consistent with its determination in Decision 2002-34, the Commission finds that each ILEC is to also be compensated with respect to the revenue lost due to the migration, in existence on the date of this Decision, of retail DNA service and other digital network services demand eligible for the new CDN services approved in this Decision. This excludes the revenue losses related to CDNA eligible demand identified in the previous paragraph. The compensation for these new CDN services is to be based on the difference between CDN rates approved in this Decision and the corresponding retail rates.
567. The Commission's determination in Decision 2002-34 to balance the interests of customers, competitors and ILECs by using each ILEC's deferral account to compensate it for lost retail revenue due to the introduction of CDNA service applied to all ILECs. However, the Commission notes that, SaskTel's deferral account has never contained sufficient funds to compensate the company for retail revenues lost due to competitor demand that migrated to its CDNA service. The Commission notes that SaskTel's deferral account also has insufficient funds to compensate for other competitor demand that would be expected to migrate to CDN services. Consequently, the Commission determines that SaskTel's CDNA rates are to be replaced, retroactive to 1 June 2002, by rates equal to SaskTel's retail DNA service rates at 1 June 2002. Further, the Commission determines that SaskTel's CDN service rates approved

in this Decision are to apply to new demand only and that competitors may not migrate existing demand for SaskTel's retail DNA and IX service tariffs to the CDN services. Accordingly, SaskTel's retail rates are to apply to existing competitor demand for CDN services.

568. The Commission notes that Bell Canada currently provides an optical co-location link service on a one-time service charge basis pursuant to a tariff approved on an interim basis. The Commission finds that the issue of ILEC compensation does not arise with respect to this service because there are no associated lost retail service revenues.

Compensation for competitors

Position of parties

569. LondonConnect requested that compensation be given to facilities-based competitors, as well as ILECs, on the basis of competitive neutrality. LondonConnect submitted that without compensation for entrants, CDNA rates could not be considered just and reasonable. LondonConnect further submitted that a one-sided compensation arrangement for ILECs would not foster facilities-based competition. LondonConnect argued that Commission determinations in Decision 2002-56, in which competitors received compensation for lost toll revenue related to expanded local calling areas, supported its proposal.
570. Primus Canada submitted that LondonConnect's position appeared reasonable and supported its request.
571. Allstream, Bell Canada et al., Call-Net, FCI Broadband, Microcell, RWI and TELUS did not support LondonConnect's request.

Commission's analysis and determinations

572. The Commission notes that its determination to compensate competitors as well as ILECs in Decision 2002-56 recognized that competitors, as well as ILECs, were certain to lose all toll revenues in expanded local calling areas. The Commission also stated that it did not consider that the competitors' position in the market allowed them to modify service offerings and rates to recover lost toll revenues.
573. The Commission notes that competitors' networks consist primarily of fibre-based facilities. The Commission further notes that the rates approved in this Decision for most fibre-based CDN services are Category II service rates and include mark-ups that are considerably greater than 15%. Moreover, fibre facilities that competitors and third-party suppliers use to provision fibre-based DNA-equivalent services may also be used, with appropriate equipment, to generate revenue from other services, such as Ethernet.
574. The Commission therefore finds the circumstances in this Decision to be quite different from those that led to the determination in Decision 2002-56. Accordingly, the Commission denies LondonConnect's request that facilities-based entrants receive compensation as a result of the introduction of the CDNA and CDN services.

Retroactivity of rates

Position of parties

575. Call-Net argued that in Decision 2002-78, the Commission indicated that ILECs and competitors should maintain accounting records in order to implement a retroactive rate adjustment. Call-Net, supported by Allstream and Microcell, submitted that rates for any additional CDNA components should be made retroactive to 1 June 2002.
576. Microcell argued that approving rates on a retroactive basis would address the financial inequity it submitted wireless competitors had borne with respect to the introduction of the CDNA service.

Commission's analysis and determinations

577. In the context of its determinations with respect to ILEC compensation, the Commission determined that it was appropriate to compensate ILECs for lost revenue due to migrated demand to CDN services and that each ILEC's deferral account would be used to fund this compensation.
578. ILEC compensation approved in this Decision represents a draw-down on each ILEC's deferral account. The Commission notes that the claims against each ILEC's deferral account balances proposed in the proceeding initiated by *Review and disposition of deferral accounts for the second price cap period*, Telecom Public Notice CRTC 2004-1, 24 March 2004 (Public Notice 2004-1) are numerous. The Commission also notes that in Decision 2002-34 it stated its intention to clear the ILEC's deferral account in a manner that contributes to achieving the Commission's objectives for the price cap period.
579. In this Decision, the Commission considers it appropriate to compensate ILECs for lost retail revenue due to retroactive rate adjustments for the existing CDNA service. The Commission notes, as determined above, that SaskTel's interim CDNA rates are being replaced by its current retail DNA service rates retroactive to 1 June 2002, and, therefore, no compensation is required for SaskTel.
580. The Commission further notes that, in this Decision, it has also expanded the scope of CDN services to include all accesses and to include intra-exchange, metropolitan IX and channelization service components and certain link components. In view of the numerous claims made against the deferral account in the proceeding initiated by Public Notice 2004-1, and having regard to the need to balance the interests of the three main stakeholders, the Commission considers it would not be appropriate to commit further funds from the ILECs' deferral accounts to compensate ILECs for lost retail revenue due to retroactive rate adjustments for these additional CDN services.
581. The Commission directs each ILEC to file, within 30 days of the date of this Decision, deferral account draw-down estimates associated with: (a) the CDNA-eligible migrated demand and the CDN access and link rates approved in this Decision, effective 1 June 2002; and (b) the new CDN services and rates approved in this Decision, other than those that are the subject of compensation with respect to the CDNA service, provided for in (a) above, as of the date of this Decision.

Call-Net's request for interest on rebates

Position of parties

582. Call-Net requested that, when the final rates are approved for the CDNA service, the retroactive payments include interest. Call-Net submitted that to not pay interest would unjustly penalize competitors and unduly advantage the ILECs. Call-Net further argued that it would be appropriate to remedy this situation by imposing an interest charge on ILECs commensurate with the competitor's cost of debt.
583. Bell Canada et al. and TELUS argued that Call-Net's request should be rejected. Bell Canada et al. disputed Call-Net's contention that it had withheld funds that belonged to competitors, or that competitors had been over-billed for the DNA services they received from the ILECs. Bell Canada et al. submitted further that it could not charge rates other than those that had been approved by the Commission.
584. TELUS argued that there was no justification for Call-Net's proposal and there was no policy reason for the request for additional interest payments.

Commission's analysis and determinations

585. The Commission does not consider it appropriate to approve Call-Net's request for interest on retroactive payments given that competitors have been receiving the lower interim CDNA rates since 1 June 2002 and given that the rates approved in this Decision for the access component of the CDN service are, in the Commission's view, at comparable levels. Accordingly, the Commission denies Call-Net's request for the payment of interest on retroactive compensation amounts.

VI Other Matters

Requests outside the scope of this proceeding

Primary purpose test and co-location

586. The primary purpose test, established in *Co-location*, Telecom Decision CRTC 97-15, 16 June 1997 (Decision 97-15), requires that cross-connection between co-located carriers be a secondary function of the co-located transmission equipment and that the capacity dedicated to interconnection with the ILEC facilities be greater than that dedicated to cross-connection between co-located carriers.

Position of parties

587. LondonConnect, supported by Microcell, requested that the Commission eliminate the primary purpose test, or make a preliminary finding that doing so would be in the public interest, and initiate a proceeding to consider making such a determination on a final basis. It submitted that the primary purpose test under current co-location rules was a barrier to the wholesale supply of the facilities under consideration and, therefore, a barrier to facilities-based entry.

588. Equant Canada stated that it was a reseller and that Bell Canada is one of its major suppliers. As a reseller, Equant Canada submitted that it was unable to co-locate and instead housed its equipment in Bell Canada's central offices pursuant to a Special Facilities Tariff (SFT). Equant Canada requested that it be permitted to use the CDNA service, arguing that the SFT was equivalent in functionality and rates to co-location.
589. Bell Canada et al. submitted that both LondonConnect and Equant Canada's requests were outside the scope of the proceeding. In Bell Canada et al.'s view, amending the Commission's co-location policies would have broad policy implications and extend the scope of CDNA service beyond what was envisioned in Decision 2002-34.

Commission's analysis and determinations

590. The Commission considers that LondonConnect's request to eliminate the primary purpose rule is outside the scope of this proceeding. Accordingly, the Commission denies LondonConnect's request.
591. The Commission considers that Equant Canada's request with respect to co-location is outside the scope of this proceeding. Accordingly, the Commission denies Equant Canada's request.

Competitor co-location link

Position of parties

592. The Commission received comments from FCI Broadband on 19 November 2001, indicating its support for the introduction of Bell Canada's optical CO link service. However, FCI Broadband submitted that Bell Canada's optical CO link service should be revised to allow two co-located carriers to interconnect using the optical CO link service.
593. FCI Broadband submitted that the most economical and efficient method for Bell Canada to offer an interconnection service between two co-located carriers would be to provide an optical fibre running between the two co-located carriers that would be housed within protective tubing.
594. In response to FCI Broadband's proposal Bell Canada submitted that FCI Broadband was requesting the development of an additional optical link arrangement. Bell Canada submitted that this new request was unrelated to the current proceeding.
595. Allstream similarly submitted that interconnecting carrier-to-interconnecting carrier (IC-to-IC) links be included in the CDNA tariff for copper and optical access facilities, and that rates should be established as one-time service charges.
596. In reply, Bell Canada et al. argued that including copper and optical CO links, as well as IC-to-IC links in the CDN tariff would be redundant and unnecessary, as these facilities are already made available to competitors elsewhere in Bell Canada et al.'s respective tariffs. Thus, duplicating the existing tariffs would not serve any useful purpose.

Commission's analysis and determinations

597. The Commission is of the view that requests from FCI Broadband and Allstream are outside the scope of this proceeding. The Commission notes that the proposed optical CO link service is intended to provide a transmission path between the ILEC's unbundled network components and the co-located competitor located within the same wire centre. This service does not include the creation of a direct transmission facility between two co-located competitors in an ILEC wire centre.
598. The Commission notes that the IC-to-IC link service is available under the National Services Tariff, Digital Network Access, Item 301.3, part (b), DS-1 link, Item 301.3, part (c), DS-3 link, and 301.3 part (e), OC-3 and OC-12 link.
599. The Commission therefore denies FCI Broadband's request that Bell Canada revise its optical CO link service to allow two co-located carriers to interconnect using the optical CO link service. The Commission also denies Allstream's request that IC-to-IC links be included in the CDNA tariff.

Protocol neutrality

Position of parties

600. Call-Net and Allstream submitted that CDNA service should be generalized to a competitor access and transport service that would automatically include new protocols and architectures as they are introduced, where the services based on these new protocols provide the same functionality as the existing DNA components. TELUS and LondonConnect submitted this request for "protocol neutrality" was outside the scope of the proceeding. Microcell submitted that while it had no difficulty in principle with Call-Net's proposal, the issue should be addressed in a follow-up proceeding.

Commission's analysis and determinations

601. The Commission considers that Call-Net and Allstream's request that the determinations made with respect to DNA and digital inter-exchange transport be extended to all next-generation services is outside the scope of this proceeding.

56 Kbps access service

Position of parties

602. Call-Net requested that a 56 Kbps access service be provided as part of the CDNA service.
603. Bell Canada et al. submitted that Call-Net's request should be rejected since the requirement for such a service has been extremely limited and Call-Net has never previously expressed any demand for the service. Bell Canada et al. submitted that the request for such a service should be made to Bell Canada et al.'s respective CSGs.

Commission's analysis and determinations

604. The Commission considers that Call-Net's request for a 56 Kbps access service is outside the scope of the proceeding. However, the Commission considers that if sufficient demand for a 56 Kbps service is identified, this may warrant the adoption of competitor CDN rates for such a service. The Commission is willing to examine the need for a 56 Kbps access service if competitors provide evidence of demand for such a service.

Implementation and disposition of tariff notices

605. The Commission received an application, Tariff Notice 6621, by Bell Canada, dated 18 October 2001 and amended on 26 August 2003, to add item 121, Optical Link Arrangements to its Access Services Tariff. In its application, Bell Canada proposed the adoption of a single one-time service charge for both OC-3 and OC-12 CO link arrangements. In Tariff Notice 6621A, Bell Canada requested that the proposed one-time service charge structure for DS-1 and DS-3 copper co-location link services, and optical co-location link service, be replaced with monthly recurring rates. In Order 2003-450, the Commission approved Bell Canada's application on an interim basis.
606. The Commission received an application, Tariff Notice 6753, by Bell Canada, dated 28 May 2003 and amended on 29 August 2003, to revise item 130, CDNA, of its Access Services Tariff. In its application, Bell Canada proposed to revise the monthly rates and service charges pertaining to DS-0, DS-1, DS-3, OC-3 and OC-12 accesses. In Tariff Notice 6753A, Bell Canada proposed rate changes arising from revised cost studies.
607. The Commission received an application, Tariff Notice 505, by MTS, dated 4 June 2003, to add item 121, Optical Link Arrangements, to its Access Services Tariff. In its application, MTS proposed the adoption of a monthly recurring rate for its optical co-location link service for optical speeds of OC-3 and OC-12.
608. The Commission received an application, Tariff Notice 531, by MTS, dated 14 May 2004, to add item 125, CDNA, to its Access Services Tariff. In its application, MTS proposed to expand its CDNA service availability.
609. The Commission received an application, Tariff Notice 57, by TELUS, dated 14 June 2002, to add item 213, Competitor-DNA Service, to its Carrier Access Tariff. In its application, TELUS proposed to introduce interim monthly rates and service charges pertaining to OC-3 and OC-12 accesses. In *Competitor Digital Network Access service*, Telecom Order CRTC 2002-313, 23 July 2002, the Commission approved TELUS's application on an interim basis.
610. The Commission received an application, Tariff Notice 63, by TELUS, dated 2 October 2002, to add item 211, Central Office Link Arrangements for Interconnecting Canadian Carriers, to its Carrier Access Tariff. In its application, TELUS proposed the adoption of a single one-time service charge for its optical co-location link service for optical speeds of OC-3 and OC-12. In *Introduction of optical central office link arrangements*, Telecom Order CRTC 2002-469, 23 December 2002, the Commission determined that TELUS' application would form part of the CDNA proceeding.

611. The Commission received an application, Tariff Notice 119, by TELUS, dated 25 September 2003, to revise item 213, Competitor-DNA Service, of its Carrier Access Tariff. In its application, TELUS proposed to add a definition of an end-customer under item 213.1.
612. The Commission received an application, Tariff Notice 67, by SaskTel, dated 30 June 2004, to add item 610.20, Link Arrangements for Interconnecting Canadian Carriers, to its Competitor Access Tariff. In its application, SaskTel proposed to introduce CO Link Channelizing Feature specific to optical co-location links.
613. Subject to paragraph 614 below, the Commission directs each ILEC to issue within 45 days, tariff pages effective the date of this Decision, that reflect the Commission's determinations in this Decision with respect to the rates, terms and conditions of the CDN services. The Commission further directs each ILEC to withdraw the interim CDNA and co-location link tariffs and all tariff pages associated with the tariff notices identified above that have received interim approval.
614. With respect to CDN DS-0 and DS-1 access services for the period preceding the date of this Decision, the rates and accordingly the customer billing adjustments are to reflect the application of the annual I-X pricing constraints applicable to the year in question.

Secretary General

This document is available in alternative format upon request and may also be examined at the following Internet site: <http://www.crtc.gc.ca>

Finalized CDN Rates

Table 1

DS-0 Access service rates per month (\$)

	Band A1	Band A2	Band A	Band B	Band C	Band D	Band E	Band F	Band G
Aliant (NB)	n/a	n/a	n/a	49.81	58.55	n/a	n/a	n/a	n/a
Aliant (NFLD)	n/a	n/a	n/a	60.58	64.43	n/a	n/a	n/a	n/a
Aliant (NS)	43.33	49.77	n/a	n/a	59.08	n/a	n/a	n/a	n/a
Aliant (PEI)	n/a	n/a	n/a	50.58	54.96	n/a	n/a	n/a	n/a
Bell Canada	n/a	n/a	33.61	43.05	47.48	51.06	70.16	71.26	110.55
MTS	n/a	n/a	44.79	58.31	n/a	n/a	n/a	n/a	n/a
SaskTel	n/a	n/a	28.75	41.24	60.21	n/a	118.42	98.71	108.28
TELUS (AB)	n/a	n/a	27.81	47.51	51.56	71.59	77.84	72.43	79.63
TELUS (BC)	n/a	n/a	35.33	53.24	65.97	56.93	90.08	79.36	188.96

Table 2

DS-1 Access service rates per month (\$)

	Band A1	Band A2	Band A	Band B	Band C	Band D	Band E	Band F	Band G
Aliant (NB)	n/a	n/a	n/a	89.40	93.43	n/a	n/a	n/a	n/a
Aliant (NFLD)	n/a	n/a	n/a	95.87	96.95	n/a	n/a	n/a	n/a
Aliant (NS)	70.47	90.42	n/a	n/a	93.76	n/a	n/a	n/a	n/a
Aliant (PEI)	n/a	n/a	n/a	89.87	91.30	n/a	n/a	n/a	n/a
Bell Canada	n/a	n/a	50.21	65.25	113.38	129.39	174.07	175.18	167.12
MTS	n/a	n/a	47.91	107.96	98.85	n/a	n/a	n/a	n/a
SaskTel	n/a	n/a	37.93	49.38	66.09	n/a	111.21	93.58	n/a
TELUS (AB)	n/a	n/a	49.66	71.82	109.70	124.92	121.49	120.97	133.90
TELUS (BC)	n/a	n/a	59.44	77.37	91.30	82.30	130.50	109.28	217.44

Table 3
DS-3 Access service rates per month (\$)

	Band A1	Band A2	Band A	Band B	Band C	Band D	Band E	Band F	Band G
Aliant (NB)	n/a	n/a	n/a	403.75	404.11	n/a	n/a	n/a	n/a
Aliant (NFLD)	n/a	n/a	n/a	403.75	404.11	n/a	n/a	n/a	n/a
Aliant (NS)	398.48	398.84	n/a	n/a	404.11	n/a	n/a	n/a	n/a
Aliant (PEI)	n/a	n/a	n/a	403.75	404.11	n/a	n/a	n/a	n/a
Bell Canada	n/a	n/a	459.49	501.43	447.11	469.17	n/a	n/a	n/a
MTS	n/a	n/a	557.48	588.02	n/a	n/a	n/a	n/a	n/a
SaskTel	n/a	n/a	316.94	360.07	742.71	n/a	n/a	718.91	n/a
TELUS (AB)	n/a	n/a	557.94	918.81	882.49	1,116.35	968.20	1,178.92	1,182.90
TELUS (BC)	n/a	n/a	642.20	913.47	985.89	953.76	1,305.96	1,084.30	1,588.46

Table 4
OC-3 Access service rates per month (\$)

	Band A1	Band A2	Band A	Band B	Band C	Band D	Band E	Band F	Band G
Aliant (NB)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Aliant (NFLD)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Aliant (NS)	921.22	889.26	n/a						
Aliant (PEI)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Bell Canada	n/a	n/a	1,020.26	1,435.78	n/a	n/a	n/a	n/a	n/a
MTS	n/a	n/a	1,443.70	n/a	n/a	n/a	n/a	n/a	n/a
SaskTel	n/a	n/a	926.31	1,275.66	n/a	n/a	n/a	n/a	n/a
TELUS (AB)	n/a	n/a	1,847.75	2,449.59	2,715.95	3,025.71	2,830.10	3,108.51	3,113.81
TELUS (BC)	n/a	n/a	1,919.72	2,482.29	3,218.18	2,923.28	3,190.84	3,096.28	3,763.30

Table 5
OC-12 Access service rates per month (\$)

	Band A1	Band A2	Band A	Band B	Band C	Band D	Band E	Band F	Band G
Aliant (NB)	n/a	n/a	n/a	2,158.65	n/a	n/a	n/a	n/a	n/a
Aliant (NFLD)	n/a	n/a	n/a	2,158.65	n/a	n/a	n/a	n/a	n/a
Aliant (NS)	2,035.94	1,993.79	n/a						
Aliant (PEI)	n/a	n/a	n/a	2,158.65	n/a	n/a	n/a	n/a	n/a
Bell Canada	n/a	n/a	2,546.66	2,992.46	n/a	n/a	n/a	n/a	n/a
MTS	n/a	n/a	3,600.43	n/a	n/a	n/a	n/a	n/a	n/a
SaskTel	n/a	n/a	1,420.41	n/a	n/a	n/a	n/a	n/a	n/a
TELUS (AB)	n/a	n/a	3,792.04	4,787.38	5,101.59	5,419.90	5,218.53	5,504.94	5,511.15
TELUS (BC)	n/a	n/a	4,045.05	4,955.25	6,111.67	5,374.83	5,651.00	5,553.19	6,240.09

Table 6
Intra-exchange service rates per month (\$)

	DS-0	DS-1	DS-3	OC-3	OC-12
Aliant (NB)	7.18	25.03	307.25	n/a	n/a
Aliant (NFLD)	7.18	25.03	307.25	n/a	n/a
Aliant (NS)	7.18	25.03	307.25	n/a	n/a
Aliant (PEI)	7.18	25.03	307.25	n/a	n/a
Bell Canada	3.08	59.16	755.57	1,430.00	4,400.00
MTS	0.85	20.29	159.06	n/a	n/a
SaskTel	6.01	50.28	608.78	n/a	n/a
TELUS (AB)	1.60	38.73	529.14	1,600.00	3,200.00
TELUS (BC)	1.65	40.08	545.96	1,600.00	3,200.00

Table 13
Metropolitan IX service rates per mile per month (\$)

	Up to DS-0	Up to DS-1	Up to DS-3
All ILECs	3.43	41.05	369.35

Table 14
Service order charge per CDN access (\$)

	DS-0	DS-1	DS-3	OC-3	OC-12
Aliant (NB)	673.44	857.42	2,565.33	2,565.33	2,565.33
Aliant (NFLD)	673.44	857.42	2,565.33	2,565.33	2,565.33
Aliant (NS)	673.44	857.42	2,565.33	2,565.33	2,565.33
Aliant (PEI)	673.44	857.42	2,565.33	2,565.33	2,565.33
Bell Canada	699.12	931.23	2,158.67	2,158.67	2,158.67
MTS	620.31	985.58	2,209.49	2,209.49	n/a
SaskTel	666.77	929.43	2,350.01	2,363.62	2,405.34
TELUS (AB)	674.25	943.50	2,466.56	2,520.99	2,492.03
TELUS (BC)	674.25	943.50	2,466.56	2,520.99	2,492.03

Table 15
Service order charge per intra-exchange and metropolitan IX service (\$)

	DS-0	DS-1	DS-3	OC-3 ⁽¹⁾	OC-12 ⁽¹⁾
All ILECs	300.00	300.00	375.00	500.00	500.00

⁽¹⁾ Not applicable to the metropolitan IX service.

Table 16
Channelization service order charge (\$)

	DS-1 to DS-0	DS-3 to DS-1	OC-3 to DS-1	OC-3 to DS-3	OC-12 to OC-3	OC-12 to DS-3
All ILECs	300.00	375.00	500.00	500.00	500.00	500.00

n/a: not applicable

Aliant (NB): Aliant operating in the province of New Brunswick

Aliant (NFLD): Aliant operating in the province of Newfoundland and Labrador

Aliant (NS): Aliant operating in the province of Nova Scotia

Aliant (PEI): Aliant operating in the province of Prince Edward Island

TELUS (AB): TELUS operating in the province of Alberta

TELUS (BC): TELUS operating in the province of British Columbia