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Billing practices for wholesale residential high-speed access services

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The Commission began a public proceeding in February 2011 to review the billing practices for wholesale residential high-speed access services. To foster competition, large cable and telephone companies must offer these services to independent service providers under terms and conditions approved by the Commission. Independent service providers, in turn, use these wholesale services to provide high-speed Internet access or other services to their own retail residential customers. The Commission does not regulate the provision of Internet services to retail customers by either large telephone and cable companies or independent service providers, because there are multiple service providers bringing competition, pricing discipline, innovation, and consumer choice to the retail Internet services market. The Commission does, however, regulate the provision of wholesale high-speed access services by large telephone and cable companies to independent service providers.

The objective of the proceeding was to decide how large telephone and cable companies should charge independent service providers for access to and use of their networks. The proceeding was initiated following a proposal by Bell Canada to introduce a usage-based billing (UBB) model for these wholesale services. Concern was raised that if UBB rates were applied to independent service providers, those independent service providers would also be forced to impose UBB on their own retail customers.

During the proceeding, the Commission received new proposals for billing models for wholesale residential high-speed access services. The Commission considers that each of these proposed wholesale models would provide greater flexibility to the independent service providers than a per-customer wholesale UBB model.

The Commission has decided that there are two acceptable billing models. The first is a capacity-based billing model in which independent service providers determine in advance the amount of capacity they will need. Should demand exceed this capacity, they will have to manage their network capacity until they purchase more. The second model

is the existing flat rate model, where independent service providers pay a flat fee per month regardless of usage.

The Commission has also decided that rates for either model should be based on each of the individual large cable and telephone companies' costs to provide the service plus a reasonable markup, and further, that these markups be comparable for all cable and telephone companies. As an exception to this and consistent with the Commission's decisions in Telecom Regulatory Policy 2010-632, the telephone companies may charge an additional 10 percent markup for usage and access to the faster fibre-to-the-node services. This will encourage companies to continue to invest in this new technology.

The Commission has set rates for each company based on the information filed with appropriate adjustments as required. For companies that proposed a usage-based model, their tariffs are approved based on the approved capacity model, effective 1 February 2012. For companies that proposed a flat rate model, their tariffs are approved effective the date of this decision. Companies may file an application if they would like to have tariffs approved for the other model.

In Telecom Order 2011-377, the Commission established interim rates, at a discount from the rates for the large telephone and cable companies' retail services, to be used until final rates come into effect. In this decision, the Commission has decided that final rates will not be applied retroactively.

Background

1. Retail Internet services were first provided in Canada in the 1990s through dial-up technology, and then later through high-speed connections. In 1998/1999, the Commission decided that the retail Internet market was sufficiently competitive to offer consumers choices and competitive prices. Consequently, it decided not to regulate retail Internet services.[1]

2. However, to foster competition, the Commission regulates wholesale access services offered by network providers. These are the large telephone companies, known as the large incumbent local exchange carriers (ILECs), and the cable carriers. The independent service providers use these services to provide their own retail Internet and other services.

3. Services provided by the independent service providers bring pricing discipline, innovation, and consumer choice to the retail Internet service market. According to the Commission's most recent monitoring report,[2] the network providers have 94 percent of the residential retail Internet market in Canada and the independent service providers have 6 percent of that market. For the Commission, it has been

[1] The Commission refrained from regulating the rates, terms, and conditions under which retail Internet services are provided to the public, but maintained its powers to regulate other aspects of the service. See, for example, Telecom Decision 98-9 and Telecom Order 99-592.

[2] *CRTC Communications Monitoring Report*, July 2011

important to ensure that retail Internet service competition is sufficient to protect consumers' interests.

4. Therefore, the Commission ensures that the speeds at which the network providers provide wholesale access services to the independent service providers enable them to compete in the retail market. The Commission also ensures that the network providers are encouraged to continue to invest in new network infrastructure and to offer new services. In December 2009, the Governor in Council[3] referred Telecom Decision 2008-117 and Telecom Order 2009-111 back to the Commission. Those decisions had required that the ILECs offer independent service providers wholesale access at higher speeds.

5. In August 2010, the Commission considered the Governor in Council's directive and concluded, in Telecom Regulatory Policy 2010-632 (the high-speed access decision), that the network providers must offer the independent service providers wholesale access to and use of speeds that match all speed options the network providers offer their own retail Internet service customers. In recognition of the significant upfront investments required to construct new higher-speed networks, the Commission also approved a supplementary markup[4] of 10 percent on ILEC costs, which is higher than the markup that would otherwise be used to set rates.

6. In addition, the cable carriers were required to make changes to their services to improve them as alternatives to the ILECs' services. These changes included reducing the number of points of interconnection (POIs),[5] a practice known as POI aggregation.

7. The speed at which wholesale high-speed access service is to be delivered is one critical element of the service. The others are the manner in which the service delivered is to be measured and the price to be paid for the service.

Usage-based billing

8. In 2000, the Commission permitted cable carriers to introduce usage caps and/or usage-based billing (UBB) charges[6] for their wholesale services, but only if UBB was also applied for their retail customers.[7]

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[3] See Order in Council 2009-2007.

[4] Markup is the amount that is added to the Commission-approved costs to set the cost-based rate for a service. This difference between the rate and the Commission-approved costs serves as a contribution towards the company's fixed and common costs and a profit margin.

[5] A POI is a location at which an independent service provider connects its network to a cable carrier's network in order to gain access to its own retail customers through high-speed access paths on the cable carrier's network. A POI allows an independent service provider to support retail customers within an authorized serving area.

[6] A usage cap is a volume of data that a retail customer can download in a monthly period without additional charges. UBB charges are charges for use above this predetermined usage cap.

[7] See Order 2000-789.

9. In 2007, Bell Canada began to implement usage caps and UBB for its residential retail customers. In August 2009,[8] the Commission approved, on an interim basis, an application by Bell Aliant Regional Communications, Limited Partnership (Bell Aliant)[9] and Bell Canada (collectively, the Bell companies) to apply UBB to their wholesale residential services.[10]

10. In 2009, the Commission established a framework for acceptable Internet traffic management practices (ITMPs).[11] In that framework, the Commission stated that additional network investment should be the primary way that network providers address network congestion. However, it also allowed the use of pricing to manage congestion, where required.

11. In 2010,[12] the Commission approved on a final basis the proposal by the Bell companies to apply UBB to their wholesale residential services.[13] In reaching that decision, the Commission accepted the Bell companies' argument that UBB was a pricing method used to manage the network and congestion.

12. Subsequently, Vaxination Informatique (Vaxination) objected to the imposition of UBB on independent service providers. In addition, the Commission received numerous comments from the general public.

13. In December 2010, the Bell companies requested a change to their approved wholesale residential UBB rates.[14] They proposed to significantly decrease the usage caps in Ontario and increase the UBB wholesale rates in Ontario and Quebec.

The proceeding

14. In light of the above, on 8 February 2011, the Commission began this proceeding and suspended the Bell companies' implementation of wholesale UBB. This proceeding reviewed how the network providers bill the independent service providers.

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[8] See Telecom Order 2009-484.

[9] Bell Aliant in its Ontario and Quebec territories only

[10] See Bell Aliant Tariff Notice 242 and Bell Canada Tariff Notice 7181. Prior to the application, the Bell companies had charged a flat rate per retail customer with unlimited usage for their wholesale residential asymmetric digital subscriber line (ADSL) services. Their wholesale business ADSL services were not included in the application and continued to be billed at a flat rate per month.

[11] See Telecom Regulatory Policy 2009-657.

[12] See Telecom Decision 2010-255. Other related decisions include Telecom Order 2009-484 and Telecom Decision 2009-658.

[13] In Telecom Decision 2010-802, the Commission varied Telecom Decision 2010-255 to set the Bell companies' UBB rates at the existing retail rates, to achieve symmetry with the cable carriers. It then issued Telecom Notice of Consultation 2010-803 to initiate a public process on whether the UBB rates for network providers should be set below retail rates. In Telecom Decision 2011-44 (25 January 2011), the Commission set the UBB rates at retail minus 15 percent.

[14] The requested change was filed in Bell Aliant Tariff Notice 349 and Bell Canada Tariff Notice 7293, both dated 14 December 2010.

15. Concern was raised that if wholesale UBB rates were applied to independent service providers, those independent service providers would also be forced to impose UBB on their own retail customers, which would diminish competition and harm consumers.

16. The network providers' wholesale residential tariffs that were filed in response to the high-speed access decision were also included as part of this proceeding.[15] Interim rates for these services were set in Telecom Order 2011-377.

17. Parties that participated in this proceeding included large ILECs, cable carriers, independent service providers and their associations, consumer groups, and individuals. Parties filed written submissions and/or participated in the oral component of the public hearing, which took place in July 2011 in Gatineau, Quebec. In addition, the Commission received over 2,600 comments from members of the public, mostly from the Commission's online consultation.

18. The public record of this proceeding, which closed on 29 July 2011, is available on the Commission's website at www.crtc.gc.ca under "Public Proceedings" or by using the file numbers provided at the beginning of this decision.

Issues

19. The Commission has identified the following major issues to be addressed in this decision:

    I. Appropriate billing model(s) for high-speed access services

    II. Rate principles to be applied to the selected billing model(s)

    III. Reasonableness of the costs submitted by the network providers

    IV. Other matters

    V. Wholesale rates

    VI. Retroactive application, if any, of the rates

    VII. Implementation

    VIII. Compliance with the Policy Direction[16]

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[15] This proceeding dealt solely with the network providers' wholesale residential high-speed access tariff notices, which are listed in Appendix 2. Their wholesale business high-speed access tariffs, which were filed at the same time as the residential tariffs, were the subject of a separate paper proceeding. The Commission's determinations regarding the business tariffs are set out in Telecom Regulatory Policy 2011-704, also issued today.

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

I. Appropriate billing model(s) for high-speed access services

Proposed billing models

20. The ILECs' wholesale high-speed access services are called aggregated asymmetric digital subscriber line (ADSL) services,[17] and the cable carriers' are called third-party Internet access (TPIA) services.

21. UBB is only one way in which network providers can sell wholesale access to their networks to independent service providers. In this proceeding, the Commission received various proposals on the most appropriate billing model for wholesale ADSL and TPIA services. Although many parties proposed new approaches, Bell Aliant in its Atlantic Canada territory only (Bell Aliant in Atlantic Canada), Saskatchewan Telecommunications (SaskTel), Shaw Communications Inc. (Shaw), and TELUS Communications Company (TCC) submitted no changes to their current practices, referred to as the *flat rate model*. The wholesale flat rate model is comprised of a single monthly rate per retail customer by speed tier,[18] with no additional usage charges.

22. All other parties proposed models that separate rates into two different components: a monthly rate for access to the network[19] and a separate rate for usage. The differences between the models proposed by the parties largely involve the manner in which the rate for usage is determined. The models fit into two broad categories: volume-based models and capacity-based models.

23. Under the Bell companies' *aggregated volume pricing (AVP) model*, the usage rate would be based on measuring and charging for the volume of all traffic generated by an independent service provider's retail customers in a month. At the end of the month, the independent service provider would be billed for the total volume consumed, expressed in gigabytes (GB) or terabytes (TB). A credit adjustment would be made for usage associated with the Bell companies' lower-speed services[20] that do not require the use of their fibre-to-the-node (FTTN) network technology.[21]

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[17] For the purposes of this decision, references to ADSL include all technologies that can be supported on fibre-to-the-node (FTTN) and non-FTTN facilities, including ADSL, ADSL2, ADSL2+, very-high-bit-rate digital subscriber line (VDSL), and VDSL2.

[18] ADSL and TPIA services are available with different maximum download speeds (e.g. 5, 10, or 16 megabits per second (Mbps)). Each separate speed offering is referred to as a speed tier.

[19] Under these models, the access rate would not include all the cost elements that are included under the flat rate model, and would therefore be lower than the flat rate model rate.

[20] The Bell companies proposed that the existing access rates continue to apply for their lower-speed services. Because the rates for these lower-speed services already include the costs associated with a defined amount of usage, they proposed to deduct this amount of usage from the total monthly usage before calculating the usage charge to be billed to the independent service provider.

[21] The ILECs' new wholesale high-speed access services are offered using FTTN technology, which upgrades the access network by extending fibre facilities closer to the customer's premises in order to provide increasingly higher-speed access services. The higher-speed access services provided over FTTN technology are referred to as FTTN-based services.

24. Initially, the cable carriers also proposed a model where usage would be calculated based on the volume of traffic. Under their *aggregated excess volume charge model*, only usage above a predetermined level would be subject to the usage rate. In their final arguments, the cable carriers proposed a model similar to the Bell companies' proposed AVP model.

25. In contrast, those independent service providers that are represented by the Canadian Network Operators Consortium Inc. (CNOC) proposed the *95th percentile capacity model*. This model measures the independent service provider's traffic that passes through a specific network point in a month. The 95th percentile[22] measurement of the independent service provider's traffic, as measured in megabits per second (Mbps), is used as the indicator of the independent service provider's peak traffic for billing purposes.

26. Under the model proposed by MTS Allstream Inc. (MTS Allstream), the *MTS Allstream capacity model*, usage would be charged based on capacity, expressed in Mbps. However, in contrast to the models mentioned above, the independent service provider would be responsible for predetermining the amount of capacity it requires, which it would be unable to exceed until it purchases more.[23]

27. Parties generally agreed that all the proposed wholesale billing models would give independent service providers the flexibility to compete by providing innovative packages to their retail customers that would not have to match the retail packages offered by the network providers.

Volume-based model

28. The Bell companies submitted that while no billing model is perfect, a volume-based model provides the best proxy to recover a network provider's investment costs because of the high correlation between monthly volume of usage and peak traffic, which drives network costs. They further submitted that a volume-based model ensures that independent service providers will pay in proportion to their use of the network.

29. The cable carriers and TCC[24] also supported a volume-based model. They submitted that a volume-based model is simpler to implement, less costly, and easier to understand than any capacity-based model.

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[22] CNOC proposed that the traffic be measured at the interconnection point between the network provider and the independent service provider. Further, it proposed that the 95th percentile approach be used to determine usage for billing purposes. With this approach, traffic is measured at regular intervals at the interconnection point on an ongoing basis during the month. The highest 5 percent of measurements are discarded as outliers and the next highest measurement is used for billing purposes.

[23] The independent service provider would be able to buy the capacity it expects to require in specified amounts (i.e. 100, 400, or 1,000 Mbps) on a monthly basis.

[24] TCC, supported by SaskTel, proposed to maintain its flat rate model but submitted that network providers should have the option to implement usage-sensitive pricing.

30. CNOC noted that only peak capacity drives network investment decisions and submitted that a volume-based model would charge for both peak and non-peak traffic.

31. MTS Allstream agreed that a volume-based model lacks any rational connection to the investments that network providers must make to augment the network and avoid congestion during peak periods. MTS Allstream submitted that a volume-based model would be costly to implement for network providers that are not currently able to track the monthly volume of traffic of each retail customer of an independent service provider.

32. Primus Telecommunications Canada Inc. (Primus), supported by MTS Allstream, submitted that a volume-based model would lead to disputes. Primus argued that an independent service provider would be unable to verify the total aggregate monthly usage volume calculated by the network provider because companies would measure volume in different ways and at different places in the network.

95th percentile capacity model

33. CNOC, supported by the British Columbia Broadband Association (BCBA), Distributel Communications Limited (Distributel), and Primus, submitted that peak capacity generated by the independent service provider measured at the interconnection point between the network provider and the independent service provider most closely correlates with actual costs. The Samuelson-Glushko Canadian Internet Policy and Public Interest Clinic, on behalf of itself and its client OpenMedia.ca (CIPPIC), and some individuals also supported the 95th percentile capacity model.

34. Primus submitted that capacity-based models provide significant ongoing administrative benefits, especially by minimizing billing disputes. It stated that capacity-based billing models are easy to audit, as they allow both the independent service provider and the network provider to measure capacity at the same place in the network at the same time.

35. The Bell companies and the cable carriers submitted that there is not a significant correlation between peak capacity and underlying costs. They stated that the costs and time required to implement a billing process based on the 95th percentile capacity model would be significant. Rogers Communications Partnership (RCP) submitted that its costs would likely exceed $1 million. The Bell companies identified a number of system modifications that would be required and estimated that they would require a minimum of six to nine months to implement a manual billing process and nine to twelve months for automated billing.

36. The Bell companies and the cable carriers also submitted that the 95th percentile capacity model would create incentives for the independent service providers to modify their usage patterns and that these abnormal usage patterns would result in additional costs. The Bell companies submitted that with the 95th percentile

capacity model, independent service providers would have the incentive to maintain their usage at or close to their peak traffic level at practically all times of the day. The cable carriers submitted that the 95th percentile capacity model would undercompensate network providers for the costs caused by independent service providers. They added that wholesale peak pricing does little to manage the overall "peak" but merely serves to increase usage and costs during "off-peak" hours.

37. MTS Allstream submitted that with the 95th percentile capacity model, the network provider would have to assume all the responsibility of predicting and managing the independent service providers' use of the network provider's shared network.

MTS Allstream capacity model

38. MTS Allstream submitted that its proposed model allows the network provider and the independent service provider to share responsibility for managing the capacity used on the network provider's network and reflects the ILECs' network provisioning approach,[25] which is based on forecasts of peak capacity.

39. The cable carriers and the Bell companies submitted that requiring independent service providers to pay for a predetermined level of capacity would give those service providers an even greater incentive to maintain their usage at or close to their predetermined capacity level on a continual basis, leading to increased costs for the network provider.

40. Primus submitted that the MTS Allstream capacity model is an acceptable alternative to its preferred 95th percentile capacity model because it provides similar benefits and removes implementation concerns. CIPPIC submitted that, while it also supported the 95th percentile capacity model, the MTS Allstream capacity model best emulates the manner in which the network providers' provisioning costs are incurred.

41. While supporting the 95th percentile capacity model, CNOC submitted that the MTS Allstream capacity model is preferable to any volume-based model because any capacity-based model ensures that the independent service provider that generates the greatest costs to the network pays the most. However, CNOC submitted that the MTS Allstream capacity model shifts all the business risk associated with capacity utilization to the independent service providers.

Commission's analysis and decisions

42. The Commission considers that each of the proposed wholesale billing models that includes separate charges for access and usage provides a significant increase in flexibility over a per-customer wholesale UBB model, since the independent service provider would be billed for the aggregate usage of all its customers.

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[25] Network provisioning refers to the planning and installation of additional equipment in the network to support network growth.

Therefore, under any of the proposed models, the independent service provider would have the flexibility to design and price its own retail services.

43. The Commission recognizes that no billing model will satisfy all the objectives and concerns of all parties. The Commission must determine which model or models will result in the setting of just and reasonable rates. In undertaking this task, the Commission must consider which model or models will best satisfy the objectives of the *Telecommunications Act* (the Act) and the Policy Direction, which require that the Commission foster increased reliance on market forces while ensuring that regulation is efficient and effective.

44. Consequently, the Commission has assessed the proposed billing models in order to ensure that the independent service providers are able to bring pricing discipline, innovation, and consumer choice to the market while not interfering with the network providers' incentives to invest.

Volume-based models versus capacity-based models

45. The Commission notes that network providers plan and install sufficient usage-driven network equipment[26] to meet peak traffic needs, and thus, peak traffic drives overall network costs.

46. In support of volume-based models, the Bell companies and the cable carriers submitted evidence that there is a strong correlation between the overall monthly volume and peak traffic at individual network links, and therefore there is a correlation between volume and investments required. In contrast, the capacity-based models are designed on the assumption that investments are correlated to the monthly capacity that an independent service provider either uses at a single point in the network or reserves in advance.

47. The Commission considers that volume could be used as a proxy for traffic that drives additional usage-based costs. However, the Commission notes that the correlation between volume and peak traffic is based on forecast traffic patterns. These traffic patterns can change over time due to factors such as new Internet applications and changes in pricing plans. The Commission considers that if changes in traffic patterns occur, the relationship between volume and peak traffic that a network provider has developed for determining usage-based costs would change, with the result that network providers might be overcompensated or undercompensated[27] by the independent service providers.

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[26] Examples of usage-driven network equipment include Internet Protocol routers and Ethernet switches, and their associated interconnection links. Given that telecommunications networks are engineered to meet traffic requirements in the peak period, additional usage-driven network equipment will be provisioned on the basis of traffic growth in this peak period (peak traffic).

[27] For example, an independent service provider may generate an increased volume of traffic with no change in its peak traffic level, and as a result would overcompensate the network provider by paying for the additional volume even though it does not cause any additional costs for network augmentation.

48. With respect to the capacity-based models, the Commission notes the Bell companies' and the cable carriers' concern that there is a lack of correlation between peak traffic measured at a single point in the network and the factors that drive the investments for network provisioning. Although the Commission considers that it would be ideal to measure the peak traffic at all points in the network, it notes that all parties to this proceeding agreed that it was impractical to do so. The Commission also notes that network providers have used company-wide peak traffic estimates as an input to determine the costs associated with the usage-driven network equipment. Therefore, the Commission considers that a capacity-based model is more consistent than a volume-based model with respect to how the network providers plan and build their own networks and estimate their usage costs.

49. In addition, the Commission notes that volume-based billing models may lead to disputes regarding billing reconciliation. The Commission considers that since independent service providers cannot measure volume at the same points as the network provider does, these billing disputes may be difficult to resolve. The Commission considers that capacity-based models do not have the same billing reconciliation problems, as they are either predetermined amounts or are based on traffic measurements taken at a single, common interface point.

50. Finally, the Commission notes the Bell companies' and the cable carriers' concern that capacity-based models will incent independent service providers to maintain their usage at or close to their peak levels at all times, thus driving up the network providers' costs and requiring additional investment in their networks. However, the Bell companies and the cable carriers have not filed company-specific empirical evidence to support this argument.

51. In light of the above, the Commission considers that capacity-based models are more appropriate than volume-based models.

95th percentile capacity model versus MTS Allstream capacity model

52. The Commission notes that any implementation costs and delays directly impact the independent service providers. The Commission considers that the network providers would be able to implement the MTS Allstream capacity model easily and quickly since they already routinely establish interconnection facilities. In addition, the Commission considers that the MTS Allstream capacity model simplifies billing reconciliation and auditing, and is minimally intrusive.

53. Network providers have indicated that the costs and time required to implement the 95^{th} percentile capacity model are considerable. Therefore, the Commission considers that the billing and system changes required for the network providers to implement the 95^{th} percentile capacity model would lead to significant implementation delays and uncertainty.

54. With respect to CNOC's concern that independent service providers would be required to estimate and predetermine capacity under the MTS Allstream capacity model, the Commission considers that such a requirement appropriately shifts to the independent service providers the risk and responsibility associated with planning and managing the impact their customers will have on the network providers' networks. This contrasts with the 95th percentile capacity model, where the network provider would assume all responsibility to predict and manage the independent service provider's usage of its shared network.

55. In light of the above, the Commission considers that the MTS Allstream capacity model is more appropriate than the 95th percentile capacity model.

56. However, the Commission notes that the MTS Allstream capacity model allows an independent service provider to purchase capacity at only three fixed amounts (100, 400, and 1000 Mbps). The Commission considers that a more flexible approach would be to modify the MTS Allstream capacity model so that independent service providers could buy network capacity in 100 Mbps increments. The Commission considers that this change would provide an increased level of flexibility while requiring independent service providers to share the risk and responsibility of predicting and managing network usage.

57. The Commission further notes that the MTS Allstream capacity model includes charges for the interface and for the network capacity in one rate element.[28] The Commission considers that it is appropriate to have one rate element for the interface and a separate rate element for network capacity, to allow evolution to higher-speed interfaces independent of capacity charges and to simplify MTS Allstream's proposed tariff structure so that it is consistent with the existing tariff structures of other network providers.

58. Accordingly, the Commission concludes that the most appropriate wholesale billing model, in cases where a network provider proposes to charge separately for usage, is what will be referred to as the *approved capacity model*. The components of the model are listed below:

- a monthly access rate for each of the independent service provider's retail customers;
- a monthly capacity charge, offered in increments of 100 Mbps; and
- ancillary charges:
    - a monthly interface charge, where required; and
    - associated service charges, as applicable.

[28] This means that the interface and the network capacity must be purchased together.

Existing flat rate models

59. Bell Aliant in Atlantic Canada, SaskTel, Shaw, and TCC proposed to maintain the use of their existing flat rate models, which provide for unlimited usage. No parties submitted objections to these proposals.

60. The Commission notes that the flat rate model has already been implemented and that the network providers mentioned above have submitted cost studies based on that model, which allow for the full recovery of access and usage costs. The Commission also notes that there are no billing reconciliation concerns associated with the flat rate model. Consequently, the Commission finds that for these network providers, maintaining the model would be minimally intrusive.

61. Accordingly, the Commission concludes that the most appropriate billing model, in cases where a network provider does not propose to charge separately for usage, is the flat rate model. The components of the model are listed below:

- a monthly access rate for each of the independent service provider's retail customers; and
- ancillary charges:
  - a monthly interface charge, where required; and
  - associated service charges, as applicable.

Conclusion

62. In light of the above, the Commission decides that both the approved capacity model and the flat rate model are acceptable. The Commission finds that both models allow for the setting of just and reasonable rates, and fulfill the policy objectives of the Act and the Policy Direction by fostering innovative and healthy competition while ensuring regulatory efficiency and symmetry.

63. Network providers may file an application if they would like to modify their tariffs to reflect the alternative billing model approved in this decision.

ILECs' legacy services

64. Prior to Telecom Order 2011-377, all ILECs offered a subset of their high-speed access services to wholesale customers. These services were generally provided at lower speeds than were available to the ILECs' retail customers and are referred to as legacy wholesale high-speed access services. Bell Aliant in Atlantic Canada, the Bell companies, SaskTel, and TCC currently offer their legacy services using a flat rate model, while MTS Allstream offers its legacy services using its capacity model.

65. Bell Aliant in Atlantic Canada, SaskTel, and TCC proposed that their legacy services continue to be offered on a flat rate basis.

66. The Bell companies proposed that the existing legacy service rates, which include a forecast set amount of usage, be maintained. They further proposed that their AVP model be applied if the independent service provider's aggregate usage for a particular legacy speed exceeds predefined usage credits for that speed.

67. MTS Allstream submitted that its proposed capacity billing model could be used for the ILECs' legacy services. CNOC submitted that the 95th percentile capacity model should be adopted for all services, including ILECs' legacy services. CNOC also submitted that interfaces should allow for the aggregation of traffic for both legacy and new services, so as to eliminate the requirement to purchase separate interfaces for each type of service.

68. The BCBA submitted that the principles established by the Commission in this proceeding should not be applied to existing legacy services. It argued that these services should continue to be available at rates similar to those in effect today because any changes in rates would negatively affect the ability of existing independent service providers to compete in the market.

Commission's analysis and decisions

69. The Commission notes that the Act and the Policy Direction require that the Commission rely on market forces and use regulatory measures that are efficient and do not interfere with the operation of competitive market forces. Therefore, the optimum regulatory measure with respect to legacy services would be one that is efficient for the independent service providers and that fosters competition between ILECs and cable carriers.

70. The Commission considers that requiring each ILEC to use a single billing model for both its new and legacy services would be efficient for independent service providers, as it would alleviate CNOC's concern about an independent service provider having to buy separate interfaces for new and legacy services.

71. Further, the Commission considers that requiring a single billing model for the ILECs' new and legacy services would be consistent with the single billing model used by the cable carriers. Independent service providers would therefore be able to make a more informed choice when deciding which network provider's wholesale service to use.

72. Accordingly, the Commission decides that each ILEC is required to use the same billing model for its legacy wholesale high-speed access services and its new services.

II. Rate principles to be applied to the selected billing model(s)

73. The rate that is applied to the selected billing model determines the network provider's charges to the independent service provider. All parties agreed that rates for wholesale high-speed access services should be based on cost plus a reasonable markup,[29] but disagreed on the appropriate markup. TCC submitted that it required a markup of at least 45 to 50 percent for its services to compensate it for its costs. The Canadian Association of Internet Providers submitted that there is no justification for markups over 25 percent.

74. CNOC stated that because there are insufficient wholesale alternatives to the access and interface components of high-speed access services, the 15 percent markup that applies to conditional essential services should be applied to these components. TCC, supported by the cable carriers, argued that reducing the markup would be contrary to the Commission's determinations in Telecom Decision 2008-17, as it would effectively change the classification of the service.

75. CNOC also submitted that markups should generally be the same for ILECs and cable carriers, with the exception of ILEC rates for new higher-speed wholesale services, which could include an additional 10 percent markup.[30]

76. The cable carriers submitted that, since TPIA services are based on FTTN networks, they should also be permitted the additional 10 percent markup for TPIA services that the Commission granted the ILECs for their higher-speed wholesale access services. CNOC submitted that the cable carriers did not request this in the proceeding that led to the high-speed access decision and did not indicate any reluctance to invest if they are required to share facilities with competitors. Therefore, CNOC argued, the cable carrier markups should not include the additional 10 percent that ILECs are permitted to apply.

77. TCC submitted that there is no justification for changing the principles associated with the existing markups for legacy services. It stated that legacy services have been in place for many years and that, after two comprehensive proceedings, the Commission previously found the tariffed rates and pricing principles to be just and reasonable. The cable carriers argued that a special treatment for legacy services was not justified.

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[29] Markup is the amount that is added to the Commission-approved costs to set the cost-based rate for a service. This difference between the rate and the Commission-approved costs serves as a contribution towards the company's fixed and common costs and a profit margin.

[30] In Telecom Regulatory Policy 2010-632, the Commission recognized that significant upfront investment was required to construct the new FTTN facilities that ILECs use to provision new higher-speed wholesale service options. The Commission included, in addition to the markup on costs that would otherwise be used, a supplementary markup of 10 percent. The Commission considered that this supplementary markup would also provide incentives for the ILECs to continue to invest in new network infrastructure.

Commission's analysis and decisions

78. The Commission notes that all parties proposed that rates be based on costs and considers that a cost-based approach is appropriate. In setting rates, the Commission balances the need to ensure that network providers are reasonably compensated for their costs with the need to ensure that markups are not so high as to significantly impede independent service providers from providing competitive alternatives in the marketplace.

79. The Commission considers that CNOC's request for a 15 percent markup on costs for access and interface components is inconsistent with previous Commission determinations that classified high-speed access services as conditional mandated non-essential services.[31] The Commission is not prepared to alter this classification.

80. With regard to CNOC's submission that there should be different markups for different components – e.g., one markup for access and interface components and a separate markup for usage components – the Commission considers that all these components form part of the same service. Therefore, the Commission considers that the same markup should generally be applied uniformly for each component.

81. The Commission notes that in response to the original per-customer wholesale UBB proposal (Telecom Decision 2010-255), it decided that the markups on costs for the Bell companies' legacy services should be comparable to the markups associated with the cable carriers' TPIA services. The Commission considers that, in accordance with the objective of competitive neutrality, it remains appropriate that markups be comparable for all ILECs' and cable carriers' wholesale high-speed access services, with the exception of the ILECs' FTTN-based services.

82. In 2010, in the high-speed access decision, the Commission decided that a supplementary 10 percent markup on new higher-speed FTTN-based services was reasonable to recognize the significant upfront investments needed for these services. No evidence was presented in the current proceeding to challenge this determination.

83. However, the Commission notes that FTTN-based services are made up of four distinct rate components.[32] The Commission considers that there is no additional risk associated with the interface or service charge components for the ILECs' FTTN-based services that justifies the application of the additional 10 percent markup to these rate components. Accordingly, the Commission decides that the additional 10 percent markup does not apply to the interface rate element nor to the service charges associated with these services.

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[31] Services in the wholesale conditional mandated non-essential services category are those the Commission has decided, in Telecom Decision 2008-17, do not meet the criteria for essential services but must continue to be mandated until market conditions, at a point in the future, have changed such that the reasons for mandating the services are no longer present.

[32] The rate components are the monthly access, usage, and interface rates, as well as the proposed service charges.

84. The Commission notes the cable carriers' request that, for symmetry, they be allowed to apply the same additional 10 percent markup, since TPIA services are also provided on an FTTN network. In the high-speed access decision, the Commission did not allow cable carriers to apply the additional markup because it considered that the rates for the cable carriers' wholesale high-speed access services appropriately recognized the investments they had made to upgrade their networks. In making its decision, the Commission noted that the cable carriers' cost of capital used to establish the rates for these services was higher than that of the ILECs and that the rates therefore appropriately captured the cable carriers' risk. In the current proceeding, the cable carriers did not provide any evidence to demonstrate that circumstances have changed since the high-speed access decision was issued. Accordingly, the Commission denies the cable carriers' request for the additional 10 percent markup.

85. In light of the above, the Commission decides that markups for wholesale residential high-speed access services should be comparable for all network providers and the same for all rate elements within one network provider's tariff, except that the access and usage rate elements of the ILECs' FTTN-based services are allowed a supplementary markup of 10 percent.

III. Reasonableness of the costs submitted by the network providers

86. The Commission notes that the network providers proposed rates[33] for their wholesale high-speed access services based on the associated Phase II costs[34] plus a specified markup. In this section, the Commission examines the various issues associated with the Phase II cost studies filed in support of the proposed FTTN-based service rates. These cost studies support the proposed monthly access, usage, and interface rates, as well as the proposed service charges.

87. The Commission has carefully reviewed the costing methodology and assumptions in each network provider's cost estimates and has made a number of adjustments. This section describes the various cost adjustments, which are addressed below in five subsections: i) Costing issues common to all network providers; ii) Costing issues common to all ILECs; iii) Other ILEC-specific costing issues; iv) Costing issues common to all cable carriers; and v) Other cable-carrier-specific costing issues. In addition, costing issues pertaining to the ILEC cost studies filed in support of service charges are addressed in subsection vi) ILEC-specific service charge costing issues.

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[33] In general, the ILECs proposed new rates for access, usage, and service charge components. MTS Allstream and SaskTel also proposed changes to their interface rates. The cable carriers proposed new rates for access and usage components only.

[34] Phase II costs reflect the costs of the prospective incremental resources used to provide the service, consistent with the costing methodologies and assumptions set out in the ILECs' approved regulatory economic study manuals.

88. Interveners raised other issues related to cost adjustments. The Commission has carefully examined these issues and has decided that no further adjustments are required.

i) Costing issues common to all network providers

a) Study period[35]

89. The cable carriers proposed a study period of ten years in estimating the costs of their wholesale high-speed access services. Bell Aliant in Atlantic Canada, the Bell companies, and SaskTel proposed a five-year study period. MTS Allstream also proposed a five-year study period, except for one-time start-up costs that are causal to the service, which it amortized over a ten-year study period. TCC proposed a three-year study period.

90. Primus recommended a ten-year study period, as it accurately reflects the service lives of the assets used to support wholesale FTTN-based services. The company submitted that a shorter study period would not allow service demand to fully develop, resulting in overestimated costs.

91. The ILECs were opposed to the use of a ten-year study period. They generally submitted that a cost study based on a ten-year study period would not yield realistic results, since it is not feasible to develop any meaningful forecast of demand, usage, technologies, and costs for the next ten years for services that do not exist and for services that will be influenced to a great degree by the rapid evolution of technology in the marketplace.

Commission's analysis and decisions

92. The Commission notes that the ILECs' economic study manuals state that the study period adopted for a service should capture the impact associated with the service's major cash flows, including any associated start-up costs. The Commission considers that a shorter study period would not permit the significant start-up costs for the service (e.g. POI aggregation[36] and FTTN start-up costs[37]) to be spread over an appropriate life for these costs. The Commission further considers that a longer study period of ten years would reflect potential reductions in capital unit costs that

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[35] The study period is the period of time over which revenue and cost cash flows caused by providing the service to the independent service provider are assessed. The study period need only be as long as necessary to ensure that all the significant causal cash flows are reflected in the study. Typically, the study period of a regulatory economic study is between three and ten years.

[36] In Telecom Regulatory Policy 2010-632, the cable carriers were required to implement network modifications to allow greater aggregation of retail customer traffic for their TPIA services, leading to a reduced number of interconnection points and facilitating network interconnection by competitors.

[37] FTTN start-up costs consist of costs for FTTN development and for network conditioning. FTTN development costs encompass Digital Subscriber Line Access Multiplexer (DSLAM) hardware and software upgrades to accommodate customer-based growth and/or to standardize technology. A DSLAM is a network device which connects multiple customer interfaces to a high-speed digital communications channel using multiplexing techniques. Network conditioning costs include costs for the review and testing of the copper loop, as well as costs for the removal of bridge taps and loading coils.

may occur over the years due to technological advancements and increases in network usage.

93. The Commission notes that using a ten-year study period for both the cable carriers and the ILECs would result in costs for services estimated over a consistent time frame. Accordingly, the Commission has adjusted the costs associated with the ILECs' cost studies to reflect a ten-year study period.

b) Traffic growth

94. The network providers based their usage cost studies on assumed peak traffic levels. They submitted that these levels were forecast based on historical data, trends, consumer demand, and the companies' best estimates of future traffic requirements.

95. All parties to the proceeding agreed that the retail Internet service market will continue to experience strong growth.

Commission's analysis and decisions

96. The Commission generally concurs with the approach taken by the network providers in estimating peak traffic levels at the beginning of their cost studies, with the exception of SaskTel. The Commission considers that SaskTel's peak traffic level is inconsistent and too high in comparison with the levels of the other ILECs, and that little evidence was provided to substantiate the level. Accordingly, the Commission has revised SaskTel's usage-driven capital costs downward by 22 percent to reflect peak traffic levels that are more consistent with those of the other ILECs.

97. The Commission notes that the traffic growth rates of the independent service providers' retail customers that were forecast over the study period varied significantly among network providers. For example, Bell Aliant in Atlantic Canada, the Bell companies, SaskTel, and TCC assumed a constant traffic growth rate per retail customer across all years of the study period, while the cable carriers estimated traffic growth in the 40 to 50 percent range in the early years of the study period, declining to levels of 20 to 30 percent by the end of the study period. The Commission notes that MTS Allstream's capacity model did not explicitly take into consideration forecasts of traffic growth rates per retail customer.

98. The Commission considers that all service providers in the high-speed access market will be subject to similar conditions and similar traffic growth rates in the long term. Accordingly, consistent with the approach set out in Telecom Decision 2006-77, for the cable carriers and the ILECs other than MTS Allstream, the Commission has applied two years of traffic growth rates per retail customer consistent with historical levels, followed by a constant growth rate of 20 percent for each of the remaining years of the study period.

c) Annual capital unit cost changes

99. Capital costs relate to the equipment required to provide wholesale high-speed access service. In this proceeding, there are two types of capital costs included in the proposed cost studies: access-driven capital costs[38] and usage-driven capital costs.[39]

100. CNOC submitted that one would expect a substantial increase in the capacity of equipment over time, leading to a substantial reduction in capital unit costs.

101. Bell Aliant in Atlantic Canada and the Bell companies submitted that the capital increase factors (CIFs)[40] used in their cost studies are asset-specific, are supported by thorough studies, and are the values that were filed with the Commission.

102. The cable carriers argued that their large historical unit cost reductions were primarily due to the introduction of DOCSIS 3.0,[41] which has a much larger capacity than earlier versions, and that they did not expect such reductions to reoccur in the future.

Commission's analysis and decisions

103. The Commission notes that the ILECs' and the cable carriers' capital unit costs have decreased on average over the last four years by an amount that is significantly greater than the annual capital unit cost changes proposed in their cost studies.[42]

104. The Commission considers that the historical changes in Internet-related capital unit costs demonstrate the suppliers' ability to meet rising demand by increasing equipment capacity at a lower cost per unit due to technological advancements. The Commission also considers that, due to the rapid growth in Internet traffic and Internet applications, suppliers will further increase equipment capacity to meet increasing traffic demand, leading to further significant reductions in capital unit costs over time.

105. The Commission notes that the ILECs' proposed CIFs, which reflect corporate average unit cost changes for general classes of assets, are in line with the approved filing process set out in their regulatory economic study manuals. However, this does not preclude the use of service-specific capital unit cost changes that are deemed more appropriate.

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38 Equipment such as the ILECs' DSLAMs is access-driven. For this type of equipment, capacity is apportioned to retail customers and expressed as number of accesses.

39 Equipment such as switches and routers that make up the aggregation transport network and the cable companies' Cable Modem Termination System (CMTS) is usage-driven. For this type of equipment, the capacity is expressed as an amount of peak traffic usage (Kbps or Mbps).

40 CIFs are forecasts of year-over-year price level changes for capital equipment.

41 Data Over Cable Service Interface Specification (DOCSIS) is an international telecommunications standard that permits the addition of high-speed data transfer to an existing cable system.

42 Capital unit cost changes in ILECs' cost studies reflect CIFs net of productivity increase factors.

106. In light of the above, the Commission considers that, for all ILECs, annual capital unit cost changes of minus 5 percent for access-driven equipment and minus 10 percent for usage-driven equipment provide reasonable estimates of the impact of expected equipment capacity increases and unit cost reductions over the study period. The Commission has therefore applied these figures.[43]

107. The Commission notes that the cable carriers' historical changes in capital unit costs are not broken down between access-driven and usage-driven capital. The Commission further notes that the majority of the cable carriers' equipment is usage-driven equipment.

108. Accordingly, for all cable carriers, the Commission has applied annual capital unit cost changes of minus 10 percent for all equipment over the study period.

d) Study start date

109. The Commission notes that the network providers proposed a study period beginning on 1 January 2011 or earlier. Consistent with the annual capital unit cost changes section above, the Commission has re-estimated the monthly service costs provided by these companies by applying unit cost changes to reflect a study start date of 1 July 2011, in line with the month the service was effective on an interim basis. The Commission has also included additional unit cost changes in certain cases where the capital costs had to be adjusted to reflect the proposed study start date.

e) Issues related to the use of the capacity costing approach

110. Costs of shared facilities such as switching and transmission facilities are estimated using the capacity costing approach. Under this approach, the capacity unit cost is derived by dividing the cost of the shared facility by its capacity and adjusting that result to take into account the non-service-producing, or spare, capacity. Capacity costs are assigned to a service making use of the shared facility, based on that service's relative use of that facility's capacity (measured in terms of peak traffic usage). Therefore, if one service has greater use of the shared facility, it will consume a greater proportion of the capacity and thus incur higher costs.

Adjustments to the proposed capacity unit costs

111. CNOC submitted that the cost effect of high-growth and high-bandwidth services (such as Internet Protocol television (IPTV) or video on demand) that share facilities with wholesale high-speed access services is not appropriately captured in the ILECs' and the cable carriers' capacity cost estimates. CNOC indicated that high-bandwidth services like IPTV will increase current capacities over the study

[43] Annual capital unit cost changes are applied to the capital in a cumulative manner. For example, with a capital unit cost change of 10 percent, a capital cost in the first year will be restated in the second year by applying a factor of (1 - 0.1), or 0.9, and further restated in the next year by applying a cumulative factor of (0.9 x 0.9), or 0.81.

period and cause unit costs to decline. CNOC further submitted that the effect of this increased capacity over time has been ignored in the development of the causal costs of wholesale high-speed access services.

112. The Commission considers that annual capital unit cost changes have implicitly taken into account the above-noted expected increases in capacity over time.

Adjustments to the proposed peak traffic usage levels

113. CNOC submitted that the ILECs' IPTV service will increasingly dominate bandwidth use in peak periods over the study period, thereby reducing peak period bandwidth use of the retail Internet service to accommodate the higher-priority IPTV service. CNOC therefore requested that the Commission modify the wholesale cost results to reflect reduced bandwidth use by Internet services in peak periods.

114. CNOC similarly argued that the cable carriers' cable television and video on demand services that share the same node segmentation[44] and transport equipment would increasingly dominate bandwidth use in peak periods over the study period, as these services must be delivered in real time.

115. However, CNOC provided no evidence to support its claims and proposed no quantitative adjustments to apply to the network providers' capacity costs.

116. The Commission notes that numerous factors other than those identified by CNOC can potentially change bandwidth use in peak periods, such as general traffic growth per retail customer, new Internet applications, and changes to retail and wholesale pricing plans. Therefore, the Commission considers that no further adjustments are required for the network providers' proposed peak traffic usage levels, beyond the adjustments made to the assumptions regarding traffic growth per retail customer, as identified above.

ii) Costing issues common to all ILECs

a) Digital Subscriber Line Access Multiplexer (DSLAM) labour

117. The FTTN DSLAM costs proposed by the ILECs are comprised of two components: equipment and labour.

118. The labour component of the proposed FTTN DSLAM costs varied significantly across ILECs. For example, Bell Aliant in Atlantic Canada, the Bell companies, and MTS Allstream proposed significantly higher labour components than SaskTel and TCC proposed. Furthermore, in the case of the Bell companies, the labour component of their proposed FTTN DSLAM costs was significantly higher than the

[44] Node segmentation refers to the increased rollout of optical fibre nodes in the local network plant to permit splitting of coaxial cable segments and thus increasing the bandwidth available to customers.

labour component of the non-FTTN DSLAM costs they proposed in the proceeding leading to Telecom Decision 2010-255.

119. The Bell companies submitted that their FTTN DSLAMs have a much smaller capacity than their non-FTTN DSLAMs, thus supporting higher labour costs per access.

Commission's analysis and decisions

120. The Commission notes that a significant portion of the FTTN DSLAM labour costs is based on estimates from subject matter experts. The Commission also notes that FTTN DSLAM capacities are similar for all ILECs. The Commission considers that the FTTN DSLAM labour costs proposed by Bell Aliant in Atlantic Canada, the Bell companies, and MTS Allstream are too high compared to those proposed by SaskTel and TCC. The Commission notes that there is no evidence on the record justifying the higher costs.

121. In light of the above, for Bell Aliant in Atlantic Canada, the Bell companies, and MTS Allstream, the Commission has capped the labour component at 40 percent of total FTTN DSLAM costs.

122. The Commission notes that DSLAM labour costs comprise costs for various engineering and installation activities, including a number of civil work activities such as building copper cable splices, trenching, site excavation, concrete pad construction, electrical power installation, and inspection. The Commission notes that Bell Aliant in Atlantic Canada's and the Bell companies' proposed civil work activities were assumed to have the same life estimate as that of the DSLAM equipment itself, which is shorter than the 18-year life estimate assumed by MTS Allstream for similar activities.

123. The Commission considers that the useful life of activities associated with the civil work portion of DSLAM labour costs will exceed the life estimate of the DSLAM equipment and can be expected to be similar to the useful life of copper cable (18 years). Accordingly, the Commission considers it appropriate to adjust the civil work portion of Bell Aliant in Atlantic Canada's and the Bell companies' DSLAM labour costs to reflect a life estimate of 18 years.

b) Start-up costs related to FTTN development and network conditioning

124. Bell Aliant in Atlantic Canada and the Bell companies proposed to include historical FTTN development costs in their wholesale residential high-speed access cost studies. The Bell companies also proposed to include historical and forward-looking network conditioning costs.[45]

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[45] Under the Bell companies' proposal, a percentage of the network conditioning costs was attributed to the wholesale residential high-speed access service based on the proportion of wholesale residential FTTN demand relative to the total of wholesale and retail residential FTTN demand for the year 2015.

125. For the historical FTTN development costs, Bell Aliant in Atlantic Canada and the Bell companies submitted that inclusion of development costs that might otherwise have been considered sunk is consistent with previous Commission rulings with respect to the recovery of unrecovered costs causal to service.[46]

126. Primus submitted that FTTN development costs were not caused by the requirement to provide wholesale high-speed access services and should be excluded from the cost study.

127. With respect to network conditioning costs, CNOC and Primus submitted that these costs were incurred for the Bell companies' retail FTTN services and were not caused by the introduction of wholesale FTTN services. Primus submitted that the Bell companies are performing network conditioning on all lines in an entire area, thus permitting their retail customers who request services requiring high capacity to obtain these services immediately. Primus also submitted that the requirement for an FTTN network is driven primarily by the Bell companies' plan to offer IPTV service so that they can compete effectively against the cable carriers.

Commission's analysis and decisions

128. The Commission considers that Bell Aliant in Atlantic Canada's and the Bell companies' FTTN development costs are neither prospective nor a result of the offering of wholesale high-speed access services. Accordingly, the Commission has removed these costs from Bell Aliant in Atlantic Canada's and the Bell companies' cost studies.

129. With regard to network conditioning costs, the Commission notes that Bell Aliant in Atlantic Canada performs network conditioning activities individually for each retail customer who orders an FTTN-based service. The Commission therefore considers that the network conditioning costs attributed to Bell Aliant in Atlantic Canada's wholesale FTTN-based services are appropriate.

130. The Commission notes that, in contrast with Bell Aliant in Atlantic Canada's practice, the Bell companies condition an entire distribution area where they intend to introduce retail broadband services, including IPTV. The Commission also notes that the Bell companies' network conditioning costs reflect a mix of costs incurred prior to July 2011 and costs expected to be incurred between July 2011 and the end of 2014.

131. The Commission considers that network conditioning costs incurred prior to July 2011 are neither prospective nor causal to the introduction of wholesale high-speed access services. With respect to the proposed network conditioning costs incurred between July 2011 and the end of 2014, the Commission considers that 50

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[46] Costs causal to service are those costs incurred to support the introduction of a new wholesale service, such as the one-time costs for modifying a billing system to accommodate the new wholesale service. Unrecovered costs causal to service are past introduction costs that have not been fully recovered through previously approved rates.

percent of those costs should be removed to recognize that the Bell companies incur network conditioning activities to permit the simultaneous offering of retail Internet and IPTV services.

132. The Commission notes that the Bell companies proposed to assign a greater portion of their network conditioning costs to the wholesale 16 Mbps and 25 Mbps speed options than to the lower wholesale speed options. The Commission considers that the network conditioning costs attributed to wholesale high-speed access service should be distributed uniformly across all wholesale FTTN speed options, in light of the Bell companies' practice of provisioning network conditioning to all customers in the distribution area. The Commission has accordingly made further adjustments to the network conditioning costs.

iii) Other ILEC-specific costing issues

133. Additional adjustments made by the Commission to each ILEC's proposed monthly cost studies, along with the rationale for each adjustment, are provided in Table 1 of Appendix 3 to this decision.

iv) Costing issues common to all cable carriers

a) Proposed demarcation between access and usage

134. In its final comments, Shaw submitted that a demarcation should be drawn between access and usage so that the costs of all components of the Cable Modem Termination System (CMTS) are treated as access-driven costs for rate-setting purposes. Cogeco, RCP, and Videotron Ltd. (Videotron) submitted that this delineation is inappropriate, as it would include costs associated with components that are usage-driven.

Commission's analysis and decisions

135. The Commission agrees with Cogeco, RCP, and Videotron that the costs of some CMTS components are usage-driven costs. Accordingly, the Commission determines that it would not be appropriate to treat the costs of all CMTS components as access-driven costs for rate-setting purposes, as proposed by Shaw.

136. The Commission notes that, in comparison with Cogeco and Videotron, RCP assumed that a smaller proportion of its equipment would be usage-driven. Since all cable carriers use similar technology and network architecture, the Commission considers that the split between usage and access costs should be similar for all cable carriers. Accordingly, the Commission determines that it would be appropriate to reassign some of RCP's access-driven costs as usage-driven costs, such that RCP's usage-driven TPIA costs as a percentage of its total TPIA costs are in line with those of Cogeco and Videotron.

b) TPIA demand

137. The cable carriers forecasted low annual growth rates for total wholesale and retail high-speed access demand, as well as low percentages of TPIA demand relative to total access demand.

138. In response to a Commission question regarding the use of an annual total demand growth of 4 percent and a projected wholesale TPIA share of total demand of 5 percent by 2020 in their TPIA cost models, Shaw and Videotron submitted that these demand assumptions would not be in line with their experience.

Commission's analysis and decisions

139. The Commission notes that the use of an annual total demand growth of 4 percent is in line with the cable carriers' historical Internet demand growth rates and that TPIA demand is expected to be higher with the implementation of aggregated POIs than it was in the cable carriers' historical wholesale experience.

140. Accordingly, the Commission concludes that it is appropriate to apply an annual total demand growth of 4 percent and a wholesale TPIA share of total demand of 5 percent by 2020 to calculate the TPIA service Phase II costs.

c) Existing TPIA billing and provisioning servers and software

141. CNOC submitted that Videotron misapplied the Phase II costing methodology by including the cost of its existing TPIA billing and provisioning servers and software in its cost study at "replacement cost new" instead of "net salvage value."

142. The Commission notes that Videotron introduced its TPIA service in 2001 and that the billing and provisioning servers and software are required for that service. Given the life estimates for these servers and this software, and the time elapsed since the introduction of Videotron's TPIA service, the Commission concludes that it would be appropriate for Videotron to include the servers and software in its cost study at "replacement cost new."

v) Other cable-carrier-specific costing issues

143. The Commission notes that the cable carriers have used certain costing assumptions in their access cost studies that are inconsistent with the cost determinations in Telecom Decision 2006-77. The Commission considers that the cable carriers did not provide sufficient justification for these differences. Therefore, the Commission concludes that it is appropriate to adjust the monthly access cost studies submitted by the cable carriers to reflect the cost determinations in Telecom Decision 2006-77.

144. These and other cost adjustments to each cable carrier's proposed costs, along with the rationale for each adjustment, are provided in Table 2 of Appendix 3 to this decision.

vi) ILEC-specific service charge costing issues

145. The ILECs proposed service charge rates to recover the various one-time activity costs they incur to establish wholesale high-speed access services for an independent service provider's retail customer. They calculated the majority of the activity costs used to determine these rates by multiplying the time it takes to perform the activity (time estimate) by the labour unit cost for the ILEC employee performing the work, as well as the frequency of occurrence (occurrence rate). In some instances, however, the activity costs were calculated using actual expenditures or a vendor fee (e.g. Bell Technical Solutions[47] charges the Bell companies for fieldwork at remote sites).

146. The Commission notes that the ILECs have provided, in confidence, time estimates and occurrence rates for their service charge activities and corresponding labour unit costs. The Commission also notes that the proposed time estimates and occurrence rates for a given activity vary considerably across the ILECs. In the Commission's view, the discrepancies among the ILECs' estimates are greater than would reasonably be expected. The Commission notes that the proposed time estimates and occurrence rates were largely based on estimates from subject matter experts and were not supported by empirical evidence, such as measured data or time and motion studies.

147. Accordingly, as set out in Table 3 of Appendix 3, the Commission has adjusted each ILEC's proposed time estimates and occurrence rates for service charge activities, and has provided its rationale.

IV. Other matters

Transition from disaggregated POIs to aggregated POIs

148. The high-speed access decision mandated aggregated POIs but did not establish a transition period after which disaggregated POIs would no longer be offered.

149. The cable carriers submitted that they are prepared to maintain disaggregated POIs during a transition period of up to six months after the date of the Commission's decision in this proceeding. They also submitted that independent service providers with interconnections at the disaggregated POIs will be permitted to establish additional backhaul facilities,[48] provided that the contract term for such facilities does not extend beyond the termination date for facilities already in use. The cable carriers stated that the implementation of such a transition period will facilitate a clean cut-off date by which all facilities and customers must be migrated to aggregated POIs.

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[47] Bell Technical Solutions is a wholly owned subsidiary of Bell Canada Enterprises.

[48] Backhaul facilities are the transmission links that interconnect the independent service provider's network with the network provider's network at an interface point (e.g. a cable carrier's POI). The independent service provider, which is responsible for obtaining these links, can lease them from a number of service providers.

150. CNOC submitted that existing TPIA customers should not be penalized by the new aggregation regime by being forced to migrate to aggregated POIs when they (a) have entered into multiple-year contracts with providers of transport services between cable carriers' POIs and the TPIA customer's network, or (b) have signed retail customers up for longer-term contracts for retail high-speed access service, which cannot be re-priced or terminated to reflect any costs of migrating to aggregated POIs.

151. CNOC submitted that TPIA customers should have the choice of interconnecting to existing or any new disaggregated POIs at existing TPIA rates. CNOC further submitted that it is necessary to retain alternative local POI arrangements. It argued that, unlike the ILECs' wholesale high-speed access services, which often offer many interconnection points, TPIA services do not typically offer customers a choice of multiple convenient interconnection locations in a cable carrier's operating territory.

Commission's analysis and decisions

152. The Commission considers that a transition period is necessary to give independent service providers the time necessary to fulfill or modify their existing term contracts and to modify their business and marketing plans in order to take advantage of the new aggregated POIs. The Commission also considers that implementing a transition period that is too long would result in cable carriers having to make investments to maintain disaggregated POIs.

153. The Commission decides that the transition period for the migration of customers from disaggregated POIs to aggregated POIs will be two years, beginning the date of this decision. Independent service providers that currently interconnect at an existing disaggregated POI will be allowed to add retail customers and POI capacity at that POI during the transition period. After the transition period, the cable carriers will only be required to provide service at aggregated POIs.

Monthly equivalent payment option for the access service charge

154. Generally, network providers collect service charges through a one-time, upfront payment. However, some network providers also offer a payment plan for legacy services that allows independent service providers to pay monthly equivalent amounts over a set period of time.

155. CNOC requested that the Commission mandate the ILECs and the cable carriers to offer a monthly payment plan for service charges for the monthly access charges. CNOC submitted that high service charges constitute a significant barrier to entry and that, while payments should ensure that network providers can recover their costs in full, monthly payment plans would ensure that these service charges do not constrain demand.

156. The ILECs submitted that service charges should be recovered up front and that mandating a monthly payment plan would (a) require them to assume financial risk, particularly in situations where their costs would not be fully recovered – for example, if the service is installed for only a short period of time; (b) lead to an increase in the service charge rate to account for additional administrative and billing costs; and (c) be inconsistent with the Policy Direction requirement for the Commission to rely on market forces to the maximum extent possible.

Commission's analysis and decisions

157. The Commission considers that the one-time costs associated with these service charges represent a significant cost for the network providers and that it is reasonable for them to require that these costs be recovered in a timely manner. The Commission concludes that it is inappropriate to require the network providers to bear the financial risk in situations where the customer cancels service before the total service charge payments have been collected.

158. Therefore, the Commission denies CNOC's request to require the network providers to implement a monthly payment plan for service charges related to monthly access charges.

Contract term and volume commitment rates

159. TCC proposed rates based on minimum contract periods in addition to its monthly wholesale high-speed access rates. The other ILECs and the cable carriers did not propose rates associated with contract terms or volume commitments.

160. CNOC submitted that rates associated with contract terms and volume commitments should be mandated for all wholesale high-speed access services. CNOC submitted that a service with contract terms and volume commitments reduces the risk and hence the cost of capital of the network provider, which should be reflected in a lower markup.

Commission's analysis and decisions

161. The Commission notes that the wholesale high-speed access rates established in this decision are based on Phase II costs plus a specified markup. Further, the Commission notes that no evidence was filed on the record of this proceeding to demonstrate that Phase II costs would vary depending on contract length or volume commitment. The Commission therefore considers that there is no rationale to support CNOC's request to reduce the markup to offer lower rates for wholesale high-speed access services offered through contract terms or volume commitments.

162. The Commission notes that, consistent with its determinations in Telecom Regulatory Policy 2009-19, independent service providers have the ability to negotiate rates for contract terms and volume commitments with the network providers.

163. Accordingly, the Commission denies CNOC's request that network providers be required to provide term and volume commitments for all wholesale high-speed access services.

Annual review of usage rates

164. Cogeco, RCP, and Videotron proposed that wholesale high-speed access rates be reviewed annually, as usage forecasts are highly speculative. CNOC also requested an annual review to ensure that the rates remain appropriate.

165. The Bell companies proposed that rates be set based on the economic average usage costs (per GB or Mbps) over the study period, with no periodic update.

Commission's analysis and decisions

166. The Commission notes that rates are generally fixed over a multi-year study period and are based on average economic costs over that study period. The Commission notes that this is the traditional approach used to determine wholesale service rates. The Commission considers that it is reasonable to set wholesale high-speed access rates using this approach.

167. The Commission also considers that reviewing usage rates annually would create uncertainty regarding the ongoing rates. This uncertainty would interfere with the independent service providers' ability to establish long-term business and marketing plans, and their ability to sign retail customers to long-term contracts.

168. Further, the Commission considers that annual reviews would result in significant additional administrative effort and costs for both the network providers and the independent service providers.

169. Consistent with the Policy Direction, the Commission therefore considers that an annual rate review would not be efficient, minimally intrusive, or proportionate to its purpose. Consequently, the Commission decides that, at this time, it would be inappropriate to mandate an annual review of the wholesale high-speed access rates.

Changes to TPIA service proposed by CNOC and Distributel

170. Distributel, supported by CNOC, submitted a list of changes which it considered would be required to make TPIA services more attractive to the independent service providers.

171. Distributel submitted that there are issues with TPIA services with respect to matching retail customers with Internet Protocol (IP) addresses, facilitating the use of competitive backhaul facilities, making it easier to load balance and deploy route diversity across multiple interconnecting facilities, changing business processes,

and deploying IP version 6 (IPv6).[49] No comments on these matters were received from the network providers.

Commission's analysis and decisions

172. In terms of matching IP addresses with retail customers, the Commission notes that a solution was developed by the CRTC Interconnection Steering Committee (CISC) and approved by the Commission in Telecom Decision 2007-1. Accordingly, independent service providers are already able to request the capability to track a retail customer's IP address from the cable carrier.

173. With respect to Distributel's other concerns, the Commission considers that insufficient details were provided to enable it to fully understand the specific problems, the changes requested by the independent service providers, and the priority in which to address each issue. Parties may submit applications providing specific details with respect to the changes to the TPIA service that they consider desirable.

TCC amalgamation of speed offerings

174. In its tariff filing, TCC proposed, among other things, to combine its separate wholesale rates for legacy speeds of 1.5, 2.5, 3, 4, and 6 Mbps to create one rate for access speeds ranging from 1.5 Mbps to 6 Mbps,[50] consistent with its retail service offering.

175. TCC submitted that its proposed tariff revisions will simplify the current tariff by eliminating several outdated speed offerings and will recognize that the service is provided on a best-effort basis up to the maximum speed for each service option. TCC stated that for retail customers with a current speed profile of lower than 6 Mbps, that profile will be maintained until TCC receives a customer request to migrate to the maximum speed available. TCC also stated that a service charge will not be applied for moving a retail customer to a faster speed within the 1.5 to 6 Mbps range.

176. In general, the Peace Region Internet Society (PRiS) and the independent service providers submitted that the existing separate rates should be maintained. Certain independent service providers submitted that TCC's proposed rate structure would lead to an increase in the cost of access incurred by independent service providers offering Internet access service to residential retail customers whose high-speed access connections cannot support a speed greater than 3 Mbps. PRiS added that the proposed pricing scheme does nothing to encourage TCC to increase wholesale service speeds up to 6 Mbps.

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[49] IPv6 is the Internet's next-generation protocol, designed to replace the current IPv4. IPv6 allows more users and devices to communicate on the Internet by using bigger numbers to create IP addresses.

[50] Over long distances, actual available speeds may be lower than 6 Mbps.

Commission's analysis and decisions

177. The Commission notes that TCC's amalgamation proposal will result in a minimal price increase for independent service providers; for example, the 3 Mbps service is currently $19.00 per month, and the rate determined in this decision for service up to 6 Mbps is $19.25 per month per retail customer.

178. The Commission has approved similar service offerings for MTS Allstream and SaskTel, which offer wholesale Internet services with access rates that cover a range of speeds up to a maximum. The Commission notes that TCC's proposal is also consistent with the rate structure of its existing retail service offering.

179. In light of the above, the Commission decides that TCC's amalgamation proposal is acceptable.

V. Wholesale rates

180. In light of its decisions above, the Commission finds that the wholesale residential high-speed access service rates for each ILEC[51] and each cable carrier, listed in the tables in Appendix 1 to this decision, are just and reasonable. Accordingly, the Commission **approves on a final basis** the monthly rates and service charges set out in Appendix 1.

181. The Commission notes that these approved monthly rates and service charges reflect the network providers' cost estimates submitted in response to the Commission's questions, as adjusted to reflect the costing conclusions in this decision plus an appropriate markup.

VI. Retroactive application, if any, of the rates

182. In Telecom Order 2011-377, the Commission established interim rates for wholesale high-speed access services at a specific discount from the network providers' retail rates. In that order, the Commission refrained from making a decision on whether the final rates would be set retroactively. Instead, the Commission noted the following:

> At this point in time, the Commission is of the view that, in its final decisions, it will likely make retroactive adjustments to the interim access rates as well as to the other fees and charges. The Commission will, however, make its decision on any retroactive adjustments in light of the submissions of the parties.

[51] The approved capacity rate for the Bell companies is set based on FTTN usage costs plus the appropriate markup. This rate is to apply to both legacy and FTTN usage. Further, for the Bell companies, the approved legacy access rates combined with the approved capacity rate are equivalent to the flat rates approved in Telecom Decision 2010-255.

183. The Bell companies submitted that final rates for their FTTN-based services must be made retroactive to the date of interim approval. They also submitted that they are at a significant disadvantage in the marketplace in that they are required to offer FTTN-based services without usage pricing, which allows independent service providers to market their services with unlimited plans without having to pay for usage.

184. CNOC submitted that the Commission should not increase the interim rates for these services on a retroactive basis given how long independent service providers have had to wait for the ILECs' FTTN services and the cable carriers' POI aggregation services, and the resulting disadvantage they have faced during that period. CNOC further submitted that the interim rate structure, coupled with the uncertainty created by the possibility of adverse retroactive adjustments to rates, has not led to aggressive competition on the part of independent service providers that are using the Bell companies' new services.

185. Certain independent service providers submitted that they would be harmed by a retroactive application of higher rates, as they cannot re-bill retail customers, and would be affected if they had to increase future rates to recover any retroactive changes. Primus stated that the final rates established at the end of the process, whether higher or lower than the rates established on an interim basis, should not be applied retroactively.

186. Vaxination stated that the company from which it obtains its retail Internet services is not offering the new FTTN-based services because of the risk involved with retroactive billing.

Commission's analysis and decisions

187. The Commission notes that the difference between the final rates established in this decision and the interim rates set out in Telecom Order 2011-377 varies depending on the network provider and the service speed offered, with some rates being higher and others lower. The Commission also notes that, as stated above, due to the uncertainty of retroactive adjustments, some independent service providers submitted that either they did not plan to offer the new higher-speed services with interim rates or they were not strongly promoting these new services. Accordingly, the Commission considers that any retroactive adjustments would be minimal when estimated per independent service provider.

188. In addition, the Commission notes that where the final rates have been set based on the approved capacity model, it would be extremely complex to estimate the revenue impacts during the interim period, as the data for capacity estimation are generally not available.

189. In light of the above, the Commission decides that final rates will not be applied retroactively.

VII. Implementation

190. The Bell companies, Cogeco, MTS Allstream, RCP, and Videotron filed tariffs in this proceeding based on a billing model with separate access and usage rates. Accordingly, the Commission **approves on a final basis** the tariff notices filed by these companies (see Appendix 2) as modified by this decision, including the approved capacity model and the rates listed in Appendix 1, effective **1 February 2012**. The Commission directs each of these companies to issue, by **19 December 2011**, tariff pages that reflect this decision and the rates listed in Appendix 1.

191. The Commission notes that these network providers may incur additional service order costs related to the provision of services to independent service providers. Accordingly, the Commission

- determines that under the approved capacity model, the service charge rate associated with the network capacity, in 100 Mbps increments, would be applied on a per-order basis, independent of the number of increments;

- directs the Bell companies, Cogeco, MTS Allstream, RCP, and Videotron to file for approval, by **19 December 2011**, tariffs and supporting cost studies for the proposed service charge rate; and

- directs MTS Allstream to file for approval, by **19 December 2011**, a tariff and supporting cost study for the service charge rate for a stand-alone interface component.

192. Bell Aliant in Atlantic Canada, SaskTel, Shaw, and TCC filed tariffs in this proceeding based on a flat rate model. Accordingly, the Commission **approves on a final basis** the tariff notices filed by these companies (see Appendix 2) as modified by this decision, including the rates listed in Appendix 1, effective the date of this decision. The Commission directs each of these companies to issue tariff pages, by **2 December 2011**, that reflect this decision and the rates listed in Appendix 1.

VIII. Compliance with the Policy Direction

193. The Policy Direction states that the Commission, in exercising its powers and performing its duties under the Act, shall implement the policy objectives set out in section 7 of the Act, in accordance with paragraphs 1(*a*), (*b*), and (*c*) of the Policy Direction.

194. The regulatory measures under consideration in this decision are of an economic nature and deal with network access regimes. Therefore, subparagraph 1(*a*)(ii)[52] and subparagraphs 1(*b*)(i), (ii), and (iv)[53] of the Policy Direction apply to the Commission's decisions. Consistent with subparagraph 1(*a*)(ii) of the Policy Direction, in all cases where the Commission has imposed regulatory requirements on the incumbents, it has adopted measures that are efficient and proportionate to their purpose. In this regard, the Commission has approved billing models that are consistent with how the network providers plan and build their own networks and thus can be implemented with limited billing system changes.

195. Consistent with subparagraph 1(*b*)(i) of the Policy Direction, the Commission considers that the policy objectives set out in paragraphs 7(*a*), (*b*), (*c)*, (*f*), and (*h*) of the Act are advanced by the regulatory measures established in this decision.[54] The Commission also considers that the objective in paragraph 7(*c*) of the Act – to enhance the efficiency and competitiveness, at the national and international levels, of Canadian telecommunications – is of particular relevance. This decision ensures that the retail Internet service market will remain competitive, thus allowing the delivery of high-quality services and responding to retail customers' economic and social requirements.

196. To ensure that competition in retail residential Internet service markets remains sufficient to protect the interests of retail customers as service speeds increase, the Commission has approved billing models that significantly increase flexibility as compared to a per-customer wholesale UBB model. These approved models enable independent service providers to design and price their retail services in the manner they find most appropriate for their retail customers. Consistent with its findings in the essential services decision (Telecom Decision 2008-17), the Commission

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[52] Subparagraph 1(*a*)(ii) states that the Commission should, "when relying on regulation, use measures that are efficient and proportionate to their purpose and that interfere with the operation of competitive market forces to the minimum extent necessary to meet the policy objectives."

[53] Paragraph 1(*b*) states: "the Commission, when relying on regulation, should use measures that satisfy the following criteria, namely, those that (i) specify the telecommunications policy objective that is advanced by those measures and demonstrate their compliance with this Order, (ii) if they are of an economic nature, neither deter economically efficient competitive entry into the market nor promote economically inefficient entry, ... and (iv) if they relate to network interconnection arrangements or regimes for access to networks, buildings, in-building wiring or support structures, ensure the technological and competitive neutrality of those arrangements or regimes, to the greatest extent possible, to enable competition from new technologies and not to artificially favour either Canadian carriers or resellers."

[54] The cited policy objectives of the Act are

7(*a*) to facilitate the orderly development throughout Canada of a telecommunications system that serves to safeguard, enrich and strengthen the social and economic fabric of Canada and its regions;
7(*b*) to render reliable and affordable telecommunications services of high quality accessible to Canadians in both urban and rural areas in all regions of Canada;
7(c) to enhance the efficiency and competitiveness, at the national and international levels, of Canadian telecommunications;
7(*f*) to foster increased reliance on market forces for the provision of telecommunications services and to ensure that regulation, where required, is efficient and effective; and
7(*h*) to respond to the economic and social requirements of users of telecommunications services.

considers that the provision of wholesale high-speed access services, according to the billing models and at the rates established in this decision, neither deters economically efficient competitive entry into retail Internet service markets nor promotes economically inefficient entry.

Secretary General

Related documents

- *Billing practices for wholesale business high-speed access services,* Telecom Regulatory Policy CRTC 2011-704, 15 November 2011
- *Interim rates for wholesale residential and business high-speed access services,* Telecom Order CRTC 2011-377, 15 June 2011
- *Review of billing practices for wholesale residential high-speed access services*, Telecom Notice of Consultation CRTC 2011-77, 8 February 2011, as amended by Telecom Notice of Consultation CRTC 2011-77-1, 17 March 2011, and Telecom Notice of Consultation CRTC 2011-77-2, 8 April 2011
- *Usage-based billing for Gateway Access Services and third-party Internet access services*, Telecom Decision CRTC 2011-44, 25 January 2011
- *Usage-based billing for Gateway Access Services and third-party Internet access services*, Telecom Notice of Consultation CRTC 2010-803, 28 October 2010
- *Bell Aliant Regional Communications, Limited Partnership and Bell Canada – Application to review and vary Telecom Decision 2010-255 concerning usage-based billing for Gateway Access Services*, Telecom Decision CRTC 2010-802, 28 October 2010
- *Wholesale high-speed access services proceeding,* Telecom Regulatory Policy CRTC 2010-632, 30 August 2010
- *Bell Aliant Regional Communications, Limited Partnership and Bell Canada – Applications to introduce usage-based billing and other changes to Gateway Access Services*, Telecom Decision CRTC 2010-255, 6 May 2010
- *Applications by Teksavvy Solutions Inc. and MTS Allstream Inc. to review and vary portions of Telecom Order 2009-484 regarding usage-based billing for Bell Aliant Regional Communications, Limited Partnership's and Bell Canada's residential Gateway Access Services*, Telecom Decision CRTC 2009-658, 21 October 2009
- *Review of the Internet traffic management practices of Internet service providers*, Telecom Regulatory Policy CRTC 2009-657, 21 October 2009

- *Bell Aliant Regional Communications, Limited Partnership and Bell Canada – Applications to introduce usage-based billing and other changes to Gateway Access Services*, Telecom Order CRTC 2009-484, 12 August 2009

- *Cybersurf's application related to the implementation of Telecom Decision 2008-117 regarding the matching speed requirement*, Telecom Order CRTC 2009-111, 3 March 2009

- *Bell Canada et al.'s application to review and vary Telecom Decision 2008-17 with respect to negotiated agreements*, Telecom Regulatory Policy CRTC 2009-19, 19 January 2009

- *Cybersurf Corp.'s application related to matching service speed requirements for wholesale Internet services*, Telecom Decision CRTC 2008-117, 11 December 2008

- *Revised regulatory framework for wholesale services and definition of essential service*, Telecom Decision CRTC 2008-17, 3 March 2008

- *CRTC Interconnection Steering Committee – Consensus items*, Telecom Decision CRTC 2007-1, 9 January 2007

- *Cogeco, Rogers, Shaw, and Videotron – Third-party Internet access service rates*, Telecom Decision CRTC 2006-77, 21 December 2006

- *Terms and rates approved for large cable carriers' higher speed access service*, Order CRTC 2000-789, 21 August 2000

- *Forbearance from retail Internet services*, Telecom Order CRTC 99-592, 25 June 1999

- *Regulation under the Telecommunications Act of certain telecommunications services offered by "broadcast carriers"*, Telecom Decision CRTC 98-9, 9 July 1998

Appendix 1

Approved rates for wholesale residential high-speed access services

I) Approved capacity model – Approved access rates[55] and capacity rates

Bell companies

Speed	Monthly access rate (without usage)
0.5 Mbps	$14.11
2 Mbps	$14.11
5 Mbps	$14.11
6 Mbps	$24.70
7 Mbps	$24.70
10 Mbps	$24.84
12 Mbps	$24.84
16 Mbps	$24.98
25 Mbps	$25.00

Speed	Monthly capacity rate per 100 Mbps
100 Mbps	$2,213

[55] The access rate allows for the recovery of access costs without usage. “Speed” refers to the maximum speed available for retail customers of independent service providers, as service speeds are provided on a best-effort basis.

Cogeco

Speed	Monthly access rate (without usage)
3 Mbps	$12.73
7 Mbps	$14.78
14 Mbps	$15.06
30 Mbps	$24.98
50 Mbps	$42.05

Speed	Monthly capacity rate per 100 Mbps
100 Mbps	$2,695

MTS Allstream

Speed	Monthly access rate (without usage)
32 Mbps	$23.08

Speed	Monthly capacity rate[56] per 100 Mbps
100 Mbps	$281

[56] MTS Allstream's monthly rate for capacity results from the size and relative simplicity of its network, which provides service in only three exchanges, and from its network design, which differs from that of the Bell companies. As a result of the network design, certain functionality is not required in MTS Allstream's network (e.g. broadband remote access server functionality). In addition, certain costs are captured in a one-time service charge rather than in the monthly capacity rate.

RCP

Speed	Monthly access rates (without usage)
0.5 Mbps	$11.97
3 Mbps	$12.31
10 Mbps	$14.25
15 Mbps	$19.06
25 Mbps	$21.00
50 Mbps	$22.69

Speed	Monthly capacity rate per 100 Mbps
100 Mbps	$1,251

Videotron

Speed	Monthly access rate (without usage)
2.5 Mbps	$12.79
7.5 Mbps	$15.37
15 Mbps	$22.35
30 Mbps	$23.77
50 Mbps	$26.89
120 Mbps	$37.01

Speed	Monthly capacity rate per 100 Mbps
100 Mbps	$1,890

II) Flat rate model – Approved access rates[57]

Bell Aliant in Atlantic Canada

Speed	Monthly access rate
15 Mbps	$30.27

SaskTel

Speed	Monthly access rate
25 Mbps	$53.49

Shaw

Speed	Monthly access rate
1 Mbps	$10.72
7.5 Mbps	$17.86
25 Mbps	$21.25
50 Mbps	$50.73
100 Mbps	$85.00

TCC Alberta and British Columbia

Speed	Monthly access rate
1 Mbps	$17.72
1.5 to 6 Mbps	$19.25
15 Mbps	$32.72
25 Mbps	$39.51

[57] The access rate allows for the recovery of access costs with usage. “Speed” refers to the maximum speed available for retail customers of independent service providers, as service speeds are provided on a best-effort basis.

TCC Quebec

Speed	Monthly access rate
1 Mbps	$14.44
5 Mbps	$18.77
15 Mbps	$25.96

III) Ancillary charges – Service charges and interface rates

Approved service charges[58]

Company	Item	Service charge
Bell Aliant in Atlantic Canada	Residential access service	$78.48
Bell companies	Residential access service	$90.65 (FTTN only)[59]
MTS Allstream	Residential access service	$178.60
MTS Allstream	Access profile change	$34.27
MTS Allstream	Competitor identity name change fee	$26.51

[58] Service charges are set out in this section for those network providers that proposed changes to their service charges. The existing service charges of the other network providers were not under consideration in this proceeding, as no changes were proposed.

[59] This service charge is not applicable to the Bell companies' 0.5, 2, and 5 Mbps access services. Service charges for those speeds are set out in the tariff pages for the Bell companies' legacy (non-FTTN) services.

Company	Item	Service charge
SaskTel	Residential access service	$105.04
SaskTel	Very-high-bit-rate digital subscriber line (VDSL) interface	$411.45
SaskTel	Virtual local area network (VLAN) remapping	$52.44
SaskTel	Diagnostic maintenance labour	$99.72
TCC Alberta and British Columbia	Residential access service	$70.56
TCC Quebec	Residential access service	$70.56

Interface rates[60]

Company	Speed	Monthly interface rate
MTS Allstream	1 Gbps	$105.72
SaskTel	1 Gbps	$274.99

[60] Interface rates are set out in this section for those ILECs that proposed changes to their interface rates. The existing interface rates of the other ILECs were not under consideration in this proceeding, as no changes were proposed. Cable carriers do not have separate monthly interface rates because they require independent service providers to provide their own interface port equipment.

Appendix 2

Tariff applications

8740-B2-201018317 – Bell Canada Tariff Notices 7293, 7293A, and 7293B

8740-B54-201018300 – Bell Aliant Regional Communications, Limited Partnership (Bell Aliant) Tariff Notices 349, 349A, and 349B

8740-B2-201107251 – Bell Canada Tariff Notice 7310

8740-B54-201107235 – Bell Aliant Regional Communications, Limited Partnership (Bell Aliant) Tariff Notice 367

8740-A53-201107103 – Bell Aliant Regional Communications, Limited Partnership (Aliant Telecom) Tariff Notices 402 and 402A

8740-M59-201017921 – MTS Allstream Inc. Tariff Notices 699 and 699A

8740-S22-201018474 – Saskatchewan Telecommunications Tariff Notices 246 and 246A

8740-T66-201011410 – TELUS Communications Company (TCC) Tariff Notices 391, 391A, and 391B

8740-T66-201107152 – TELUS Communications Company (TCC) Tariff Notice 407

8740-T69-201017848 – TELUS Communications Company (TCC) Tariff Notices 553, 553A, and 553B

8740-R28-201018060 – Rogers Communications Partnership Tariff Notice 18

8740-C6-201018052 – Cogeco Cable Inc. Tariff Notice 34

8740-S9-201017955 – Shaw Cablesystems G.P. Tariff Notice 15

8740-V3-201018201 – Videotron Ltd. Tariff Notices 37 and 37A

Appendix 3

Table 1: ILECs – Additional Cost Adjustments

ILEC	Proposal	Commission adjustment	Rationale for adjustment
Bell Aliant in Atlantic Canada	Access cost study – the going-in peak traffic level at the beginning of the study period, i.e. 2011, was estimated based on the 2010 average residential peak traffic measure and an annual traffic growth rate consistent with recent historical growth rates	Reduce the 2011 residential peak traffic usage per retail customer equal to the 2010 peak period level augmented by 50%	Little evidence was provided in support of its proposed annual traffic growth rate. The growth rate proposed by Bell Aliant in Atlantic Canada for 2011 over 2010 is significantly higher than that of other ILECs and is greater than what would reasonably be expected.
Bell companies	Access cost study – proposed billing expenses include costs for implementing changes to usage caps and rates	Remove costs for implementing changes to usage caps and rates	The approved billing approach excludes usage caps and rates
Bell companies	Usage cost study – the proposed cost per GB calculations included mathematical errors[61]	Recalculate the cost per GB per month based on the correct present worth of monthly volumes of GBs	Correct errors

[61] The Bell companies estimated two different values for the calculation of implied present worth of monthly GB volumes in Table 5c3 of attachments 1 and 3 to their response to Commission interrogatory The Companies(CRTC)20Apr11-1.

ILEC	Proposal	Commission adjustment	Rationale for adjustment
Bell companies	Access cost study – proposed costs for the FTTN 6 Mbps speed were based on a resource cost study	Use proposed costs for the FTTN 7 Mbps speed as proxy for the FTTN 6 Mbps speed	Resource cost study is not consistent with multi-year cost studies for other proposed FTTN speeds
MTS Allstream	Access cost study – proposed service provisioning expenses reflect high occurrence rate of trouble tickets associated with VDSL access, based on subject matter experts (SMEs)	Reduce the occurrence rate of trouble tickets to that of company's retail VDSL Data Access Service for 2010	Occurrence rate of trouble tickets should be similar for wholesale and retail VDSL services
MTS Allstream	Access cost study – proposed service provisioning expenses reflect time estimates for field service technician (FST) – Resolve troubles out in field based on SMEs	Reduce the time estimate of an FST repair in the field to the average time of all trouble repairs in the field, based on 2010 data	No rationale provided as to why the time estimate of an FST repair in the field should be any different from the average trouble repair data provided for this activity in 2010
MTS Allstream	Access cost study – transmission capital expenditures – monthly cost for Internet Computers – Hardware developed based on proposed life estimate of 4 years	Monthly cost for this equipment adjusted to reflect a life estimate of 6 years	Proposed life estimate for Internet Computers – Hardware is significantly lower than that of the other ILECs, without evidence on the record demonstrating why this would be so

ILEC	Proposal	Commission adjustment	Rationale for adjustment
MTS Allstream	Interface and fixed-capacity network cost study – proposed monthly cost for fixed-capacity network and Interface is provided on an integrated basis	Separate monthly costs into 1 Gbps Interface and network capacity increments based on resource costs provided for each component	Separate tariffs for Interface and network capacity is consistent with the billing model determinations of this decision
SaskTel	Access cost study – proposed capital expenditure Other includes modem costs; proposed maintenance expenses include modem firmware annual updates	Remove all costs related to modems	Modems are not part of the mandated high-speed access service
SaskTel	Access cost study – proposed service provisioning expenses exclude activities for conditioning and grooming the loop, and removal of bridge taps and load coils	Transfer these activities from the proposed service charge cost study to the monthly access cost study	These costs are causal to the monthly access service
TCC Alberta, British Columbia, and Quebec	Access cost study – proposed service provision expenses exclude loop qualification; proposed advertising and sales management expenses exclude some product management activities	Transfer these activities from the proposed service charge cost study to the monthly access cost study	These costs are causal to the monthly access service

Table 2: Cable Carriers – Additional Cost Adjustments

Cable carrier	Proposal	Commission adjustment	Rationale for adjustment
Cogeco	Proposed TPIA retail customer support-related expenses are higher than 80% of retail support-related costs approved in Telecom Decision 2006-77	Adjust the TPIA retail customer support-related expenses to be equal to 80% of the retail Internet access service	No evidence to justify inconsistency with the cost determinations in Telecom Decision 2006-77
Cogeco	Proposed CMTS Port maintenance expenses are estimated based on time estimates and labour unit costs	Adjust CMTS Port maintenance expenses calculation using the ratio of maintenance expenses to total capital based on the company's 2006 cost study	Proposed CMTS maintenance expenses, as a percentage of CMTS capital, are significantly higher than those of other cable carriers and those of its 2006 cost study, without evidence on the record demonstrating why this is so
Cogeco	Proposed Customer Service Group (CSG) expenses are estimated based on time estimates and labour unit costs	Adjust CSG costs such that employee-to-retail-customer ratio assumption is consistent across cable carriers	Proposed CSG expenses per retail customer and the associated CSG employee-to-retail-customer ratio were significantly higher than RCP's and Videotron's ratios, without evidence on the record demonstrating why this would be so
Cogeco	Proposed bad debt expenses are estimated using a ratio of bad debt to revenues that is higher than the one approved in Telecom Decision 2006-77	Reduce the ratio of bad debt to revenues to the level approved in Telecom Decision 2006-77	No evidence to justify inconsistency with the cost determinations in Telecom Decision 2006-77

ILEC	Proposal	Commission adjustment	Rationale for adjustment
Cogeco	Proposed fibre cable costs in Ontario are estimated assuming an increased trend in the percentage of fibre cables that need to be buried	Adjust fibre cable costs in Ontario by applying the 2010 percentage of buried fibre cables over the study period	Cogeco did not provide sufficient evidence to substantiate its claim that the percentage of fibre cables that need to be buried in Ontario will increase in the future
RCP	Proposed CMTS capital costs are based on proposed life estimate for this asset	Adjust the CMTS costs to reflect a life estimate of 5 years	The proposed life estimate for CMTS capital is lower than for the other cable carriers, without evidence on the record demonstrating why this would be so
RCP	Proposed TPIA Trouble Reporting and Repair (retail customer support-related) expenses are higher than 80% of retail support-related costs as approved in Telecom Decision 2006-77	Adjust the TPIA Trouble Reporting and Repair expenses to be equal to 80% of the retail Internet access service	No evidence to justify inconsistency with the cost determinations in Telecom Decision 2006-77
RCP	Proposed bad debt expenses are estimated using a ratio of bad debt to revenues that is higher than the one approved in Telecom Decision 2006-77	Reduce the ratio of bad debt to revenues to the level approved in Telecom Decision 2006-77	No evidence to justify inconsistency with the cost determinations in Telecom Decision 2006-77
RCP	Proposed node segmentation and CMTS capital costs are estimated based on working fill factors that are lower than those used in Telecom Decision 2006-77 cost determinations	Adjust node segmentation and CMTS capital costs to reflect the working fill factors used in Telecom Decision 2006-77 cost determinations	No evidence to justify inconsistency with the cost determinations in Telecom Decision 2006-77

ILEC	Proposal	Commission adjustment	Rationale for adjustment
Shaw	Proposed CSG expenses are estimated based on time estimates and labour unit costs	Adjust CSG costs such that employee-to-retail-customer ratio assumption is consistent across cable carriers	Shaw's proposed CSG expenses per retail customer and the associated CSG employee-to-retail-customer ratio were significantly higher than those of RCP and Videotron, without evidence on the record demonstrating why this was so
Shaw	Proposed bad debt expenses are estimated using a ratio of bad debt to revenues that is higher than the one approved in Telecom Decision 2006-77	Reduce the ratio of bad debt to revenues to the level approved in Telecom Decision 2006-77	No evidence to justify inconsistency with the cost determinations in Telecom Decision 2006-77
Videotron	Proposed IP layer capital costs are estimated based on a working fill factor that is lower than the one used in Telecom Decision 2006-77 cost determinations	Adjust IP layer capital costs to reflect the working fill factor used in Telecom Decision 2006-77 cost determinations	No evidence to justify inconsistency with the cost determinations in Telecom Decision 2006-77
Videotron	Proposed TPIA technical assistance (retail customer support-related) expenses are higher than 80% of retail support-related costs approved in Telecom Decision 2006-77	Adjust the technical assistance expenses to be equal to 80% of the retail Internet access service	No evidence to justify inconsistency with the cost determinations in Telecom Decision 2006-77
Videotron	Proposed bad debt expenses are estimated using a ratio of bad debt to revenues that is higher than the one approved in Telecom Decision 2006-77	Reduce the ratio of bad debt to revenues to the level approved in Telecom Decision 2006-77	No evidence to justify inconsistency with the cost determinations in Telecom Decision 2006-77

Table 3: ILECs' Service Charges – Additional Cost Adjustments

ILEC	Proposal	Commission adjustment	Rationale for adjustment
Bell Aliant in Atlantic Canada	Access service charge – proposed costs for cross-connect work at remote and for customer premise work reflect a high occurrence rate based on SMEs	Reduce the occurrence rate by 40% for cross-connect work at DSLAM and for customer premise work. The revised occurrence rate is based on the Bell companies' 2010 data as reduced to reflect increased FTTN rollout over the study period.	Adjustment to occurrence rates is needed to take account of orders for retail customer locations that already have FTTN and will not require these work activities
Bell Aliant in Atlantic Canada	Access service charge – proposed costs for customer premise work reflect time estimates based on SMEs	Reduce the time estimate for each activity associated with customer premise work by 50%	Refer to section III(vi), ILEC-specific service charge costing issues, above
Bell companies	Access service charge – proposed costs for jumper wire work reflect time estimates based on SMEs	Reduce the time estimate by 20%	Refer to section III(vi), ILEC-specific service charge costing issues, above

ILEC	Proposal	Commission adjustment	Rationale for adjustment
Bell companies	Access service charge – proposed costs for cross-connect work at remote use a vendor fee charged by basic toll schedule (BTS)	Use time estimate and labour unit cost instead of vendor fee to develop cost	Proposed cost estimate is significantly higher than that of other ILECs for the same work and is deemed unreasonable. The revised cost is based on an approach used by other ILECs to estimate associated remote work costs. Further refer to section III(vi), ILEC-specific service charge costing issues, above.
Bell companies	Access service charge – proposed costs for customer premise work reflect a high occurrence rate based on SMEs; proposed costs for cross-connect work at remote reflect an occurrence rate based on 2010 data	Reduce the occurrence rate by 40% for most assignment work, jumper wire work, and customer premise work, and reduce occurrence rates for remote work by about 15%. The revised occurrence rate is based on the Bell companies' 2010 data as reduced to reflect increased FTTN rollout over the study period.	Adjustment to occurrence rates is needed to take account of orders for retail customer locations that already have FTTN and will not require these work activities

ILEC	Proposal	Commission adjustment	Rationale for adjustment
Bell companies	Access service charge – proposed costs for travel time to customer premises for orders that do not require Plain Old Telephone Service (POTS) splitter work	Include travel time costs for the percentage of new orders that do not require POTS splitter work	For new orders requiring POTS splitter work, the associated travel time cost is recovered through the monthly rate. For the remaining new orders, the travel time costs are not included and should be recovered through the service charge.
MTS Allstream	Access service charge – proposed costs for service provisioning reflect a high occurrence rate based on SMEs	Reduce the occurrence rate by 40% for several activities.[62] The revised occurrence rate is based on the Bell companies' 2010 data as reduced to reflect increased FTTN rollout over the study period.	Adjustment to occurrence rates is needed to take account of orders for retail customer locations that already have FTTN and will not require these work activities
MTS Allstream	Access service charge – proposed costs for service provisioning include activities associated with FST – Replace Drop as required and FST – Install Network Interconnection Device (NID)	Exclude these activities	These activities are not causal to the introduction of the VDSL access service

[62] Activities for Assign Order – Assignment, Dispatch FST – Workforce Controller, Dispatch CO Tech – Expeditor, Wire CO Jumper Wire – CO Tech, and FST – Wire Cabinet, Cut End Tap, Test

ILEC	Proposal	Commission adjustment	Rationale for adjustment
MTS Allstream	Access service charge – proposed costs for sales management reflect time estimates based on SMEs	Reduce proposed time estimate for this activity by 67%	Refer to section III(vi), ILEC-specific service charge costing issues, above
MTS Allstream	Access Profile Change Fee – proposed costs reflect time estimates based on SMEs	Reduce proposed time estimates for each of the following activities: CSG Service Rep by 50%; IPMP (Tecnet) by 78%; and Facilities Management by 83%	Service involves a simple change of service speed for an existing VDSL access customer. Also refer to section III(vi), ILEC-specific service charge costing issues, above.
SaskTel	Access service charge – proposed costs for conditioning and grooming the loop – Removal of bridge taps and load coils is included in the service charge	Transfer this activity to the monthly access rate	These costs are causal to the monthly access service

ILEC	Proposal	Commission adjustment	Rationale for adjustment
SaskTel	Access service charge – proposed costs for jumper wire work and for customer premise work reflect a high occurrence rate based on SMEs	Reduce the occurrence rate by 40% for jumper wire work and for customer premise work. The revised occurrence rate is based on the Bell companies' 2010 data as reduced to reflect increased FTTN rollout over the study period.	Adjustment to occurrence rate is needed to take account of orders for retail customer locations that already have FTTN and will not require these work activities
SaskTel	Access service charge – proposed costs for customer inside wiring of jack and gateway reflect time estimates based on SMEs	Reduce the time estimate for customer inside wiring of jack and gateway by 33%	Refer to section III(vi), ILEC-specific service charge costing issues, above
SaskTel	VDSL Interface service charge – proposed costs for service call problem resolution reflect time estimates based on SMEs	Reduce the time estimate for service call problem resolution by 50%	Significant efficiencies are expected in the resolution of service call problems over time

ILEC	Proposal	Commission adjustment	Rationale for adjustment
TCC Alberta, British Columbia, and Quebec	Access service charge – proposed costs for product management and loop qualification are included in the service charge	Transfer these two activities to the monthly access rate	These costs are causal to the monthly access service
TCC Alberta, British Columbia, and Quebec	Access service charge – proposed costs for service order updates and correction activities reflect a high occurrence rate based on SMEs	Occurrence rates for these activities reduced to the level identified by TCC	Reduction was in response to Commission interrogatory TELUS(CRTC)4Feb11-204