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

Telecom Order CRTC 2017-282

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File numbers: Brooke Telecom Co-operative Ltd. Tariff Notice (TN) 20; Bruce Telecom TN 153; CityWest Telephone Corp TNs 123 and 123A; Cochrane Telecom Services TN 73; CoopTel TN 78; Téléphone de Courcelles TN 45; Gosfield North Communications Co-operative Limited TN 21; Hay Communications Co-operative Limited TN 32; Huron Telecommunications Co-operative Limited TN 38; Téléphone de Lambton TN 60; Lansdowne Rural Telephone Co. Ltd. TN 16; Groupe Maskatel LP TN 68; Téléphone Milot inc. TNs 80 and 80A; Mornington Communications Co-operative Limited TNs 62 and 62A; Nexicom Telecommunications TN 48; Nexicom Telephones TN 40; North Frontenac Telephone Corporation Ltd. TN 30; NRTC Communications TN 43; Quadro Communications Co-operative Inc. TN 35; Roxborough Telephone Company Limited TN 14; Sogetel inc. TNs 175 and 175A; Téléphone de St-Éphrem inc. TN 50; La Compagnie de Téléphone de St-Victor TN 49; Tuckersmith Communications Co-operative Limited TN 32; La Compagnie de Téléphone Upton Inc. TN 50; Wightman Telecom Ltd. TN 32; WTC Communications TN 45

Various companies – Final rates for direct connect services

*The Commission **approves, with changes, on a final basis** rates for the direct connect services provided by the small incumbent local exchange carriers identified in Appendix 1.*

Background

1. In Telecom Regulatory Policy 2013-160, the Commission considered it very likely that costs for the small incumbent local exchange carriers' (small ILECs) direct connect (DC) services[1] had declined since they were first established in Telecom Decision 2005-3. The Commission therefore directed each small ILEC to file with the Commission revised tariff pages for DC service reflecting the rate of $0.001661 per conversation minute charged by TELUS Communications Company (TCC)[2] in its serving territory in Quebec (TCC in Quebec), or to propose a revised DC service rate with a supporting cost study.

2. Pursuant to Telecom Regulatory Policy 2013-160, seven small ILECs filed applications to revise their DC service rates to reflect the rate approved for TCC in Quebec. These applications were approved on a final basis in Telecom Order 2013-594. The other 28 small ILECs notified the Commission that they would propose different DC service rates by filing tariff pages with supporting cost studies.

[1] DC service enables a long distance service provider to connect to the ILEC and the end-customer at the local switch

[2] This rate was approved in Telecom Decision 2012-312.

3. Execulink Telecom Inc. (Execulink) filed Tariff Notice 72, dated 2 August 2013, in which it proposed a revised rate for its DC service, supported by a cost study. By letter dated 7 November 2013, the remaining small ILECs were permitted to postpone the filing of their applications until after the Commission issued its determinations regarding Execulink's application. The Commission approved Execulink's application on a final basis, with changes, including a markup of 25%, in Telecom Order 2014-499.

Applications

4. On 15 June 2015, five small ILECs[3] filed a Part 1 application in which they requested that, in addition to the two options described in Telecom Regulatory Policy 2013-160, they be permitted to use Execulink's DC service rate as a proxy for their own DC service rates, which includes a markup of 25%. The Commission denied this request in Telecom Decision 2015-525. The Commission further directed the five small ILECs to file for Commission approval proposed tariff pages for their DC service rates, supported by cost studies. These were filed by 26 February 2016.

5. On 22 June 2015, 22 small ILECs[4] filed tariff applications with supporting cost studies, including a markup of 25%. However, one of these companies, specifically the company that resulted from the merger of Sogetel inc. (Sogetel) and Téléphone Milot inc. (Milot) [also called Sogetel], filed a Part 1 application in which it requested to (i) withdraw Sogetel tariff notices 175 and 175A and Milot tariff notices 80 and 80A, and (ii) use the TCC in Quebec DC service rate for the newly merged company. The Commission denied this request in Telecom Decision 2016-355.

6. In response to a Commission staff request for information dated 22 October 2015, the 22 small ILECs mentioned above filed revised submissions, in which the companies provided a more current view of their DC minutes demand and costs, and requested that these be used as the basis for their proposed DC service rates.

7. The Commission received interventions regarding the small ILECs' applications from Bell Canada and Allstream Inc., hereafter referred to as Zayo Canada Inc. (Zayo).[5] The small ILECs responded in various joint submissions. The public record of this proceeding, which closed on 29 August 2016 for all the small ILECs except Sogetel and Milot, and on

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[3] These are Bruce Telecom, CityWest Telephone Corp, CoopTel, Groupe Maskatel LP, and Wightman Telecom Ltd.

[4] These are Brooke Telecom Co-operative Ltd., Cochrane Telecom Services, Téléphone de Courcelles, Gosfield North Communications Co-operative Limited, Hay Communications Co-operative Limited, Huron Telecommunications Co-operative Limited, Téléphone de Lambton, Lansdowne Rural Telephone Co. Ltd., Téléphone Milot inc., Mornington Communications Co-operative Limited, Nexicom Telecommunications, Nexicom Telephones, North Frontenac Telephone Corporation Ltd., NRTC Communications, Quadro Communications Co operative Inc., Roxborough Telephone Company Limited, Sogetel inc., Téléphone de St Éphrem inc., La Compagnie de Téléphone de St-Victor, Tuckersmith Communications Co-operative Limited, La Compagnie de Téléphone Upton Inc., and WTC Communications.

[5] During the course of this proceeding, Allstream Inc. was acquired by Zayo Group Holdings, Inc. and was incorporated as Zayo Canada Inc.

13 February 2017 for Sogetel and Milot, can be found on the Commission's website at www.crtc.gc.ca or by using the file numbers provided above.

Issues

8. In reviewing the various tariff notice applications and related cost studies, the Commission has identified the following issues to be addressed in this order:

    - Is the proposed approach to estimate the fibre facility costs appropriate?
    - Is the proposed traffic study appropriate?
    - Is the proposed cost estimate for capital switching and transmission equipment appropriate?
    - Is the proposed approach to estimate the capacity and fibre costs for inter-office traffic appropriate?
    - Are the proposed network maintenance factors appropriate?
    - Are the proposed Internet assumptions appropriate?
    - Is the proposed approach to estimate the billing system costs and billing expenses appropriate?

Is the proposed approach to estimate the fibre facility costs appropriate?

Background

9. To set DC service rates, the Commission generally relies on the principles and methodologies defined in the ILECs' approved Regulatory Economic Studies Manuals (the Manuals). In the Manuals, service rates are set based on Phase II costs plus a specified markup.

10. The Manuals state that for a shared facility, such as fibre in the access network, the capacity cost method[6] (referred to as maximum capacity) is used to estimate the causal costs[7] associated with the use of a shared facility. The unit cost is calculated by dividing the per-unit installation costs of the shared facility by its maximum capacity, and then adjusting the costs for spare capacity by adjusting the working fill factor (WFF).[8]

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[6] Appendix B of the Manuals describes the capacity cost method.

[7] Causal costs are prospective incremental costs that include both service-driven and demand-driven costs.

[8] The WFF is a measure of the utilization of a shared facility and is used to recognize the non-working capacity (spare units, units required for maintenance, administrative functions, etc.) of the shared facility, and to apportion the cost of non-working capacity to the per-unit cost of the working capacity.

11. In Telecom Order 2014-499, the Commission approved a modified approach for Execulink to estimate the capacity of a shared facility using actual usage or expected demand (referred to as maximum attainable capacity), without being adjusted by a WFF, instead of maximum capacity.

Positions of parties

12. The small ILECs proposed to use the maximum attainable capacity approach in their respective DC service cost studies on the basis that this approach would provide the most accurate cost estimates.

13. In calculating maximum attainable capacity, all the small ILECs included voice and Internet services that share fibre facilities. Certain small ILECs proposed revised maximum attainable capacity calculations that included only voice services. In response to a Commission staff request for information, these small ILECs revised these calculations to reflect all services that share the same facilities.

14. Bell Canada submitted that if a company's voice, Internet, and Internet Protocol television (IPTV) services share the same facilities, the maximum attainable capacity should be calculated by adding up the maximum attainable capacity of all of these services.

15. The majority of small ILECs did not object to the maximum attainable capacity calculation including IPTV services, as long as the delivery costs of the IPTV services were included.

16. The small ILECs submitted a network diagram map[9] with supporting evidence to estimate the cost of fibre in their access network configurations. This map indicated that the physical fibre segments varied in cable sizes and were configured either in a ring architecture or through a point-to-point connection from the local switch to various remote sites. The small ILECs that have a point-to-point connection assumed that the fibre cost of each remote included the cost of one segment, which has up to four fibre strands. However, the small ILECs that have a ring architecture also assumed that the fibre cost of each remote included the cost of one segment.

17. The applicable small ILECs' fibre costs incorporated costs for fibre cables that connect the local switch to remotes in the small ILECs' access network configurations. These fibre cables vary in size, from 12-, 24-, and in some cases, up to 48-strand fibre cables. However, the majority of small ILECs proposed that the unit cost of fibre strands be based solely upon a fibre cable size of 12 strands, since, in their view, this is the growth technology and the minimum economic order quantity available for fibre cable provisioning.

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[9] A network diagram map is a visual representation of the network topology (local switch to remote connections) on a geographic map.

Commission's analysis and determinations

18. In Telecom Order 2014-499, with respect to Execulink, the Commission found it appropriate in the circumstances to use an alternative approach to estimate the causal costs of certain shared facilities whose total capacity is not expected to approach the maximum capacity of the installed equipment because of low demand. Specifically, the Commission determined that it was appropriate to use the maximum attainable capacity of these shared facilities without being adjusted by a WFF (i.e. setting the WFF to 100%).

19. The Commission considers that the facilities of the small ILECs that are subject to the current proceeding are also unlikely to reach maximum capacity due to low demand, given the small ILECs' similarity in size and operating environment to Execulink. Accordingly, it is also appropriate in this proceeding that these small ILECs' costs be calculated using the maximum attainable capacity approach.

20. Further, because voice service shares the fibre facilities in the small ILECs' networks with other services, all services that use these facilities and their related costs should be included in determining the maximum attainable capacity on the shared fibre facility, without being adjusted by a WFF.

21. With respect to the fibre costs for the small ILECs that have a ring architecture, it is not appropriate to assume that the fibre costs of a remote include the cost of the segment (including up to four strands) when that segment is generally shared among multiple remotes in the ring architecture since this assumption generally results in overestimated fibre costs. Accordingly, in the appendices to this order, the Commission has adjusted the proposed remote fibre costs for each applicable small ILEC by assuming that the cost of the segment (including up to four strands) is equally shared among the number of remotes that make use of that segment.

22. With respect to the unit cost per fibre strand, it is appropriate to calculate this cost using the various fibre cable sizes in the access network configuration, since simply assuming a 12-fibre-strand cable could lead to the overestimation of fibre unit costs. Therefore, in the appendices to this order, the Commission has adjusted the unit cost per fibre strand for each applicable small ILEC accordingly.

Is the proposed traffic study appropriate?

Background

23. As part of their applications, the small ILECs submitted traffic studies, which measure incoming and outgoing voice minutes, including long distance minutes, on the local switch. Voice traffic in the busy hour is used to estimate various costs, and the relationship between total voice and long distance traffic in the busy hour is a key factor in determining rates for DC service. In Telecom Decision 2006-23, the Commission provided the large ILECs with a methodology that uses annual traffic levels to estimate the average traffic in a month, which is ultimately used to estimate busy-hour traffic for local voice and long distance.

24. In Telecom Order 2014-499, the Commission approved a different approach for Execulink, namely the direct measurement approach. Under this approach, Execulink measured 2012 monthly traffic to determine busy-hour traffic for local voice and long distance minutes.

Positions of parties

25. The majority of small ILECs initially submitted traffic studies with various study periods to determine busy-hour traffic for local voice and long distance minute volume. These small ILECs submitted that they used the direct measurement approach approved in Telecom Order 2014-499, since this approach identifies the actual busy-hour traffic. They added that should the direct measurement approach not be available or practical in certain cases, the approach set out in Telecom Decision 2006-23 should be used to estimate busy-hour traffic.

26. Téléphone de Lambton (Lambton) submitted a traffic study in which it estimated busy-hour traffic using monthly traffic. Lambton modified the approach approved in Telecom Decision 2006-23 by applying the appropriate factors to the monthly data.

27. Gosfield North Communications Co-operative Limited (Gosfield) and Lansdowne Rural Telephone Co. Ltd. (Lansdowne) initially submitted that they were unable to undertake their own traffic studies. Gosfield used the traffic study results from Nexicom Telephones, and Lansdowne used those of NRTC Communications (NRTC) to estimate their respective busy-hour traffic. Gosfield and Lansdowne both argued that the results they used were from small ILECs of similar size and that operate in a similar environment to their own.

28. In response to a Commission staff request for information, the majority of small ILECs each submitted an updated traffic study to include additional months of traffic data in their busy-hour traffic estimates and to reflect the Telecom Decision 2006-23 approach. In response to the same request, Gosfield also submitted its own traffic study, using the same approach.

29. Bell Canada submitted that, instead of measuring busy-hour traffic directly, the Telecom Decision 2006-23 approach could produce a reasonable estimate of the small ILECs' busy-hour traffic.

Commission's analysis and determinations

30. In the proceeding leading to Telecom Order 2014-499, Execulink had provided 12 months of traffic data in support of its proposed busy-hour traffic for local voice and long distance. In the current proceeding, the small ILECs were generally unable to provide traffic data covering a similar period of time in their initial traffic studies. As a result, by letter dated 29 April 2016, Commission staff requested that most small ILECs use the traffic data they had available to estimate their busy-hour local voice and long distance traffic using the Telecom Decision 2006-23 approach. The majority of small ILECs submitted updated traffic studies, in which they applied this approach.

31. The Telecom Decision 2006-23 approach is generally appropriate when a company has measured only annual traffic data to estimate busy-hour traffic. When a company has measured sufficient monthly traffic data, it is generally appropriate to modify this approach by estimating busy-hour traffic for local voice and long distance based on the highest monthly measured volume of voice traffic. This will generally result in an estimate of costs that more accurately reflects actual traffic.

32. Therefore, in the appendices to this order, the Commission has adjusted busy-hour traffic estimates for the applicable small ILECs using the highest monthly measured volume of voice traffic. Consequently, the Commission has also adjusted the associated number of trunks for these small ILECs to more accurately reflect the revised busy-hour traffic estimate.

33. However, in cases where a small ILEC lacks a level of monthly traffic data that would allow for the application of the modified Telecom Decision 2006-23 approach described above, it is generally appropriate for the company to use a reasonable proxy to estimate its busy-hour local voice and long distance traffic. Lansdowne, which did not provide any company-specific traffic data, identified NRTC as a proxy. This is reasonable in the circumstances, given the companies' similar numbers of end-users, sizes, and operating environments.

34. Furthermore, the small ILECs that did not accumulate more than one month of traffic data or track traffic data on their local switches were unable to provide sufficient additional historical local voice and long distance traffic data to support their busy-hour local voice and long distance traffic. However, the relationships between local voice minutes per network access service (NAS)[10] and long distance minutes per NAS demonstrated by these small ILECs are comparable to the relationships demonstrated by other small ILECs of similar size that did accumulate additional traffic data. Accordingly, these small ILECs' estimates for local voice and long distance traffic volumes, which were obtained using the direct measurement approach, are reasonable and acceptable in the circumstances.

Is the proposed cost estimate for capital switching and transmission equipment appropriate?

Background

35. The capacity cost method described in the Manuals is used to estimate the causal costs of shared facilities, such as switching and transmission equipment. It is also used to determine a unit cost that is based on the maximum capacity of shared facilities, adjusted by a WFF.

36. In Telecom Order 2014-499, the Commission found it appropriate in the circumstances to use an alternative approach to estimate the causal costs of certain shared facilities whose total capacity is not expected to approach the maximum capacity of the installed

[10] A NAS is the line that provides subscribers with access to the telephone network.

equipment because of low demand. Specifically, the Commission determined that it was appropriate to use the maximum attainable capacity of shared facilities without being adjusted by a WFF (i.e. setting the WFF to 100%). The Commission also concluded in that case that switching components that are provisioned based on NAS are not traffic-sensitive and should therefore be excluded from the cost study.

Positions of parties

37. In developing their DC service rates, the small ILECs generally included network elements (e.g. traffic-sensitive switching equipment) that are used to provision DC service and developed the costs included in their cost studies in a manner consistent with the Commission's determinations in Telecom Order 2014-499.

38. The small ILECs submitted information on the costs of the major components in their respective local switches. However, they stated that information was not available to identify which components are traffic sensitive.

39. Sogetel and Milot submitted detailed descriptions and configurations of the routers between their remote sites and local switch.

40. The majority of small ILECs submitted that they determined the maximum capacity of their respective local switches based on the number of end-users.

41. The small ILECs also submitted detailed descriptions of their transmission equipment.

42. WTC Communications (WTC) submitted that the calculation of the unit cost for its remote transmission equipment included estimated costs.

Commission's analysis and determinations

43. In Telecom Order 2014-499, the Commission excluded from the calculation of Execulink's DC service rate the costs of switching components that were not traffic sensitive. The Commission considers that the record of the current proceeding reveals no reason to alter this approach for the remaining small ILECs.

44. In this proceeding, some small ILECs submitted that their switching costs contained both traffic-sensitive and non-traffic-sensitive components. Other small ILECs submitted that their switching costs included only traffic-sensitive components, but did not provide sufficient rationale supporting this position. Further, there was a substantially wide variation in the switching costs submitted by the various small ILECs.

45. In the circumstances, the Commission does not consider the cost study data submitted by the small ILECs regarding switching component costs to be reliable; hence, such costs cannot be used in the calculation of a just and reasonable DC service rate.

46. In the proceeding leading to Telecom Order 2014-499, Execulink identified the traffic-sensitive components of its switching costs, and provided supporting rationale, which the Commission approved. Further, Execulink is similar in size and operating environment to the applicable small ILECs in the present case.

47. Accordingly, it would be appropriate to use the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy in the case of these small ILECs. The Commission has adjusted the costs for the applicable small ILECs in the appendices to this order to reflect this determination.

48. With respect to the costs associated with transmission and routing equipment, many small ILECs submitted that they were using the maximum capacity approach; however, they provisioned capacity at less than the manufacturers' recommended maximum equipment capacity.

49. Similarly, certain small ILECs submitted that the maximum capacity of their local switch is based on their capacity to serve end-users, adjusted by a WFF to account for spare capacity. However, these small ILECs provisioned capacity from the expected demand of end-users and not from the equipment manufacturers' recommended maximum capacity.

50. Accordingly, the Commission considers that the applicable small ILECs have in fact used the maximum attainable capacity approach for their transmission and routing equipment and for their switching equipment and not the maximum capacity approach as claimed.

51. The Commission determined in Telecom Order 2014-499 that use of the maximum attainable capacity approach was reasonable to estimate Execulink's unit costs, since its transmission and fibre facilities are not expected to reach maximum capacity due to low expected demand.

52. Given the similarity of these small ILECs in size and operating environment to Execulink, the Commission recognizes that these small ILECs' fibre facilities and transmission equipment cannot be expected to reach maximum capacity due to low expected demand. In the circumstances, it is also reasonable to expect that the applicable small ILECs' switching equipment will not reach maximum capacity due to low expected demand. Therefore, use of the maximum attainable capacity approach for fibre facilities, transmission equipment, routing equipment, and switching equipment, without being adjusted by a WFF (i.e. setting the WFF to 100%), is appropriate for these small ILECs.

53. Accordingly, in the appendices to this order, the Commission has adjusted the switching, transmission, and routing equipment costs for the applicable small ILECs to reflect this determination.

54. With respect to WTC's use of estimated transmission equipment costs without supporting rationale, only actual costs should be included in the calculation of the remote transmission equipment unit cost. Accordingly, the Commission denies WTC's proposal to include estimated remote transmission equipment costs in its unit cost calculation.

Is the proposed approach to estimate the capacity and fibre costs for inter-office traffic appropriate?

Background

55. The Manuals state that where shared facilities, such as fibre between local switches, have unlimited capacity, a technology cost factor (TCF)[11] approach is to be used to estimate causal costs. However, in Telecom Order 2014-499, the Commission accepted Execulink's argument that the use of a TCF for a company with limited capital expenditure would result in a non-stable TCF and would not be appropriate. The Commission indicated that Execulink could instead use the maximum attainable capacity approach but without being adjusted by a WFF.

Positions of parties

56. In response to a Commission staff request for information dated 29 April 2016, the small ILECs with inter-office traffic submitted, among other revisions, (i) a revised calculation for busy-hour traffic from their local switch to their remotes for voice, Internet, and IPTV services, as applicable, and (ii) the maximum capacity in the inter-office ring. They further adjusted the maximum capacity to include a WFF to account for spare capacity.

57. These small ILECs also submitted detailed descriptions of the inter-office transmission equipment between their local switches, including the equipment models.

58. Groupe Maskatel LP (Maskatel) proposed using voice traffic from the local switch to the remotes to estimate the maximum attainable capacity of local voice in the busy hour on inter-office fibre facilities.

Commission's analysis and determinations

59. With respect to inter-office equipment capacity, many small ILECs submitted that they were using the maximum capacity approach; however, they provisioned capacity at less than the manufacturer's recommended maximum equipment capacity. As such, these small ILECs were, in fact, using the maximum attainable capacity approach.

60. As noted above, the Commission determined in Telecom Order 2014-499 that use of the maximum attainable capacity approach was reasonable to estimate Execulink's unit costs, and the small ILECs in this case are similar in size and operating environment to Execulink. Accordingly, use of the maximum attainable capacity approach for the applicable small ILECs is appropriate in the circumstances, with the WFF set to 100%.

61. Maskatel's approach of using the voice traffic between the local switch and the remotes to determine the unit cost underestimates busy-hour voice traffic, since it excludes the voice traffic of the end-users that are directly connected to the local switch.

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[11] These factors are described in section 3, paragraph 43 of the Manuals. Company-specific factors are included in Appendix K. One such factor is the fibre cost factor.

62. Accordingly, the Commission denies Maskatel's proposed inter-office fibre facility calculation and adjusts this calculation in Appendix 13 using all voice traffic from the company's traffic study to determine the unit cost.

Are the proposed network maintenance factors appropriate?

Positions of parties

63. The small ILECs generally submitted a network maintenance factor that was developed using an average of the companies' related maintenance expense accounts and applicable plant asset accounts for the period from 2012 to 2014.

64. Bell Canada submitted that a few small ILECs appear to be unable to isolate their maintenance expenses for their voice services from their maintenance expenses for their Internet and IPTV services.

65. In response to a Commission staff request for information dated 29 April 2016, the small ILECs that included maintenance expenses and applicable plant asset accounts for other services submitted revised voice network maintenance factors to exclude expenses and/or assets for Internet and IPTV services.

66. Zayo submitted that the Commission previously determined, in Telecom Decision 2006-23, that maintenance expenses should be capped between 7.5% and 11% of capital costs. It therefore questioned Maskatel's maintenance expenses, which constituted nearly 43% of all capital costs.

67. Some small ILECs submitted that Maskatel's maintenance expenses are comparable to those of other small ILECs and the maintenance expenses approved in Telecom Order 2014-499, except for the expenses for "vehicle and tools", which can be explained by Maskatel's large, rural serving territory.

Commission's analysis and determinations

68. Although the Commission capped network maintenance expenses in Telecom Decision 2006-23, the Commission subsequently stated in Telecom Decision 2008-14 that companies could use an operating expense unit cost/factor approach to estimate their causal expenses in their cost studies so long as the resulting expense inclusions are consistent with the principle of cost causality.

69. The Commission accepts the revised network maintenance factors proposed by the small ILECs, since they exclude expenses and/or assets for Internet and IPTV services and include only the assets and expenses causal to providing DC service.

70. Accordingly, in the appendices to this order, the Commission has accepted the applicable small ILECs' revised network maintenance factors.

Are the proposed Internet assumptions appropriate?

Background

71. In Telecom Decision 2016-117, the Commission determined that to forecast their Internet traffic growth rate, companies that provide wholesale high-speed access services should use their company-specific growth rate in the first two years of their study periods, and 32% for each of the remaining years of the study period.

Positions of parties

72. Rather than conducting company-specific Internet studies, the majority of small ILECs submitted estimates using those of Execulink as a proxy, including the average gigabyte per user in the busy hour for Internet,[12] and the percentage of daily Internet traffic based on an Internet study Execulink undertook in 2013. These small ILECs indicated that these estimates are from operating environments that are very similar to their own and are therefore reasonable proxies for information that is not currently available.

73. CityWest Telephone Corp, CoopTel, and Maskatel submitted that all the data in their cost studies are company specific.

74. Bell Canada submitted that the small ILECs have not demonstrated that the proxies they used reflected their costs. Bell Canada also submitted that since Execulink's Internet study was conducted in 2013, it will need to be updated to reflect two years of growth, commensurate with the growth experienced by the industry.

75. In response to a Commission staff request for information dated 29 April 2016, the small ILECs that provided company-specific Internet traffic growth rates over their study periods submitted revised rates to reflect their company-specific growth rates for 2015 and 2016, and used 32% for each of the remaining years of the study period.

Commission's analysis and determinations

76. In Telecom Decision 2016-117, the Commission considered that end-user Internet behaviour is similar throughout Canada, rather than being region specific. The Commission determined that when companies use an Internet traffic growth forecast over a study period, it is appropriate to use two years of traffic growth rates per retail end-user consistent with historical levels followed by a constant growth rate of 32%.

77. The majority of small ILECs did not conduct an Internet study regarding their specific annual Internet traffic growth and instead used Execulink's five-year (2012 to 2017) Internet traffic growth forecast as a proxy.

78. Execulink was the only small ILEC with an approved DC service rate that included annual Internet traffic growth for 2015 and 2016. Given this, as well as the small ILECs'

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[12] The average gigabyte per user in the busy hour for Internet is used to estimate Internet traffic in the busy hour, which is then used to estimate the Internet traffic on the fibre facilities.

limited resources and the unavailability, in most cases, of annual Internet traffic growth rates, it is appropriate for the small ILECs that proposed to use Execulink's 2015 and 2016 Internet traffic growth rate assumption to do so. Consistent with the Commission's past decisions to subject the small ILECs to a lighter regulatory approach, it is also reasonable for the small ILECs to use Execulink's estimates as proxies for the percentage of daily traffic per hour and the average gigabyte per user in the busy hour.

79. For those small ILECs that submitted company-specific growth rates for 2015 and 2016, the Commission accepts these rates.

80. However, for all small ILECs, for the remaining years of the study period, the Commission considers that since the small ILECs are using an Internet traffic growth forecast over a study period, it is appropriate for them to use a growth rate assumption of 32%, consistent with Telecom Decision 2016-117.

81. Accordingly, in the appendices to this order, the Commission has adjusted the annual Internet traffic growth rates for the applicable small ILECs consistent with the above determinations.

Is the proposed approach to estimate the billing system costs and billing expenses appropriate?

Positions of parties

82. The small ILECs submitted that they currently do not provide billing services (these services are provided by the large ILECs), but that they intended to begin billing interconnected toll service providers directly by 2016. The majority of small ILECs further submitted that their proposed costs are consistent with the estimate developed by Execulink and approved in Telecom Order 2014-499. These included upgrade costs, annual billing labour costs, and a labour rate based on eight hours per month.

83. Bell Canada questioned the causality of the small ILECs' billing system costs, since the small ILECs indicated that they intend to provide billing services to interconnected long distance service providers only after their DC service-related applications are approved.

84. Bell Canada, being the primary customer for DC service for the small ILECs, also questioned why the small ILECs required eight hours to produce a bill for one customer. Bell Canada noted that four small ILECs forecasted only 2 to 2.5 hours per month for billing the interconnected toll service providers. Bell Canada submitted that the process to produce a single bill should take 30 minutes and that the small ILECs should provide a breakdown of the activities undertaken to justify the eight-hour interval.

85. The majority of small ILECs submitted that Bell Canada provided no evidence that the billing costs approved for Execulink in Telecom Order 2014-499 do not represent the costs that the small ILECs would have to incur for their own unique billing systems. The small ILECs generally indicated that the billing cost estimates included in their cost studies represent the upgrade costs that they expected to incur and that these estimates correspond to the amount actually expended by Mornington in 2014.

86. The small ILECs generally submitted that the eight-hour-per-month estimate approved in Telecom Order 2014-499 includes the compilation and analysis of DC traffic data from each interconnected toll service provider, the actual billing of long distance service providers on a monthly basis, and the administrative handling of the billing.

Commission's analysis and determinations

87. In Telecom Order 2014-499, the Commission considered the recovery of the costs of implementing a billing system upgrade for DC service to be reasonable in the case of Execulink since these costs were required for Execulink to manage individual billing activities for its long distance service providers.

88. The majority of small ILECs submitted that they did not provide billing services and that the billing system upgrade was required for them to begin billing interconnected toll service providers directly by 2016.

89. Some small ILECs submitted that they are implementing a billing system upgrade and that these costs should be recoverable through their DC service rate. Of these small ILECs, some submitted company-specific billing system upgrade costs and billing expenses, whereas others used Execulink's billing system upgrade costs and billing expenses as a proxy.

90. The Commission considers it appropriate for all of the small ILECs that are implementing billing system upgrades to recover the costs of the upgrades through the DC service rate, since the billing upgrades are required to manage individual billing activities for long distance service providers. The Commission therefore accepts the company-specific billing system upgrade costs submitted by the applicable small ILECs. The Commission also accepts the use of Execulink's billing system upgrade costs as a proxy for those small ILECs that proposed to do so. In all cases, the proposed costs and tasks are reasonable given that they are comparable to those of other small ILECs with similar operating environments.

Various adjustments

91. In addition to the issues addressed above, in the company-specific appendices to this order, the Commission has made further adjustments that reflect, among other things, the correction of calculation errors and inadvertent omissions, as well as the application of various revised approaches or estimates that were provided by the small ILECs in response to Commission staff requests for information.

Effective date of final DC service rates

92. In Telecom Regulatory Policy 2013-160, the Commission made the small ILECs' existing DC service rates interim.

93. The small ILECs proposed an effective date of 28 March 2013 for their final DC service rates, which was the date of Telecom Regulatory Policy 2013-160.

94. In Telecom Order 2013-594[13] and in Telecom Order 2014-499,[14] the Commission approved revised DC service rates for certain other small ILECs, and made the final rates effective the date the existing rates were made interim, i.e. 28 March 2013.

95. Similarly, it is appropriate for the Commission to make the small ILECs' final DC service rates effective as of the date on which their existing rates were made interim (28 March 2013), as proposed by the small ILECs. This will help to ensure fairness to long distance service providers and consistency with the approach taken in the case of other small ILECs.

96. Given the above-mentioned effective date, any retroactive repayment would cover a period exceeding four years and the retroactive repayment for some small ILECs may be unduly burdensome if it is to be paid as a one-time payment.

97. Accordingly, the small ILECs have the option of proposing to DC service customers (i.e. the ILECs) either (i) one-time reimbursement payments, or (ii) alternative arrangements, which could include multiple smaller payments over a certain period of time to mitigate the financial impact.

98. Should parties be unable to negotiate a mutually acceptable arrangement, they may apply to use the Commission's dispute resolution mechanisms, as set out in Broadcasting and Telecom Information Bulletin 2013-637.

Conclusion

99. In light of all the above, the Commission **approves on a final basis, with changes,** the small ILECs' various DC service rates. The approved rates are set out in Appendix 1 of this order, and are effective as of 28 March 2013. The Commission **directs** the small ILECs identified in Appendix 1 to issue, within **30 days** of the date of this order, revised tariff pages[15] regarding the provision of DC service that reflect the determinations set out in this order.

Secretary General

Related documents

- *Sogetel inc. – Application to use TELUS Communications Company in Quebec's Direct Connect service rate and to withdraw Sogetel inc.'s Tariff Notice 175 and Téléphone Milot inc.'s Tariff Notice 80*, Telecom Decision CRTC 2016-355, 2 September 2016

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[13] Specifically, in that order, the Commission approved a rate of $0.001662 per minute for the DC services offered by Amtelecom Limited Partnership; DMTS; KMTS; NorthernTel, Limited Partnership; Ontera; People's Tel Limited Partnership; and TBayTel. That rate was equal to that of TCC in Quebec.

[14] Specifically, in that order, the Commission approved, with changes, Execulink's proposed revision to its DC service rate.

[15] Revised tariff pages can be submitted to the Commission without a description page or a request for approval; a tariff application is not required.

- *Review of costing inputs and the application process for wholesale high-speed access services,* Telecom Decision CRTC 2016-117, 31 March 2016

- *Canadian Independent Telephone Company Joint Task Force -– Request for approval of Execulink Telecom Inc.'s Direct Connect service rate as a proxy for use by other small incumbent local exchange carriers,* Telecom Decision CRTC 2015-525, 26 November 2015

- *Execulink Telecom Inc. – Revision to Direct Connect service rate,* Telecom Order CRTC 2014-499, 26 September 2014

- *Practices and procedures for staff-assisted mediation, final offer arbitration and expedited hearings,* Broadcasting and Telecom Information Bulletin CRTC 2013-637, 28 November 2013

- *Direct connection service rates for certain small incumbent local exchange carriers,* Telecom Order CRTC 2013-594, 7 November 2013

- *Regulatory framework for the small incumbent local exchange carriers and related matters,* Telecom Regulatory Policy CRTC 2013-160, 28 March 2013

- *TELUS Communications Company – Revised toll interconnection service rates in Quebec,* Telecom Order CRTC 2012-312, 29 May 2012

- *Review of certain Phase II costing issues,* Telecom Decision CRTC 2008-14, 21 February 2008; as amended by Telecom Decision CRTC 2008-14-1, 11 April 2008

- *Aliant Telecom, Bell Canada, MTS Allstream, SaskTel and TCI -– Approval of rates on a final basis for Direct Connection service,* Telecom Decision CRTC 2006-23, 27 April 2006

- *Direct toll and network access costing methodology for small incumbent local exchange carriers - Follow-up to Decision 2001-756,* Telecom Decision CRTC 2005-3, 31 January 2005

Appendix 1 to Telecom Order CRTC 2017-282

Final approved rates for the small ILECs' DC services

Small ILEC	DC service rate
Brooke Telecom Co-operative Ltd.	$0.004826
Bruce Telecom	$0.001360
CityWest Telephone Corp	$0.000612
Cochrane Telecom Services	$0.002453
CoopTel	$0.001636
Téléphone de Courcelles	$0.002120
Gosfield North Communications Co-operative Limited	$0.001546
Hay Communications Co-operative Limited	$0.001965
Huron Telecommunications Co-operative Limited	$0.001647
Téléphone de Lambton	$0.001296
Lansdowne Rural Telephone Co. Ltd.	$0.002849
Groupe Maskatel LP	$0.001032
Téléphone Milot inc.	$0.000780
Mornington Communications Co-operative Limited	$0.002448
Nexicom Telecommunications	$0.001532
Nexicom Telephones	$0.002663
North Frontenac Telephone Corporation Ltd.	$0.003429
NRTC Communications	$0.003075
Quadro Communications Co-operative Inc.	$0.002337
Roxborough Telephone Company Limited	$0.007901
Sogetel inc.	$0.000768

Small ILEC	DC service rate
Téléphone de St-Éphrem inc.	$0.001424
La Compagnie de Téléphone de St-Victor	$0.002232
Tuckersmith Communications Co-operative Limited	$0.001905
La Compagnie de Téléphone Upton Inc.	$0.002340
Wightman Telecom Ltd.	$0.000828
WTC Communications	$0.003163

Appendix 2 to Telecom Order CRTC 2017-282

Brooke Telecom Co-operative Ltd. – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Fibre facility costs: Fibre costs in the access network ring configuration	Revised fibre costs to reflect 4 strands per segment.	Overestimated fibre costs by assuming 4 strands per remote.
Fibre facility costs: Fibre unit cost per strand	Revised the fibre unit cost calculation to reflect the actual number of strands in all fibre cables.	Overestimated the fibre unit cost per strand by assuming 12 strands per cable for all fibre cables.
Traffic study: Estimating busy-hour local and long distance traffic	Revised estimated busy-hour local and long distance traffic using the highest monthly measured volume of voice traffic and associated number of trunks.	Use of the highest monthly measured volume of voice traffic generally results in an estimate of costs that more accurately reflects actual traffic.
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Capital switching and transmission equipment costs: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	When using maximum attainable capacity to estimate unit costs, no adjustment to the maximum attainable capacity by a WFF is required.
Network maintenance factor: Voice network maintenance factor	Accepted the revised network maintenance factor.	Proposed a revised network maintenance factor that excluded expenses and/or assets associated with other services (e.g. Internet).

Cost component	Commission adjustment	Rationale for adjustment
Internet traffic growth assumptions: Annual Internet traffic growth forecast	Revised annual Internet traffic growth rate: • For years 2015 and 2016, revised to Execulink's 2015 and 2016 annual Internet traffic growth rates. • For the remaining years, revised to 32%.	Used Execulink's Internet traffic growth rate forecast for all five years. Revisions made to be consistent with Telecom Decision 2016-117
Various adjustments: Net book value (NBV)	Revised the NBV to deduct amortization costs.	Overestimated the NBV by adding amortization costs instead of deducting these costs.

Appendix 3 to Telecom Order CRTC 2017-282

Bruce Telecom – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Traffic study: Estimating busy-hour local and long distance traffic	Revised estimated busy-hour local and long distance traffic using the highest monthly measured volume of voice traffic and associated number of trunks.	Use of the highest monthly measured volume of voice traffic generally results in an estimate of costs that more accurately reflects actual traffic.
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Capital switching and transmission equipment costs: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	When using maximum attainable capacity to estimate unit costs, no adjustment to the maximum attainable capacity by a WFF is required.
Capacity and fibre costs for inter-office traffic: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	Estimated the capacity of the inter-office facilities using, in fact, the maximum attainable capacity approach. Accordingly, no adjustment to the maximum attainable capacity by a WFF is required.
Network maintenance factor: Voice network maintenance factor	Accepted the revised network maintenance factor.	Proposed a revised network maintenance factor that excluded expenses and/or assets associated with other services (e.g. Internet).

Cost component	Commission adjustment	Rationale for adjustment
Internet traffic growth assumptions: Annual Internet traffic growth forecast	Accepted the revised Internet traffic growth rate of 32% for the final three years of the study period.	Revised Internet traffic growth rate is consistent with Telecom Decision 2016-117.

Appendix 4 to Telecom Order CRTC 2017-282

CityWest Telephone Corp – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Fibre facility costs: Fibre costs in the access network ring configuration	Revised fibre costs to reflect 4 strands per segment.	Overestimated fibre costs by assuming 4 strands per remote.
Traffic study: Number of trunks associated with busy-hour traffic	Revised the associated number of trunks required as per the Erlang B Table submitted.	The Erlang B Table submitted does not justify the proposed associated number of trunks.
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Capital switching and transmission equipment costs: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	When using maximum attainable capacity to estimate unit costs, no adjustment to the maximum attainable capacity by a WFF is required.
Network maintenance factor: Voice network maintenance factor	Accepted the revised network maintenance factor.	Proposed a revised network maintenance factor that excluded expenses and/or assets associated with other services (e.g. Internet).
Internet traffic growth assumptions: Annual Internet traffic growth forecast	Accepted the revised Internet traffic growth rate of 32% for the final three years of the study period.	Revised Internet traffic growth rate is consistent with Telecom Decision 2016-117.

Cost component	Commission adjustment	Rationale for adjustment
Various adjustments: Investment in central office equipment and outside plant, and investment in buildings and central office equipment	Accepted the revised factors.	Proposed revised investment factors to include missing assets.

Appendix 5 to Telecom Order CRTC 2017-282

Cochrane Telecom Services – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Fibre facility costs: Maximum attainable capacity of fibre facilities	Accepted the revised maximum attainable capacity and updated traffic from all services (i.e. voice, Internet, and IPTV, as applicable) that share the fibre facilities.	Proposed revised estimated maximum attainable capacity to include traffic from all services that share the fibre facilities.
Fibre facility costs: Fibre costs in the access network ring configuration	Revised fibre costs to reflect 4 strands per segment.	Overestimated fibre costs by assuming 4 strands per remote.
Fibre facility costs: Fibre unit cost per strand	Revised the fibre unit cost calculation to reflect the actual number of strands in all fibre cables.	Overestimated the fibre unit cost per strand by assuming 12 strands per cable for all fibre cables.
Traffic study: Number of trunks associated with busy-hour traffic	Revised the associated number of trunks required as per the Erlang B Table submitted.	The Erlang B Table submitted does not justify the proposed associated number of trunks.
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Capital switching and transmission equipment costs: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	When using maximum attainable capacity to estimate unit costs, no adjustment to the maximum attainable capacity by a WFF is required.

Cost component	Commission adjustment	Rationale for adjustment
Network maintenance factor: Voice network maintenance factor	Accepted the revised network maintenance factor.	Proposed a revised network maintenance factor that excluded expenses and/or assets associated with other services (e.g. Internet).
Internet traffic growth assumptions: Annual Internet traffic growth forecast	Revised annual Internet traffic growth rate: • For years 2015 and 2016, revised to Execulink's 2015 and 2016 annual Internet traffic growth rates. • For the remaining years, revised to 32%.	Used Execulink's Internet traffic growth rate forecast for all five years. Revisions made to be consistent with Telecom Decision 2016-117

Appendix 6 to Telecom Order CRTC 2017-282

CoopTel – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Fibre facility costs: Fibre costs in the access network ring configuration	Revised fibre costs to reflect 4 strands per segment.	Overestimated fibre costs by assuming 4 strands per remote.
Fibre facility costs: Fibre unit cost per strand	Revised the fibre unit cost calculation to reflect the actual number of strands in all fibre cables.	Overestimated the fibre unit cost per strand by assuming 12 strands per cable for all fibre cables.
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Network maintenance factor: Voice network maintenance factor	Accepted the revised network maintenance factor.	Proposed a revised network maintenance factor that excluded expenses and/or assets associated with other services (e.g. Internet).
Internet traffic growth assumptions: Annual Internet traffic growth forecast	Accepted the revised Internet traffic growth rate of 32% for the final three years of the study period.	Revised Internet traffic growth rate is consistent with Telecom Decision 2016-117.

Appendix 7 to Telecom Order CRTC 2017-282

Téléphone de Courcelles – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Capital switching and transmission equipment costs: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	When using maximum attainable capacity to estimate unit costs, no adjustment to the maximum attainable capacity by a WFF is required.
Various adjustments: Building asset factor	Accepted the revised building asset factor.	Proposed a revised building asset factor by removing unrelated assets.
Various adjustments: Operation expenses	Revised the proposed estimated operation expenses by excluding the cell reference error.	Proposed estimated operation expenses that included a cell reference error.

Appendix 8 to Telecom Order CRTC 2017-282

Gosfield North Communications Co-operative Limited – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Fibre facility costs: Fibre costs in the access network ring configuration	Revised fibre costs to reflect 4 strands per segment.	Overestimated fibre costs by assuming 4 strands per remote.
Fibre facility costs: Fibre unit cost per strand	Revised the fibre unit cost calculation to reflect the actual number of strands in all fibre cables.	Overestimated the fibre unit cost per strand by assuming 12 strands per cable for all fibre cables.
Traffic study: Estimating busy-hour local and long distance traffic	Revised estimated busy-hour local and long distance traffic using the highest monthly measured volume of voice traffic and associated number of trunks.	Use of the highest monthly measured volume of voice traffic generally results in an estimate of costs that more accurately reflects actual traffic.
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Capital switching and transmission equipment costs: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	When using maximum attainable capacity to estimate unit costs, no adjustment to the maximum attainable capacity by a WFF is required.
Network maintenance factor: Voice network maintenance factor	Accepted the revised network maintenance factor.	Proposed a revised network maintenance factor that excluded expenses and/or assets associated with other services (e.g. Internet).

Cost component	Commission adjustment	Rationale for adjustment
Internet traffic growth assumptions: Annual Internet traffic growth forecast	Revised annual Internet traffic growth rate: • For years 2015 and 2016, revised to Execulink's 2015 and 2016 annual Internet traffic growth rates. • For the remaining years, revised to 32%.	Used Execulink's Internet traffic growth rate forecast for all five years. Revisions made to be consistent with Telecom Decision 2016-117.
Various adjustments: NAS	Accepted the revised NAS.	Proposed revised NAS to include both residential and business NAS in the cost study.

Appendix 9 to Telecom Order CRTC 2017-282

Hay Communications Co-operative Limited – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Fibre facility costs: Fibre costs in the access network ring configuration	• Revised fibre costs to reflect 4 strands per segment. • Updated fibre segments to correctly reflect the network ring configuration.	• Overestimated fibre costs by assuming 4 strands per remote. • Omitted fibre segments in the network ring configuration.
Fibre facility costs: Fibre unit cost per strand	Revised the fibre unit cost calculation to reflect the actual number of strands in all fibre cables.	Overestimated the fibre unit cost per strand by assuming 12 strands per cable for all fibre cables.
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Capital switching and transmission equipment costs: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	When using maximum attainable capacity to estimate unit costs, no adjustment to the maximum attainable capacity by a WFF is required.
Network maintenance factor: Voice network maintenance factor	Accepted the revised network maintenance factor.	Proposed a revised network maintenance factor that excluded expenses and/or assets associated with other services (e.g. Internet).

Cost component	Commission adjustment	Rationale for adjustment
Internet traffic growth assumptions: Annual Internet traffic growth forecast	Revised annual Internet traffic growth rate: • For years 2015 and 2016, revised to Execulink's 2015 and 2016 annual Internet traffic growth rates. • For the remaining years, revised to 32%.	Used Execulink's Internet traffic growth rate forecast for all five years. Revisions made to be consistent with Telecom Decision 2016-117.
Various adjustments: Related central office equipment investment factor	Accepted the revised factor.	Proposed a revised related central office equipment investment factor by removing unrelated assets.

Appendix 10 to Telecom Order CRTC 2017-282

Huron Telecommunications Co-operative Limited – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Fibre facility costs: Maximum attainable capacity of fibre facilities	Accepted the revised maximum attainable capacity and updated traffic from all services (i.e. voice, Internet, and IPTV, as applicable) that share the fibre facilities.	Proposed revised estimated maximum attainable capacity to include traffic from all services that share the fibre facilities.
Fibre facility costs: Fibre costs in the access network ring configuration	Revised fibre costs to reflect 4 strands per segment.	Overestimated fibre costs by assuming 4 strands per remote.
Fibre facility costs: Fibre unit cost per strand	Revised the fibre unit cost calculation to reflect the actual number of strands in all fibre cables.	Overestimated the fibre unit cost per strand by assuming 12 strands per cable for all fibre cables.
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Capital switching and transmission equipment costs: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	When using maximum attainable capacity to estimate unit costs, no adjustment to the maximum attainable capacity by a WFF is required.
Network maintenance factor: Voice network maintenance factor	Accepted the revised network maintenance factor.	Proposed a revised network maintenance factor that excluded expenses and/or assets associated with other services (e.g. Internet).

Cost component	Commission adjustment	Rationale for adjustment
Internet traffic growth assumptions: Annual Internet traffic growth forecast	Revised annual Internet traffic growth rate: • For years 2015 and 2016, revised to Execulink's 2015 and 2016 annual Internet traffic growth rates. • For the remaining years, revised to 32%.	Used Execulink's Internet traffic growth rate forecast for all five years. Revisions made to be consistent with Telecom Decision 2016-117.
Various adjustments: Local switch maximum attainable capacity	Accepted the revised local switch maximum attainable capacity.	Proposed a revised local switch maximum attainable capacity.

Appendix 11 to Telecom Order CRTC 2017-282

Téléphone de Lambton – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Fibre facility costs: Maximum attainable capacity of fibre facilities	Accepted the revised maximum attainable capacity and updated traffic from all services (i.e. voice, Internet, and IPTV, as applicable) that share the fibre facilities.	Proposed revised estimated maximum attainable capacity to include traffic from all services that share the fibre facilities.
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Capital switching and transmission equipment costs: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	When using maximum attainable capacity to estimate unit costs, no adjustment to the maximum attainable capacity by a WFF is required.
Network maintenance factor: Voice network maintenance factor	Accepted the revised network maintenance factor.	Proposed a revised network maintenance factor that excluded expenses and/or assets associated with other services (e.g. Internet).
Internet traffic growth assumptions: Annual Internet traffic growth forecast	Revised annual Internet traffic growth rate: • For years 2015 and 2016, revised to Execulink's 2015 and 2016 annual Internet traffic growth rates. • For the remaining years, revised to 32%.	Used Execulink's Internet traffic growth rate forecast for all five years. Revisions made to be consistent with Telecom Decision 2016-117.

Appendix 12 to Telecom Order CRTC 2017-282

Lansdowne Rural Telephone Co. Ltd. – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Fibre facility costs: Fibre costs in the access network ring configuration	Revised fibre costs to reflect 4 strands per segment.	Overestimated fibre costs by assuming 4 strands per remote.
Fibre facility costs: Fibre unit cost per strand	Revised the fibre unit cost calculation to reflect the actual number of strands in all fibre cables.	Overestimated the fibre unit cost per strand by assuming 12 strands per cable for all fibre cables.
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Capital switching and transmission equipment costs: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	When using maximum attainable capacity to estimate unit costs, no adjustment to the maximum attainable capacity by a WFF is required.
Network maintenance factor: Voice network maintenance factor	Accepted the revised network maintenance factor.	Proposed a revised network maintenance factor that excluded expenses and/or assets associated with other services (e.g. Internet).
Internet traffic growth assumptions: Annual Internet traffic growth forecast	Revised annual Internet traffic growth rate: • For years 2015 and 2016, revised to Execulink's 2015 and 2016 annual Internet traffic growth rates. • For the remaining years, revised to 32%.	Used Execulink's Internet traffic growth rate forecast for all five years. Revisions made to be consistent with Telecom Decision 2016-117.

Appendix 13 to Telecom Order CRTC 2017-282

Groupe Maskatel LP – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Fibre facility costs: Fibre costs in the access network ring configuration	Removed the fibre costs associated with the second fibre ring.	Estimated the fibre costs by assuming that two fibre rings are required to provide DC service. Based on the traffic in the fibre ring, one fibre ring is sufficient to provide voice services, as well as to provide for redundancy.
Fibre facility costs: Maximum attainable capacity on fibre facilities	Revised the maximum attainable capacity to include traffic from all services (i.e. voice, Internet, and IPTV, as applicable) that share the fibre facilities.	Estimated maximum attainable capacity without including traffic from all services that share the fibre facilities.
Fibre facility costs: Fibre costs in the access network ring configuration	• Revised fibre costs to reflect 4 strands per segment. • Updated fibre segments to correctly reflect the network ring configuration.	• Overestimated fibre costs by assuming 2 or 4 strands per remote. • Omitted fibre segments in the network ring configuration.
Fibre facility costs: Fibre unit cost per strand	Revised the fibre unit cost calculation to reflect the actual number of strands in all fibre cables.	Overestimated the fibre unit cost per strand by assuming 12 strands per cable for all fibre cables.
Traffic study: Number of trunks associated with busy-hour traffic	Revised the associated number of trunks required as per the Erlang B Table submitted.	The Erlang B Table submitted does not justify the proposed associated number of trunks.

Cost component	Commission adjustment	Rationale for adjustment
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Capital switching and transmission equipment costs: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	When using maximum attainable capacity to estimate unit costs, no adjustment to the maximum attainable capacity by a WFF is required.
Capacity and fibre costs for inter-office traffic: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	Estimated the capacity of the inter-office facilities using, in fact, the maximum attainable capacity approach. Accordingly, no adjustment to the maximum attainable capacity by a WFF is required.
Capacity and fibre costs for inter-office traffic: Fibre costs for inter-office voice traffic	Revised inter-office voice traffic to include all voice traffic from the end-users who are directly connected to a local switch, and estimated the fibre unit cost accordingly.	Overestimated the fibre costs by omitting voice traffic from the end-users who are directly connected to a local switch.
Network maintenance factor: Voice network maintenance factor	Accepted the revised network maintenance factor.	Proposed a revised network maintenance factor that excluded expenses and/or assets associated with other services (e.g. Internet).
Internet traffic growth assumptions: Annual Internet traffic growth forecast	Accepted the revised Internet traffic growth rate of 32% for the final three years of the study period.	Revised Internet traffic growth rate is consistent with Telecom Decision 2016-117.

Cost component	Commission adjustment	Rationale for adjustment
Various adjustments: Synchronous optical network equipment (SONET) capacity	Adjusted the SONET capacity to ensure that the resulting maximum attainable capacity is able to support traffic during the busy hour.	Proposed SONET capacity resulted in a maximum attainable capacity that did not support traffic during the busy hour.

Appendix 14 to Telecom Order CRTC 2017-282

Téléphone Milot inc. – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Fibre facility costs: Fibre costs in the access network ring configuration	Revised fibre costs to reflect 4 strands per segment.	Overestimated fibre costs by assuming 4 strands per remote.
Fibre facility costs: Fibre unit cost per strand	Revised the fibre unit cost calculation to reflect the actual number of strands in all fibre cables.	Overestimated the fibre unit cost per strand by assuming 12 strands per cable for all fibre cables.
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Capital switching and transmission equipment costs: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	When using maximum attainable capacity to estimate unit costs, no adjustment to the maximum attainable capacity by a WFF is required.
Internet traffic growth assumptions: Annual Internet traffic growth forecast	Accepted the revised Internet traffic growth rate of 32% for the final three years of the study period.	Revised Internet traffic growth rate is consistent with Telecom Decision 2016-117.
Various adjustments: Estimated useful life of capital assets	Revised the cost study to include the proposed estimated useful life of capital assets.	Did not reflect the proposed estimated useful life of capital assets in the cost study.

Cost component	Commission adjustment	Rationale for adjustment
Various adjustments: Property tax factor and capital tax factor	Accepted the revised factors.	• Proposed a revised property tax factor by removing unrelated expenses. • Proposed a new capital tax factor to reflect related costs.
Various adjustments: Vehicle expenses	Accepted the revised expenses.	Proposed revised vehicle expenses by removing unrelated expenses.
Various adjustments: Long distance and voice traffic analysis	Accepted the revised Centum Call Seconds in the busy hour per NAS.	Proposed revised Centum Call Seconds in the busy hour per NAS.

Appendix 15 to Telecom Order CRTC 2017-282

Mornington Communications Co-operative Limited – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Fibre facility costs: Fibre costs in the access network ring configuration	Revised fibre costs to reflect 4 strands per segment.	Overestimated fibre costs by assuming 4 strands per remote.
Fibre facility costs: Fibre unit cost per strand	Revised the fibre unit cost calculation to reflect the actual number of strands in all fibre cables.	Overestimated the fibre unit cost per strand by assuming 12 strands per cable for all fibre cables.
Traffic study: Estimating busy-hour local and long distance traffic	Revised estimated busy-hour local and long distance traffic using the highest monthly measured volume of voice traffic and associated number of trunks.	Use of the highest monthly measured volume of voice traffic generally results in an estimate of costs that more accurately reflects actual traffic.
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Capital switching and transmission equipment costs: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	When using maximum attainable capacity to estimate unit costs, no adjustment to the maximum attainable capacity by a WFF is required.
Network maintenance factor: Voice network maintenance factor	Accepted the revised network maintenance factor.	Proposed a revised network maintenance factor that excluded expenses and/or assets associated with other services (e.g. Internet).

Cost component	Commission adjustment	Rationale for adjustment
Internet traffic growth assumptions: Annual Internet traffic growth forecast	Revised annual Internet traffic growth rate: • For years 2015 and 2016, revised to Execulink's 2015 and 2016 annual Internet traffic growth rates. • For the remaining years, revised to 32%.	Used Execulink's Internet traffic growth rate forecast for all five years. Revisions made to be consistent with Telecom Decision 2016-117.
Various adjustments: NAS	Accepted the revised NAS.	Proposed revised NAS to include both residential and business NAS in the cost study.
Various adjustments: Maximum attainable capacity of fibre unit costs	Revised the maximum attainable capacity of Internet traffic to reflect estimated Internet traffic in the busy hour.	Underestimated fibre unit costs by underestimating the maximum attainable capacity of Internet traffic in the busy hour.
Various adjustments: Switching and transmission support and warranty factors	Accepted the revised factors.	Proposed revised support and warranty factors based on company-specific costs.

Appendix 16 to Telecom Order CRTC 2017-282

Nexicom Telecommunications – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Fibre facility costs: Maximum attainable capacity of fibre facilities	Accepted the revised maximum attainable capacity and updated traffic from all services (i.e. voice, Internet, and IPTV, as applicable) that share the fibre facilities.	Proposed revised estimated maximum attainable capacity to include traffic from all services that share the fibre facilities.
Traffic study: Estimating busy-hour local and long distance traffic	Revised estimated busy-hour local and long distance traffic using the highest monthly measured volume of voice traffic and associated number of trunks.	Use of the highest monthly measured volume of voice traffic generally results in an estimate of costs that more accurately reflects actual traffic.
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Capital switching and transmission equipment costs: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	When using maximum attainable capacity to estimate unit costs, no adjustment to the maximum attainable capacity by a WFF is required.
Capacity and fibre costs for inter-office traffic: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	Estimated the capacity of the inter-office facilities using, in fact, the maximum attainable capacity approach. Accordingly, no adjustment to the maximum attainable capacity by a WFF is required.

Cost component	Commission adjustment	Rationale for adjustment
Internet traffic growth assumptions: Annual Internet traffic growth forecast	Revised annual Internet traffic growth rate: • For years 2015 and 2016, revised to Execulink's 2015 and 2016 annual Internet traffic growth rates. • For the remaining years, revised to 32%.	Used Execulink's Internet traffic growth rate forecast for all five years. Revisions made to be consistent with Telecom Decision 2016-117.
Various adjustments: NAS	Accepted the revised NAS.	Proposed revised NAS to include both residential and business NAS in the cost study.

Appendix 17 to Telecom Order CRTC 2017-282

Nexicom Telephones – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Fibre facility costs: Maximum attainable capacity of fibre facilities	Accepted the revised maximum attainable capacity and updated traffic from all services (i.e. voice, Internet, and IPTV, as applicable) that share the fibre facilities.	Proposed revised estimated maximum attainable capacity to include traffic from all services that share the fibre facilities.
Traffic study: Estimating busy-hour local and long distance traffic	Revised estimated busy-hour local and long distance traffic using the highest monthly measured volume of voice traffic and associated number of trunks.	Use of the highest monthly measured volume of voice traffic generally results in an estimate of costs that more accurately reflects actual traffic.
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Capital switching and transmission equipment costs: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	When using maximum attainable capacity to estimate unit costs, no adjustment to the maximum attainable capacity by a WFF is required.
Capacity and fibre costs for inter-office traffic: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	Estimated the capacity of the inter-office facilities using, in fact, the maximum attainable capacity approach. Accordingly, no adjustment to the maximum

Cost component	Commission adjustment	Rationale for adjustment
		attainable capacity by a WFF is required.
Internet traffic growth assumptions: Annual Internet traffic growth forecast	Revised annual Internet traffic growth rate: • For years 2015 and 2016, revised to Execulink's 2015 and 2016 annual Internet traffic growth rates. • For the remaining years, revised to 32%.	Used Execulink's Internet traffic growth rate forecast for all five years. Revisions made to be consistent with Telecom Decision 2016-117.
Various adjustments: NAS	Accepted the revised NAS.	Proposed revised NAS to include both residential and business NAS in the cost study.

Appendix 18 to Telecom Order CRTC 2017-282

North Frontenac Telephone Corporation Ltd. – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Fibre facility costs: Fibre costs in the access network ring configuration	• Revised fibre costs to reflect 4 strands per segment. • Updated fibre segments to correctly reflect the network ring configuration.	• Overestimated fibre costs by assuming 4 strands per remote. • Omitted fibre segments in the network ring configuration.
Fibre facility costs: Fibre unit cost per strand	Revised the fibre unit cost calculation to reflect the actual number of strands in all fibre cables.	Overestimated the fibre unit cost per strand by assuming 12 strands per cable for all fibre cables.
Traffic study: Estimating busy-hour local and long distance traffic	Revised estimated busy-hour local and long distance traffic using the highest monthly measured volume of voice traffic and associated number of trunks.	Use of the highest monthly measured volume of voice traffic generally results in an estimate of costs that more accurately reflects actual traffic.
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Capital switching and transmission equipment costs: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	When using maximum attainable capacity to estimate unit costs, no adjustment to the maximum attainable capacity by a WFF is required.

Cost component	Commission adjustment	Rationale for adjustment
Capacity and fibre costs for inter-office traffic: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	Estimated the capacity of the inter-office facilities using, in fact, the maximum attainable capacity approach. Accordingly, no adjustment to the maximum attainable capacity by a WFF is required.
Network maintenance factor: Voice network maintenance factor	Accepted the revised network maintenance factor.	Proposed a revised network maintenance factor that excluded expenses and/or assets associated with other services (e.g. Internet).
Internet traffic growth assumptions: Annual Internet traffic growth forecast	Revised annual Internet traffic growth rate: • For years 2015 and 2016, revised to Execulink's 2015 and 2016 annual Internet traffic growth rates. • For the remaining years, revised to 32%.	Used Execulink's Internet traffic growth rate forecast for all five years. Revisions made to be consistent with Telecom Decision 2016-117.

Appendix 19 to Telecom Order CRTC 2017-282

NRTC Communications – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Fibre facility costs: Fibre costs in the access network ring configuration	• Revised fibre costs to reflect 4 strands per segment. • Updated fibre segments to correctly reflect the network ring configuration.	• Overestimated fibre costs by assuming 4 strands per remote. • Omitted fibre segments in the network ring configuration.
Fibre facility costs: Fibre unit cost per strand	Revised the fibre unit cost calculation to reflect the actual number of strands in all fibre cables.	Overestimated the fibre unit cost per strand by assuming 12 strands per cable for all fibre cables.
Traffic study: Estimating busy-hour local and long distance traffic	Revised estimated busy-hour local and long distance traffic using the highest monthly measured volume of voice traffic and associated number of trunks.	Use of the highest monthly measured volume of voice traffic generally results in an estimate of costs that more accurately reflects actual traffic.
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Capital switching and transmission equipment costs: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	When using maximum attainable capacity to estimate unit costs, no adjustment to the maximum attainable capacity by a WFF is required.

Cost component	Commission adjustment	Rationale for adjustment
Capacity and fibre costs for inter-office traffic: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	Estimated the capacity of the inter-office facilities using, in fact, the maximum attainable capacity approach. Accordingly, no adjustment to the maximum attainable capacity by a WFF is required.
Network maintenance factor: Voice network maintenance factor	Accepted the revised network maintenance factor.	Proposed a revised network maintenance factor that excluded expenses and/or assets associated with other services (e.g. Internet).
Internet traffic growth assumptions: Annual Internet traffic growth forecast	Revised annual Internet traffic growth rate: • For years 2015 and 2016, revised to Execulink's 2015 and 2016 annual Internet traffic growth rates. • For the remaining years, revised to 32%.	Used Execulink's Internet traffic growth rate forecast for all five years. Revisions made to be consistent with Telecom Decision 2016-117.
Various adjustments: Maximum attainable capacity of fibre unit costs	Accepted the revised maximum attainable capacity.	Proposed revised maximum attainable capacity of Internet traffic in the busy hour to reflect estimated maximum busy-hour Internet traffic in the study period.

Appendix 20 to Telecom Order CRTC 2017-282

Quadro Communications Co-operative Inc. – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Fibre facility costs: Fibre costs in the access network ring configuration	• Revised fibre costs to reflect 2 strands per segment. • Updated fibre segments to correctly reflect the network ring configuration.	• Overestimated fibre costs by assuming 2 strands per remote. • Omitted fibre segments in the network ring configuration.
Traffic study: Estimating busy-hour local and long distance traffic	Revised estimated busy-hour local and long distance traffic using the highest monthly measured volume of voice traffic and associated number of trunks.	Use of the highest monthly measured volume of voice traffic generally results in an estimate of costs that more accurately reflects actual traffic.
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Capital switching and transmission equipment costs: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	When using maximum attainable capacity to estimate unit costs, no adjustment to the maximum attainable capacity by a WFF is required.
Network maintenance factor: Voice network maintenance factor	Accepted the revised network maintenance factor.	Proposed a revised network maintenance factor that excluded expenses and/or assets associated with other services (e.g. Internet).

Cost component	Commission adjustment	Rationale for adjustment
Internet traffic growth assumptions: Annual Internet traffic growth forecast	Revised annual Internet traffic growth rate: • For years 2015 and 2016, revised to Execulink's 2015 and 2016 annual Internet traffic growth rates. • For the remaining years, revised to 32%.	Used Execulink's Internet traffic growth rate forecast for all five years. Revisions made to be consistent with Telecom Decision 2016-117.

Appendix 21 to Telecom Order CRTC 2017-282

Roxborough Telephone Company Limited – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Fibre facility costs: Maximum attainable capacity of fibre facilities	Accepted the revised maximum attainable capacity and updated traffic from all services (i.e. voice, Internet, and IPTV, as applicable) that share the fibre facilities.	Proposed revised estimated maximum attainable capacity to include traffic from all services that share the fibre facilities.
Fibre facility costs: Fibre costs in the access network ring configuration	Revised fibre costs to reflect 4 strands per segment.	Overestimated fibre costs by assuming 4 strands per remote.
Fibre facility costs: Fibre unit cost per strand	Revised the fibre unit cost calculation to reflect the actual number of strands in all fibre cables.	Overestimated the fibre unit cost per strand by assuming 12 strands per cable for all fibre cables.
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Capital switching and transmission equipment costs: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	When using maximum attainable capacity to estimate unit costs, no adjustment to the maximum attainable capacity by a WFF is required.
Network maintenance factor: Voice network maintenance factor	Accepted the revised network maintenance factor.	Proposed a revised network maintenance factor that excluded expenses and/or assets associated with other services (e.g. Internet).

Cost component	Commission adjustment	Rationale for adjustment
Internet traffic growth assumptions: Annual Internet traffic growth forecast	Revised annual Internet traffic growth rate: • For years 2015 and 2016, revised to Execulink's 2015 and 2016 annual Internet traffic growth rates. • For the remaining years, revised to 32%.	Used Execulink's Internet traffic growth rate forecast for all five years. Revisions made to be consistent with Telecom Decision 2016-117.
Various adjustments: Estimated useful life of capital assets	Revised estimates of useful life of capital assets to those approved in Telecom Order 2014-499.	Proposed estimates of useful life of capital assets that are not comparable to the estimates of useful life of capital assets assumed by other small ILECs. Further, provided no compelling rationale for the estimated useful life of the various proposed capital assets.

Appendix 22 to Telecom Order CRTC 2017-282

Sogetel inc. – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Fibre facility costs: Fibre costs in the access network ring configuration	• Revised fibre costs to reflect 4 strands per segment. • Updated fibre segments to correctly reflect the network ring configuration.	• Overestimated fibre costs by assuming 4 strands per remote. • Omitted fibre segments in the network ring configuration.
Fibre facility costs: Fibre unit cost per strand	Revised the fibre unit cost calculation to reflect the actual number of strands in all fibre cables.	Overestimated the fibre unit cost per strand by assuming 12 strands per cable for all fibre cables.
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Capital switching and transmission equipment costs: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	When using maximum attainable capacity to estimate unit costs, no adjustment to the maximum attainable capacity by a WFF is required.
Network maintenance factor: Voice network maintenance factor	Accepted the revised network maintenance factor.	Proposed a revised voice network maintenance factor to include related expenses and/or assets.

Internet traffic growth assumptions: Annual Internet traffic growth forecast	Accepted the revised Internet traffic growth rate of 32% for the final three years of the study period.	Revised Internet traffic growth rate is consistent with Telecom Decision 2016-117.
Various adjustments: Estimated useful life of capital assets	Revised the cost study to include the proposed estimated useful life of capital assets.	Did not reflect the proposed estimated useful life of capital assets in the cost study.
Various adjustments: Transmission equipment costs	Revised transmission equipment costs by excluding double-counted costs.	Double counted transmission-related costs.
Various adjustments: Vehicle expenses	Accepted the revised expenses.	Proposed revised vehicle expenses by removing unrelated expenses.
Various adjustments: Property tax factor and capital tax factor	Accepted the revised factors.	• Proposed a revised property tax factor by removing unrelated expenses. • Proposed a new capital tax factor to reflect related costs.
Various adjustments: Land and building investment factor	Accepted the revised factor.	Proposed a revised land and building investment factor by adding related assets.

Appendix 23 to Telecom Order CRTC 2017-282

Téléphone de St-Éphrem inc. – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Capital switching and transmission equipment costs: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	When using maximum attainable capacity to estimate unit costs, no adjustment to the maximum attainable capacity by a WFF is required.

Appendix 24 to Telecom Order CRTC 2017-282

La Compagnie de Téléphone de St-Victor – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Traffic study: Estimating busy-hour local and long distance traffic	Revised estimated busy-hour local and long distance traffic using the highest monthly measured volume of voice traffic and associated number of trunks.	Use of the highest monthly measured volume of voice traffic generally results in an estimate of costs that more accurately reflects actual traffic.
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Capital switching and transmission equipment costs: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	When using maximum attainable capacity to estimate unit costs, no adjustment to the maximum attainable capacity by a WFF is required.

Appendix 25 to Telecom Order CRTC 2017-282

Tuckersmith Communications Co-operative Limited – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Fibre facility costs: Fibre costs in the access network ring configuration	• Revised fibre costs to reflect 4 strands per segment. • Updated fibre segments to correctly reflect the network ring configuration.	• Overestimated fibre costs by assuming 4 strands per remote. • Omitted fibre segments in the network ring configuration.
Fibre facility costs: Fibre unit cost per strand	Revised the fibre unit cost calculation to reflect the actual number of strands in all fibre cables.	Overestimated the fibre unit cost per strand by assuming 12 strands per cable for all fibre cables.
Traffic study: Estimating busy-hour local and long distance traffic	Revised estimated busy-hour local and long distance traffic using the highest monthly measured volume of voice traffic and associated number of trunks.	Use of the highest monthly measured volume of voice traffic generally results in an estimate of costs that more accurately reflects actual traffic.
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Capital switching and transmission equipment costs: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	When using maximum attainable capacity to estimate unit costs, no adjustment to the maximum attainable capacity by a WFF is required.

Cost component	Commission adjustment	Rationale for adjustment
Internet traffic growth assumptions: Annual Internet traffic growth forecast	Revised annual Internet traffic growth rate: • For years 2015 and 2016, revised to Execulink's 2015 and 2016 annual Internet traffic growth rates. • For the remaining years, revised to 32%.	Used Execulink's Internet traffic growth rate forecast for all five years. Revisions made to be consistent with Telecom Decision 2016-117.

Appendix 26 to Telecom Order CRTC 2017-282

La Compagnie de Téléphone Upton Inc. – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Fibre facility costs: Fibre costs in the access network ring configuration	Revised fibre costs to reflect 4 strands per segment.	Overestimated fibre costs by assuming 4 strands per remote.
Fibre facility costs: Fibre unit cost per strand	Revised the fibre unit cost calculation to reflect the actual number of strands in all fibre cables.	Overestimated the fibre unit cost per strand by assuming 12 strands per cable for all fibre cables.
Traffic study: Estimating busy-hour local and long distance traffic	Revised estimated busy-hour local and long distance traffic using the highest monthly measured volume of voice traffic and associated number of trunks.	Use of the highest monthly measured volume of voice traffic generally results in an estimate of costs that more accurately reflects actual traffic.
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Capital switching and transmission equipment costs: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	When using maximum attainable capacity to estimate unit costs, no adjustment to the maximum attainable capacity by a WFF is required.
Network maintenance factor: Voice network maintenance factor	Accepted the revised network maintenance factor.	Proposed a revised network maintenance factor that excluded expenses and/or assets associated with other services (e.g. Internet).

Cost component	Commission adjustment	Rationale for adjustment
Internet traffic growth assumptions: Annual Internet traffic growth forecast	Revised annual Internet traffic growth rate: • For years 2015 and 2016, revised to Execulink's 2015 and 2016 annual Internet traffic growth rates. • For the remaining years, revised to 32%.	Used Execulink's Internet traffic growth rate forecast for all five years. Revisions made to be consistent with Telecom Decision 2016-117.

Appendix 27 to Telecom Order CRTC 2017-282

Wightman Telecom Ltd. – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Capital switching and transmission equipment costs: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	When using maximum attainable capacity to estimate unit costs, no adjustment to the maximum attainable capacity by a WFF is required.
Capacity and fibre costs for inter-office traffic: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	Estimated the capacity of the inter-office facilities using, in fact, the maximum attainable capacity approach. Accordingly, no adjustment to the maximum attainable capacity by a WFF is required.
Network maintenance factor: Voice network maintenance factor	Accepted the revised network maintenance factor.	Proposed a revised network maintenance factor that excluded expenses and/or assets associated with other services (e.g. Internet).
Internet traffic growth assumptions: Annual Internet traffic growth forecast	Accepted the revised Internet traffic growth rate of 32% for the final three years of the study period.	Revised Internet traffic growth rate is consistent with Telecom Decision 2016-117.

Cost component	Commission adjustment	Rationale for adjustment
Various adjustments: Maximum attainable capacity of fibre unit costs	Revised the fibre unit costs by adjusting the maximum attainable capacity to reflect the appropriate Internet traffic in the busy hour.	Underestimated the maximum attainable capacity by not reflecting the appropriate Internet traffic in the busy hour.

Appendix 28 to Telecom Order CRTC 2017-282

WTC Communications – Adjustments

Cost component	Commission adjustment	Rationale for adjustment
Fibre facility costs: Fibre costs in the access network ring configuration	• Revised fibre costs to reflect 4 strands per segment. • Updated fibre segments to correctly reflect the network ring configuration.	• Overestimated fibre costs by assuming 4 strands per remote. • Omitted fibre segments in the network ring configuration.
Fibre facility costs: Fibre unit cost per strand	Revised the fibre unit cost calculation to reflect the actual number of strands in all fibre cables.	Overestimated the fibre unit cost per strand by assuming 12 strands per cable for all fibre cables.
Traffic study: Estimating busy-hour local and long distance traffic	Revised estimated busy-hour local and long distance traffic using the highest monthly measured volume of voice traffic and associated number of trunks.	Use of the highest monthly measured volume of voice traffic generally results in an estimate of costs that more accurately reflects actual traffic.
Capital switching and transmission equipment costs: Local switching traffic-sensitive costs	Estimated the local switching costs based on the percentage of traffic-sensitive and non-traffic-sensitive switching components for Execulink as a proxy to remove estimated non-traffic-sensitive costs.	Did not provide sufficient detail to identify total local switching costs and/or unit of capacity for traffic-sensitive and non-traffic-sensitive costs.
Capital switching and transmission equipment costs: Adjusting the maximum attainable capacity by a WFF	Revised the WFF to 100%.	When using maximum attainable capacity to estimate unit costs, no adjustment to the maximum attainable capacity by a WFF is required.

Cost component	Commission adjustment	Rationale for adjustment
Capital switching and transmission equipment costs: Transmission equipment unit costs	Revised transmission equipment unit costs to exclude estimated remote transmission equipment costs.	Overestimated transmission equipment unit costs by including estimated remote transmission equipment costs without supporting rationale.
Network maintenance factor: Voice network maintenance factor	Accepted the revised network maintenance factor.	Proposed a revised network maintenance factor that excluded expenses and/or assets associated with other services (e.g. Internet).
Internet traffic growth assumptions: Annual Internet traffic growth forecast	Revised annual Internet traffic growth rate: • For years 2015 and 2016, revised to Execulink's 2015 and 2016 annual Internet traffic growth rates. • For the remaining years, revised to 32%.	Used Execulink's Internet traffic growth rate forecast for all five years. Revisions made to be consistent with Telecom Decision 2016-117.