



Telecom Decision CRTC 2021-199

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Establishment of new deadlines for Canada's transition to next-generation 9-1-1

The Commission sets out determinations in relation to new deadlines and other matters for the implementation and provision of next-generation 9-1-1 (NG9-1-1) networks and services in Canada, so that Canadians can access new, improved, and innovative emergency services with Internet Protocol-based capabilities. The Commission aims to maintain the NG9-1-1 framework roadmap for the establishment of NG9-1-1 networks and the introduction of NG9-1-1 Voice, albeit with new, extended deadlines.

Specifically, the Commission **directs** NG9-1-1 network providers, by **1 March 2022**, to, among other things, establish their NG9-1-1 networks, complete all NG9-1-1 production onboarding activities, and be ready to provide NG9-1-1 Voice, wherever public safety answering points (PSAPs) have been established in a particular region.

The Commission also **directs** telecommunications service providers (TSPs) to (i) make the necessary changes to support NG9-1-1 Voice in their originating networks that are technically capable of supporting NG9-1-1 Voice, including completing all NG9-1-1 production onboarding activities and testing activities, by **1 March 2022**; and (ii) begin providing, by **1 March 2022**, NG9-1-1 Voice to their customers served by networks that are technically capable of supporting NG9-1-1 Voice, wherever PSAPs have been established in a particular region.

With respect to the implementation and provision of real-time text (RTT)-based NG9-1-1 Text Messaging (NG9-1-1 Text Messaging), the Commission is not establishing new deadlines as part of this decision. Instead, the Commission requests that, once standards are sufficiently advanced with respect to RTT callback and bridging, the CRTC Interconnection Steering Committee (CISC) file a report with the Commission with recommendations related to the provision of NG9-1-1 Text Messaging for all stakeholders.

Further, the Commission **directs**, among other things, incumbent local exchange carriers (ILECs) to decommission their current NG9-1-1 network components that will not form part of their NG9-1-1 networks by **4 March 2025** or earlier if all the TSPs and PSAPs in an ILEC's operating territory have completed their transition to NG9-1-1.

Moreover, the Commission **directs** Northwestel Inc. to inform the Commission, by **22 June 2021**, of its intent to either (i) comply with the new NG9-1-1 implementation deadlines as determined in this decision, or (ii) file for the Commission's approval, by **1 October 2021**, an updated transition plan including the location of NG9-1-1 points of interconnection and timelines for the establishment of an NG9-1-1 network in its incumbent territory, wherever PSAPs have been established.

Finally, the Commission is adjusting the deadlines for the CISC Emergency Services Working Group to file certain reports.

Background

1. In Telecom Regulatory Policy 2017-182 and Telecom Decision 2019-353 (hereafter jointly referred to as the next-generation 9-1-1 [NG9-1-1] framework), the Commission imposed various obligations on the telecommunications industry in relation to the transition to NG9-1-1.¹ Each obligation was subject to an established time frame.
2. Given the force majeure situation posed by the COVID-19 pandemic, the Commission, via a [letter](#) dated 8 April 2020, suspended all outstanding NG9-1-1 deadlines established in the NG9-1-1 framework and indicated that it would initiate a proceeding to establish new deadlines for all outstanding obligations. In that letter, the Commission also set out a preliminary view as to what those revised deadlines should be.

Proceeding

3. On 4 September 2020, the Commission initiated a proceeding, by way of Telecom Notice of Consultation 2020-326 (the Proceeding), with a view to establishing new deadlines for outstanding milestones related to NG9-1-1 implementation in Canada. Further, the Commission sought views regarding the establishment of a new milestone associated with the operation of NG9-1-1 networks (the NG9-1-1 network in-service milestone).
4. The Commission proposed in the Proceeding that an NG9-1-1 network would be considered to be in service when (i) the production onboarding² and testing is

¹ NG9-1-1 in Canada is based on the National Emergency Number Association (NENA) i3 architecture standard (the NENA i3 standard). The Commission approved the NENA i3 standard as the NG9-1-1 architecture standard in Telecom Decision 2015-531. NG9-1-1 is an Internet protocol (IP)-based system comprised of (i) transport infrastructure known as managed Emergency Services IP-Enabled Networks (ESInets), (ii) the functional elements and databases that replicate traditional Enhanced 9-1-1 features and functions, and (iii) additional capabilities, known as next-generation core services (NGCS).

² During the NG9-1-1 trial, originating network providers (ONPs) and PSAPs are connected to the NG9-1-1 networks in a test environment, through the trial onboarding process, where only test NG9-1-1 traffic transits over the networks. After the trial, the ONPs and PSAPs will begin connecting to the NG9-1-1 networks in a production environment, through the production onboarding process, where live NG9-1-1 traffic will transit over the networks.

complete; (ii) NG9-1-1 service tariffs have been approved by the Commission; and (iii) live NG9-1-1 traffic is transiting between public safety answering points' (PSAPs) NG9-1-1 network, NG9-1-1 networks, and the originating networks capable of supporting NG9-1-1. In its preliminary view, the Commission proposed a deadline of 30 June 2021 associated with this milestone or, where the proposed conditions had not been met by such date, as soon thereafter as those conditions were satisfied.

5. In the Proceeding, the Commission invited comments from NG9-1-1 stakeholders, such as NG9-1-1 network providers, local and provincial/territorial governments, telecommunications service providers (TSPs),³ PSAPs, and vendors, as well as any other persons interested in the establishment of new NG9-1-1 deadlines and the new in-service milestone. The Commission noted that while PSAPs are outside its jurisdiction, they are NG9-1-1 stakeholders; therefore, the timing of their transition plans and NG9-1-1 readiness were part of the Commission's overall considerations.
6. The following parties participated in the Proceeding: Bell Canada, on its own behalf and on behalf of its affiliate Bell Mobility Inc. (collectively, the Bell companies); Bragg Communications Incorporated, carrying on business as Eastlink (Eastlink); la Coalition pour le service 9-1-1 au Québec;⁴ le Comité 9-1-1 du Syndicat canadien de la fonction publique au Québec (le Comité 9-1-1); Competitive Network Operators of Canada;⁵ the CRTC Interconnection Steering Committee (CISC)⁶ Emergency Services Working Group (ESWG);⁷ the Deaf and Hard of Hearing Coalition;⁸ the Deaf Wireless Canada Consultative Committee, Canadian Association of the Deaf-Association des Sourds du Canada, and Canadian National Society of the Deaf-Blind (collectively, the DWCC et al.); the Independent Telecommunications Providers

³ For the purposes of this decision, TSPs are telephone service providers that offer wireline and/or wireless local exchange telephone services, including local voice over Internet Protocol (VoIP) services. In the future, they could be expanded to include other providers of other telecommunications services as new NG9-1-1 services are introduced. Where a TSP owns or operates the network over which it provides local exchange telephone service, it is also referred to as an ONP.

⁴ La Coalition pour le Service 9-1-1 au Québec is comprised of l'Agence municipale de financement et de développement des centres d'urgence 9-1-1 du Québec, l'Association des centres d'urgence du Québec, and la Centrale des appels d'urgence Chaudière-Appalaches.

⁵ This association is now known as Canadian Network Operators Consortium Inc.

⁶ CISC is an organization established by the CRTC to assist in developing information, procedures, and guidelines as may be required in various aspects of the CRTC's regulatory activities.

⁷ The ESWG is a permanent working group under the umbrella of CISC, which deals with technical and operational issues related to 9-1-1 service in Canada. Participants include TSPs (e.g. Bell Mobility Inc., Rogers Communications Canada Inc., Shaw Communications Inc., and Videotron Ltd.), NG9-1-1 network providers (e.g. Bell Canada, Saskatchewan Telecommunications, and TCI), and PSAPs.

⁸ The Deaf and Hard of Hearing Coalition is comprised of the Deafness Advocacy Association Nova Scotia (DAANS), Newfoundland Labrador Association of the Deaf (NLAD), and the Ontario Association of the Deaf.

Association; Joint PSAP and 9-1-1 Authorities;⁹ Newfoundland and Labrador 9-1-1; Northwestel Inc. (Northwestel); the Public Safety Broadband Network Innovation Alliance; Quebecor Media Inc., on behalf of Videotron Ltd.; Rogers Communications Canada Inc. (RCCI); Saskatchewan Telecommunications (SaskTel); Shaw Communications Inc. (Shaw); TBayTel; TELUS Communications Inc. (TCI); and Xplornet Communications Inc. (Xplornet).

7. In response to submissions made by the Bell companies and TCI as to the need for regulatory clarity regarding default call routing solutions for the purposes of NG9-1-1 cost studies, the Commission issued requests for information and established an additional process to further develop the record and properly bring the issue within the scope of the Proceeding.

Strategic objectives

8. The key objective of the Proceeding was to establish new deadlines for the implementation of NG9-1-1 networks and services in Canada, following the suspension of the deadlines established in the NG9-1-1 framework due to the COVID-19 pandemic. Therefore, in its determinations stemming from the Proceeding, the Commission is taking into account the continued limitations and impacts raised by interveners as a result of the COVID-19 pandemic.
9. In addition, the following strategic objectives informed the Commission's decision in the Proceeding:
 - to increase the safety of Canadians by giving them the best access to emergency services through world-class telecommunications networks;
 - to provide high-quality information, services, and support to PSAPs, which ultimately enables emergency responders to effectively assist Canadians;
 - to introduce NG9-1-1 solutions that are cost-effective, innovative, and transparent;
 - to ensure an effective and timely transition to NG9-1-1;
 - to use standards-based solutions that allow for flexibility and strive for national consistency; and

⁹ The Joint PSAP and 9-1-1 Authorities include representatives from Alberta 9-1-1 Advisory Association Member PSAPs, APCO [Association of Public-Safety Communications Officials] Canada, Calgary 911, Campbell River Fire Dispatch, the City of Kelowna, the City of Medicine Hat's regional communications centre, the City of Red Deer, the Department of Justice and Public Safety of New Brunswick, E-Comm 911, Kamloops Fire Rescue, the NENA, the Ontario Ministry of the Solicitor General, Ontario Provincial Police, the Province of Nova Scotia, the Regional District of Fraser-Fort George, Sarnia Police Service, Toronto Fire Services, Toronto Paramedic Services, the Township of Langley Fire Department, Vaughan Fire and Rescue Service, Windsor Police Service, and Winnipeg Police Service.

- to minimize the possibility of NG9-1-1 calls not being delivered to the appropriate PSAPs.

Issues

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

- By when should NG9-1-1 Voice¹⁰ be implemented?
- By when should real-time text (RTT)-based NG9-1-1 Text Messaging (NG9-1-1 Text Messaging)¹¹ be provided?
- By when should NG9-1-1 network providers decommission their current 9-1-1 networks?
- Should Northwestel be provided an opportunity to submit an updated transition plan?
- When should certain ESWG reports be submitted?

11. The Commission notes that other issues not within the scope of the Proceeding were raised, namely issues pertaining to service standards associated with default call routing solutions and whether certain TSPs should be exempt from paying rates associated with default call routing. Those issues will not be addressed in this decision given that (i) the Commission did not contemplate them in the Proceeding, and that (ii) it was not opportune to establish additional processes to properly account for those matters considering the stage of the Proceeding at which they were raised.

By when should NG9-1-1 Voice be implemented?

Positions of parties

12. With respect to NG9-1-1 network providers establishing their NG9-1-1 networks and providing NG9-1-1 Voice, the Bell companies and TCI confirmed that prior to having their networks ready to support NG9-1-1 Voice, they will be in a position to complete

¹⁰ NG9-1-1 Voice is a service that enables the end-to-end provision of an IP-based 9-1-1 voice call, as defined under the NENA i3 standard. The service is expected, at a minimum, to provide the capabilities and functions of 9-1-1 services in place today, where technically feasible, including functions such as conference calling and calling back the person requesting emergency services following a disconnection.

¹¹ NG9-1-1 Text Messaging will provide an alternative method for requesting emergency assistance when, for example, a voice-based call is not possible, or talking is unsafe for the caller. RTT is an IP-based text messaging service, using the Session Initiation Protocol (SIP) signaling protocol, which enables characters to be sent and received immediately as they are typed, simulating a typical real-time conversation.

their NG9-1-1 trials as mandated, accounting for the 30-day normalization period they requested.¹²

13. Regarding the requirement for TSPs to make the necessary changes to support NG9-1-1 Voice, the Bell companies, Eastlink, and TCI submitted that once incumbent local exchange carriers (ILECs) have established their NG9-1-1 networks and are ready to provide NG9-1-1 Voice, individual TSPs would require up to three months to complete additional onboarding activities. These activities include integration and testing of NG9-1-1 functionality prior to being in a position to provide NG9-1-1 Voice to the TSP's customers. The Bell companies submitted that while numerous TSPs would onboard concurrently, the Commission should not expect all TSPs to onboard within those three months.
14. In their submissions, parties addressed the proposed new in-service milestone whereby NG9-1-1 network providers would be required to have their networks in service by 30 June 2021. They also addressed the proposed criteria that to be considered in service, NG9-1-1 traffic must be transiting over the network to an NG9-1-1-compliant PSAP. Parties generally submitted that they are not confident that any PSAPs will be in a position to handle NG9-1-1 traffic by the time that NG9-1-1 network providers and TSPs have made the changes necessary to support NG9-1-1 traffic. Further, no PSAP committed to being ready by the proposed milestone.
15. Large ILECs¹³ indicated that the presence of an NG9-1-1-compliant PSAP is not required for the provision of NG9-1-1 Voice given the presence on the networks of Legacy Selective Router Gateways (LSRGs)¹⁴ that will convert NG9-1-1 traffic to legacy traffic for consumption by a legacy PSAP. They submitted that once a TSP has been onboarded and is directing NG9-1-1 traffic to an NG9-1-1 point of interconnection (NG9-1-1 POI),¹⁵ the NG9-1-1 network can be considered in-service.
16. With respect to the filing of NG9-1-1 wholesale and retail tariffs, the Bell companies and TCI submitted that for them to implement default call routing solutions and have the relevant costs accounted for in the cost studies used to inform NG9-1-1 wholesale and retail tariffed rates, the Commission must determine an acceptable capacity to

¹² In consensus report ESRE0091, Status Update for NG9-1-1 Voice Trial Logistics, the ESWG highlighted the need for a normalization period between the conclusion of the NG9-1-1 trials and the launch of NG9-1-1 Voice services. During the normalization period, NG9-1-1 network providers and interconnected parties would perform activities to transition from a testing environment employing test NG9-1-1 traffic to a production environment with live NG9-1-1 traffic. In the same report, Bell Canada and TCI proposed a duration of 30 days for this normalization period upon conclusion of the trials.

¹³ In this context, the large ILECs are Bell Canada (including the former Bell Aliant Regional Communications, Limited Partnership; Bell MTS; and Télébec, Société en commandite); Sasktel; and TCI.

¹⁴ An LSRG is a gateway that allows calls to be routed or transferred between legacy and NG9-1-1 networks. In Telecom Regulatory Policy 2017-182, the Commission determined that LSRGs form part of NG9-1-1 networks and are to be funded through the ILECs' NG9-1-1 network access tariff rates.

¹⁵ NG9-1-1 POIs interconnect the originating networks and the NG9-1-1 networks.

which they are to build their NG9-1-1 default call routing solutions. The Bell companies and TCI indicated that they would require the Commission to provide this information at least one month before they are to file their proposed NG9-1-1 wholesale and retail tariffs for approval.

17. The Bell companies and TCI proposed to build their default call routing solutions to handle 5% of all NG9-1-1 calls made on their NG9-1-1 networks at any given time under normal circumstances. They submitted that this 5% figure takes into account excess capacity when compared to the volume of default routed calls on the current Enhanced 9-1-1 (E9-1-1) networks. Other parties, including the ESWG, RCCI, and Shaw, generally supported this proposal.¹⁶
18. SaskTel submitted that its 9-1-1 network is designed to handle all calls placed within the province, even calls requiring default routing, through its arrangement with Sask911, and that this arrangement would continue for NG9-1-1. SaskTel added that there are currently three primary PSAPs in the province: one each in Regina and Saskatoon as well as the Provincial Call Centre. SaskTel submitted that any calls that require default routing are routed to the Provincial Call Centre for processing, with overflow being routed to either the Regina or Saskatoon PSAPs, if required. SaskTel further submitted that default call routing for normal calling is currently under 5%, which includes all reasons for default routed calls.

Commission's analysis and determinations

19. The Commission considers that once TSPs have made the changes necessary to support NG9-1-1 Voice in their originating networks, additional work is still required to ensure the TSPs' originating networks and NG9-1-1 networks are interconnected, tested, and fully capable of exchanging NG9-1-1 traffic (hereafter, NG9-1-1 production onboarding activities). However, in the NG9-1-1 framework, the Commission did not distinguish between NG9-1-1 network readiness and NG9-1-1 production onboarding activities and understood that onboarding activities would take place prior to the NG9-1-1 network readiness milestone. This understanding was reflected in the fact that the original deadline by which NG9-1-1 networks had to be ready coincided with the deadline by which TSPs needed to provide NG9-1-1 Voice to their customers, subject to certain considerations. Specifically, the Commission directed TSPs to provide NG9-1-1 Voice to their customers served by networks that are technically capable of supporting NG9-1-1 Voice, and to do so wherever PSAPs have launched NG9-1-1 Voice by the same date as that by which NG9-1-1 network operators were required to have their NG9-1-1 networks ready.
20. While ILECs generally agreed on a three-month time frame for TSPs to complete NG9-1-1 production onboarding activities and to be in a position to provide NG9-1-1 Voice services, some TSPs may require more time. Notwithstanding, it is appropriate

¹⁶ Le Comité 9-1-1 questioned the adequacy of certain information on the public record for it to provide an informed view on the matter. A process was added to consider the public disclosure of the related information submitted in confidence.

for the Commission to establish a deadline to ensure that the momentum towards NG9-1-1 implementation is sustained so that Canadians can benefit from NG9-1-1 in a timely manner.

21. The Commission considers it reasonable to expect that TSPs and NG9-1-1 network providers will be in a position to complete NG9-1-1 production onboarding activities within a six-month period. In order to ensure an effective implementation of NG9-1-1 Voice, synchronization between the NG9-1-1 network providers and TSPs will be key. Therefore, the deadline by which ILECs are to establish their NG9-1-1 networks and to be ready to provide NG9-1-1 Voice should be the same deadline by which TSPs are to make the necessary changes to their networks to support and provide NG9-1-1 Voice. In light of the above, and accounting for the NG9-1-1 wholesale and retail tariff approval process and the need for a 30-day normalization period, the Commission determines that **1 March 2022** is an appropriate date by which NG9-1-1 network providers are to have their NG9-1-1 networks ready – including completion of the TSPs’ necessary NG9-1-1 production onboarding activities – and by which TSPs are to provide NG9-1-1 Voice.
22. The Commission established in the NG9-1-1 framework that TSPs are to provide NG9-1-1 Voice to their customers served by networks that are technically capable of supporting NG9-1-1 Voice wherever PSAPs have made the changes necessary to handle NG9-1-1 Voice calls. However, it also established in the NG9-1-1 framework that LSRGs will be part of the NG9-1-1 network in order to enable interoperability between legacy 9-1-1 networks and NG9-1-1 networks during the transition period. The LSRGs obviate the need for an NG9-1-1-compliant PSAP to be present on the NG9-1-1 network for NG9-1-1 traffic to begin transiting. Therefore, the Commission determines that the presence of a PSAP that has launched NG9-1-1 Voice is no longer a condition qualifying the TSPs’ requirement to provide NG9-1-1 Voice.
23. The Commission considers that eliminating this condition serves to properly reflect the configuration of NG9-1-1 networks, which will include LSRG gateways during the transition period. Moreover, eliminating this condition will not result in NG9-1-1 network providers or other TSPs having to take any new actions. In this regard, the Commission has a separate milestone requiring that both NG9-1-1 network providers and TSPs make the necessary changes to their respective networks in order to support NG9-1-1 Voice. TSPs were already under an obligation to onboard onto NG9-1-1 networks, including interconnection between the relevant originating and NG9-1-1 networks.
24. The Commission considers that more time may be needed to onboard all TSPs before NG9-1-1 networks are considered ready. However, this need for more time is accounted for in the determination in paragraph 21 to extend the deadline by which NG9-1-1 network providers must have their networks ready and the corresponding deadline by which TSPs must begin providing NG9-1-1 Voice to their end-users.
25. As discussed above, the Commission did not intend for the process of onboarding TSPs onto NG9-1-1 networks to commence only after those last networks would be

considered ready. Given the submissions it received, the Commission is concerned that the adoption of a new in-service milestone could introduce confusion on this front. Considering this and the fact that the Commission has (i) extended the deadline by which NG9-1-1 network providers must have their networks ready to account for the need to onboard TSPs, and (ii) eliminated the requirement for an NG9-1-1-compliant PSAP to be present on the network as a condition for providing NG9-1-1 Voice, the Commission considers that no benefit would result from adopting a new in-service milestone.

26. With regard to default call routing capacity thresholds, the Commission notes that in Telecom Regulatory Policy 2019-66, it required TSPs to have arrangements in place for default 9-1-1 call routing with a third-party call centre, such as those used for nomadic voice over Internet Protocol (VoIP) calls.¹⁷ However, the Commission has not determined specific requirements that may affect NG9-1-1 network provider costs, such as default routed call handling capacity. The Commission considers that, given the nature of the service, it would be appropriate to expect that, absent catastrophic situations – such as a total network failure – the default call routing solutions adopted by NG9-1-1 network providers and TSPs ensure that all 9-1-1 communications are capable of being properly routed.
27. Based on the submissions in the Proceeding, the Commission considers that establishing a default call routing solution capable of handling up to 5% of the average volume of 9-1-1 communications, as proposed by the Bell companies and TCI, is reasonable. Such a solution would build in excess capacity relative to the volume of calls requiring default routing on the current E9-1-1 system and has support from other parties, including TSPs that would be subject to a wholesale NG9-1-1 tariffed rate.
28. Accordingly, the Commission determines that NG9-1-1 network providers can include costs to be incurred in relation to default call routing capabilities accounting for 5% of the average volume of 9-1-1 communications in their cost studies filed in support of their proposed NG9-1-1 tariffs. Given the arrangements SaskTel has with Sask911, the Commission considers that SaskTel is not expected to incur any costs specific to default NG9-1-1 call routing.
29. In light of the above, the Commission
 - a. **directs** NG9-1-1 network providers, by **1 March 2022**, to establish their NG9-1-1 networks, complete all NG9-1-1 production onboarding activities, and be ready to provide NG9-1-1 Voice by transiting live

¹⁷ Nomadic VoIP calls are IP-based calls for which the location of the caller is not associated with the telephone number. When an emergency request is made from a nomadic VoIP-enabled device, the call is routed to a third-party operator, who determines the location of the emergency with the caller and then uses an ILEC-provided routing service to transfer the call to the appropriate PSAP.

NG9-1-1 traffic, wherever PSAPs have been established in a particular region;

- b. **directs** TSPs, throughout their operating territories, to
 - (i) make the necessary changes to support NG9-1-1 Voice in their originating networks that are technically capable of supporting NG9-1-1 Voice, including completing all NG9-1-1 production onboarding activities, by **1 March 2022**; and
 - (ii) begin providing, by **1 March 2022**, NG9-1-1 Voice to their customers served by networks that are technically capable of supporting NG9-1-1 Voice, wherever PSAPs have been established in a particular region by directing their NG9-1-1 Voice traffic to the appropriate NG9-1-1 POIs.

As set out in Telecom Regulatory Policy 2017-182, these obligations are subject to the following exception: if a TSP provides voice services over an originating network that is technically not capable of supporting NG9-1-1 Voice, that provider is required to continue to support the existing 9-1-1 voice service for the remaining life of the network and will be responsible for the TSP gateways¹⁸ and for funding them;

- c. **directs** all NG9-1-1 network providers to file proposed NG9-1-1 wholesale and retail tariffs no later than **1 November 2021**. These tariffs are to include proposed rates supported by cost studies that reflect the incremental costs of adding new NG9-1-1 networks, services, or functionalities; and
- d. determines that NG9-1-1 network providers can include in their proposed tariffed rates incurred costs associated with the ability to handle, through default call routing, up to 5% of the average volume of 9-1-1 communications.

By when should NG9-1-1 Text Messaging be provided?

Background

30. In the NG9-1-1 framework, the Commission directed NG9-1-1 network providers and, in relation to networks that are technically capable of supporting the service, mobile wireless carriers, to make the necessary changes to support NG9-1-1 Text Messaging on their networks by 31 December 2020. The Commission further directed wireless service providers (WSPs), as of that same date, to provide the

¹⁸ TSP gateways, also referred to as legacy network gateways, enable legacy originating networks to connect to NG9-1-1 networks. Unlike LSRGs, which form part of the NG9-1-1 networks and are funded through the ILECs' NG9-1-1 access tariff rates, TSP gateways are not considered part of the NG9-1-1 network, and TSPs are responsible for funding them.

service to their customers served by networks that are technically capable of supporting the service, wherever PSAPs have launched NG9-1-1 Text Messaging.

31. In Telecom Decision 2019-226, the Commission approved CISC consensus report ESRE0083, *Real-time Text (RTT) based NG9-1-1 Text Messaging Specifications*.¹⁹ In its report, the ESWG noted that the following matters, among others, required further consideration:

- the ability for PSAPs to contact the person requesting emergency assistance after the 9-1-1 session has ended or has been disconnected prematurely. This function is known as PSAP to RTT end-user callback (RTT callback); and
- the ability for devices to identify the various parties in the conversation in RTT sessions that include more than two people. This is a requirement for RTT bridging, which is a function that is used for more than two callers to communicate in the same conversation, such as in situations where the initial operator at the PSAP transfers the call to another party (e.g. another PSAP) but stays on the line while the call is answered by the third party.

Positions of parties

32. Parties generally agreed that the implementation of NG9-1-1 Text Messaging should only occur once the functional challenges related to RTT callback and RTT bridging have been resolved.

33. The Bell companies, Eastlink, RCCI, SaskTel, TCI, and Xplornet submitted that there is currently a lack of standards for RTT callback and bridging. TCI submitted that while many wireless handsets currently support RTT in its current basic form, implementing NG9-1-1 Text Messaging in Canada prior to standards having been finalized for RTT callback and bridging would result in a standard of 9-1-1 service below that of what Canadians expect and what PSAPs currently provide. Further, TCI submitted that technical standards, including those for RTT, are being developed by technical standards bodies such as the 3rd Generation Partnership Project, the Internet Engineering Task Force, and National Emergency Number Association (NENA), which are outside of CISC's control and over which the Commission has no direct authority.

34. Parties submitted that such challenges are topics of ongoing discussion at the ESWG, and that the Commission could leverage ESWG reports to track the development of RTT standards and technical and operational readiness.

35. Parties generally agreed that it would be reasonable and appropriate to expect NG9-1-1 network providers to make available their RTT interconnection

¹⁹ The consensus reports and non-consensus reports mentioned in this decision can be found in the "Reports" section of the ESWG page, which is available in the CISC section of the Commission's website at www.crtc.gc.ca.

specifications to interconnecting parties by six months prior to the provision of NG9-1-1 Text Messaging, conditional on technical solutions being found to RTT callback and RTT bridging.

36. The DWCC et al. raised a number of issues related to the implementation of NG9-1-1 Text Messaging. One of these issues was a requirement for participation from Deaf, deaf-blind, and hard-of-hearing Canadians in the alpha trial process. Another was the need for educational material to be published comparing NG9-1-1 Text Messaging to Teletypewriter (TTY) services and Text Messaging with 9-1-1 (T9-1-1).²⁰ Further, the DWCC et al. submitted that there is uncertainty as to which ESWG sub-working groups they should be engaging in to best represent the interests of their community regarding the implementation of NG9-1-1 Text Messaging.

Commission's analysis and determinations

37. In the NG9-1-1 framework, the Commission established that the introduction of NG9-1-1 will increase the safety of Canadians by giving them access to emergency assistance through world-class telecommunications networks. The Commission considers that the implementation of NG9-1-1 Text Messaging prior to standards being sufficiently advanced for functions such as RTT callback and RTT bridging may result in a solution that is not fully developed.
38. In the NG9-1-1 framework, the Commission also requested that CISC present it with recommendations on the technical specifications for the implementation of NG9-1-1 Text Messaging. CISC is well positioned to develop recommendations and guidelines on these matters, given that it is currently monitoring related standards development bodies and lessons learned in other jurisdictions. Therefore, allowing the Commission to inform its determinations with ESWG discussions and recommendations regarding the technical solutions for RTT would better ensure that NG9-1-1 Text Messaging is implemented in Canada based on the principle of using standards-based solutions that strive for national consistency.
39. The Commission acknowledges the recommendation for awareness material to be made for the benefit of the Deaf, deafened, hard-of-hearing, and speech-impaired community. The Commission considers that multiple stakeholders share the responsibility for raising awareness regarding NG9-1-1 Text Messaging and has requested that CISC provide its recommended public education campaign for each new NG9-1-1 service, including NG9-1-1 Text Messaging. With respect to the DWCC et al.'s desire to be more involved in the testing and implementation of RTT,

²⁰ In Telecom Decision 2013-22, the Commission directed WSPs and 9-1-1 network providers to support the provision of Text Messaging with 9-1-1 to enable Deaf, hard-of-hearing, and speech-impaired Canadians to access PSAPs via Short Message Service (SMS)-based text messaging. This was an interim solution designed to meet an urgent need until NG9-1-1 becomes available in Canada and IP-based technology enables the general public to communicate directly with PSAPs using text messaging.

the Commission encourages them to engage with CISC to determine where they should be concentrating their efforts to further promote the needs of their members.

40. In light of the above, the Commission

- is not establishing new deadlines related to the implementation of NG9-1-1 Text Messaging as part of this process; therefore, the suspension of the relevant deadlines set out in Telecom Regulatory Policy 2017-182 will continue;
- requests that, once standards are sufficiently advanced with respect to RTT callback and bridging, CISC file a report with the Commission with recommendations related to the provision and timing of NG9-1-1 Text Messaging for all stakeholders; and
- encourages all parties to participate in CISC as they see fit to ensure that all Canadians will benefit from the implementation of NG9-1-1, including NG9-1-1 Text Messaging.

By when should NG9-1-1 network providers decommission their current 9-1-1 networks?

Positions of parties

41. Eastlink, RCCI, and Shaw submitted that the original 30 June 2023 deadline should be maintained because it provided more than sufficient time for all entities to onboard onto NG9-1-1 networks.
42. The large ILECs generally supported maintaining a legacy network decommissioning date three years after NG9-1-1 networks are brought into service. In this regard, the Bell companies estimated that it will require three years to onboard every PSAP after the first PSAP is onboarded.
43. Joint PSAP and 9-1-1 Authorities submitted that the decommissioning deadline should be delayed to summer 2025 to provide them with sufficient time to complete their onboarding activities and to be in a position to handle NG9-1-1 traffic before legacy network components are decommissioned.
44. TCI submitted that if some PSAPs are not NG9-1-1-compliant by decommissioning, they will have access to hosted PSAP call handling solutions that can help address their NG9-1-1 transition needs. TCI added that PSAPs will also have the option to purchase PSAP gateways,²¹ which would enable the PSAPs to continue their

²¹ PSAP gateways, also referred to as legacy PSAP gateways, enable the connection of legacy PSAP equipment and systems to NG9-1-1 networks. In Telecom Regulatory Policy 2017-182, the Commission determined that, unlike LSRGs, which form part of the NG9-1-1 networks and are funded through the ILECs' NG9-1-1 access tariff rates, PSAP gateways are not considered part of the NG9-1-1 network, and 9-1-1 authorities are responsible for funding them.

operations once the current networks have been decommissioned and until the PSAPs can be fully upgraded to be NG9-1-1-compliant. RCCI also noted the option for PSAPs to deploy PSAP gateways and added that remaining legacy PSAPs could be merged or consolidated into NG9-1-1 PSAPs to effect a timely transition to NG9-1-1.

45. TSPs submitted that the E9-1-1 and NG9-1-1 tariffs will both be in effect during the transition period, and that any delay of the decommissioning date will invariably result in additional costs to them, which may be passed on to their subscribers.
46. TCI submitted that “end state” tariffs (i.e. NG9-1-1 wholesale and retail tariffs that capture (i) network components that were formerly included in 9-1-1 cost studies but continue to be required for the provision of NG9-1-1 services, and (ii) all other NG9-1-1-related cost components) should be approved prior to the date they are to take effect, and that the filing of the tariffs should therefore occur prior to the decommissioning of the current network and not on the same date.

Commission’s analysis and determinations

47. The impacts of the COVID-19 pandemic on Canadians and Canadian businesses were sufficient for the Commission to proactively suspend the NG9-1-1 deadlines. Those impacts should therefore be taken into account when establishing any new deadlines. There is insufficient justification for restoring the original decommissioning deadline of 30 June 2023 as directed in the NG9-1-1 framework, and shortening the transition period would not be in the best interest of Canadians. This is particularly true in the context of the NG9-1-1 rollout, which is complex and involves coordination between numerous stakeholders across Canada. Therefore, it is reasonable and appropriate to maintain the original transition period and set the revised decommissioning date at three years from the date by which ILECs are to have established their NG9-1-1 networks, which, as per paragraph 29, is by **1 March 2022**.
48. As RCCI and TCI submitted, in the event that some PSAPs have not completed their transition to NG9-1-1 prior to the decommissioning of the E9-1-1 networks, the PSAPs could use solutions such as PSAP gateways, for which the PSAPs will be responsible for funding and provisioning, to maintain their operations past the decommissioning date.
49. Given that it remains unknown when all PSAPs will be NG9-1-1-compliant, it would not be cost effective nor in the best interest of Canadians for the decommissioning of legacy networks to be based on such a milestone. Regardless, the Commission continues to encourage PSAPs to transition to NG9-1-1 prior to the decommissioning of legacy networks, including undertaking all NG9-1-1 production onboarding activities required once they have made the necessary changes to handle NG9-1-1 traffic, such that Canadians can benefit fully as soon as possible from the new, enhanced, and innovative emergency services provided by end-to-end NG9-1-1.
50. Further, the ESWG continues to assess and monitor transition considerations for PSAPs and TSPs. In Telecom Regulatory Policy 2017-182, the Commission considered it appropriate for CISC to establish and maintain a readiness and

deployment status report for NG9-1-1 network providers, TSPs, and PSAPs. In the same decision, the Commission requested that CISC submit two reports on the progress of NG9-1-1 implementation by primary²² and secondary²³ PSAPs, the first by 31 December 2022 and the second by 31 December 2023. Given the determination to postpone the decommissioning date, it is appropriate to request three additional status reports: one to be filed one year prior to the decommissioning date, one to be filed six months prior to it, and one to be filed on the decommissioning date.

51. Regarding the filing of “end state” tariffs, NG9-1-1 network providers have the ability and necessary flexibility to file their proposed tariffs for approval sufficiently in advance of the decommissioning deadline to ensure that an approved tariff can be in place prior to such decommissioning.

52. In light of the above, the Commission

- **directs** ILECs to decommission their 9-1-1 network components that will not form part of their NG9-1-1 networks by **4 March 2025**, or earlier if all the TSPs and PSAPs in an ILEC’s operating territory have completed their transition to NG9-1-1; and
- **directs** all NG9-1-1 network providers to file proposed NG9-1-1 wholesale and retail tariffs, including proposed rates based on cost studies that include
 - i. costs associated with network components that were formerly included in 9-1-1 cost studies but continue to be required for the provision of NG9-1-1 services; and
 - ii. all other NG9-1-1-related cost components.

NG9-1-1 network providers are to file their NG9-1-1 wholesale and retail tariffs with sufficient time for them to take effect on the date by which their existing 9-1-1 networks are to be decommissioned.

53. Finally, the Commission requests that CISC submit three additional status reports on the progress of NG9-1-1 implementation by TSPs and primary and secondary PSAPs: one by **4 March 2024**, one by **30 September 2024**, and one by **4 March 2025** (one year prior to, six months prior to, and on the decommissioning deadline, respectively).

²² A primary PSAP is a PSAP to which 9-1-1 calls are routed directly as the first point of contact. In most cases, the primary PSAP then contacts the appropriate agency to dispatch emergency responders. However, in cases where local authorities determine that specialized expertise is required to handle the 9-1-1 call, such as emergency medical services, 9-1-1 calls are then transferred to a secondary PSAP.

²³ A secondary PSAP is a PSAP to which NG9-1-1 calls are transferred from a primary PSAP and that is directly interconnected to an NG9-1-1 network, allowing for the receipt and display of NG9-1-1 call data.

Should Northwestel be provided an opportunity to submit an updated transition plan?

Background

54. In the NG9-1-1 framework, the Commission established various obligations with associated deadlines directed at all ILECs, wherever PSAPs have been established in a particular region. In Telecom Regulatory Policy 2019-66, the Commission reiterated that those obligations apply to Northwestel.
55. In Telecom Decision 2019-348, the Commission acknowledged certain challenges with implementing NG9-1-1 in Northwestel's incumbent territory²⁴ and considered that Northwestel should work with the relevant 9-1-1 authorities to establish a transition plan for NG9-1-1. Consequently, the Commission directed Northwestel to file, by 22 January 2020, a transition plan for the establishment of NG9-1-1 networks in its incumbent territory, wherever PSAPs have been established. The transition plan was to consider all PSAPs in Northwestel's incumbent territory, both PSAPs that would be established by 30 June 2020 and any that would be established thereafter. Northwestel filed its transition plan as required; however, the Commission suspended all deadlines related to the implementation of NG9-1-1 in response to the COVID-19 pandemic before it could make any determinations on Northwestel's plan.
56. Noting that the transition to NG9-1-1 is expected to be lengthy in areas that are still served by Basic 9-1-1 (B9-1-1), such as Newfoundland and Labrador, the Northwest Territories, and Yukon, the ESWG established sub-working group ESTF0094, B9-1-1 to NG9-1-1 Stakeholder Considerations, with a view to deliver a plan for the introduction of select 9-1-1 features in preparation for future implementation of NG9-1-1. Via ESTF0094, the ESWG plans to explore interim steps such that Canadians and PSAPs in areas served by B9-1-1 can benefit from certain 9-1-1 features, such as T9-1-1 and the provision of location information for wireless calls, prior to the full implementation of NG9-1-1.

Positions of parties

57. Northwestel, supported by the Bell companies, submitted that it would be most appropriate for the Commission to clarify that the key NG9-1-1 milestones proposed in the Proceeding do not apply to Northwestel, and that the Commission should instead consider mandating the implementation of the plan that will be proposed as a result of sub-working group ESTF0094.

Commission's analysis and determinations

58. The aim of sub-working group ESTF0094 is to identify and explore the introduction of 9-1-1 features into B9-1-1-served areas in advance of future NG9-1-1

²⁴ Specifically, the Commission acknowledged that for NG9-1-1 networks to be implemented in Northwestel's territory, the relevant 9-1-1 authority must complete civic addressing that is suitable for routing emergency requests and provide maps showing the boundaries of emergency zones.

implementation. Once these features are implemented, the NG9-1-1 network providers in Newfoundland and Labrador, the Northwest Territories, and Yukon will still need to complete NG9-1-1-specific work, such as establishing i3-compliant networks and NG9-1-1 POIs and implementing Location Information Server (LIS) and Additional Data Repository functionalities, all of which is outside the scope of ESTF0094. Therefore, while the scope of ESTF0094 is complementary to a transition plan, it is too limited to be considered a suitable replacement for a transition plan for NG9-1-1.

59. Given the suspension of the original NG9-1-1 implementation deadlines and the establishment of new NG9-1-1 deadlines as part of the Proceeding, and recognizing the challenges inherent to Northwestel's incumbent territory, the Commission considers it appropriate to provide Northwestel an opportunity to file an updated transition plan informed by the new deadlines established in this decision.
60. In light of the above, the Commission **directs** Northwestel to inform the Commission, by **22 June 2021**, of its intent to either (i) comply with the new NG9-1-1 implementation deadlines as determined in this decision, or (ii) file for the Commission's approval an updated transition plan including the location of NG9-1-1 POIs and timelines for the establishment of an NG9-1-1 network in its incumbent territory, wherever PSAPs have been established. Such a transition plan is to be filed with the Commission by **1 October 2021** and should include a request for the Commission to extend or suspend timelines, as appropriate. Northwestel is also to consider in this transition plan all PSAPs in its incumbent territory, including those that will be established by 1 October 2021 and any that may be established thereafter.

When should certain ESWG reports be submitted?

Positions of parties

61. The ESWG was the primary party to submit a detailed intervention on this matter and proposed the following dates for the outstanding ESWG reports listed below:
 - report from sub-working group ESTF0085, NG9-1-1 Transition Considerations: The ESWG submitted that this report is required to address NG9-1-1 transition considerations, with the major focus being on RTT-coordinated rollout logistics. Further, the ESWG indicated that significant delays with RTT technical logistics and standards that directly impact readiness and deployment have resulted in uncertainty in terms of timing for network implementation and the related coordinated PSAP rollout schedule. Consequently, the ESWG requested approval to file this report by 19 November 2021.
 - report from sub-working group ESTF0093, Transition from Text with 9-1-1 to NG9-1-1 Text Messaging: The ESWG submitted that this report is required to address the key transition considerations for moving from T9-1-1 to RTT, including the impacts on related TTY functionality and

voice relay services. Further, the ESWG indicated at the time that the report-writing process was on track for the report to be delivered by the preliminary view date of 27 November 2020.

- report from sub-working group ESTF0090, NG9-1-1 Reliability, Resiliency, and Security: The ESWG submitted that this report is required to address matters for future consideration detailed in Telecom Regulatory Policy 2019-66 and Telecom Decision 2019-353. Resolution of these matters is directly linked to ongoing NG9-1-1 trials and standards work. Consequently, the ESWG requested to submit two separate reports: the first by 18 December 2020 to address priority items that need resolution by the second quarter of 2021 (the priority report), and the second by 16 April 2021 to address the remaining items by late third quarter 2021 (the follow-up report).
- report from sub-working group ESTF0091, NG9-1-1 Additional Data Considerations: The ESWG submitted that this initial report is required to address future NG9-1-1 additional data considerations. This includes enhanced data about the call, caller, and location to supplement the B9-1-1 phone number and location data that will be implemented with NG9-1-1 Voice. The work related to the technical and operational logistics to undertake this end-to-end delivery of additional data is ongoing, and specifics needed for this report are targeted for early 2021. Consequently, the ESWG requested approval to file this report by 16 April 2021.
- Updated report from sub-working group ESTF0073b, Review of Multi-Line Telephone Systems (MLTS) 9-1-1 Call Dialing, Routing, Display Challenges, Issues, Specifications and Requirements: The ESWG submitted that in Telecom Decision 2019-330, the ESWG was directed to submit an updated or new MLTS report based on the original ESRE0074 report filed in 2017. The ESWG added, however, that this report was delayed due to a lack of resources and because working group discussions revealed additional considerations that need to be included. Consequently, the ESWG requested approval to file this report by 28 May 2021.

Commission's analysis and determinations

62. The Commission considers that the deadlines proposed by the ESWG for the reports listed above were based on the NG9-1-1 implementation deadlines contained in the Commission's preliminary view. Moreover, the ESWG has yet to file any of these reports. Given the adjustments to the deadlines for NG9-1-1 implementation as part of this process, the Commission considers it appropriate to adjust the deadlines for upcoming ESWG reports and requests that the ESWG file

- the report from sub-working group ESTF0085, NG9-1-1 Transition Considerations, by **7 March 2022**;

- the report from sub-working group ESTF0093, Transition from Text with 9-1-1 to NG9-1-1 Text Messaging, by **9 August 2021**;
- the priority report from sub-working group ESTF0090, NG9-1-1 Reliability, Resiliency, and Security, by **7 July 2021**;
- the follow-up report from sub-working group ESTF0090, NG9-1-1 Reliability, Resiliency, and Security, by **7 June 2022**;
- the report from sub-working group ESTF0091, NG9-1-1 Additional Data Considerations, by **7 February 2022**; and
- the updated report from sub-working group ESTF0073b, Review of Multi-Line Telephone Systems (MLTS) 9-1-1 Call Dialing, Routing, Display Challenges, Issues, Specifications and Requirements, by **7 June 2022**.

Policy Directions

63. The 2006 Policy Direction²⁵ states that the Commission, in exercising its powers and performing its duties under the Act, shall implement the policy objectives set out in section 7 of the Act, in accordance with paragraphs 1(a), (b), and (c) of that direction.
64. In the Commission's view, the determinations in this decision are consistent with the 2006 Policy Direction for the reasons set out below.
65. With respect to the establishment of new deadlines for existing regulatory obligations, the Commission considers that the recommended dates will help ensure the continued provision of robust 9-1-1 access services. These access services are critical telecommunications services that play a central role in fulfilling the policy objective set out at paragraph 7(h) of the Act.²⁶ By implementing realistic timelines meant to guard against delays in the proper configuration and activation of the relevant networks and the rollout of NG9-1-1 services to Canadians, the new deadlines also assist in the implementation of the policy objectives set out at paragraphs 7(a), (b) and (c).²⁷

²⁵ *Order Issuing a Direction to the CRTC on Implementing the Canadian Telecommunications Policy Objectives*, SOR/2006-355, 14 December 2006

²⁶ The cited policy objective is: 7(h) to respond to the economic and social requirements of users of telecommunications services.

²⁷ The cited policy objectives are: 7(a) to facilitate the orderly development throughout Canada of a telecommunications system that serves to safeguard, enrich and strengthen the social and economic fabric of Canada and its regions; (b) to render reliable and affordable telecommunications services of high quality accessible to Canadians in both urban and rural areas in all regions of Canada; and (c) to enhance the efficiency and competitiveness, at the national and international levels, of Canadian telecommunications.

66. Regarding the elimination of the requirement that PSAPs be able to handle NG9-1-1 traffic prior to a TSP having to provide NG9-1-1 Voice to its customers, this determination will serve to further promote the orderly development of a telecommunications system that serves to safeguard the social fabric of Canada and render reliable, high-quality telecommunications services throughout Canada. This determination therefore helps implement the policy objectives set out at paragraphs 7(a) and (b). Given the importance of 9-1-1 access services, and as a consequence of the previous (namely, that the determination will serve to further the implementation of the policy objectives set out at paragraphs 7(a) and (b) of the Act), this determination will also assist in fulfilling the policy objective set out at paragraph 7(h).
67. With regard to the determinations pertaining to the level of costs that NG9-1-1 network providers can reflect in their proposed tariffed rates, the Commission considers that they give proper recognition to the additional costs that such solutions entail and that are ultimately borne by the consumers. Consequently, these determinations serve to further the implementation of the policy objectives set out at paragraphs 7(b) and 7(h) of the Act.
68. As mentioned, the new deadlines that will be established as an outcome of the Proceeding pertain to pre-existing obligations. Consequently, the Commission has already concluded that regulatory intervention is required, and therefore that market forces cannot be relied upon to achieve the relevant outcomes. Similarly, the Commission has already concluded that, where relevant, the obligations imposed were implemented, to the greatest extent feasible, in a symmetrical, technological, and competitively neutral manner and did not artificially favour either Canadian carriers or resellers.
69. More specifically, the regulatory measures at issue in the Proceeding apply to all NG9-1-1 network providers and, where appropriate, to all TSPs. These measures were adopted and structured to ensure that Canadians continue to have access to reliable and effective emergency services, while promoting innovation and providing leadership in the coordination of the nationwide transition to NG9-1-1 networks and services to the benefit of all Canadians. Despite current national and global circumstances, the Commission finds that it is imperative that 9-1-1 networks continue to maintain the path towards NG9-1-1, and that innovations in this field remain responsive to the public safety needs of Canadians.
70. The 2019 Policy Direction,²⁸ which complements the 2006 Policy Direction, states that the Commission should consider how its decisions can promote competition, affordability, consumer interests, and innovation. As discussed above, the Commission considers that the proposed new deadlines for existing regulatory obligations and the modification to the conditions attaching to the obligation of TSPs

²⁸ *Order Issuing a Direction to the CRTC on Implementing the Canadian Telecommunications Policy Objectives to Promote Competition, Affordability, Consumer Interests and Innovation*, SOR/2019-227, 17 June 2019

to provide their end-users with NG9-1-1 Voice will help ensure the timely provision of reliable and efficient 9-1-1 access services to Canadians across the country, thereby promoting their interests. Similarly, the proposed policy determination relating to the level of costs related to default call routing that NG9-1-1 network providers can reflect in their proposed tariffed rates is reflective of a level of service that will help ensure that Canadians are able to promptly communicate with the appropriate PSAP in emergencies while ensuring that the service remains affordable.

Secretary General

Related documents

- *Call for comments – Establishment of new deadlines for Canada’s transition to next-generation 9-1-1*, Telecom Notice of Consultation CRTC 2020-326, 4 September 2020
- *CISC Emergency Services Working Group – Consensus report on matters related to compatibility, reliability, resiliency, and security for next-generation 9-1-1*, Telecom Decision CRTC 2019-353, 22 October 2019
- *Follow-up to Telecom Regulatory Policy 2019-66 – Activities related to next-generation 9-1-1 network design efficiencies*, Telecom Decision CRTC 2019-348, 8 October 2019
- *CISC Emergency Services Working Group – Non-consensus report ESRE0074 on how to best manage multi-line telephone systems in a Canadian Enhanced 9-1-1 environment*, Telecom Decision CRTC 2019-330, 23 September 2019
- *CISC Emergency Services Working Group – Consensus report regarding technical specifications for real-time-text-based Next-Generation 9-1-1 Text Messaging*, Telecom Decision CRTC 2019-226, 27 June 2019
- *Next-generation 9-1-1 network design efficiencies*, Telecom Regulatory Policy CRTC 2019-66, 7 March 2019
- *Next-generation 9-1-1 – Modernizing 9-1-1 networks to meet the public safety needs of Canadians*, Telecom Regulatory Policy CRTC 2017-182, 1 June 2017; as amended by Telecom Regulatory Policy CRTC 2017-182-1, 28 January 2019
- *CISC Emergency Services Working Group – Consensus report regarding a Next-Generation 9-1-1 network architecture standard for Canada*, Telecom Decision CRTC 2015-531, 30 November 2015
- *CISC Emergency Services Working Group – Consensus report regarding Text Messaging with 9-1-1 trial and service implementation*, Telecom Decision CRTC 2013-22, 24 January 2013