Court File No. CV-20-00635778-00CP

ONTARIO
SUPERIOR COURT OF JUSTICE

B E T W E E N:

VANESSA FAREAU and RANSOME CAPAY

Plaintiffs

and

BELL CANADA and HER MAJESTY THE QUEEN IN RIGHT OF ONTARIO

Defendants

Proceeding under the *Class Proceedings Act, 1992*

PLAINTIFFS' REPLY MOTION RECORD
(Certification and Motion to Strike Evidence)

July 15, 2021

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I N D E X

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NOTICE OF MOTION
(Motion to Strike Evidence)

The plaintiffs will make a motion to the Honourable Justice Paul Perell on December 7-8, 2021 at 10:00 a.m., or as soon after that time as the motion can be heard by judicial videoconference via Zoom at Toronto, Ontario.

PROPOSED METHOD OF HEARING: The motion is to be heard

[ ] in writing under subrule 37.12.1(1) because it is

[ ] in writing as an opposed motion under subrule 37.12.1(4);

[X] orally.

THE MOTION IS FOR

1. an order striking out paragraphs 6-25 and 27-46, save for the parts of those paragraphs that attach Exhibits A-N and P-V, of the affidavit of Pierre-Luc Hébert, affirmed on June 30, 2021 in this matter ("**Impugned Paragraphs**");

2. costs of this motion; and

3. such further and other relief and directions as counsel may request and this Honourable Court may permit.

THE GROUNDS FOR THE MOTION ARE

4. Pierre-Luc Hébert is Assistant General Counsel at BCE Inc., the parent company of the defendant, Bell Canada ("**Bell**");

5. He has been a Bell employee since 2003;

6. He has sworn an affidavit in this litigation based on his "role with Bell and experience in the regulatory side of the industry" and his "understanding [of] the regulatory framework under which Bell provides its telecommunications services and Bell's role within that framework";

7. Mr. Hébert has not been qualified as an expert before this Court, but is a fact witness purporting to give expert opinion on contentious matters in this action;

8. Mr. Hébert has not signed an Acknowledgment of Expert's Duty under the *Rules of Civil Procedure*, nor can he do so given his employment by Bell;

9. Mr. Hébert has given no assurance of providing fair, objective, and non-partisan expert evidence, nor can he do so given his employment by Bell;

10. Mr. Hébert purports to give expert evidence in the Impugned Paragraphs on some of the ultimate legal issues that this Court will need to determine in deciding the plaintiffs' certification motion and the defendants' jurisdiction motions as well as the underlying merits of the action, including:

    (a) the preferable procedure analysis (certification motion);

    (b) whether the CRTC's notice requirements for non-cash phone calls applied to prisoners (merits); and

    (c) whether the Court should decline jurisdiction in favour of the CRTC (defendants' jurisdiction motions);

11. Mr. Hébert gives opinion evidence on pure legal issues of jurisdiction that are exclusively within the Court's domain;

12. Neither Mr. Hébert's general opinion evidence nor the inferences that he has drawn on the legal documents attached to his affidavit are admissible evidence;

13. The Impugned Paragraphs risk prejudicing the fair determination of the issues before the Court;

14. The risks posed by the Impugned Paragraphs outweigh any potential benefit in admitting the evidence;

15. The Impugned Paragraphs are an abuse of the process of the Court;

16. Rules 4.06, 4.1, 25.11, 39.01, and 53.03 of the *Rules of Civil Procedure*;

17. Such further and other grounds as counsel may advise and this Honourable Court permit.

THE FOLLOWING DOCUMENTARY EVIDENCE will be used at the hearing of the motion:

1. The affidavit of Pierre-Luc Hébert, affirmed June 30, 2021; and

2. Such further evidence as counsel may advise and this Honourable Court permits.

July 15, 2021

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-and-

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SUPERIOR COURT OF JUSTICE

PROCEEDING COMMENCED AT TORONTO
Proceeding under the *Class Proceedings Act, 1992*

NOTICE OF MOTION
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Defendants

Proceeding under the *Class Proceedings Act, 1992*

REPLY AFFIDAVIT OF NADINE BLUM
(affirmed July 15, 2021)

I, Nadine Blum, of the City of Toronto, Province of Ontario, **DO SOLEMNLY AFFIRM:**

1. I am a lawyer at Goldblatt Partners LLP, one of the two class counsel firms in this action. I have direct knowledge of the matters to which I depose in this affidavit. Where the information in this affidavit is not based on my direct knowledge, but is based upon information and belief from other sources, I have stated the source of that information and I believe the information to be true. Nothing in this affidavit is intended to waive solicitor-client or other privilege.

2. I make this affidavit in reply to the affidavit of Pierre-Luc Hébert, affirmed June 30, 2021.

3. Attached as **Exhibit "A"** is a copy of the Communications Monitoring Report for the year 2019 which I retrieved from the website of the Canadian Radio-television and Telecommunications Commission on July 14, 2021.

4. I affirm this affidavit in support of plaintiffs' motion to certify this action as a class proceeding and for no other or improper purpose.

AFFIRMED REMOTELY by Nadine Blum stated as being located in the City of Toronto, in the Province of Ontario, before me in the City of Ottawa, in the Province of Ontario on July 15, 2021, in accordance with O. Reg. 431/20 Administering Oath or Declaration Remotely.

Kirsten Mercer

A Commissioner for taking Affidavits *(or as may be)*

Kirsten Mercer LS#: 54077J

NADINE BLUM

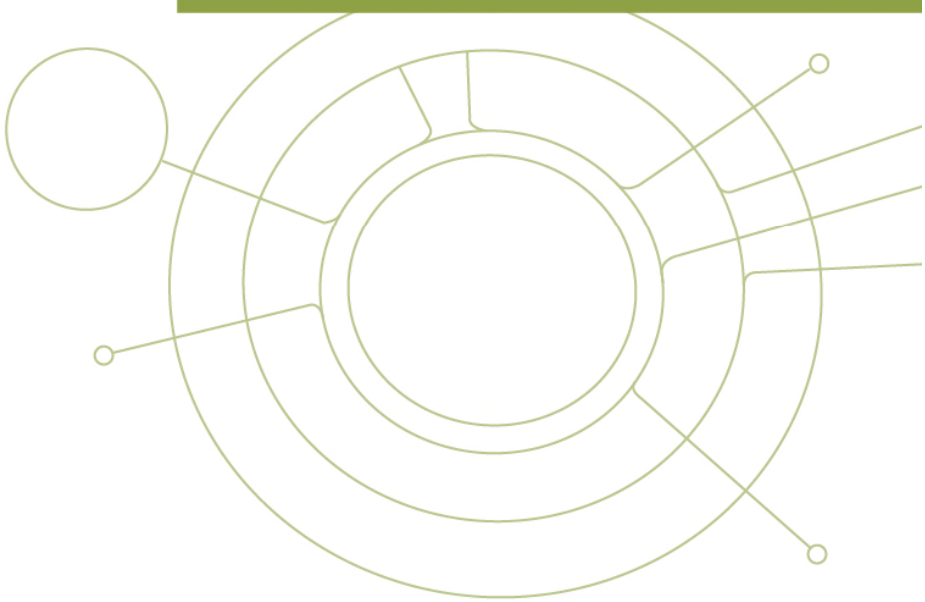
This is Exhibit "A" referred to in the
Affidavit of Nadine Blum affirmed before
me this 15th day of July, 2021 in accordance
with O. Reg 431/20, Administering Oath or
Declaration Remotely

_____

A COMMISSIONER, ETC.

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

COMMUNICATIONS MONITORING REPORT



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Canada

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Toll-free: 1-877-249-2782 (in Canada only)
https://applications.crtc.gc.ca/contact/eng/library

Aussi disponible en français

Table of Contents

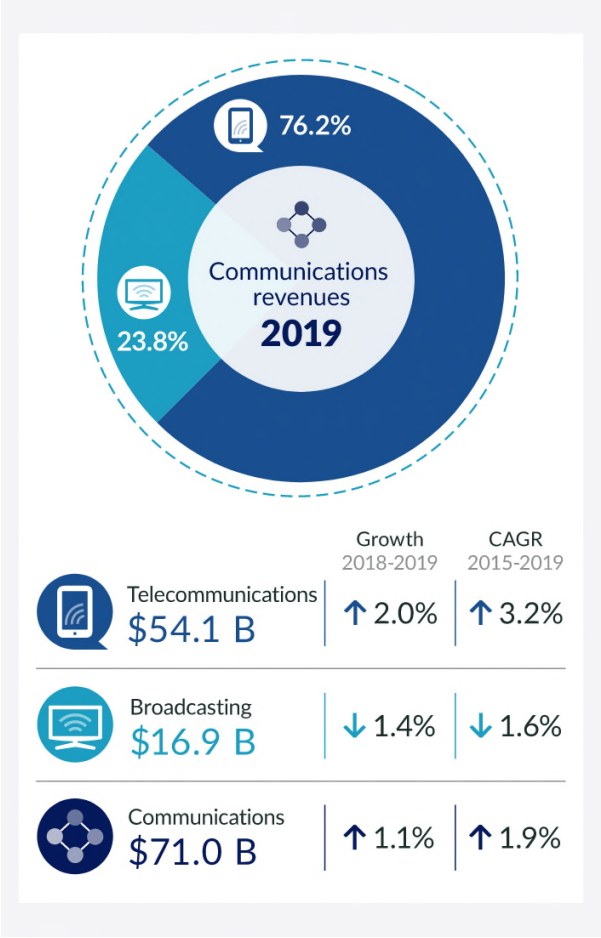
List of Infographics, Figures and Tables

COMMUNICATIONS INDUSTRY OVERVIEW: TELECOMMUNICATIONS AND BROADCASTING

Communications Industry Overview: Telecommunications and Broadcasting

i. Revenues

Infographic 1.1 Highlights of the communications sector, 2019



Source: CRTC data collection

This section provides an overview of the communications industry and highlights pertinent revenue trends and key industry characteristics over the 2015 to 2019 period. The communications industry encompasses both the telecommunications and broadcasting sectors.

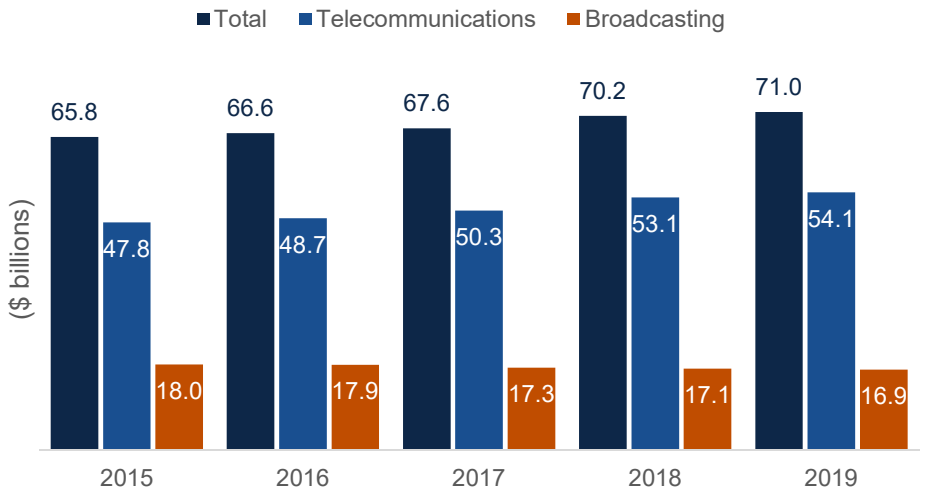
In 2019, telecommunications revenues consistently increased from 2015 to 2019 (an average annual increase of 3.2%), while broadcasting revenues gradually decreased over the same period (an average annual decrease of 1.6%) (see Figure 1.1 and Figure 1.2). However, the telecommunications sector saw the slowest growth since 2010, at 2.0% (compared to 5.5% in 2018).

In 2019, the broadcasting sectors' revenues declined by 1.4% from 2018 to 2019 while the telecommunications sectors' revenues increased by 2.0%. However, because the telecommunications sector represents over three quarters of overall communications revenues, the communications sector

saw a 1.2% increase in revenue growth, for a total of $71.0 billion in revenues (see Figure 1.1)[1] (an average annual growth of 1.9% since 2015).

More information, including financial performance, ownership landscape data, and pricing information for rural and urban centres across the country, can be found in the Year-End Monthly Prices, Highlights of the Telecommunications Sector and Highlights of the Broadcasting Sector sections of the *Communications Monitoring Report* (CMR), as well as on Open Data.

Figure 1.1 Telecommunications and broadcasting revenues ($ billion)



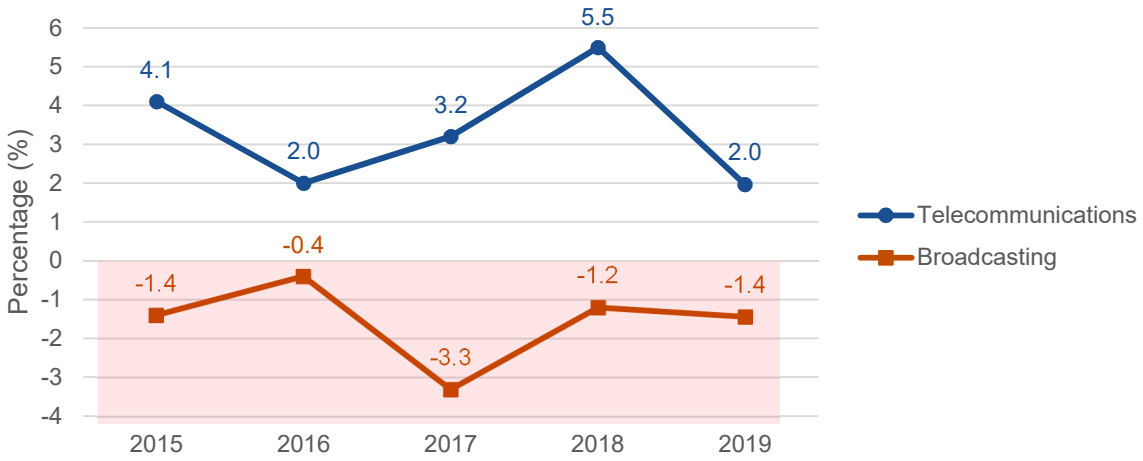
Source: CRTC data collection

This figure shows revenues from 2015 to 2019 for telecommunications service providers (TSPs) and broadcasters, including all CBC/SRC revenues and broadcasting distribution undertakings (BDU) revenues.

[1] Broadcasting data includes reported revenues for commercial services and the Canadian Broadcasting Corporation/Société Radio-Canada (CBC/SRC), but excludes non-commercial and over-the-top (OTT) service data.

As seen in Figure 1.2 below, the revenue growth gap between the telecommunications and broadcasting sectors was the widest in 2018. In 2019, however, this gap shortened significantly due to slower growth in the telecommunications sector. This is the slowest growth for the telecommunications sector since 2010.

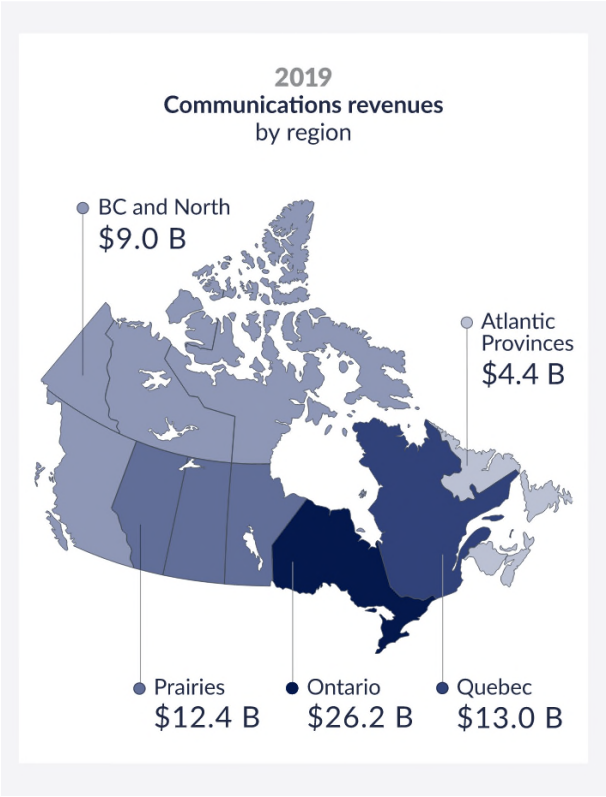
Figure 1.2 Annual communications revenue growth rates (%)



Source: CRTC data collection

Annual revenue growth rates are an indicator of broad trends in the communications industry. This graph shows annual revenue growth rates for the telecommunications and broadcasting sectors from 2015 to 2019.

Infographic 1.2 Communications revenues by region, 2019



Source: CRTC data collection

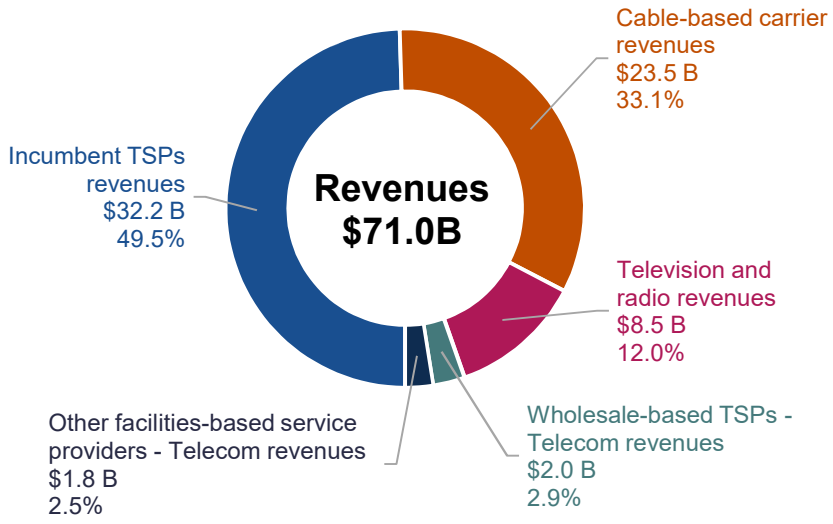
This infographic excludes revenues generated from discretionary and on-demand television services as well as direct-to-home (DTH) BDU services (i.e. satellite television) (henceforth referred to as DTH BDU services), because those services are licensed as national services. Those services generated $4.2 billion and $1.8 billion, respectively, in 2019. Estimates were made for companies that were not required to provide provincial and territorial telecommunications data.

To avoid residual disclosure, British Columbia and the North have been combined.

The communications industry served over 14 million households and over 1 million businesses in Canada using both landline and wireless facilities. Over 60%, or $39.2 billion, of all communications services revenues, excluding revenues generated from discretionary and on-demand television services, and DTH BDU services, were generated in the provinces of Ontario and Quebec. These revenues represent approximately 39% and 23% of the Canadian population, respectively. Ontario accounted for 40.3% of national revenues, leading in country with the highest revenues of all provinces and territories.

In 2019, incumbent TSPs and cable-based carrier revenues accounted for the highest revenues as a percentage of total communications revenues, 50% and 33%, respectively.

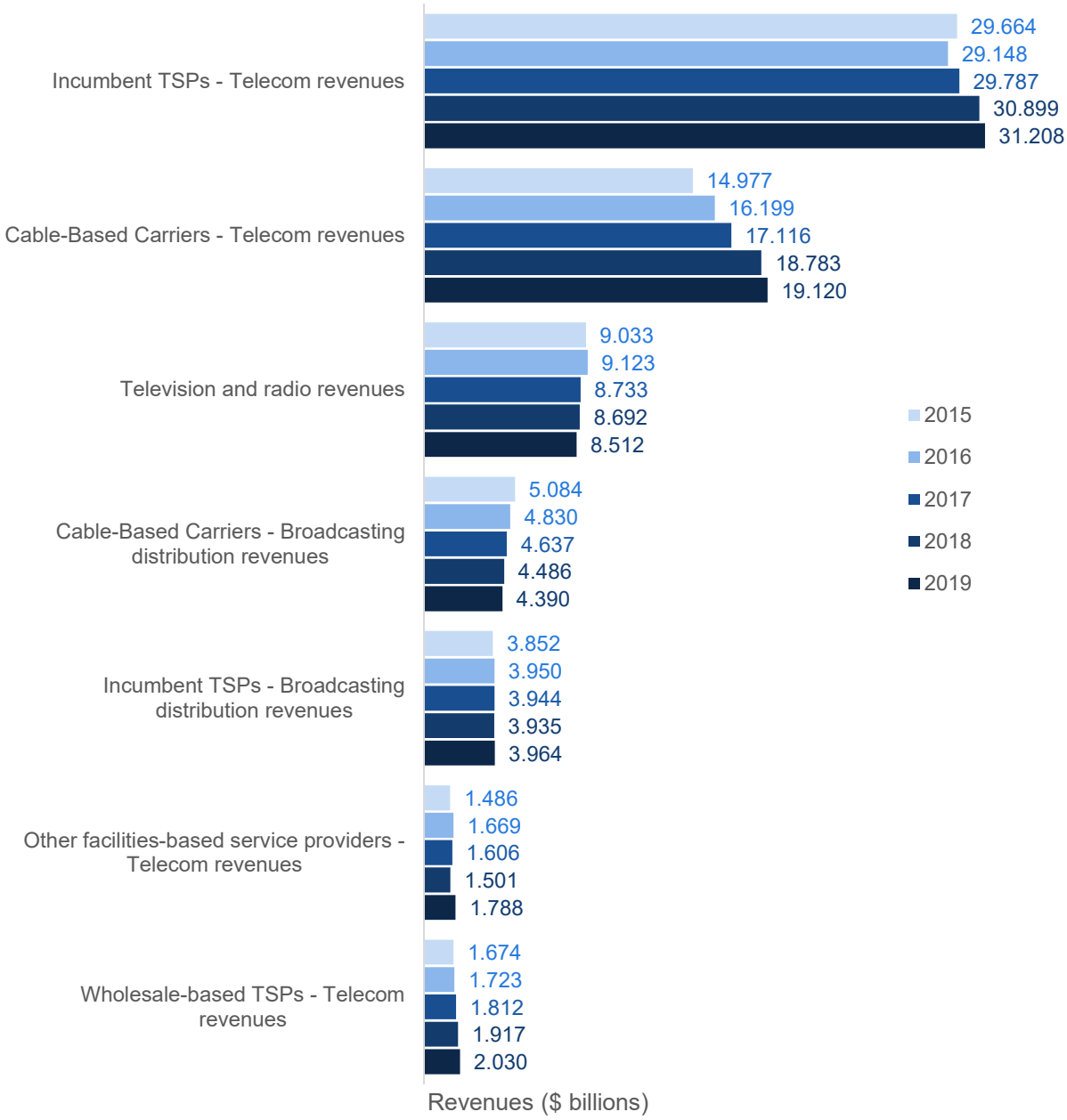
Figure 1.3 Distribution of communication revenues ($ billions), 2019



Source: CRTC data collection

The figure below shows that overall, telecommunication revenues have increased since 2015. The highest subset of telecommunication revenues was generated by incumbent TSPs ($31.2 billion, 43.9% of the total share and an annual average increase of 1.3%), followed by cable-based carriers ($19.1 billion, 26.9% of the total share and an annual average increase of 6.3%). From 2015 to 2019, cable-based carriers' telecommunications revenues increased on average by 6.3% annually, from $15.0 to $19.1 billion. BDU revenues for cable-based carriers and television and radio revenues continued to decrease year-over-year, with an average decline of 3.6% and 1.5% (2015-2019), respectively.

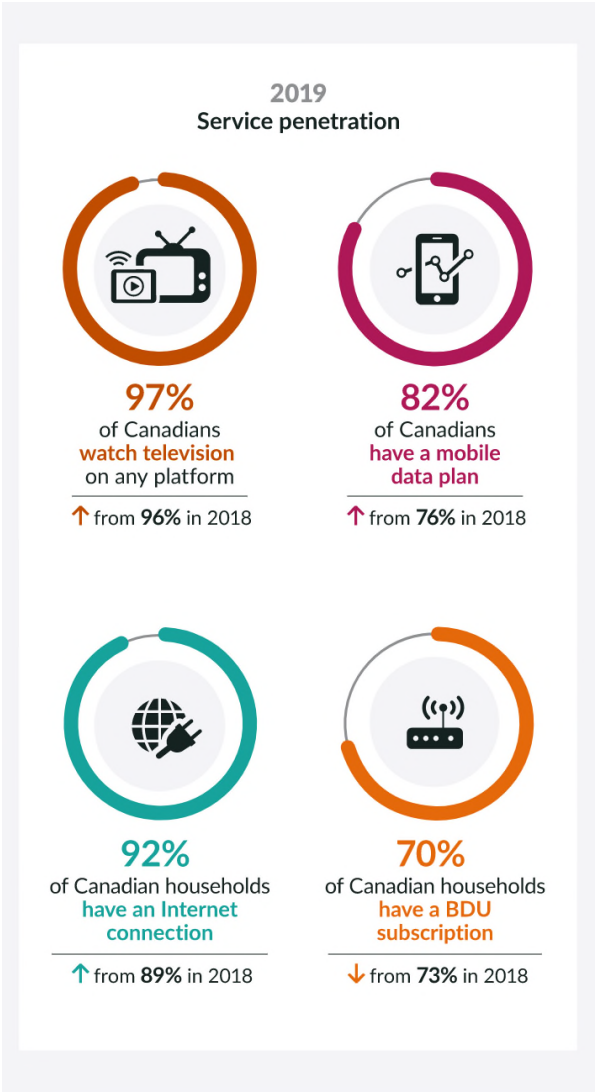
Figure 1.4 Communications revenues by type and service provider ($ billion)

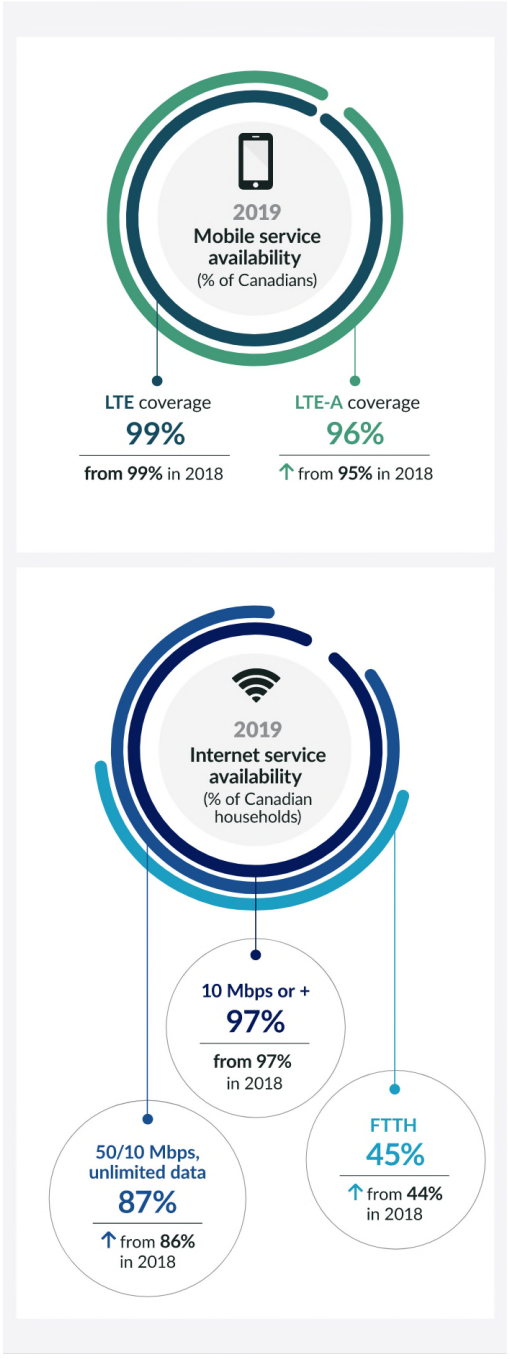


Source: CRTC data collection

ii. Subscribers

Infographic 1.3 Service penetration and availability highlights, 2019





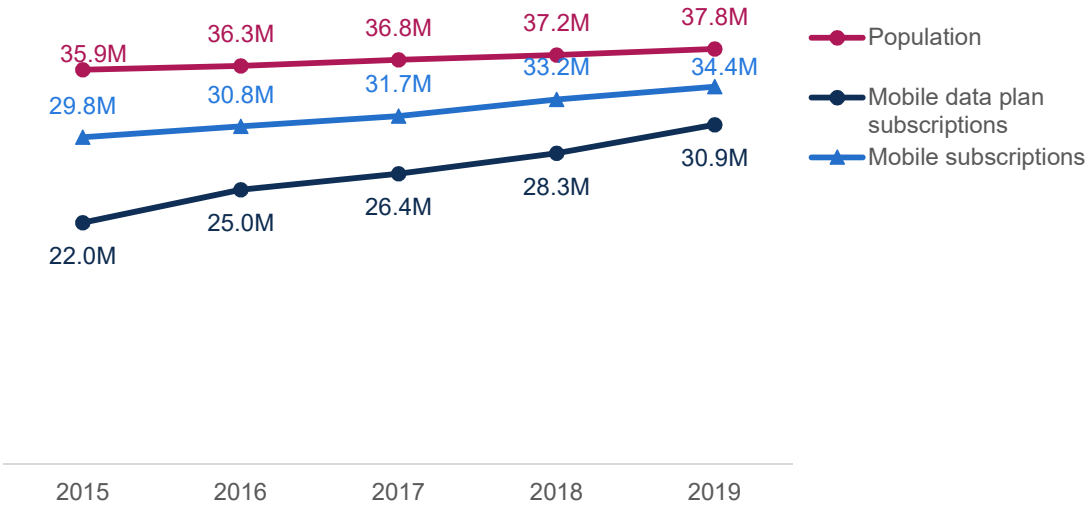
Source: CRTC data collection, Media Technology Media, fall 2019 (respondents: Canadians aged 18+), Innovation, Science and Economic Development Canada (ISED), and Statistics Canada census data

"Watching television on any platform" refers to any form of television viewership, regardless of the chosen television medium. This includes, but is not restricted to, BDU-subscribed television, private conventional television, and Internet-based television services. The content can be viewed on any platform such as tablets, cell phones, Internet-connected television, or any other device.

Availability of wireline and wireless services continues to increase which provides faster telecommunications services to Canadians. In 2019, 45% of households had access to Fibre-to-the-home (FTTH) services while 87% of households had access to Internet services with speeds of 50/10 Mbps with unlimited data and 96% of the population were covered by Long-Term Evolution Advanced (LTE-A) networks. More statistics and breakdowns are available in the Broadband and LTE Availability and section of this report, as well as on Open Data.

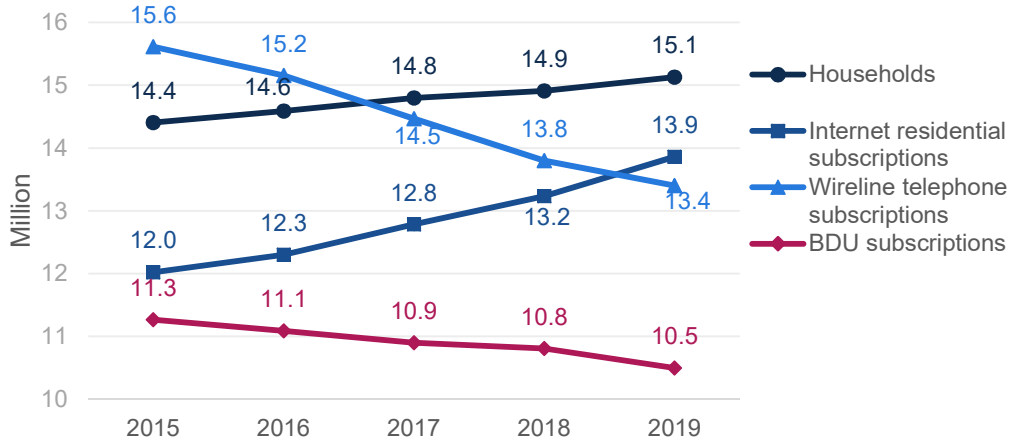
Over the past five years, the average growth for wireless data plan subscriptions and Internet residential subscriptions (8.9% and 3.6%, respectively) outpaced the population growth, which has grown 1.4% on average per year from 2015 to 2019. During this same period, wireline telephone and BDU subscriptions decreased by 3.7% and 1.7% on average per year, respectively.

Figure 1.5 Mobile subscribers by type of service and population (million)



Source: CRTC data collection, Statistics Canada census data

Figure 1.6 Subscribers by type of service and number of households (million)



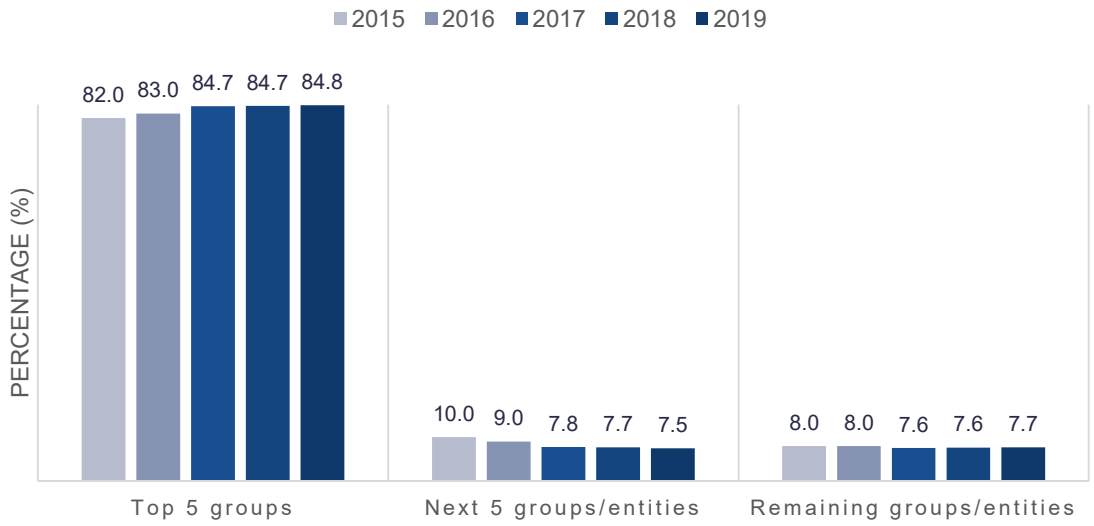
Source: CRTC data collection, Statistics Canada census data

iii. Financial performance

Revenues from the top five ownership groups (Bell, Rogers, TELUS, Shaw and Quebecor) accounted for approximately 85% of total communications revenues in 2019 (unchanged since 2017). While the share of revenues from the top five entities has changed over time, the composition of the top five has remained relatively stable.

Three of the top five groups are cable-carriers (Rogers, Shaw, and Quebecor), while the remaining two are incumbent TSPs (Bell and TELUS).

Figure 1.7 Percent of total revenues, by broadcasting and telecommunications ownership groups (%)

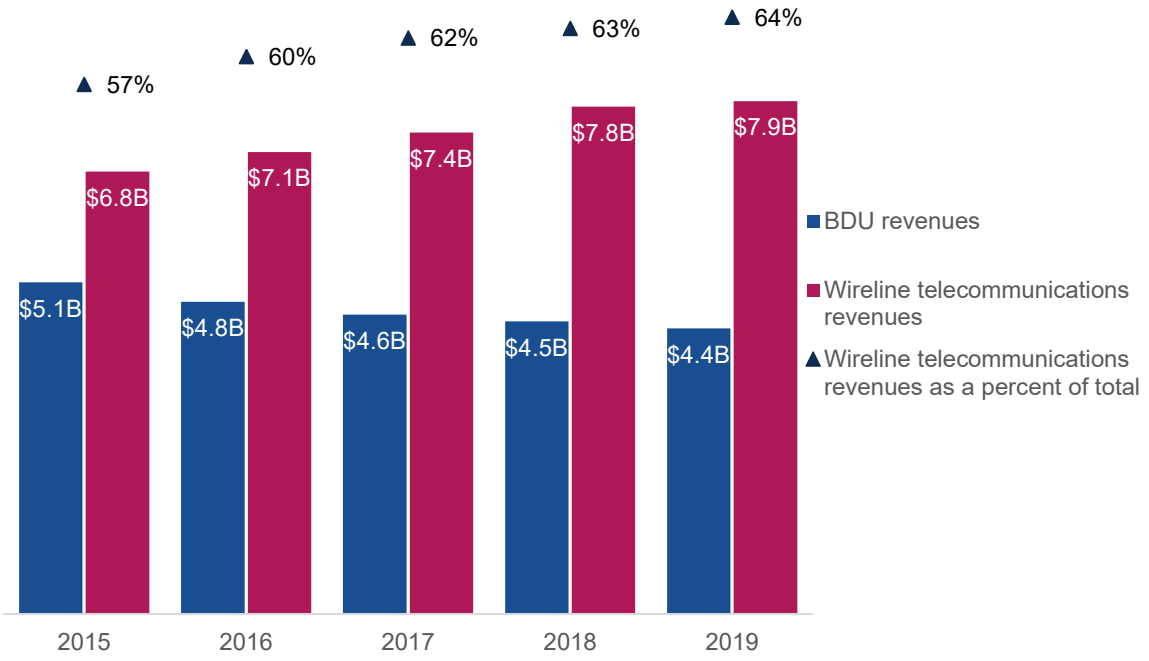


Source: CRTC data collection

Revenues include those of the groups' affiliates. Revenue market share is calculated from exact amounts although the percentages have been rounded and therefore exceed 100%.

As illustrated in Figure 1.8, cable-based carriers' wireline telecommunications services are continuing to generate an increasingly important share of total revenues. In 2019, wireline telecommunications revenues represented the largest portion (64%) of cable-based carriers' total revenues.

Figure 1.8 Cable-based carriers' wireline revenues, by service type

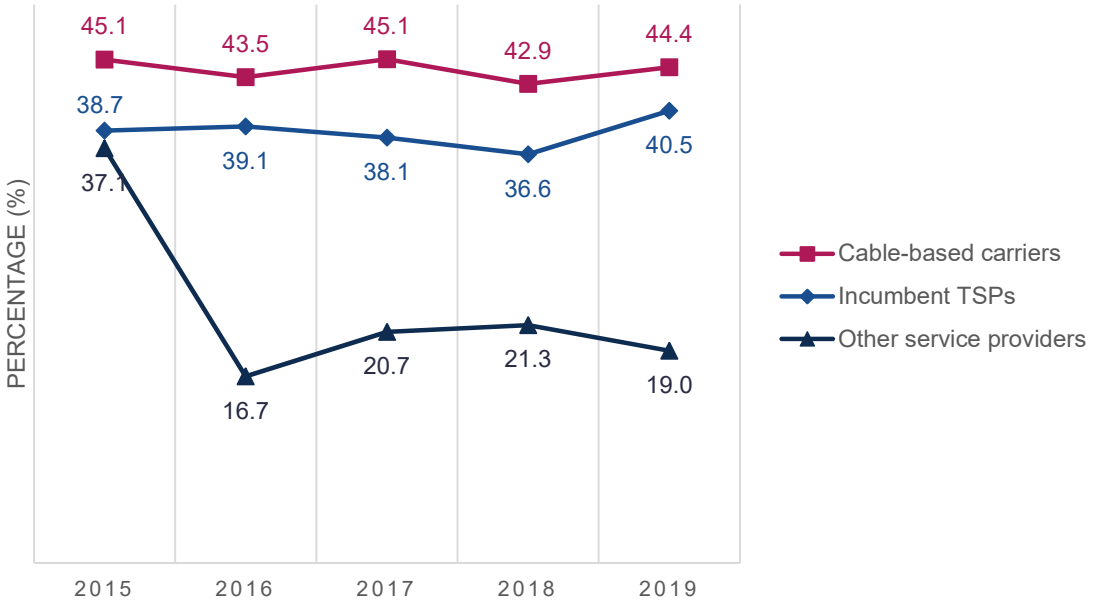


Source: CRTC data collection

This figure compares cable-based carriers' wireline revenues from two principle sources: basic and non-basic programming services (i.e. revenues from the distribution of television services), and wireline telecommunications services (i.e. local, long distance, data, private line, and Internet) between 2015 and 2019. This figure excludes revenues from satellite-based BDU and mobile services.

As seen in Figure 1.9, from 2016 to 2019, earnings before interest, taxes, depreciation, and amortization (EBITDA) margins for ‘other service providers’ stabilized and margins remained consistent for all three types of carriers. However, EBITDA margins of ‘other service providers’ are half of those of incumbent TSPs and cable-based carriers.

Figure 1.9 EBITDA margins achieved by cable-based carriers, incumbent TSPs, and other service providers (%)



Source: CRTC data collection

This figure shows EBITDA margins for cable-based carriers, incumbent TSPs, and other service providers (including wholesale-based service providers and other alternative facilities-based service providers) for BDU and telecommunications services for the period from 2015 to 2019. EBITDA margin is a measure of profitability. Higher EBITDA margins are generally associated with greater profitability. Only companies with Canadian communications revenues greater than 80% of their total revenues were included in the calculation of EBITDA. Other service providers include resellers and facilities-based service providers that are neither incumbents nor cable-carriers.

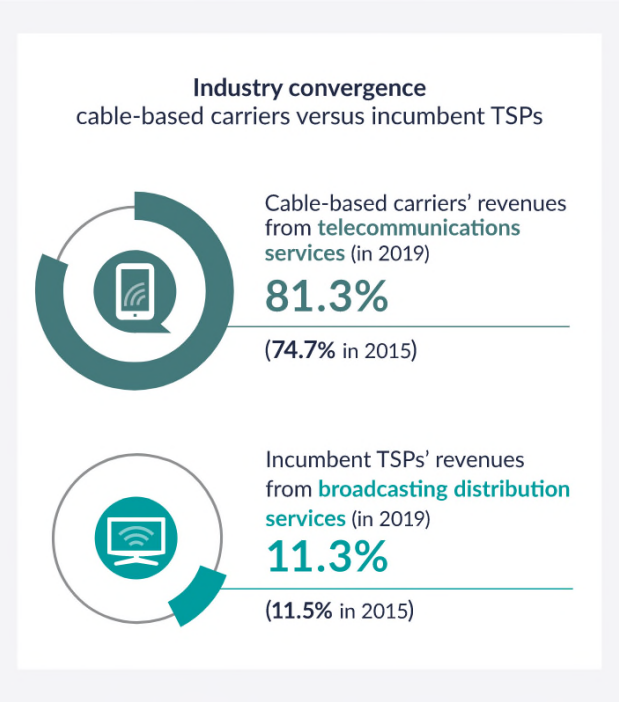
The figure demonstrates a significant increase in the EBITDA margins of other service providers in 2015. This was mainly due to certain companies reporting “extraordinary accounting items” in their income statements in 2015 and does not represent a change in their position in the market. The drop in 2016 was due to the reclassification of companies as a result of merger and acquisition activities.

Extraordinary accounting items can include a gain or loss from a sale of assets, a write-off and other non-recurring items.

iv. Industry characteristics

The communications industry is comprised of the telecommunications and broadcasting sectors with revenues from telecommunications services accounting for over three quarters of the share. This section reports on the revenues generated by service providers in each sector.

Infographic 1.4 Industry convergence – cable-based carriers versus incumbent TSPs, 2019



Source: CRTC data collection

As seen in the infographic above, the majority of cable-based carriers' revenues is derived from telecommunications services and the ratio has increased slightly from 2018 to 2019 period (see Open Data for more details).

The portion of incumbent TSPs' revenues from broadcasting services has been quite small and has remained similar over the 2015 to 2019 period. Overall, the infographic illustrates a relevant measure of industry convergence.

As shown in the table below, three entities offered services in all 10 sectors of the communications industry: radio, conventional television, BDU, discretionary and on demand television, local and access, long distance, Internet, wireless, data and private line. In 2019, these three entities generated 62% of all communications revenues. In contrast, the 201 providers that offered only one service, generated only 2% of communications revenues.

The communications industry remains highly concentrated. Eight companies operating in eight or more sectors account for approximately 88% of total communications revenues.

Table 1.1 Percentage of broadcasting and telecommunications revenues generated by companies operating in multiple sectors

Number of sectors in which companies offer service	Number of reporting groups or entities operating in these sectors				Percentage of broadcasting and telecommunications revenues generated in these sectors			
	2016	2017	2018	2019	2016	2017	2018	2019
10	3	3	3	3	60	62	62	62
9	0	0	0	0	0	0	0	0
8	7	6	6	5	29	29	28	26
7	2	2	2	3	0	0	0	2
6	2	1	1	1	0	0	0	0
5	18	16	17	16	2	1	1	1
4	35	29	35	33	1	1	2	2
3	43	43	52	56	5	4	5	5
2	42	47	50	47	1	1	1	1
1	212	218	206	201	2	2	2	2

Source: CRTC data collection

v. Datasets available on Open Data

There is an Excel workbook and CSV zip related to this report that have been published on the Open Data portal. They contain the data found in the figures and tables in this section of the CMR.

Instructions: Use the table below to search for datasets available on Open Data that are related to this section of the CMR. When you have found the dataset, go to the Find a CMR Dataset page and download the workbook **Data - Comms Overview**. Search for the 'tab name' in the Excel workbook tabs to locate the data.

Table 1.2 List of datasets available in the Data - Comms Overview

Tab name	Title
M-I1	Highlights of the communications sector
M-I2	Communications revenues by region ($ billion)
M-I3	Service penetration and availability highlights
M-I4	Industry convergence - cable-based carriers versus incumbent TSPs
M-F1	Telecommunications and broadcasting revenues ($ billion)
M-F2	Annual communications revenue growth rates (%)
M-F3	Distribution of communication revenues ($ billions)
M-F4	Communications revenues by type and service provider ($ billion)
M-F5	Mobile subscribers by type of service and population (million)
M-F6	Subscribers by type of service and number of households (million)
M-F7	Percent of total revenues, by broadcasting and telecommunications ownership groups (%)
M-F8	Cable-based carriers' wireline revenues, by service type ($ billion)
M-F9	EBITDA margins achieved by cable-based carriers, incumbent TSPs, and other service providers (%)
M-T1	Percentage of broadcasting and telecommunications revenues generated by companies operating in multiple sectors

vi. Methodology

Grouping of companies by ownership

For reporting purposes, some metrics utilize company groupings whereby revenues are aggregated across affiliated companies (e.g. see Figure 1.7 Percent of total revenues, by broadcasting and telecommunications ownership groups (%)).

Regional data

The Atlantic Provinces include New Brunswick, Newfoundland and Labrador, Nova Scotia and Prince Edward Island. The North refers to the Northwest Territories, Nunavut and Yukon.

The Prairies include Alberta, Manitoba and Saskatchewan.

Nationally licensed services such as discretionary and on-demand television services as well as direct-to-home (DTH) broadcasting distribution unit (BDU) services (i.e. satellite television), are not included in regional breakdowns.

Estimates were made for companies that were not required to provide provincial and territorial telecommunications data.

Broadcasting services

The broadcasting sector consists of radio (private and CBC/SRC), conventional television (private and CBC/SRC), discretionary and on-demand television services (pay, pay-per-view [PPV], video-on-demand [VOD] and specialty services) and BDUs, such as cable, satellite and Internet Protocol television (IPTV) distributors. It excludes non-commercial and over-the-top (OTT) service data.

Telecommunications services

The telecommunications sector includes local, long distance, data, private line, mobile and Internet services.

Broadcasting data collection

Statistical and financial data is sourced from annual returns provided by commercial and CBC/SRC radio stations, conventional television stations, discretionary services, and on-demand services for the broadcast year which ended August 31, 2019.

CBC/SRC revenues include parliamentary appropriations for conventional television.

Annual returns for the broadcast year ending 31 August 2019 were required to be filed with the Commission by 30 November 2019. Data received subsequent to the compilation date is not reflected in this publication. The data reported for previous years has been updated to reflect any additional or adjusted information received by the Commission after the 31 August date for prior years' publications.

Pursuant to Broadcasting Regulatory Policy CRTC 2015-86, the term "discretionary services" now encompasses all currently licensed pay, specialty and discretionary services, while the term "on-demand service" now encompasses all licensed pay-per-view and video-on-demand services.

Media Technology Monitor (MTM)

MTM measures Canadians' media technology adoption and use at two points in time to monitor changes in media penetration and use over the year. Telephone interviews are conducted with a regionally representative sample of Canadians who have a landline telephone service and those who rely solely on cell phone service. The fall survey includes 8,000 Canadian adults (4,000 Anglophones and 4,000 Francophones). Of those 8,000 respondents, 2,976 have also completed an online survey introduced in the fall. An independent sample of 4,000 Canadians (2,000 Anglophones and 2,000 Francophones) is surveyed in the spring.

www.mtm-otm.ca

The CMR uses data collected from the fall survey unless stated otherwise.

"Watching television on any platform" refers to any form of television viewership, regardless of the chosen television medium. This includes, but is not restricted to, BDU-subscribed television, private conventional television, and Internet-based television services. The content can be viewed on any platform such as tablets, cellphones, Internet-connected television, or any other device.

Definitions

BDU revenues refers to revenues from basic and non-basic services and exclude Internet-based service revenues (e.g. Netflix) and telecommunications service revenues (e.g. Internet access or telephony) but include IPTV services (e.g. Bell Fibe and Telus Optik TV).

Broadcasting revenues include reported revenues for commercial services (private commercial radio, private commercial television, discretionary and on-demand services, and broadcasting BDU services such as cable, DTH and IPTV). Broadcasting revenues also include revenues from CBC radio and television services but exclude other non-commercial radio and television, and over-the-top (OTT) service data.

Cable-based carriers are former cable monopolies that also provide telecommunications services (e.g. wireline voice, Internet, data and private line, and wireless services). Examples of cable-based carriers include Rogers, Shaw, and Videotron.

Compound annual growth rate (CAGR) measures the average rate at which a value grows over a certain period of time assuming the value has been compounding over that time period.

Convergence refers to services that were previously separate, such as voice, data, audio and video, being distributed over the same network, to share resources and to interact with each other.

Direct-to-home (DTH) refers to satellite service providers.

Earnings before interest, taxes, depreciation and amortization (EBITDA) is a metric used to measure financial performance. EBITDA margin is expressed as a percentage of total revenues.

An **Incumbent Telecommunications Service Provider (TSP)** is a company that provides local telecommunications services on a monopoly basis prior to the introduction of competition. Examples of incumbent TSPs include Bell, SaskTel and TELUS. They also include small incumbent TSPs such as Sogetel and Execulink.

Internet protocol television (IPTV) refers to services such as Bell Fibe and Telus Optik TV, but excludes Internet-based services such as Netflix, Crave and Club Illico.

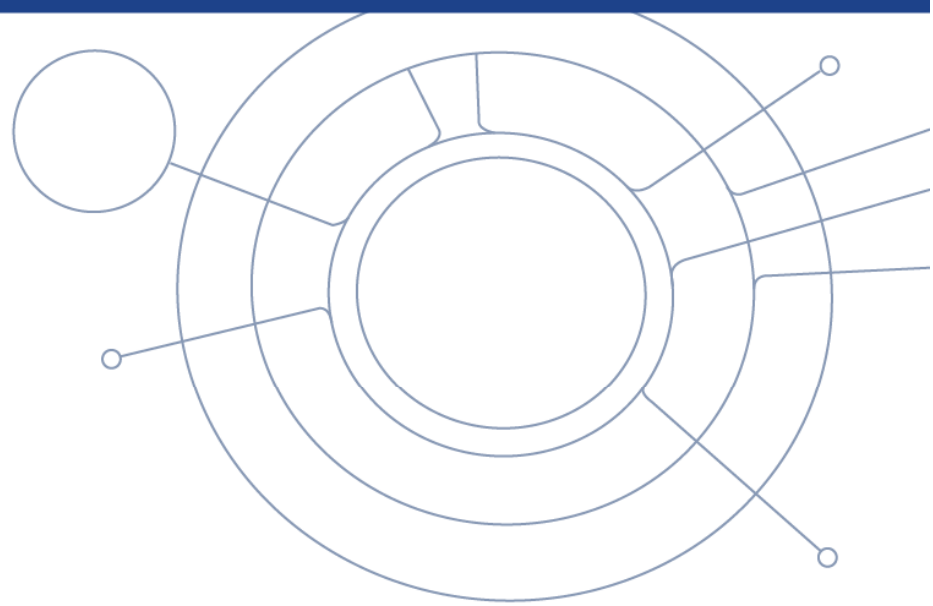
Other facilities-based carriers refers to providers of telecommunications services that are not incumbent providers but which own and operate telecommunications networks. Examples of other facilities-based carriers include Xplornet and Allstream Business.

A **reserve** refers to land set aside by the federal government through the Indian Act or through treaties for the use of a specific band or First Nation. The band council has "exclusive user rights" to the land, but the land is "owned" by the Crown. The Indian Act states that this land cannot be owned by individual band members.

Telecommunications revenues include reported revenues from local, long distance, data, private line, mobile and Internet services.

Wholesale-based service providers or non-facilities-based service carriers refers to companies that generally acquire telecommunications services from other providers and either resell those services or create their own network from which to provide services to their customers. A company that owns a small number of facilities but has the vast majority of its operations on leased facilities may also be classified as non-facilities-based. Examples of wholesale-based service providers and non-facilities-based carriers include Distributel and TekSavvy.

HIGHLIGHTS OF THE TELECOMMUNICATIONS SECTOR

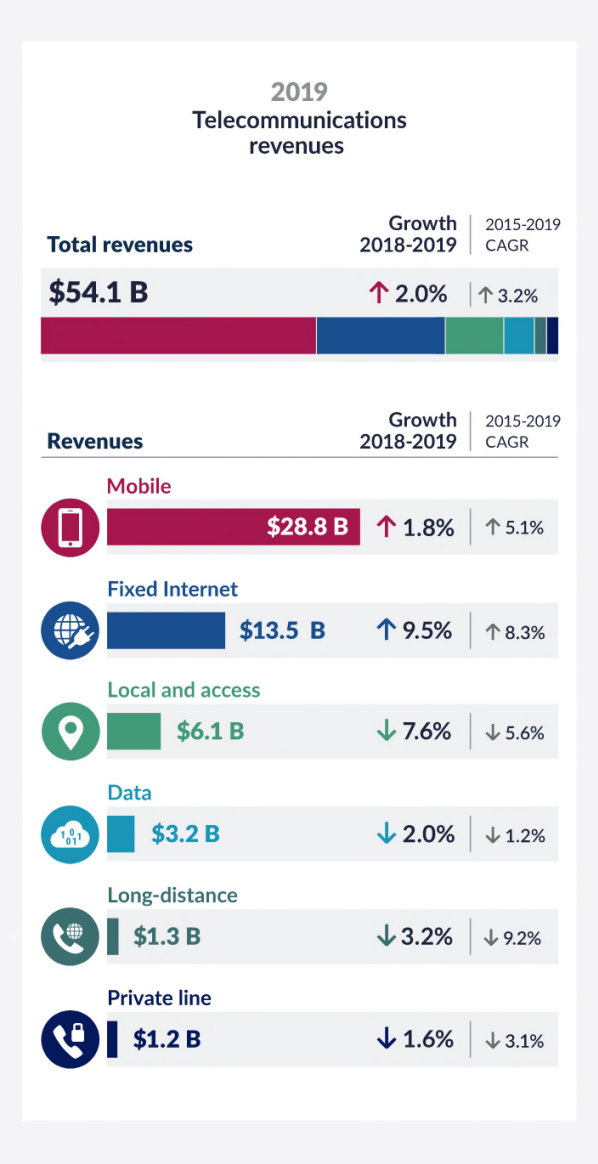


Highlights of the Telecommunications Sector

i Market composition

Total Canadian telecommunications revenues reached $54.1 billion in 2019, as Canadians used ever-increasing amounts of data through both fixed Internet and mobile services. (“Data usage” includes the use of data for video streaming services such as Netflix and YouTube, as well as for audio streaming services such as Spotify and various radio applications via mobile devices or fixed Internet services.)

Infographic 2.1 Overview of total telecommunications revenues, 2019



Source: CRTC data collection

Total telecommunications revenues is calculated from exact amounts and may appear to differ from total sector revenues due to rounding.

Service providers are divided into two broad categories: incumbent telecommunications service providers (TSPs), which provided local telecommunications services on a monopoly basis prior to the introduction of competition, and alternative service providers, which encompass all other types of entities.

Alternative service providers include cable-based carriers, which are the former cable monopolies that currently also provide telecommunications services; other facilities-based service providers; and wholesale-based service providers, which are companies providing services primarily using other companies' facilities.

Incumbent TSPs, along with cable-based carriers, own and operate the majority of the infrastructure used by other service providers.

Please refer to the Methodology section for more details.

Table 2.1 Total revenue market share by type of service provider, 2019

Type of TSP	Revenue share	Growth 2018-2019	CAGR 2015-2019
Large incumbent TSPs	56.7%	-1.0%	-1.8%
Cable-based carriers	35.3%	-0.2%	+3.0%
Other facilities-based carriers	3.3%	+16.8%	+1.5%
Wholesale-based service providers	3.7%	+3.8%	+1.7%
Small incumbent TSPs	1.0%	+0.1%	-0.8%

Source: CRTC data collection
Growth and CAGR are calculated from the revenues in billions of dollars.

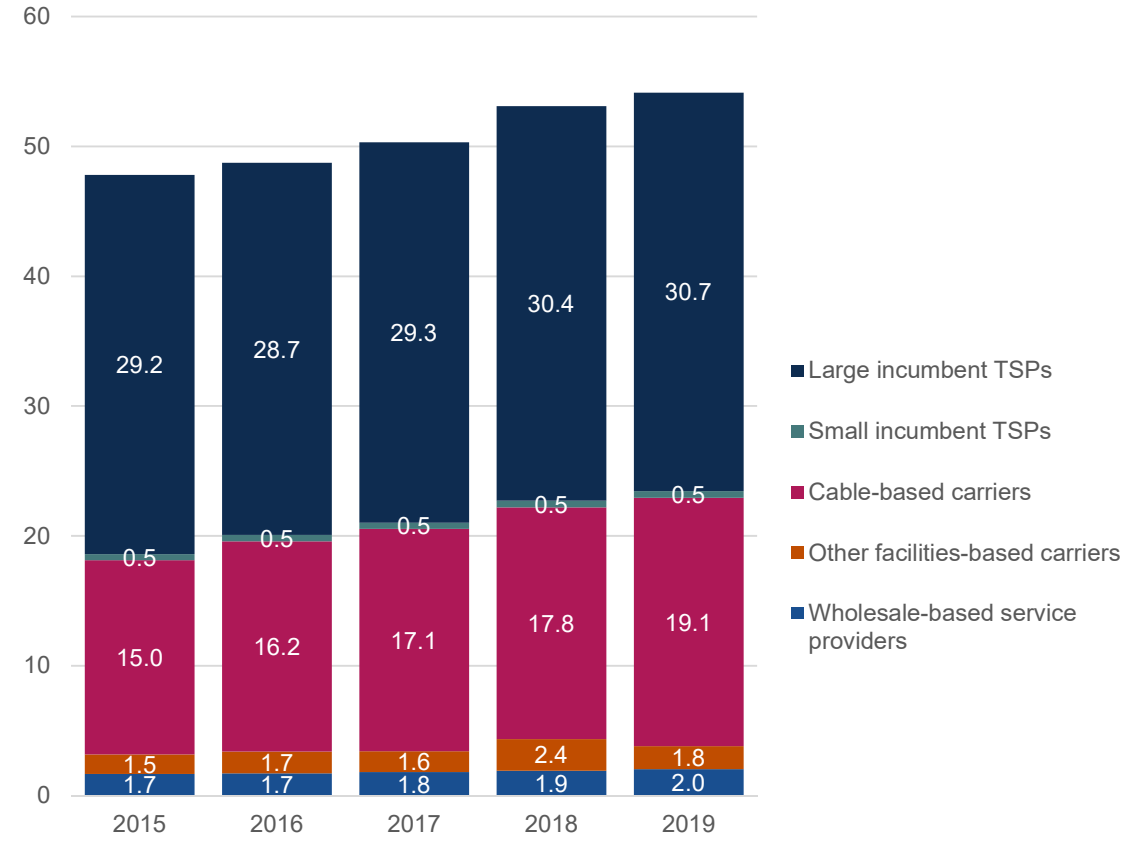
The five largest providers of telecommunications services (including affiliates) accounted for 87.3% of total revenues in 2019. These company groups are Bell, Rogers, Telus, Shaw, and Quebecor. They are a mix of incumbent TSPs and cable-based carriers, and all are facilities-based service providers. The percentage of revenues represented by the top five changes slightly from year to year. Significant changes are usually due to factors such as ownership transfers.

Generally, since 2015, the share of large and small incumbent TSPs'2 revenues has been declining by about one or two percentage points per year on average. During the same period, the revenue market share of cable-carriers grew by approximately two percentage points to reach 3.0% in 2019.

While large incumbent TSPs represented 0.6% of all telecommunications providers3 in 2019, they generated 56.7% of revenues. Cable-based carriers made up 7.3% of the total number of telecommunication providers and generated 35.3% of revenues. With relatively lower barriers to entry, wholesale-based service providers comprised nearly 68.2% of service providers while generating 3.7% of revenues.

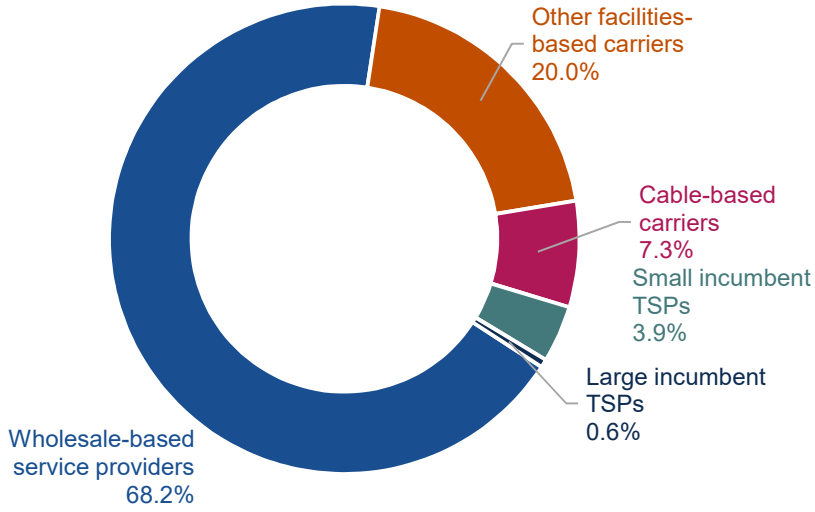
Figure 2.1 Total revenue by type of TSP ($ billions)

[2] Small incumbent TSPs serve relatively small geographical areas and do not typically provide facilities-based long distance services. Large incumbent TSPs serve relatively large geographical areas, usually including both rural and urban populations. Complete definitions are available in the Methodology.
[3] Based on the number of entities submitting data to the CRTC.



Source: CRTC data collection

Figure 2.2 Companies providing telecommunications services by type of TSP (%)

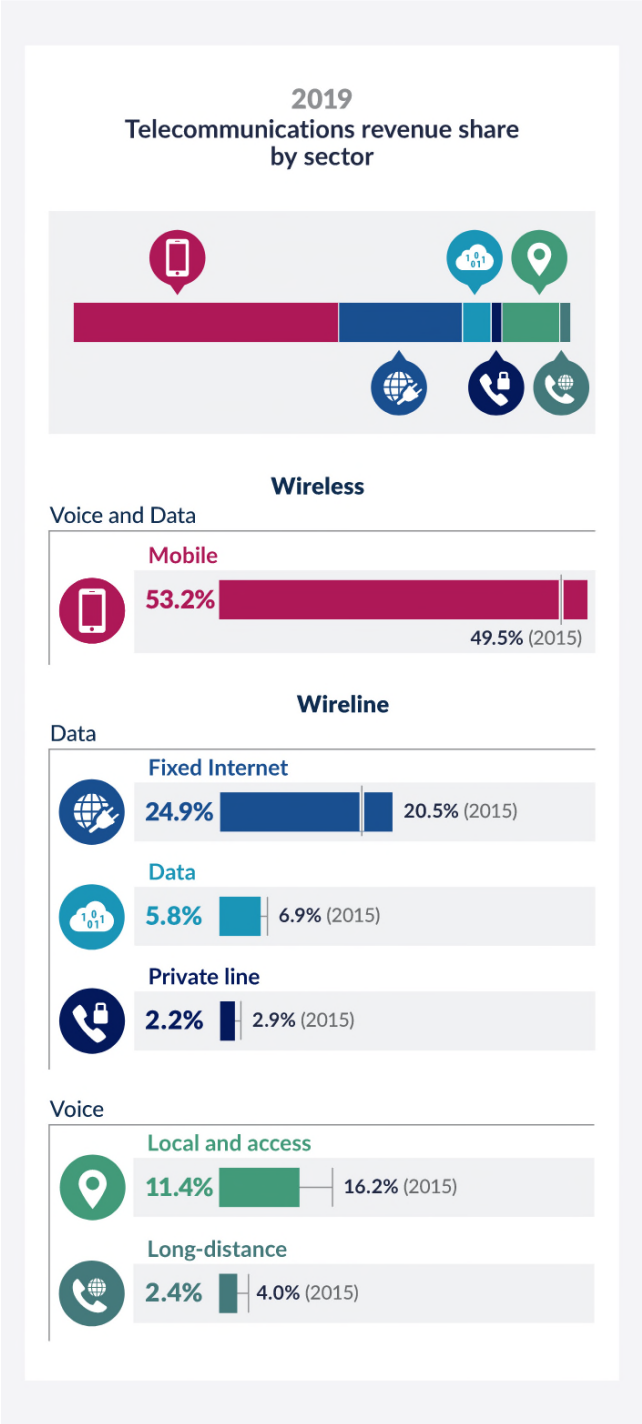


Source: CRTC data collection

ii Revenues

In the *Communications Monitoring Report*, telecommunications services are divided into six sectors:

Infographic 2.2 Telecom revenue share by sector, 2019

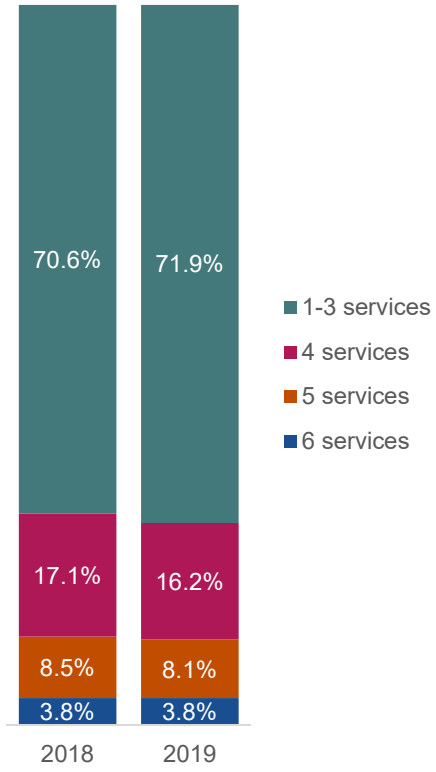


Source: CRTC data collection

In 2019, eight companies offered services in all six telecommunications sectors, accounting for 86.3% of total telecommunications revenues in Canada. These large, facilities-based entities tend to offer a

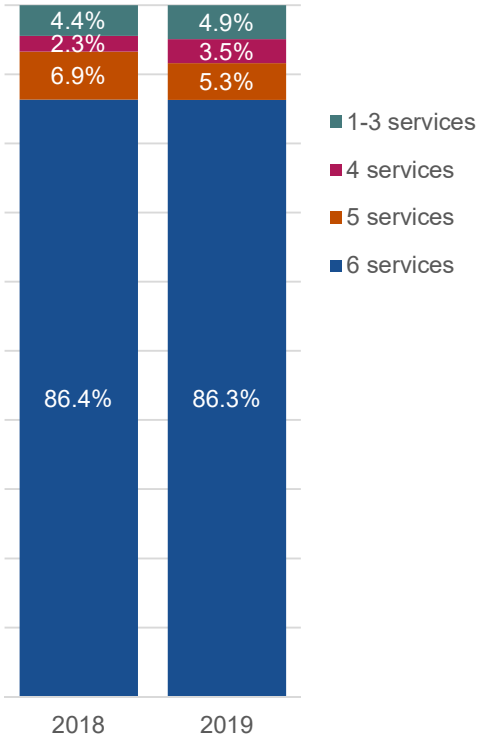
wider array of services than their smaller counterparts. At the other end, companies providing one to three services generally offered Internet access, local phone service, or long-distance phone services. These smaller entities, often wholesale-based service providers, represented 71.9% of all TSPs and generated 4.9% of telecommunications revenues in 2019.

Figure 2.3 Distribution of TSPs by the number of services offered (%)



Source: CRTC data collection

Figure 2.4 TSPs' revenue share grouped by the number of services offered (%)

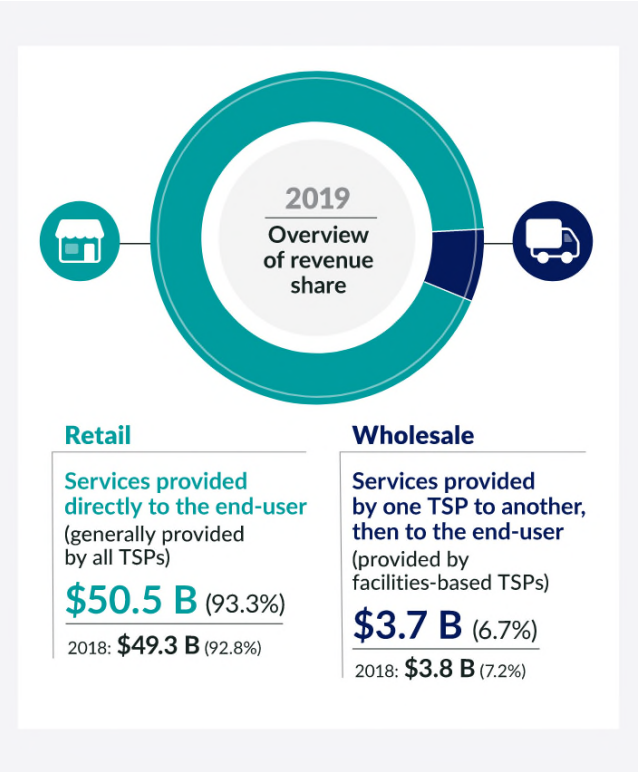


Source: CRTC data collection

Retail versus wholesale

Telecommunications services revenues come from both retail sales (i.e., sales to residential and business consumers) and wholesale sales (i.e., sales to other carriers).

Infographic 2.3 Overview of retail vs wholesale revenue share (%), 2018-2019



Source: CRTC data collection

Retail revenues increased slightly to account for 93.3% of total telecommunications revenues in 2019, hovering around 92% to 93% over the past five years. 97.1% of mobile revenues were generated from retail services, compared to 88.9% for wireline. Those numbers have remained virtually unchanged since 2013.

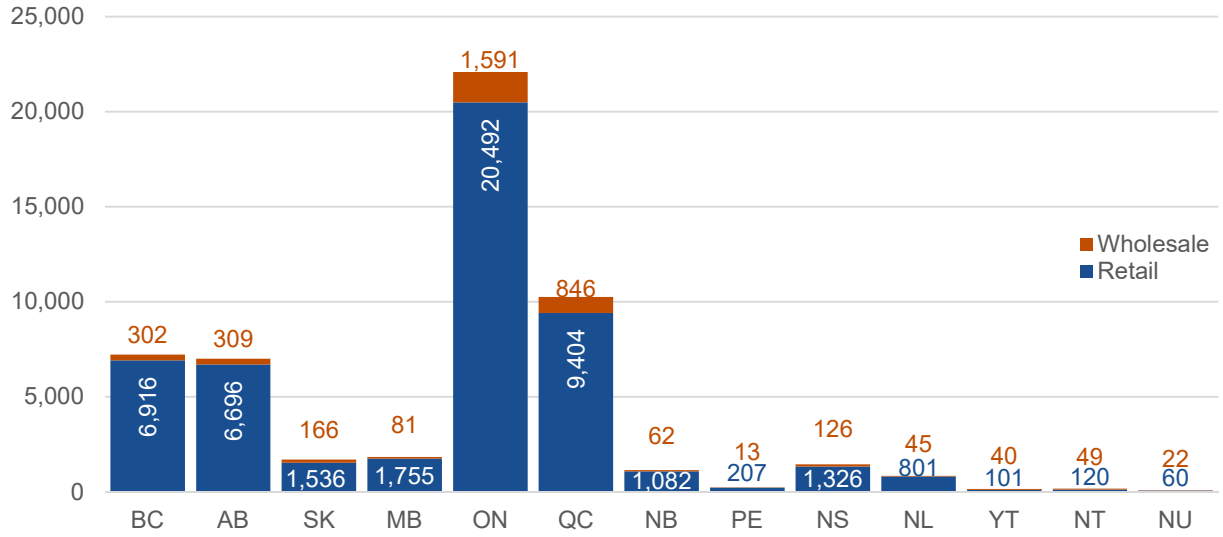
Mobile roaming[4] revenues represented approximately 4% of total retail mobile revenues. Roaming revenues were largely generated from subscribers who used mobile services in the United States. Short Message Service (SMS) and Multimedia Messaging Service (MMS) revenues were excluded from the data revenue component of this figure.

Canadian retail telecommunications service revenues grew 2.5% to reach $50.5 billion in 2019. In Ontario, these services had the largest share (37.8% or $20.5 billion) of all telecommunication revenues amongst the provinces and territories. Quebec had the second largest retail revenue share at 17.4% ($9.4 billion), followed by British Columbia at 12.8% ($6.9 billion) and Alberta at 12.4% ($6.7 billion).

[4] Mobile providers extend their coverage to include areas where they do not have facilities by making arrangements with other providers who do in order to offer service to their end users. When a subscriber uses the facilities of another provider, the subscriber is said to be "roaming."

The wholesale telecommunications market saw a similar trend, with Ontario leading the provinces/territories at 2.9% ($1.6 billion) of all telecommunication revenues, followed by Quebec at 1.6% ($0.8 billion) and the prairies region with 1.0% ($0.6 billion).

Figure 2.5 Telecommunications revenues by category and province/territory ($ millions), 2019

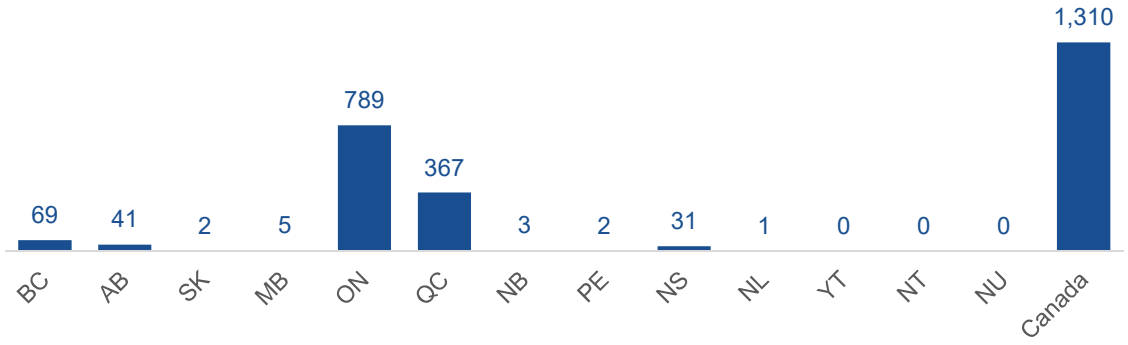


Source: CRTC data collection

The number of wholesale Internet lines increased in 2019, growing by 0.8% to over 1.3 million lines across Canada. Ontario maintained the highest share of wholesale lines with 0.8 million lines (60.3%); Quebec trailed behind with 0.4 million (28.1%), and the rest of Canada totaled over 0.1 million (11.7%).

The Atlantic region (Newfoundland and Labrador, New Brunswick, Prince Edward Island, and Nova Scotia) saw significant growth in the number of wholesale lines, growing from approximately 28,000 to 37,000 lines (32.8%). This increase can be largely attributed to the continued growth in Nova Scotia, which added over 6,000 wholesale lines in 2019.

Figure 2.6 Wholesale high-speed access enabled lines by province/territory (thousands), 2019



Source: CRTC data collection
Information in this figure regarding Internet wholesale lines is from the larger ISPs. They reported approximately 99% of total Internet wholesale lines in 2019.

Forborne services

Over time, the Commission has refrained from regulation when it finds that a service is subject to sufficient competition or where refraining from regulation is consistent with the Canadian telecommunications policy objectives, as outlined in section 7 of the *Telecommunications Act*. This is referred to as forbearance. Where a service is forborne from regulation, the provider is generally relieved of the obligation to provide the service pursuant to a Commission-approved tariff. For example, the retail rates for mobile services are forborne from regulation, whereas the rates for wholesale high-speed access (HSA) services (i.e. fixed Internet access) are not. HSA rates are based on Commission-approved tariffs.

Table 2.2 Percentage of telecommunications revenues generated by forborne services (%)

Sector	2015	2016	2017	2018	2019
Local and access	80.5	82.0	83.0	83.0	83.4
Long-distance	98.1	98.2	98.4	98.4	98.1
Fixed Internet	95.7	96.7	97.2	97.2	97.0
Data	95.9	95.9	96.0	96.0	96.0
Private line	70.9	71.6	71.9	71.9	75.5
Mobile	100.0	99.9	99.8	99.8	99.9
Overall	94.8	95.4	95.6	95.6	96.5

Source: CRTC data collection

Since 2015, approximately 96.5% of telecommunications revenues have been generated from forborne services. In 2019, the percentage of revenues derived from forborne services ranged from a low of 75.5% in private line, to a high of 99.9% in mobile.

Canadian ownership

Section 16 of the *Telecommunications Act* addresses the eligibility of Canadian companies to operate as telecommunications common carriers.

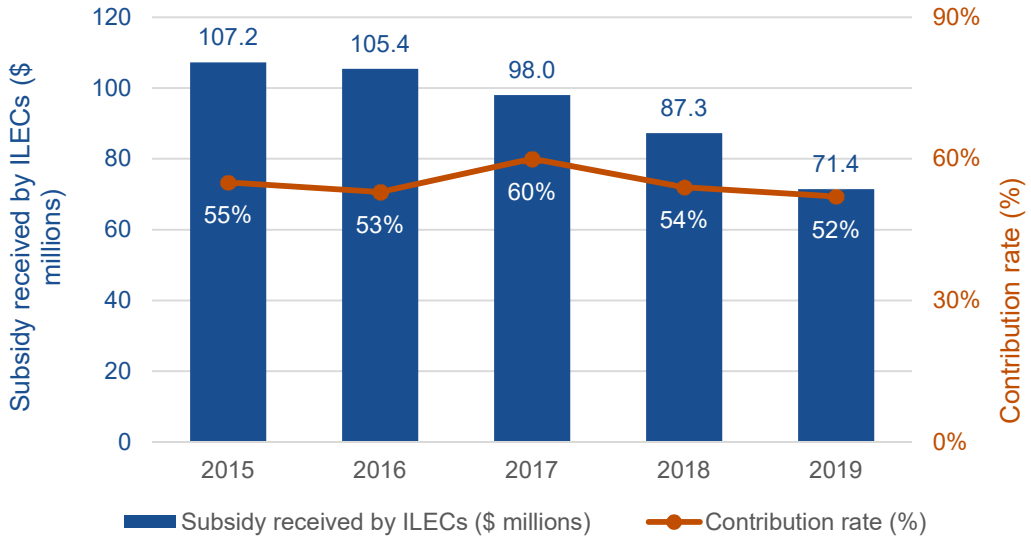
Subject to certain exceptions, section 16 requires that telecommunications companies that own or operate telecommunications transmission equipment and have Canadian telecommunications revenues greater than $5.4 billion (10% of total Canadian telecommunications revenues) be Canadian-owned and controlled.

For the purposes of applying the provisions of section 16, the Commission has determined that total annual revenues from the provision of telecommunications services in Canada was $54.1 billion in 2019.

Contribution

The total amount of subsidies paid to local exchange carriers (LECs) was $71.4 million in 2019, down from $87.3 million (18.2% decrease) in 2018.

Figure 2.7 Subsidy paid to incumbent local exchange carriers ($ millions) and contribution rate (%)



Source: CRTC data collection

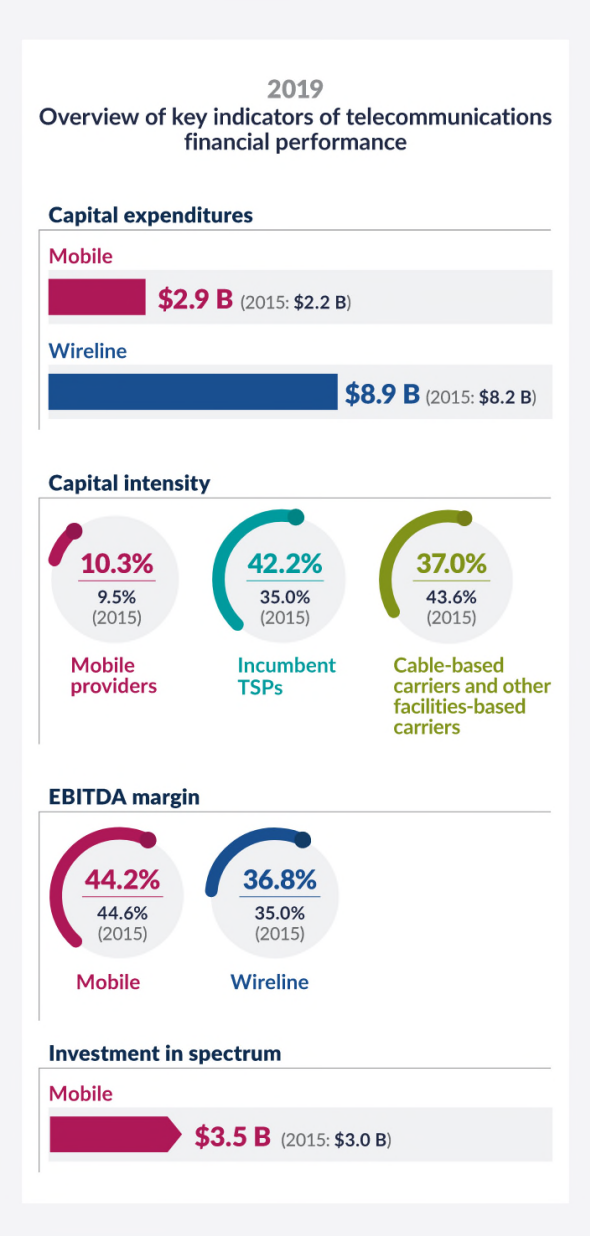
This subsidy represents revenue contributions toward the provision of residential telephone service in high-cost serving areas (HCSAs) by TSPs, or groups of related TSPs that have a minimum of $10 million in annual Canadian telecommunications revenues. HCSAs are areas where the cost of providing service is substantially higher than in other parts of an incumbent LEC's territory. HCSAs are often remote or rural areas. In 2019, 25 companies received subsidies, down from 29 companies in 2018, after taking into account all mergers and acquisitions.

In Telecom Regulatory Policy 2016-496, the Commission stated that in order to help meet the new universal service objective, it would begin to shift the focus of its regulatory frameworks from wireline voice services to broadband Internet access services.

iii Financial performance

This section of the highlights of the telecommunications sector will focus on metrics such as capital expenditures made into acquiring spectrum, capital intensity, earnings before interest, taxes, depreciation and amortization (EBITDA). These are key indicators that can be used to evaluate the financial performance of the Canadian telecommunication industry by showing the amount of capital that is being reinvested back into maintaining and improving telecommunications networks. Looking at churn, despite the different lens of retail and business subscriptions, also provides an interesting perspective.

Infographic 2.4 Overview of key indicators of telecommunications financial performance, 2019



Source: CRTC data collection

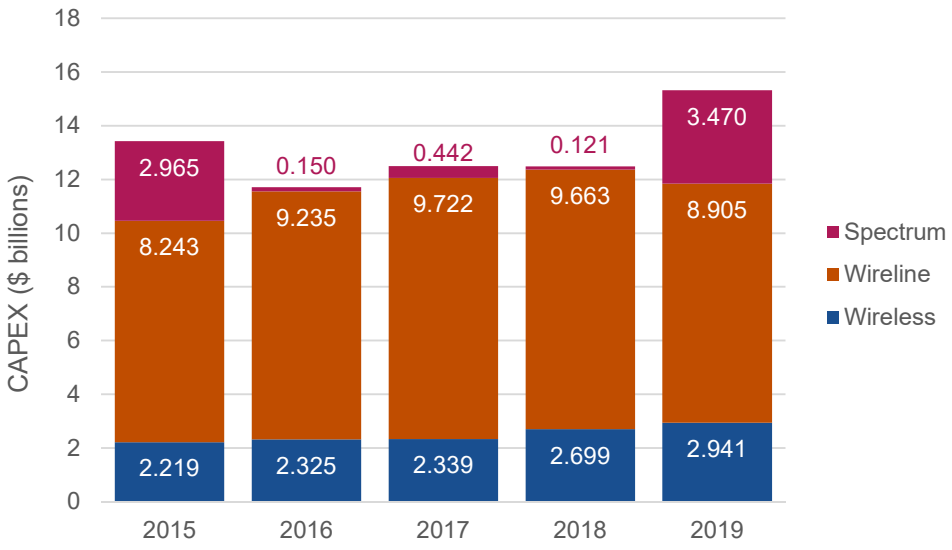
Capital expenditures and capital intensity

Capital expenditures, or CAPEX, are investments made primarily to maintain or upgrade telecommunications networks. In 2019, TSPs with over $100 million in revenues spent $11.9 billion on CAPEX, $8.9 billion of which was spent on wireline networks.

Although wireline CAPEX grew at an annual rate of 2.0% from 2015 to 2019, the large incumbent TSPs' share of CAPEX has seen an increase from 59.1% in 2018 to 63.8% in 2019. During the same period, the CAPEX share of cable-based carriers has decreased from 38.0% to 33.2%.

Wireline capital intensity (the ratio of capital expenditures to revenues) was on the rise for both the incumbent TSPs and cable-based carriers, increasing from approximately 37.9% in 2015 to 40.9% in 2019. By contrast, wireless capital intensity for mobile providers was around 21.9% in 2015 compared to 10.3% in 2019.

Figure 2.8 Telecommunications capital expenditures by type ($ billions)

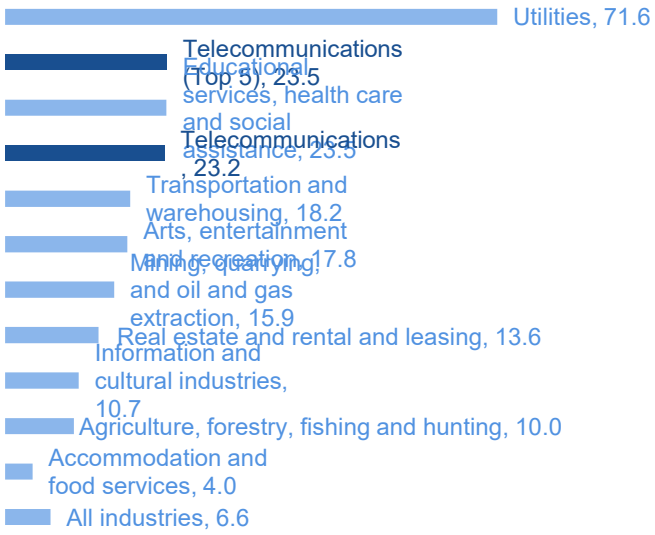


Source: CRTC data collection

At 23.2%, the telecommunications industry ranked third in terms of capital intensity, behind the utilities industry and the educational services, health care and social assistance industry. This is due to the requirement to maintain and upgrade extensive network infrastructure.

The capital intensity of the Top 5 TSPs (Bell, Rogers, Shaw, TELUS, and Videotron) was 23.5%. These TSPs accounted for 92.6% of the total telecommunications CAPEX in 2019, a slight increase from the 2018 figure of 92.2%.

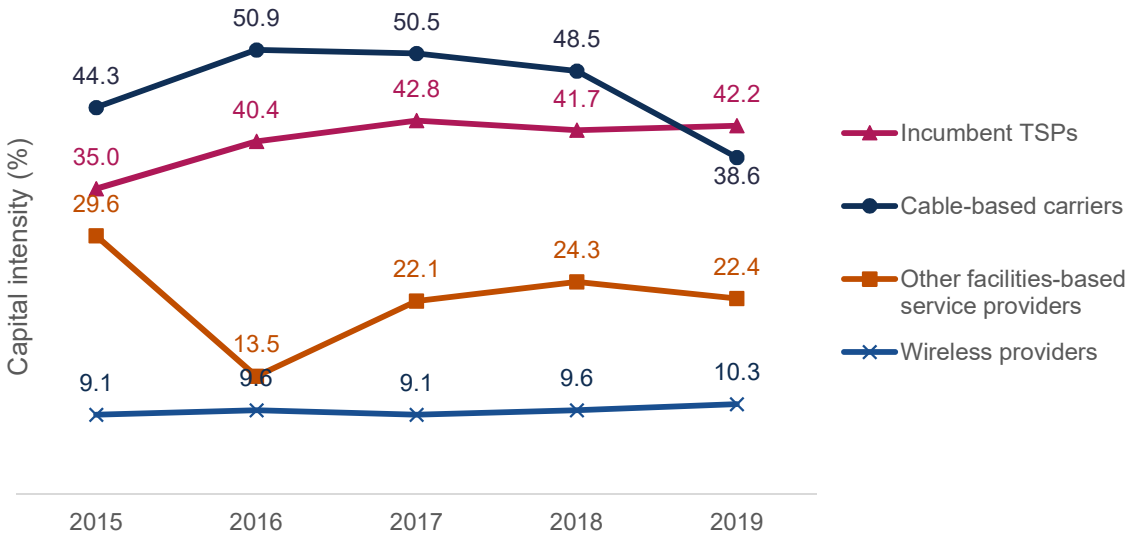
Figure 2.9 Capital intensity for industries with the highest capital intensity ratios (%), 2019



Source: CRTC data collection and Statistics Canada Tables 34-10-0035-01 and 33-10-0007-01

Since many carriers do not recognize and report spectrum as a CAPEX, the investments made in spectrum were not included in the figure above.

Figure 2.10 Telecommunications capital intensity (%), by type of TSP



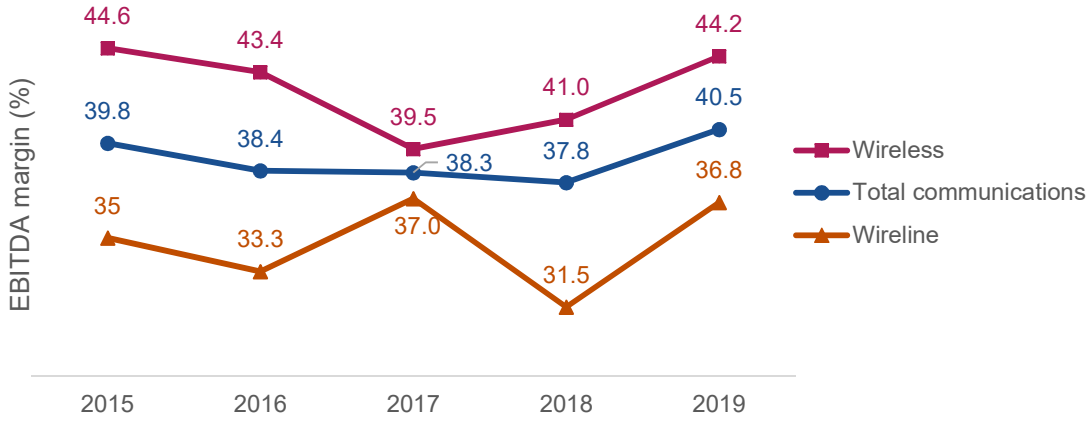
Source: CRTC data collection

Earnings before interest, taxes, depreciation and amortization (EBITDA)

EBITDA margins (i.e., EBITDA as a percentage of total telecommunications revenues) are instrumental in assessing the financial performance of a company or group of companies. Margins are calculated for TSPs with at least 80% of their total revenues represented by telecommunications services.

Over the 2015-2019 period, margins for wireless services were consistently above those for wireline, with the difference narrowing to approximately 7.4% as wireless margins reached 44.2%, in 2019.

Figure 2.11 EBITDA margins by sector (%)



Source: CRTC data collection

Over the 2015-2019 period, EBITDA margins were stable at around 45.3% for the cable-based carriers and 39.0% for the incumbents.

Investment in spectrum

Annual investments in spectrum from 2014 to 2019 were $5.26 billion (2014), $2.96 billion (2015), $0.15 billion (2016), $0.44 billion (2017), $0.12 billion (2018), and $3.5 billion (2019) respectively.[5] Investments made from 2014 to 2019 reflect investments made by mobile carriers to acquire Advanced Wireless Services-3 (AWS-3), Personal Communications Services-GSM bands (PCS-G), and 700 megahertz (MHz), 2300 MHz, 2500 MHz, and 600 MHz spectrum.

Churn

The average churn rate is a measure of subscriber turnover. A high churn rate suggests that customers are leaving their existing providers for a number of reasons, including dissatisfaction with the service, pricing issues or a desire to take advantage of competitive offers. Conversely, low churn rates suggest that customers are not switching providers, which may indicate that customers see value in remaining with their current provider or that there are a lack of incentives motivating them to switch providers, including a lack of alternatives. Mobile churn rates have been steadily decreasing over the past four years, going from 1.5% in 2015 to 1.3% in 2019. Similarly, business Internet subscription churn has

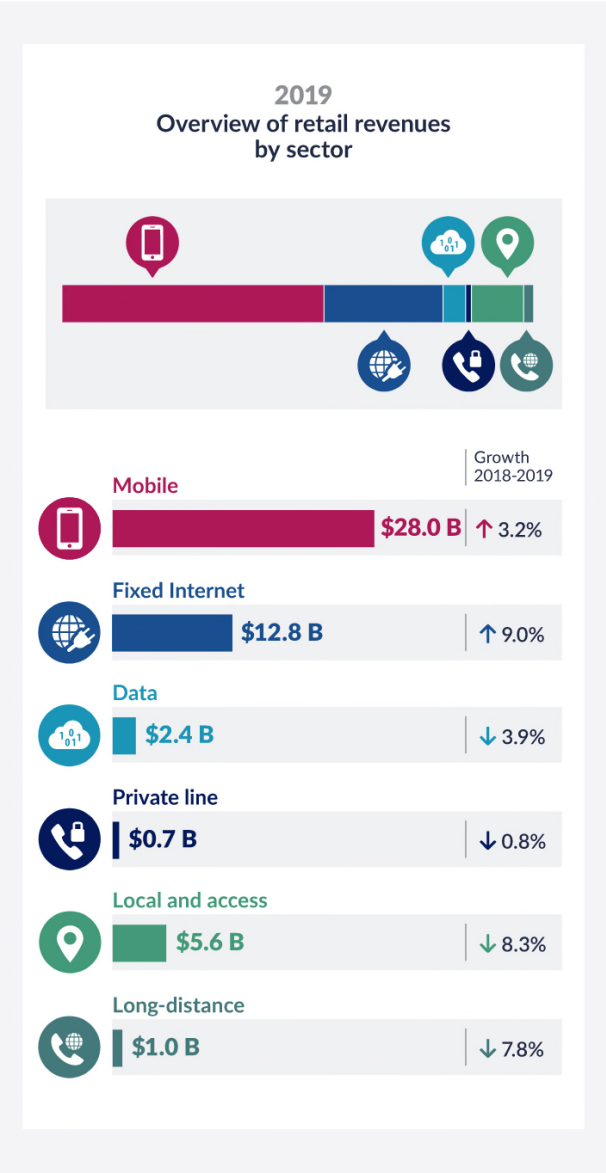
[5] To reduce regulatory burden, only TSPs with revenues over $100 million were surveyed.

decreased from 1.5% in 2015 to 1.3% in 2019. Residential Internet subscription churn has been fairly consistent over the past four years at 1.8% (2015-2019).

iv Sector summaries

Total Canadian telecommunications revenues reached $54.1 billion in 2019, growing by 2.0%, which was slower than the five-year average annual growth rate of 3.2%. Total retail telecommunications revenues, which represent the vast majority of telecommunications revenues, totaled $50.5 billion in 2019, growing 2.5% from 2018 to 2019, and, on average, growing 3.6% annually from 2015 to 2019.

Infographic 2.5 Overview of retail revenues by sector, 2019



Source: CRTC data collection

In terms of retail revenues, the sources of revenue growth in 2019, were mainly the mobile and fixed Internet sectors, which grew by 3.2% and 9.0%, respectively. These sectors accounted for 80.8% of retail revenues in 2019, compared to 72.4% in 2015.

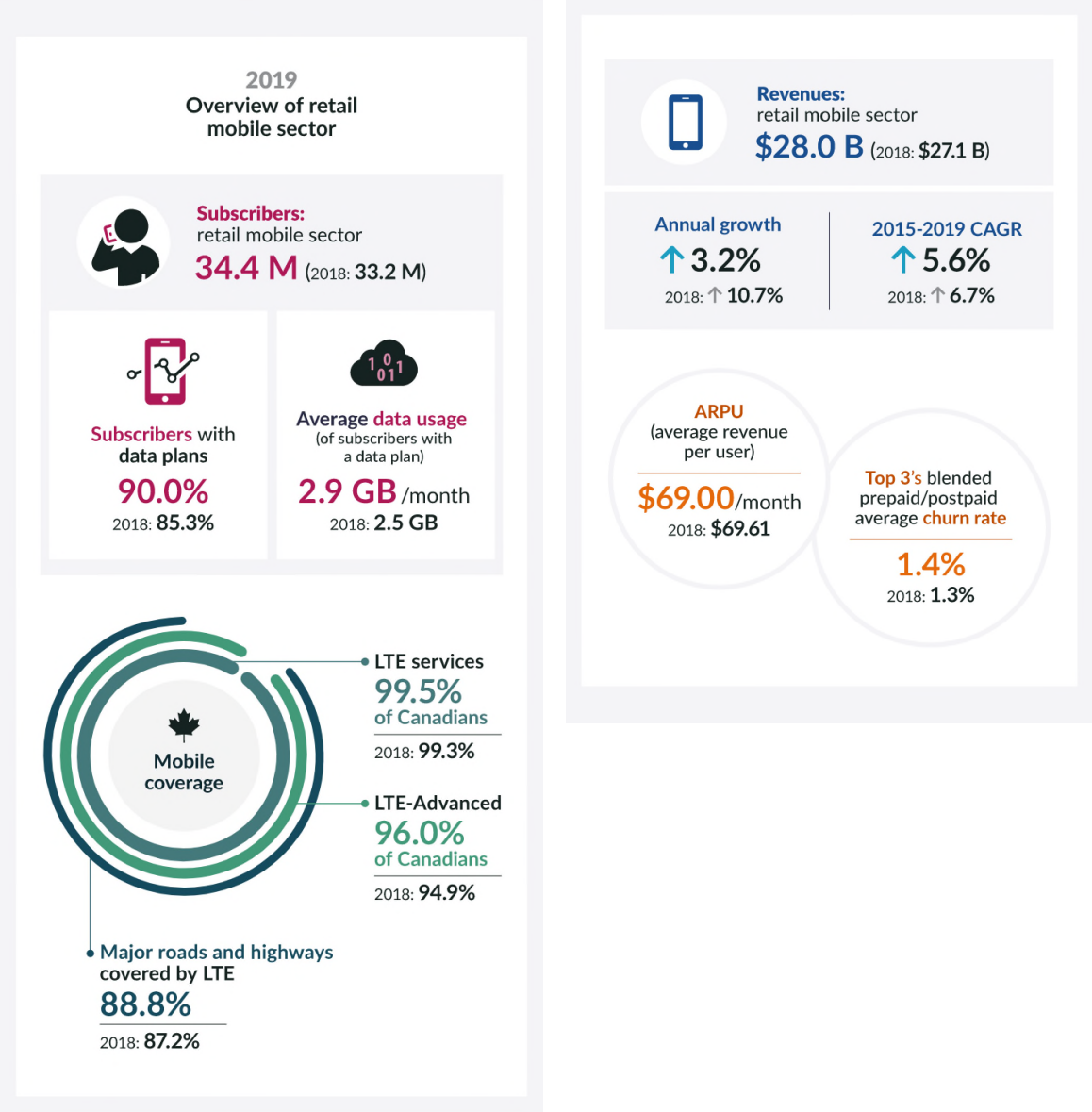
In 2019, fixed Internet and mobile revenues continued to grow, exceeding subscriber growth, as Canadians subscribed to telecommunications services that contained more data in their monthly

allowance. Average mobile revenue per subscriber increased from $64.07 in 2015 to $69.00 in 2019 as subscribers used (and paid for) more data, while average residential fixed Internet revenue per subscriber increased from $51.19 in 2015 to $61.76 in 2019 as users migrated to higher speeds and plans with more data.

This section will provide a brief summary of the six retail sectors (mobile, fixed Internet, local access, long-distance, data, and private line) and the wholesale market within the Canadian telecommunications industry. Additional data for Fixed Internet and Mobile can be found on Open Data.

Retail mobile sector

Infographic 2.6 Overview of retail mobile sector, 2019



Source: Innovation, Science and Economic Development Canada (ISED) and CRTC data collection

Churn is a measure of the number of customers a service provider loses on a monthly basis relative to that service provider's total subscriber base. It is calculated by dividing the number of customers who have cancelled their service in a month by the total number of subscribers for that service provider.

Table 2.3 Retail mobile and paging service revenue components ($ millions)

Component	2015	2016	2017	2018	2019	Growth (%) 2018-2019	CAGR (%) 2015-2019
Basic voice	8,689.0	8,834.3	9,219.7	7,747.3	7,874.7	1.6	-2.4
Long-distance	656.1	547.0	481.9	417.4	380.4	-8.9	-12.7
Paging	12.6	11.1	8.9	9.0	4.2	-53.2	-23.9
Terminal equipment (including handheld devices)	2,129.8	1,911.1	1,896.1	6,961.9	7,120.9	2.3	35.2
Data	10,034.9	10,980.5	11,832.4	10,857.0	11,426.2	5.2	3.3
Roaming and other	1,001.9	960.0	1,047.2	1,125.0	1,174.6	4.4	4.1
Data, roaming, and other – subtotal	11,036.8	11,940.4	12,879.6	11,982.0	12,600.8	5.2	3.4
Total	22,524.3	23,243.9	24,486.2	27,117.7	27,981.0	3.2	5.6

Source: CRTC data collection

IFRS 15 came into effect on 1 January 2018 for all Canadian publicly accountable enterprises. Under the new accounting standards, revenues are recognized upon control of goods or services, impacting mainly the terminal equipment revenues in 2018.

Mobile wireless continues to remain one of the fastest-growing telecommunications sector with revenues of $28.0 billion and a 3.2% growth rate compared to 2018. It remained the largest sector, representing over 55.5% of all retail telecommunications revenues in 2019.

The number of mobile subscribers reached 34.4 million in 2019, with mobile networks covering approximately one-fifth of Canada's geographic land mass and reaching 99.7% of Canadians. In 2019, advanced wireless networks such as LTE-A, continued to deliver higher speeds than previous generation networks. LTE-A was available to approximately 96.0% of Canadians in 2019, compared to 94.9% in the previous year. In 2019, LTE was available to 99.5% of Canadians, compared to 99.3% in 2018.

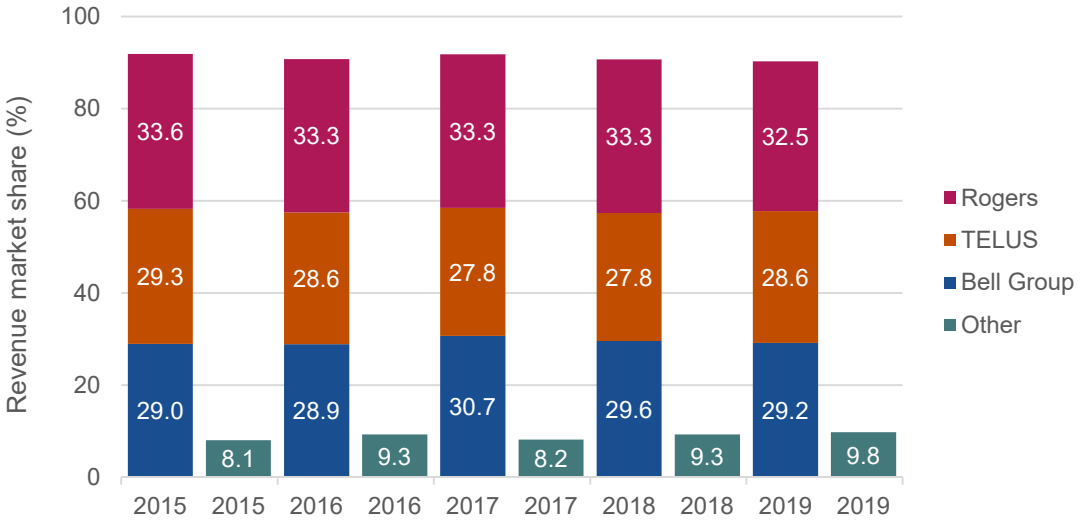
Average monthly data usage per data subscriber was over 2.9 GB, compared to 1.4 GB in 2015. From 2018 to 2019, there was an 18.8% increase in data usage.

In 2019, the average revenue per user (ARPU) reached $69.00 per month, compared to $64.07 in 2015. In 2019, Alberta recorded the highest monthly ARPU at $76.06, while the lowest ARPU was in Quebec, at $58.72.

The mobile sector continued to be dominated by the three largest mobile service providers (Top 3), Bell Group[6], Rogers, and TELUS. In 2019, these entities accounted for 90.2% of retail mobile revenues, compared to 91.8% in 2017 and 90.7% in 2018. The Top 3 held the majority revenue share in each province/territory, except in Saskatchewan where the other providers captured 59.0% of the sector, a decrease from 60.3% in 2018.

Figure 2.12 Retail mobile revenue market share (%)

[6] The Bell Group includes Bell Canada, Bell Mobility, KMTS, Latitude Wireless, NorthernTel, Northwestel Mobility, and Télébec. In 2017, MTS Inc. was incorporated into the Bell Group.



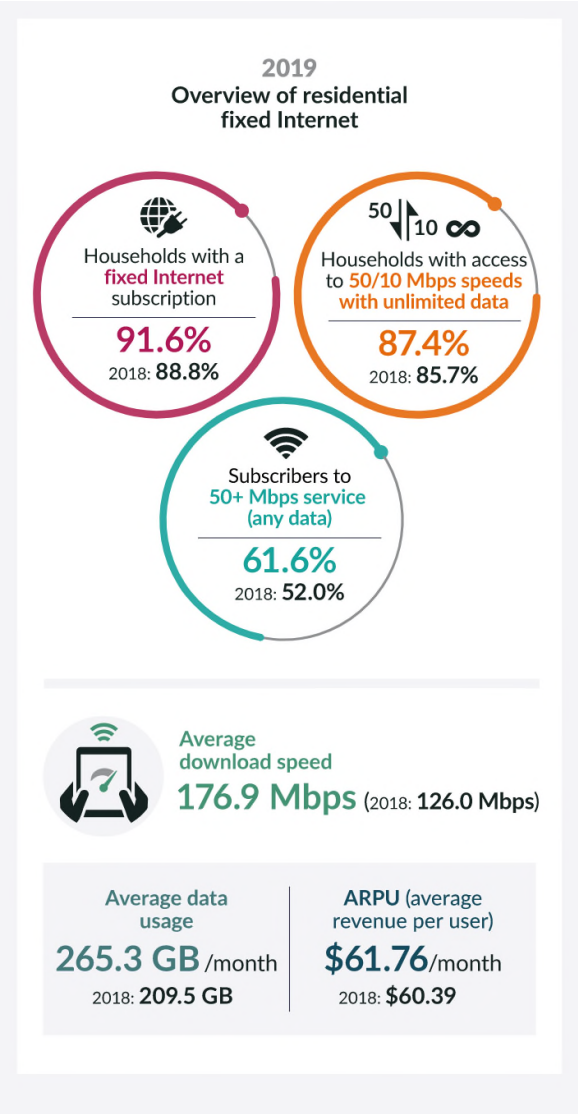
Source: CRTC data collection

Other mobile providers include SaskTel, Freedom Mobile, Videotron, and Bragg Communications and wholesale-based service providers.

More data on mobile and other telecommunications services can be found in Open Data and their respective sections of the *Communications Monitoring Report*.

Retail fixed Internet sector

Infographic 2.7 Overview of retail fixed Internet sector



Source: Innovation, Science and Economic Development Canada (ISED) and CRTC data collection

Table 2.4 Retail Internet service revenue ($ millions)

Type	Subtype	2015	2016	2017	2018	2019	Growth (%) 2018-2019	CAGR (%) 2015-2019
Residential	Access	7,265	8,091	8,804	9,429	10,039	6.5	8.4
	Applications, equipment, and other Internet-related services	210	289	314	376	459	22.1	21.6
	Total	7,475	8,380	9,118	9,805	10,498	7.1	8.9
Business	Access and transport	1,394	1,442	1,502	1,576	1,894	20.2	8.0
	Applications, equipment, and other Internet-related services	380	356	347	385	438	13.6	3.6
	Total	1,774	1,798	1,849	1,961	2,332	18.9	7.1
All	Total	9,249	10,178	10,967	11,765	12,830	9.0	8.5

Source: CRTC data collection

The majority of Canadian households (91.6%) are subscribing to Internet services. Canadians continue to use more data, subscribe to faster, larger packages and allocate more money to Internet access services.

In 2019, fixed Internet revenues grew by 9.0% and subscriptions grew by 5.7%. From 2015 to 2019, fixed Internet revenues grew by an average annual rate of 8.5%.

In 2019, Internet services were provided by a variety of Internet service providers (ISPs), including incumbent TSPs, cable-based carriers, other facilities-based carriers, fixed wireless service providers, and wholesale-based service providers. The number of residential subscribers reached 13.8 million, a 4.7% increase from 2018 and more than three time the population growth rate. Cable-based carriers and incumbent TSPs accounted for the majority of subscribers (85.1%), while other entities accounted for 14.9%, up from 12.0% in 2015.

Canadians are increasingly subscribing to faster Internet services. Subscriptions to services with download speeds slower than 50 Mbps represented 80.8% of the total in 2015 compared to 38.4% in 2019, while subscriptions to services including speeds of 100 Mbps and higher increased from just 8.0% of residential high-speed subscriptions in 2015 to 41.7% in 2019.

Canadians are also using more data. The average monthly data amounts downloaded by residential subscribers increased on average by 27.5% annually from 2015 to 2019, and by 27.4% from 2018 to 2019 to 245.6GB per month. Average upload amounts also increased by 17.8% in 2019, reaching approximately 19.6GB per month.

Fibre deployment continued in 2019, with the availability of fibre-to-the-home (FTTH) increasing from 44.0% to 44.7% (2018 to 2019) of households. These deployments were mainly in large urban areas.

Retail wireline voice sector

Table 2.5 Overview of retail fixed wireline voice sector

	2018	2019
Retail wireline voice revenues	$7.1 B	$6.6 B
Retail wireline voice subscribers	13.8 M	13.4 M
Revenue growth rate	-5.6%	-8.2%
Revenue CAGR (5 years)	-6.1%	-6.7%

Source: CRTC data collection

Table 2.6 Local and long-distance retail revenues ($ millions)

Service	2015	2016	2017	2018	2019	Growth (%) 2018-2019	CAGR (%) 2015-2019
Gross local revenues	7,146	6,635	6,474	6,086	5,584	-8.2	-6.0
Gross local revenues, excluding contributions	107	105	98	87	71	-18.2	-9.6
Retail local revenues	7,039	6,529	6,376	5,999	5,513	-8.1	-5.9
Retail long-distance revenues	1,506	1,287	1,095	1,052	970	-7.8	-10.4
Total local and long-distance retail revenues	8,545	7,817	7,471	7,051	6,483	-8.0	-6.7

Source: CRTC data collection

In 2019, the retail wireline voice sector reported $6.5 billion in revenues, with a 6.7% average annual decline since 2015. Local revenues (excluding contributions) accounted for 85.0% of retail wireline voice revenues in 2019. Long-distance revenues were approximately $970 million, declining by an average annual rate of 10.4% since 2015.

From 2015 to 2019, residential wireline voice revenues per line decreased by $4.06 to $33.19 per month, while business revenues decreased by $4.67 to $53.62 per month. This is, however, a slight increase from 2018 when business revenues were $51.75.

The incumbent carriers accounted for 66.8% of the residential sector of retail wireline revenues, a 2.0% increase since 2018, and 77.3% of the business sector, a 2.1% decrease since 2018. Residential revenue shares for facilities-based non-incumbent service providers represented 27.8% of residential retail wireline revenues, in 2019.

The introduction of access-independent VoIP services[7] has opened the wireline voice sector to non-traditional providers. There were approximately 570,000 subscribers to access-independent VoIP in 2019, representing 4.2% of retail local telephone lines. This percentage has remained constant since 2013.

There were 31,500 payphones in 2019, generating an average of $374 in annual revenues per unit, compared to 67,000 payphones generating $413 per unit in 2015. The number of payphones dropped by over 5,000 or 13.9% from 2018 to 2019, while the average revenue per phone increased by $5.60 or 1.5%.

[7] Access-independent VoIP services are VoIP services delivered through the public Internet as opposed to a dedicated or managed network.

Retail data and private line sector

Table 2.7 Overview of retail data and private line sector

	2018	2019
Retail data and private line revenues	$3.2 B	$3.1 B
Revenue growth rate	-1.3%	-3.2%
Revenue CAGR (2015-2019)	-2.6%	-2.4%

Source: CRTC data collection

Table 2.8 Data and private line retail revenues ($ millions)

Sector	Subsector	2015	2016	2017	2018	2019	Growth (%) 2018-2019	CAGR (%) 2015-2019
Data	Data protocols	1,920	1,870	1,864	1,845	1,739	-5.8	-2.4
	Other	779	731	694	690	698	1.1	-2.7
	Total	2,699	2,600	2,558	2,535	2,436	-3.9	-2.5
Private line	Total	754	738	721	700	695	-0.8	-2.0
Total	Total	3,453	3,339	3,279	3,235	3,131	-3.2	-2.4

Source: CRTC data collection

Data and private line services refers to services sold by TSPs to business customers for the transmission of data, video and voice traffic. These services provide private and highly secure communications channels between locations. Data and private line revenues have been in decline since 2014.

Data services are packet-based services that intelligently switch data through carrier networks. They make use of newer data protocols such as Ethernet and Internet Protocol (IP), or legacy data protocols such as X.25, asynchronous transfer mode (ATM), and frame relay to transmit data[8]. Legacy services make up less than 0.4% of revenues. The subcategory "Other" includes network management and networking equipment.

Private line services provide non-switched, dedicated communications connections between two or more points to transport data, video and/or voice traffic.

Incumbent TSPs accounted for approximately 11.7% of the entities providing data and private line services and captured 63.4% of retail data and private line revenues.

[8] See telecommunications glossary for definitions and examples.

Wholesale

Table 2.9 Overview of wholesale market

	2018	2019
Wholesale revenues	$3.8 B	$3.7 B
Revenue growth rate	-4.4%	-5.0%
Revenue CAGR (2015-2019)	+0.4%	-1.8%

Source: CRTC data collection

Table 2.10 Wholesale telecommunications revenues by sector ($ millions)

Type	Sub-type	Sector	2015	2016	2017	2018	2019	Growth (%) 2018-2019	CAGR (%) 2015-2019
Wireline	Voice	Local and access	603	615	599	571	565	-1.0	-1.6
		Long-distance	423	458	407	300	339	12.9	-5.4
		Subtotal	1,026	1,073	1,006	871	904	3.8	-3.1
	Non-voice	Internet	556	589	558	571	674	18.0	4.9
		Data	604	600	634	684	717	4.8	4.4
		Private line	615	593	546	525	511	-2.7	-4.5
		Subtotal	1,776	1,782	1,737	1,780	1,902	6.8	1.7
	All	Wireline	2,801	2,855	2,743	2,651	2,805	5.8	0.0
Mobile	All	Mobile	1,123	1,200	1,277	1,193	845	-29.2	-6.9
All	Total	Total	3,925	4,055	4,020	3,844	3,650	-5.0	-1.8

Source: CRTC data collection

Wholesale services are services provided by one TSP to another, usually when the latter does not have end-to-end facilities of its own.

In 2019, the wholesale telecommunications sector was worth $3.7 billion, of which 23.2% was for the provision of mobile services and 76.8% for wireline services. From 2015 to 2019, wholesale mobile revenues decreased at an average annual rate of 6.9%, compared to little or no change for wholesale wireline revenues (despite fluctuations between 2015 to 2019).

Independent ISPs[9] frequently depend on access services offered by the incumbent TSPs and the cable-based carriers to connect to their customers. Over the years, sales of cable-based access services, known as third-party Internet access (TPIA) services, to independent ISPs have increased, growing at an annual rate of 4.1% since 2015.

Wholesale voice revenues declined, on average, by 3.1% annually from 2015 to 2019, whereas wireline non-voice revenues increased, on average, by 1.7% annually during the same period.

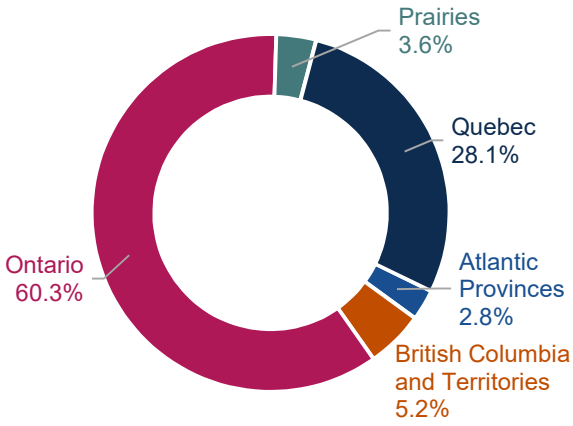
With 70.8% of wholesale wireline revenues, incumbent TSPs maintained the largest share of the wholesale wireline sector, which has decreased slightly from 72.2% in 2018.

[9] Independent ISPs are defined as ISPs that are not cable-based carriers or incumbent TSPs.

The number of wholesale high-speed Internet access lines and revenues grew in 2019. Ontario had the largest share of wholesale lines (60.3 %) and revenues (64.6 %) in 2019.

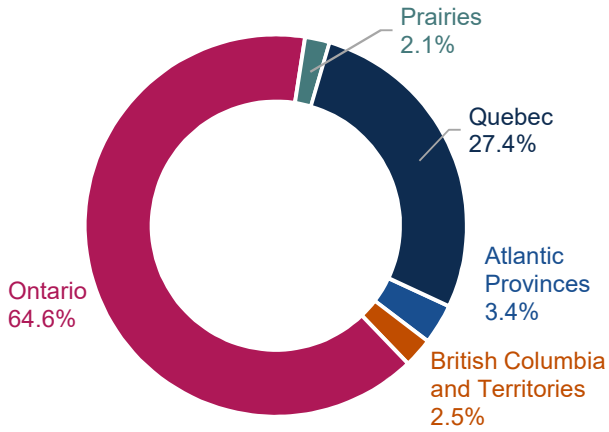
There were no wholesale lines or revenues reported in the North[10] in 2019.

Figure 2.13 Percentage of high-speed Internet wholesale lines by region (%), 2019



Source: CRTC data collection

Figure 2.14 Percentage of high-speed Internet wholesale revenues share by region (%), 2019



Source: CRTC data collection

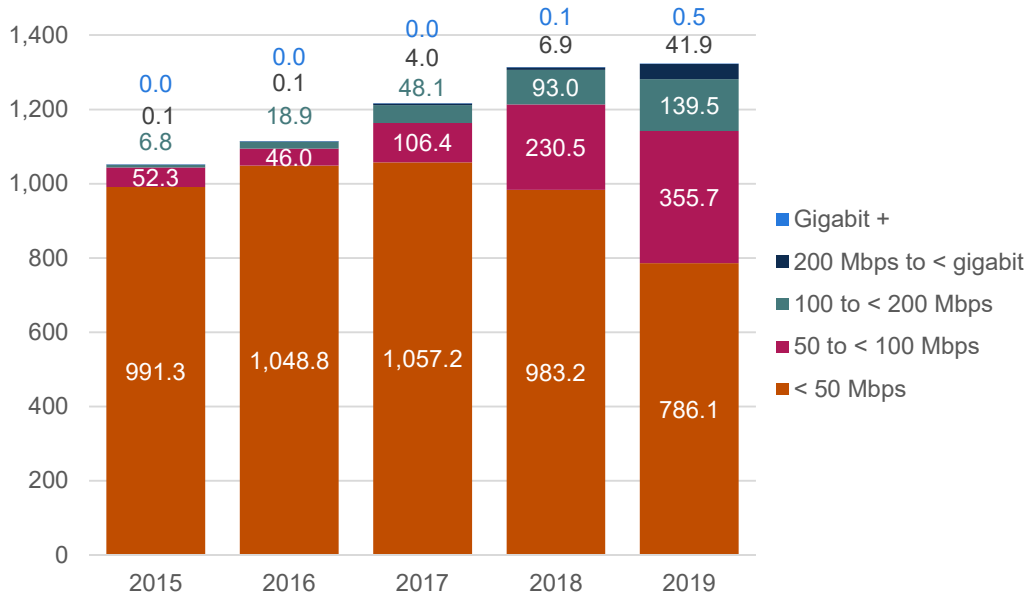
Information in the above figures regarding high-speed Internet wholesale lines and revenues is from a sample of the larger ISPs. They reported approximately 76% of total wholesale Internet service revenues in 2019.

[10] The "North" refers to the Northwest Territories, Nunavut and Yukon.

As mentioned earlier, the number of wholesale Internet lines has exceeded 1.3 million, growing at an annual rate of 5.9% from 2015 to 2019. Although wholesale lines with download speeds under 50 Mbps continued to have the largest share at 59.4% (0.79 million), this share has decreased by 20.0% from the previous year and has been on the decline since 2017.

Wholesale Internet lines with download speeds of 200 Mbps to a gigabit saw the largest growth (510.0%), more than six times the number of wholesale lines from the previous year. Wholesale lines of a gigabit and above also saw substantial growth, growing 305.0% from 2018.

Figure 2.15 Wholesale high-speed access enabled lines by download speed (thousands)



Source: CRTC data collection

v Datasets available on Open Data

There are four Excel workbooks and CSV zips related to this report that have been published on the Open Data portal. They contain the data found in the figures and tables in this section of the CMR, in addition to supplementary datasets (T-S1 to T-S5, W1 to W18, LLD1 to LLD13 and DPL1 to DPL9) that originate from earlier editions of the CMR.

Instructions: Use the table below to search for datasets available on Open Data that are related to this section of the CMR. When you have found the dataset, go to the Find a CMR Dataset page and download the workbooks **Data - Telecommunications sector, Data - Wholesale (telecommunications), Data - Local and long distance, and Data - Data and private line**. Search for the 'tab name' in the Excel workbook tabs to locate the data.

Table 2.11 List of datasets available in the Data - Telecommunications sector, Data - Wholesale (telecommunications), Data - Local and long distance, and Data - Data and private line workbooks

Workbook	Tab name	Title
Data - Telecommunications sector	T-I1	Overview of total telecommunications revenues
Data - Telecommunications sector	T-I2	Telecom revenue share by sector (%)
Data - Telecommunications sector	T-I3	Overview of retail vs wholesale revenue share (%)
Data - Telecommunications sector	T-I4	Overview of key indicators of telecommunications financial performance
Data - Telecommunications sector	T-I5	Overview of retail revenues by sector
Data - Telecommunications sector	T-I6	Overview of retail mobile sector
Data - Telecommunications sector	T-I7	Overview of retail fixed Internet sector
Data - Telecommunications sector	T-F1	Total revenues by type of TSP ($ billions)
Data - Telecommunications sector	T-F2	Companies providing telecommunications services by type of TSP (%)
Data - Telecommunications sector	T-F3	Distribution of TSPs by the number of services offered (%)
Data - Telecommunications sector	T-F4	TSPs' revenue share grouped by the number of services offered (%)
Data - Telecommunications sector	T-F5	Telecommunications revenues by category and province/territory ($ millions)
Data - Telecommunications sector	T-F6	Wholesale high-speed access enabled lines by province/territory (thousands)
Data - Telecommunications sector	T-F7	Subsidy paid to incumbent local exchange carriers ($ millions) and contribution rate (%)
Data - Telecommunications sector	T-F8	Telecommunications capital expenditures by type ($ billions)
Data - Telecommunications sector	T-F9	Capital intensity for industries with the highest capital intensity ratios
Data - Telecommunications sector	T-F10	Telecommunications capital intensity (%), by type of TSP
Data - Telecommunications sector	T-F11	EBITDA margins by sector (%)
Data - Telecommunications sector	T-F12	Retail mobile revenue market share (%)
Data - Telecommunications sector	T-F13	Percentage of high-speed Internet wholesale lines by region (%)
Data - Telecommunications sector	T-F14	Percentage of high-speed Internet wholesale revenues share by region (%)
Data - Telecommunications sector	T-F15	Wholesale high-speed access enabled lines by download speed (thousands)
Data - Telecommunications sector	T-T1	Total revenue market share by type of service provider (%)
Data - Telecommunications sector	T-T2	Percentage of telecommunications revenues generated by forborne services (%)
Data - Telecommunications sector	T-T3	Retail mobile and paging service revenue components ($ millions)
Data - Telecommunications sector	T-T4	Retail Internet service revenues ($ millions)
Data - Telecommunications sector	T-T5	Overview of retail fixed wireline voice sector
Data - Telecommunications sector	T-T6	Local and long distance retail revenues ($ millions)
Data - Telecommunications sector	T-T7	Overview of retail data and private line sector
Data - Telecommunications sector	T-T8	Data and private line retail revenues ($ millions)
Data - Telecommunications sector	T-T9	Overview of wholesale market
Data - Telecommunications sector	T-T10	Wholesale telecommunications revenues by sector ($ millions)
Data - Telecommunications sector	T-S1	Telecommunications revenue distribution by region ($ billions)
Data - Telecommunications sector	T-S2	Percentage of retail telecommunications revenues generated by forborne services (%)
Data - Telecommunications sector	T-S3	Telecommunications investments made in plant and equipment, by type of provider of telecommunications service ($ billion)
Data - Telecommunications sector	T-S4	9-1-1 service revenues ($ millions)
Data - Telecommunications sector	T-S5	Wireline retail telecommunications revenue market share (%) by type of service provider
Data - Wholesale (telecommunications)	W1	Wholesale telecommunications revenues by market sector ($ millions)
Data - Wholesale (telecommunications)	W2	Local wholesale telecommunications revenues, by major component ($ millions)
Data - Wholesale (telecommunications)	W3	Local wholesale telecommunications revenues, by province ($ millions)
Data - Wholesale (telecommunications)	W4	Wholesale high-speed access (HSA) based subscriptions across Canada, in percentage of total subscriptions
Data - Wholesale (telecommunications)	W5	Internet-related wholesale revenues by type of service ($ millions)

Data - Wholesale (telecommunications)	W6	Wholesale HSA revenues by service component ($ millions)
Data - Wholesale (telecommunications)	W7	DSL and cable wholesale HSA service subscriptions by type of service (thousands)
Data - Wholesale (telecommunications)	W8	DSL and cable wholesale HSA monthly revenue per enabled subscription ($)
Data - Wholesale (telecommunications)	W9	Wholesale HSA-enabled subscriptions by service speed in Mbps (thousands)
Data - Wholesale (telecommunications)	W10	Data protocol wholesale revenues, by service category ($ millions)
Data - Wholesale (telecommunications)	W11	Wholesale mobile wireless revenues, by type of service ($ millions)
Data - Wholesale (telecommunications)	W12	Local and access lines, by type of TSP (thousands)
Data - Wholesale (telecommunications)	W13	Wireline wholesale telecommunications revenue market share, by type of TSP (%)
Data - Wholesale (telecommunications)	W14	Wholesale local and access revenues, by type of TSP ($ millions)
Data - Wholesale (telecommunications)	W15	Wholesale long distance revenues by type of TSP ($ millions)
Data - Wholesale (telecommunications)	W16	Percentage of wholesale telecommunications revenues generated by forborne services (%)
Data - Wholesale (telecommunications)	W17	Wholesale wireline telecommunications service revenues by type of service (%)
Data - Wholesale (telecommunications)	W18	Inter-provider expenses per revenue dollar for wireline services
Data - Local and long distance	LLD1	Residential local telephone and long distance service revenues by type of TSP ($ millions)
Data - Local and long distance	LLD2	Business local telephone and long distance revenues by type of TSP ($ millions)
Data - Local and long distance	LLD3	Number of retail managed and non-managed local telephone lines (thousands)
Data - Local and long distance	LLD4	Residential and business local telephone lines by type of TSP (thousands)
Data - Local and long distance	LLD5	Residential and business, local and long distance monthly revenues ($), per line
Data - Local and long distance	LLD6	Local telephone retail service monthly revenues ($) per line, by type of TSP
Data - Local and long distance	LLD7	Large incumbent TSPs' retail long distance revenue market share (%), by region
Data - Local and long distance	LLD8	Large incumbent TSPs' payphone revenues
Data - Local and long distance	LLD9	Large incumbent TSPs' payphone quantities
Data - Local and long distance	LLD10	Retail VoIP local lines, access-dependent and access-independent, by market (millions)
Data - Local and long distance	LLD11	Long distance residential and business monthly revenues ($), per line
Data - Local and long distance	LLD12	Alternative service providers' (including cable-based carriers) local retail lines, by type of facility (millions)
Data - Local and long distance	LLD13	Local lines by type of line (%)
Data - Data and private line	DPL1	Retail data service revenues by classification of data protocol used ($ millions)
Data - Data and private line	DPL2	Breakdown of newer data service revenues, by protocol used
Data - Data and private line	DPL3	Private line retail revenues by type of service provider ($ millions)
Data - Data and private line	DPL4	Retail data and private line revenue market share (%), by type of TSP
Data - Data and private line	DPL5	Retail data service revenue market share (%), by type of TSP
Data - Data and private line	DPL6	Retail data service revenue market share (%), by type of service provider and classification of data protocol used
Data - Data and private line	DPL7	Retail private line revenue market share (%)
Data - Data and private line	DPL8	Forborne private line routes
Data - Data and private line	DPL9	Forborne data and private line revenues (%)

vi Methodology

Capital expenditures and capital intensity

Capital expenditures (CAPEX) are the costs associated with procuring, constructing, and installing new assets of telecommunications networks, to replace or add to existing assets, or to lease to others. The capital expenditures metric in this report includes data only from companies which supplied both telecom revenue and capital expenditure data.

Capital intensity is the ratio of capital expenditures to revenues. The capital intensity metric of the telecommunications industry found in this report was derived by dividing the total annual capital expenditures by the annual telecommunications revenues of companies that reported capital expenditures. The capital intensity of the Top 5 TSPs was calculated by dividing the sum of their capital expenditures of the Top 5 TSPs by the year-end telecommunications revenues of these TSPs. These TSPs accounted for 92.6% of all capital expenditures in 2019.

The capital intensity for all other industries found in Figure 2.9 was calculated by dividing the industry CAPEX by the full-year industry revenue. Industry CAPEX and industry revenue can be found in Statistics Canada Tables 34-10-0035-01 and 33-10-0007-01.

Earnings before interest, taxes, depreciation, and amortization

Earnings before interest, taxes, depreciation, and amortization (EBITDA) is the operating revenue after having subtracted operating expenses but before subtracting charges for interest payments, taxes, depreciation, and amortization. The EBITDA margins were determined by dividing the total EBITDA by the total operating revenues. The EBITDA margins were calculated for companies for whom at least 80% of their total revenues are represented by Canadian telecommunications services.

Wholesale Internet lines and revenues by province/territory and region

All information in this section regarding provincial wholesale Internet lines and revenues is from data collected through surveying the larger ISPs. These larger ISPs are telecom providers that have historically provided regulated telecom services (such as WHSA, unbundled loops, and Content Delivery Network [CDN] services). They are assigned forms that report details of their wholesale high-speed Internet access lines and revenues.

These ISPs accounted for approximately 61% of total wholesale Internet revenues in 2019.

Definitions

An **alternative service provider** is any entity that is not an incumbent TSP. Examples of alternative service providers include Rogers, Shaw, Videotron, Distributel, and TekSavvy.

Cable-based carriers are former cable monopolies that also provide telecommunications services (e.g. wireline voice, Internet, data and private line, and wireless services). Examples of cable-based carriers include Rogers, Shaw, and Videotron.

Facilities-based service providers are any entity that has its own facilities. Examples of facilities-based service providers include Rogers, Shaw, Videotron, Bell Canada, SaskTel, and TELUS.

Fixed wireless service providers are any entity that provides its services over a wireless network that uses either licensed or unlicensed spectrum to provide communications services, where the service is intended to be used in a fixed location. Examples of fixed wireless service providers include Xplornet and Corridor Communications.

Incumbent local exchange carrier (ILEC's) are incumbent entities providing local voice services. Examples of incumbent local exchange carriers include Bell Canada, SaskTel, TELUS, Sogetel, and Execulink.

An **Incumbent Telecommunications Service Provider (TSP)** is a company that provides local telecommunications services on a monopoly basis prior to the introduction of competition. These can be further categorized as large and small incumbent TSPs.

An **independent Internet service provider (ISP)** refers to ISPs that are not cable-based carriers or incumbent TSPs. Examples of independent ISPs include TekSavvy, Xplornet, Distributel, and Verizon Canada.

Large incumbent TSPs serve relatively large geographical areas, usually including both rural and urban populations, and provide wireline voice, Internet, data and private line, wireless, and other services. Examples of large incumbent TSPs include Bell, SaskTel and TELUS.

Other facilities-based carriers refers to providers of telecommunications services that are not incumbent providers but which own and operate telecommunications networks. Examples of other facilities-based carriers include Xplornet and Allstream Business.

Small incumbent TSPs serve relatively small geographical areas. Due to the limited size of their serving areas, these companies do not typically provide facilities-based long distance services. However, they provide a range of wireline voice, Internet, data and private line, and wireless services. Examples of small incumbent TSPs include Sogetel and Execulink.

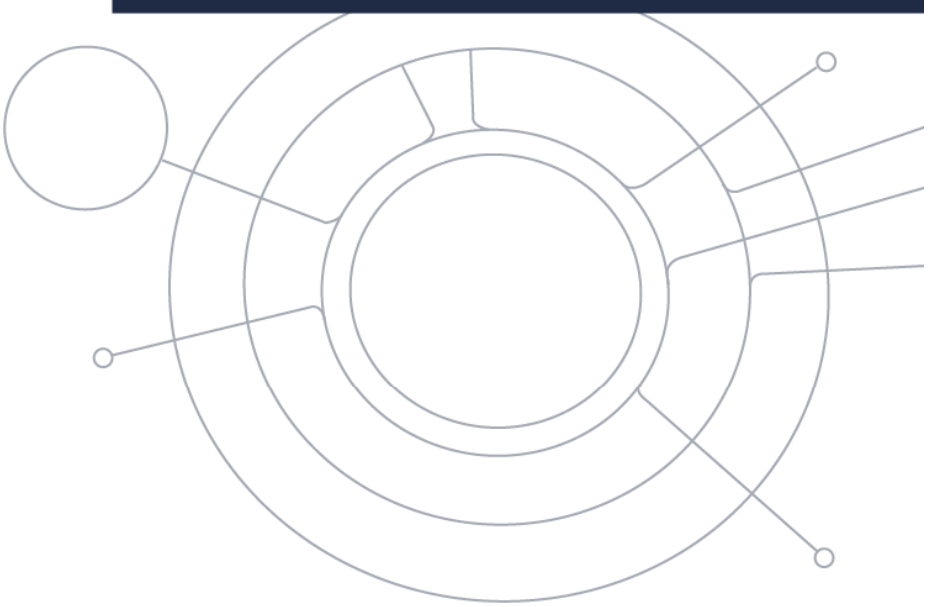
Tariff services are services whose rates, terms, and conditions are set out in a Commission-approved tariff. Non-tariff services are those telecommunications services whose rates, terms, and conditions are not set out in a Commission-approved tariff. Off-tariff services are those whose prices are filed with the Commission but for which the parties have agreed to an alternate price.

A **telecommunications service provider (TSP)** refers to any entity providing telecommunications services.

Wholesale-based service providers or **non-facilities-based service carriers** refers to companies that generally acquire telecommunications services from other providers and either resell those services or create their own network from which to provide services to their customers. A company that owns a small number of facilities but has the vast majority of its operations on leased facilities may also be classified as non-facilities-based. Examples of wholesale-based service providers and non-facilities-based carriers include Distributel and TekSavvy.

A **wireless service provider (WSP)** is any entity providing wireless services. Examples of wireless service providers include Rogers, Shaw, Videotron, Bell Canada, SaskTel, and TELUS.

HIGHLIGHTS OF THE BROADCASTING SECTOR



Highlights of the Broadcasting Sector

Table 3.1 Overview of broadcasting revenues ($ billions) and contributions to Canadian content ($ billions), 2019

Revenues ($B)	16.867
Revenue growth 2018-2019	-1.4%
Contributions to Canadian content ($B)	3.343
Estimated revenues of Internet-based audio and video services ($B)	5.008

Source: CRTC data collection; Omdia for estimated revenues of Internet-based services

Revenues of Internet-based services are over and above those of the traditional broadcasting services.

Total broadcasting revenues include revenues from private commercial and Canadian Broadcasting Corporation/Société Radio-Canada (CBC/SRC) radio services, private commercial and CBC/SRC conventional television services, discretionary and on-demand television, and broadcasting distribution undertakings (BDUs). Broadcasting contributions to Canadian content include Canadian content development (CCD) contributions, Canadian programming expenditures (CPE), contributions to the creation and production of Canadian programming from BDUs and tangible benefits from ownership transactions.

CBC/SRC revenues include parliamentary appropriations for conventional television.

This overview of the broadcasting sector provides a glimpse into various aspects of broadcasting in Canada. The data in this report covers the broadcast period 1 September 2018 to 31 August 2019 and therefore, excludes any impacts resulting from COVID-19. For the purposes of this report, total broadcasting revenues include revenues from:

- private commercial and CBC/SRC radio services, including Parliamentary appropriations;
- private commercial and CBC/SRC conventional television services;
- discretionary and on-demand (pay-per-view [PPV] and video-on-demand [VOD]) services; and
- BDUs[11], such as cable, satellite and Internet Protocol Television (IPTV) distributors.

Other Internet-based service revenues and services that operate under the Digital Media Exemption Order (e.g., Netflix and telecommunications service revenues such as Internet access or telephony) are excluded from total broadcasting revenues.

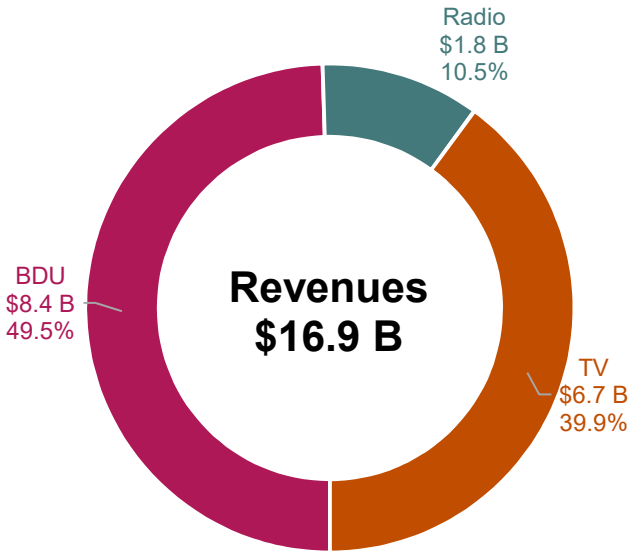
In 2019, broadcasting services revenues totalled $16.9 billion, a 1.4% decrease compared to 2018, and contributed approximately $3.3 billion (20% of total revenues) to Canadian radio and television content via their respective funding mechanisms. Out of the $2.9 billion spent on Canadian television programing expenditures (CPE), expenditures on news reached $736 million (or 26% of television CPE). (See the Television figures and tables on Open Data for more information.)

BDUs generated almost half of 2019 total broadcasting revenues, reporting $8.4 billion, followed by television services with $6.7 billion, and radio stations with $1.8 billion.

[11] BDU revenues refer to revenues from basic and non-basic services, including basic and non-basic services from IPTV services such as Bell Fibe and Telus Optik TV.

In comparison, Internet-based audio and video services were estimated to have generated revenues of $5.0 billion in Canada[12], approximately 30% of the revenues of the traditional broadcasting services.

Figure 3.1 Distribution of total broadcasting revenues ($ billions), 2019



Source: CRTC data collection

[12] Revenues of Internet-based services are over and above those of the traditional broadcasting services.

i. Revenues and financial performance

Table 3.2 Overview of radio, television and broadcasting distribution revenues, growth and PBIT/operating margin, 2019

Sector	Service	Total revenues	Growth 2018-2019	PBIT/ operating margin
Radio	Private commercial radio	$1,453.0 M	-4.0%	17.3% (PBIT)
	CBC/SRC radio	$325.5 M	-0.6%	-4.0% (Operating margin)
	Other non-commercial radio	$79.5 M	3.2%	3.0% (PBIT)
Conventional television	Private conventional television stations	$1,553.6 M	0.8%	-7.0% (PBIT)
	CBC/SRC conventional television stations	$947.0 M	-10.9%	-3.0% (Operating margin)
Discretionary and on-demand television	Discretionary television services	$3,975.3 M	-0.02%	26.0% (PBIT)
	On-demand television services	$257.8 M	-4.9%	14.2% (PBIT)
Broadcasting distribution	Cable	$4,390.1 M	-2.1%	17.6% (Operating margin)
	IPTV	$2,160.8 M	4.1%	4.5% (Operating margin)
	DTH	$1,803.6 M	-3.0%	28.1% (Operating margin)

Source: CRTC data collection

The majority of CBC/SRC radio revenues is sourced from parliamentary appropriations (96.4%, in 2019).

The majority of CBC/SRC private conventional television revenues is sourced from parliamentary appropriations (72.4% in 2019) and advertisement revenues (19.9%, in 2019).

PBIT refers to profit before interest and taxes; EBITDA refers to earnings before interest, taxes, depreciation and amortization; and DTH refers to national direct-to-home satellite service providers.

Other non-commercial radio refers to campus, community, indigenous, and non-commercial religious stations. These stations revenues do not figure in total radio revenues calculation.

In 2019, television distribution via cable continued to generate the most revenues at $4.4 billion and reported strong profitability with an earnings before interest, taxes, depreciation and amortization (EBITDA) of 17.6%. Although they have generated the most revenue, cable distribution services have seen a slow but constant decline in the past years (-2.1% compared to 2018 and -3.6% on average every year since 2015).

In regard to television services, discretionary services generated the most revenues at $4.0 billion and reported a profit before interest and taxes (PBIT) of 26.0%. The PBIT for private conventional television stations remained negative (-7.0%) in 2019. However, they did exhibit a positive, albeit modest 0.8%, year over year revenue growth for the first time since 2009. IPTV was the only other service showing positive growth in revenues.

The majority of radio revenues came from commercial services (82%), which include both AM and FM radio stations broadcasting in French, English, Indigenous and third languages. Although radio revenues have been declining, 88%[13] of Canadians, on average, still listen to traditional radio each month.

Consistent with previous years, the majority of television revenues came from discretionary services (59%), which relied on subscriber revenues to generate most (65%) of their earnings. Interestingly, advertising-based revenues, in particular national time sales, exhibited growth among discretionary services. Advertising sales for discretionary services grew 2.2% compared to 2018, and 1.2% on average per year, since 2015.

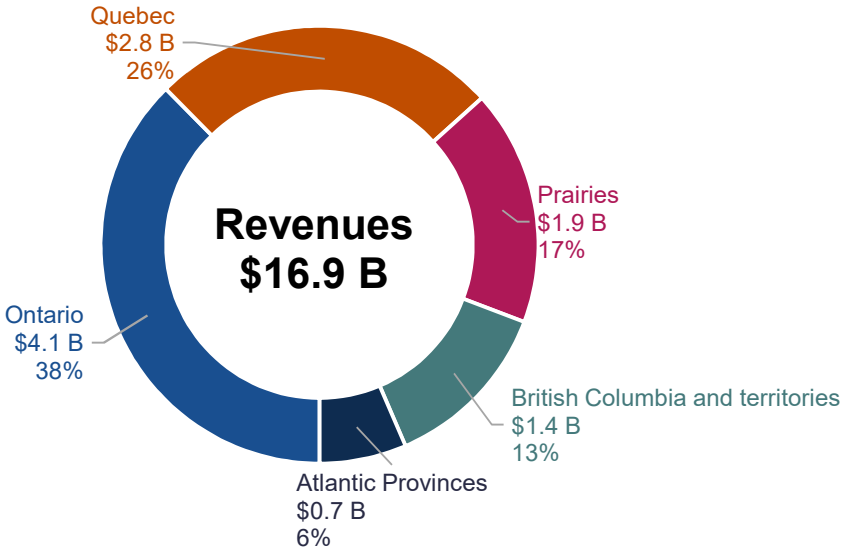
Finally, among BDUs, IPTV still leads in terms of growth, reporting revenue growth of 4.1% from 2018 to 2019 (2014-2019 compound annual growth rate [CAGR] of 8.4%), while DTH services were still the most profitable distribution services, reporting a 28.1% EBITDA in 2019.

In terms of the regional distribution of revenues, the most populous provinces, Ontario and Quebec, lead with 38% and 26% of broadcasting revenues in 2019, respectively, while according to the 2016 Census[14], their population represented 39% and 23%, respectively, of the Canadian population.

[13] Source: MTM 2019 fall survey

[14] Population and Dwelling Count Highlight Tables, 2016 Census

Figure 3.2 Revenue distribution by region ($ billions), 2019

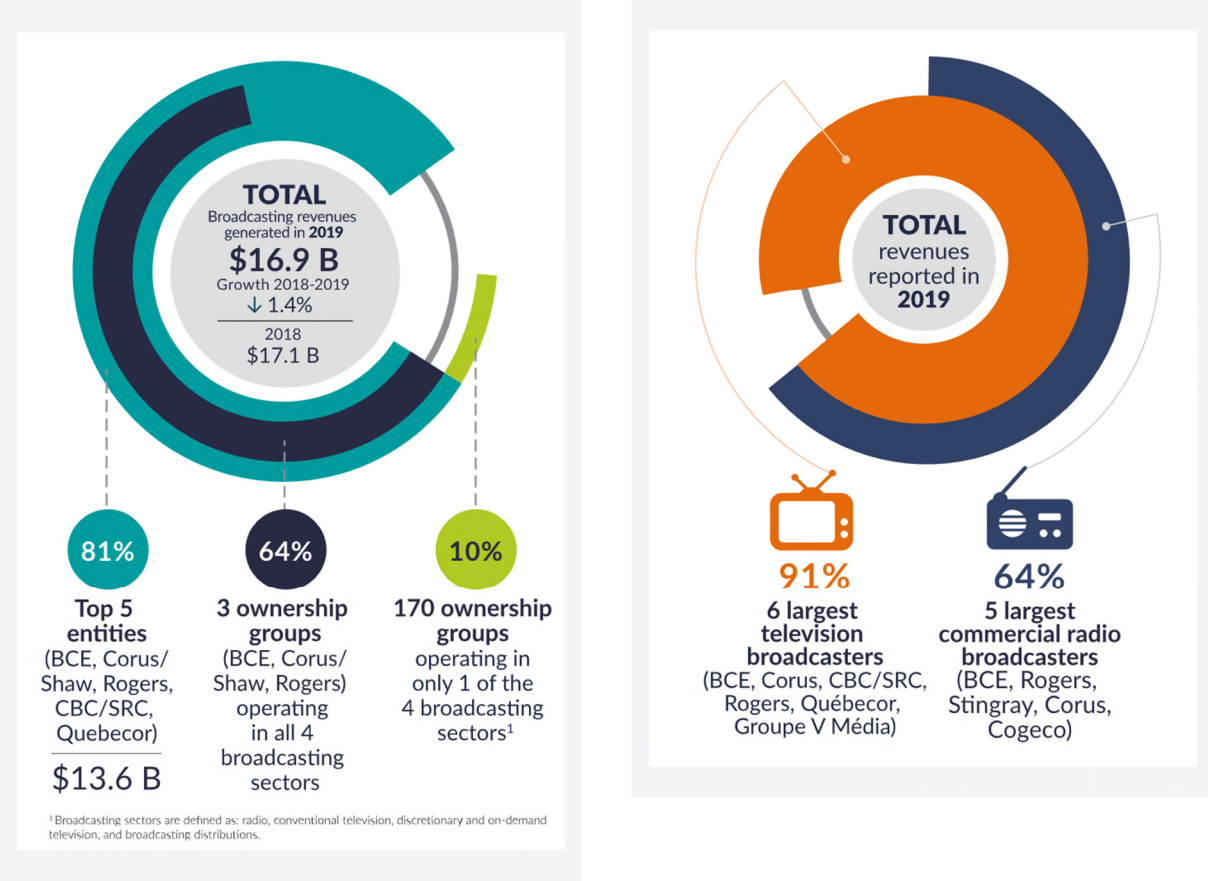


Source: CRTC data collection

Revenues generated from discretionary and on-demand television services, as well as DTH distribution services, have been excluded because these services are licensed as national services.

ii. Industry characteristics

Infographic 3.1 Overview of industry characteristics, 2019

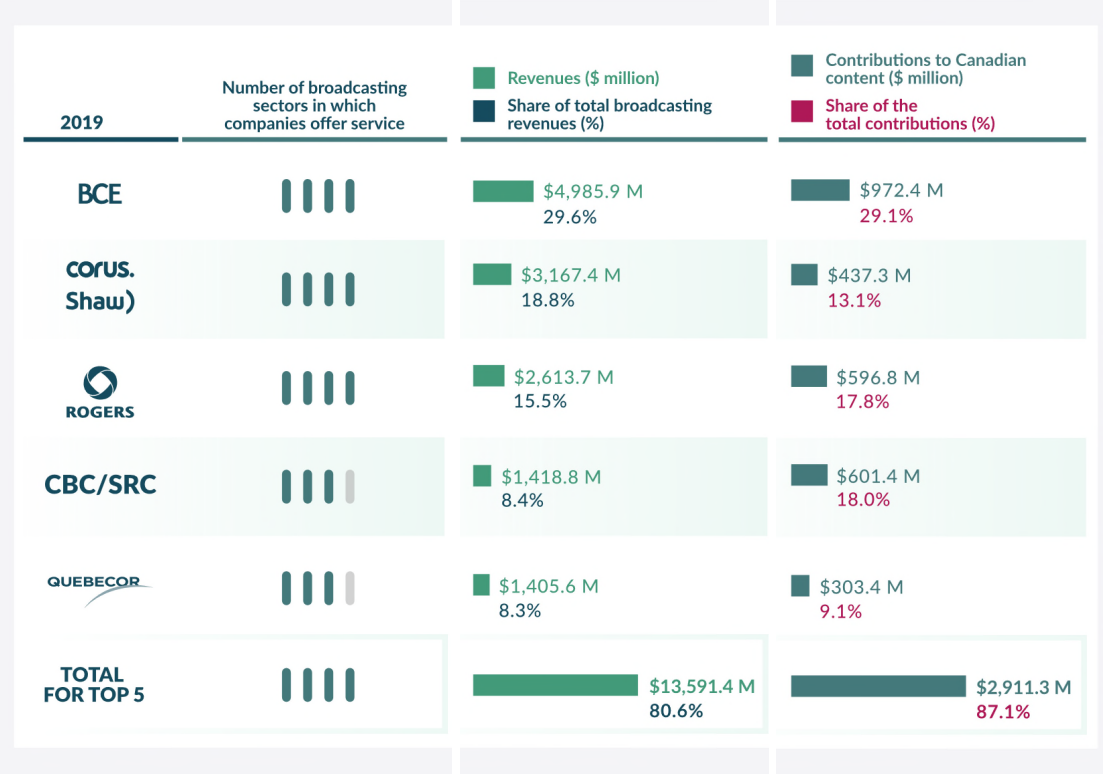


Source: CRTC data collection

In 2019, as in previous years, the broadcasting industry was largely dominated by a small number of entities. Together, the top 5 entities generated approximately 81% of total broadcasting revenues ($13.6 billion). There were three entities (BCE, Corus/Shaw, Rogers) operating radio stations, conventional television stations, discretionary or on-demand services and BDUs that generated 64% of broadcasting revenues, in 2019. Entities operating only one type of these services accounted for 10% of total broadcasting revenues.

Sector composition

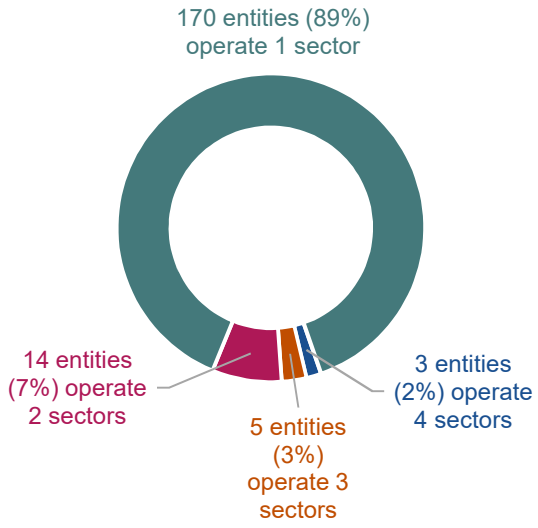
Infographic 3.2 Revenues and contributions by major ownership group, by sector, 2019



Source: Public disclosure of aggregate annual returns for large ownership groups.

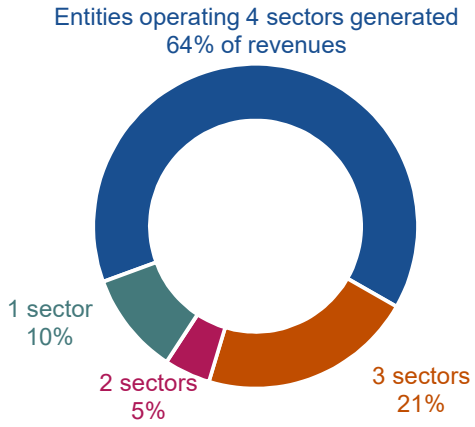
The number of sectors in which companies offer service refers to the four sectors of the broadcasting communications industry: radio, conventional television, discretionary and on-demand, and broadcasting distribution.

Figure 3.3 Number and share of broadcasting entities by number of sectors where service is offered, 2019



Source: CRTC data collection

Figure 3.4 Share of revenues generated by broadcasting entities by number of sectors where service is offered, 2019

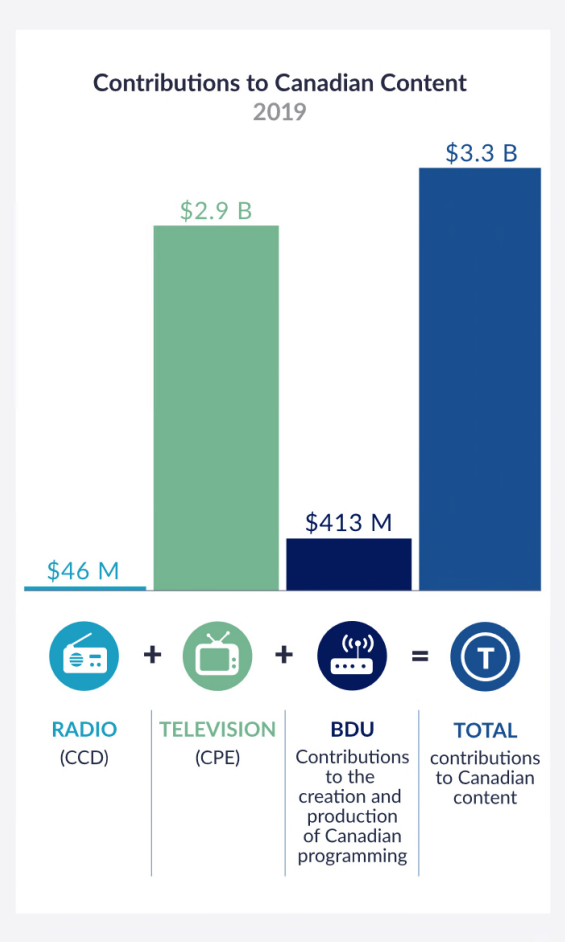


Source: CRTC data collection

iii. Contributions to Canadian content

Commercial radio stations typically contribute to CCD initiatives to support the development and promotion of Canadian musical and spoken word content for broadcast. Television services contribute portions of their broadcasting revenues to CPE. BDUs contribute a portion of their annual broadcasting-related revenues to the creation and production of Canadian programming, ranging from contributions to production funds to contributions to locally reflective news and community programming.

Infographic 3.3 Contributions to Canadian content, 2019

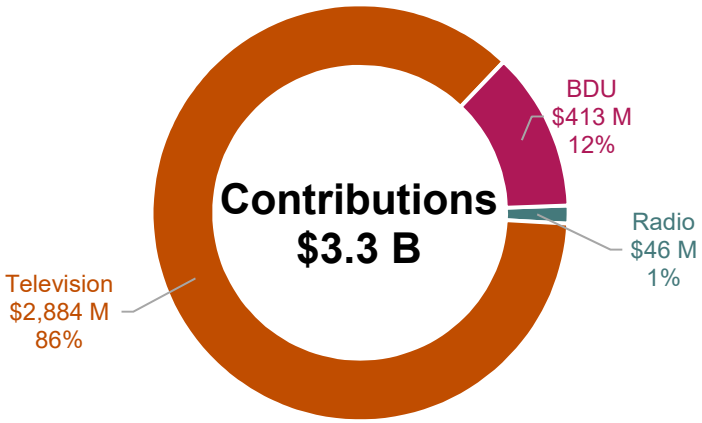


Source: CRTC data collection, 2019 broadcasting year

Television CPE include expenditures from private conventional television, CBC conventional television, other (public and not-for-profit) conventional television, discretionary services, and on-demand services.

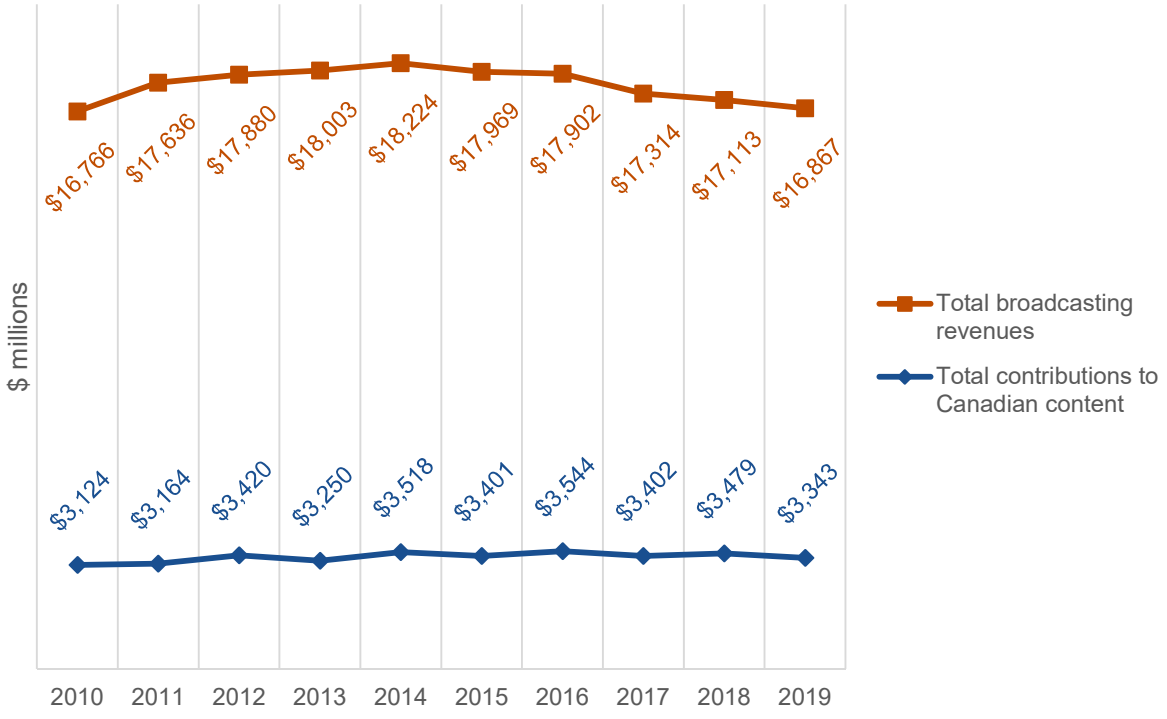
In 2019, broadcasters contributed a total of $3.3 billion towards Canadian content (a 3.9% decline from 2018). CPE represented the vast majority (86%) of those contributions, followed by BDU contributions (12%) and CCD contributions (1%). Although total broadcasting revenues have declined since its ten-year peak in 2015, total contributions to Canadian content have remained stable over the same period, varying between $3.1 and $3.6 billion since 2010 (0.8% CAGR over the last ten years).

Figure 3.5 Contributions to Canadian content by source ($ million), 2019



Source: CRTC data collection

Figure 3.6 Contributions to Canadian content compared to total broadcasting revenues ($ millions)



Source: CRTC data collection 2010-2019 financial summaries

Television CPE include expenditures from private conventional television, CBC conventional television, other (public and not-for-profit) conventional television, discretionary services, and on-demand services.

BDU contributions include those directed to the Local Programming Improvement Fund (LPIF) from 2010 until the fund was discontinued in 2014, to the Independent Local News Fund (ILNF) in 2018, toward local expression from 2010 to 2019, to the Canadian Media Fund (CMF) from 2010 to 2019, and to the Certified Independent Production Funds from 2010 to 2019.

Total broadcasting revenues include revenues from private commercial and CBC/SRC conventional television, discretionary and on-demand television, private commercial and CBC/SRC radio, as well as broadcasting distribution undertakings (BDU). Broadcasting contributions to Canadian content include Canadian content development (CCD) contributions, Canadian programming expenditures (CPE), contributions to the creation and production of Canadian programming from BDUs and tangible benefits from ownership transactions in the form of CCD contributions and CPE.

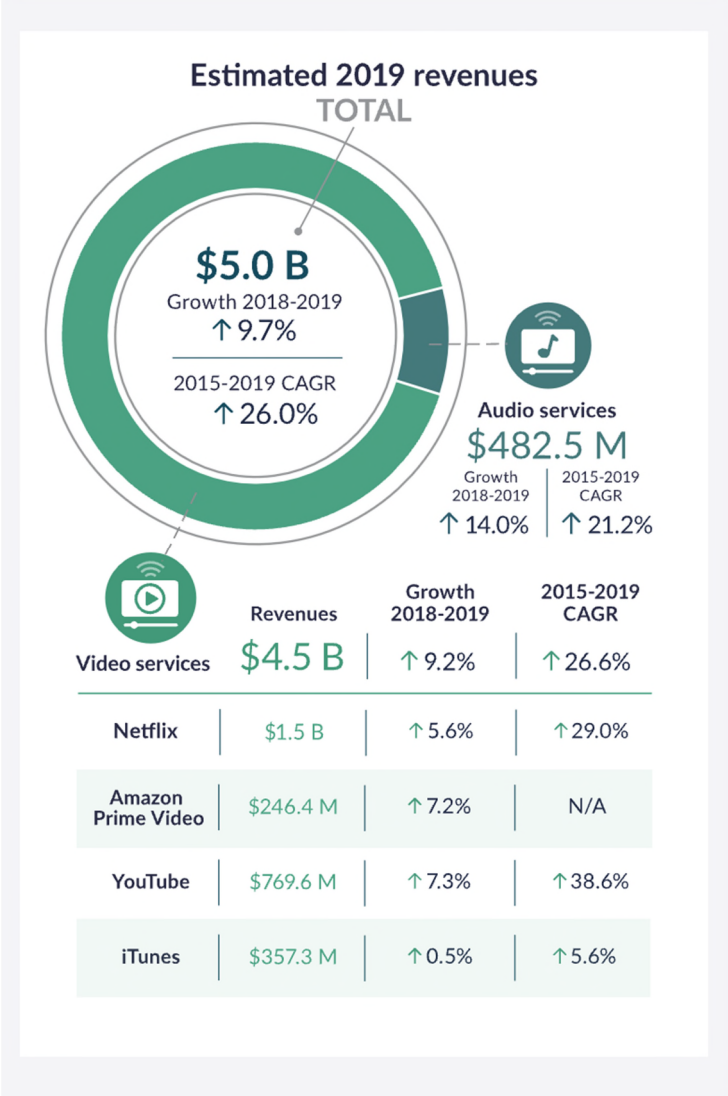
Annual radio CCD contributions are at the same amount as in 2010 (average of -0.02 % per year over the past ten years). They have increased almost 5% since last year. These contributions represent 1.4% of all contributions to Canadian content, similar to the ratios of the past 5 years.

CPE by licensed television services increased, on average, 1.1% per year for the past ten years, from $2.6 billion in 2010 to $2.9 billion in 2019. Over the same period, there has been an average decrease in annual contributions from on-demand services such as Sportsnet PPV and Bell TV On-Demand (-4.8%), CBC/SRC conventional television services (-3.5%), public and not-for-profit conventional television (-1.0%), and private conventional television (-0.2%). There has been, however, an average increase in contributions per year from discretionary services (4.1%).

Although BDUs contributed to the (now defunct) LPIF, and the ILNF (which replaced the former Small Market Local Programming Fund), the majority of these contributions over the past ten years have been directed to local expression, Certified Independent Production funds and to the CMF (95% of BDU contributions, in 2019).

iv. Internet-based audio and television services estimated revenues

Infographic 3.4 Overview of Internet-based audio and television services (estimated revenues), 2019



Source: Revenue estimates from Omdia

Note: AVOD revenues do not include "out of stream revenues" for Internet-based video services.

Internet-based audio and video services, also known as over-the-top (OTT) services, are provided to consumers through the Internet. These services generated estimated revenues of $5 billion in Canada, in 2019, according to the research firm Omdia.

For Internet-based audio, streaming is the method of accessing content that generates the most estimated revenues. The estimated growth for Internet-based audio services revenues in 2019 was 14%, with an impressive average annual growth rate of 21.1% since 2015.

Compared to 2018, Internet-based video revenues grew by an estimated 9.2%. The majority of estimated revenues from Internet-based video content come from subscription-based

video-on-demand (SVOD) services. Examples of these services include Netflix and Amazon Prime Video.

SVOD refers to subscription-based video-on-demand service. This is an Internet-based service model in which a client pays a subscription fee to gain access to a library of content. This category includes services that air the content of the library according to a linear schedule (e.g., Sportsnet Now) and services that permit a user to choose from a catalogue of content that is available at any time (e.g., Netflix).

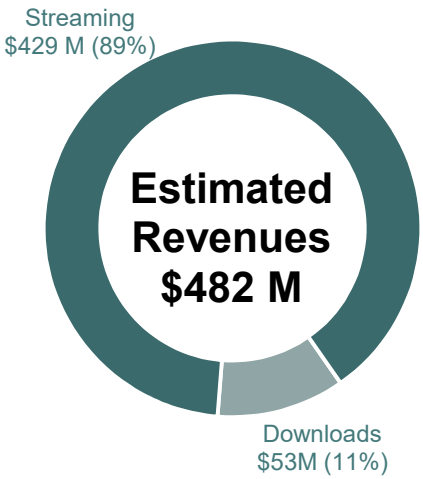
TVOD refers to transactional video-on-demand service. This is an Internet-based service model in which a client pays for specific content but generally does not pay to access the service itself (e.g., iTunes, Microsoft Movies & TV, and the PlayStation Network).

AVOD refers to advertising video-on-demand service. This is an Internet-based service model in which a client typically has free access to content but is exposed to in-stream advertisements (e.g., YouTube).

A significant majority of Canadians continue to use traditional television and radio services. In 2019, on average, 80% of Canadians watched traditional television and 84% listened to traditional radio in any given week. Although growing steadily, Internet-based audio and video streaming is consumed by a smaller proportion of the population, at 61% for Canadians watching Internet-based television services in any given week and 42% for Canadians listening to music using an online streaming service, in any given month.

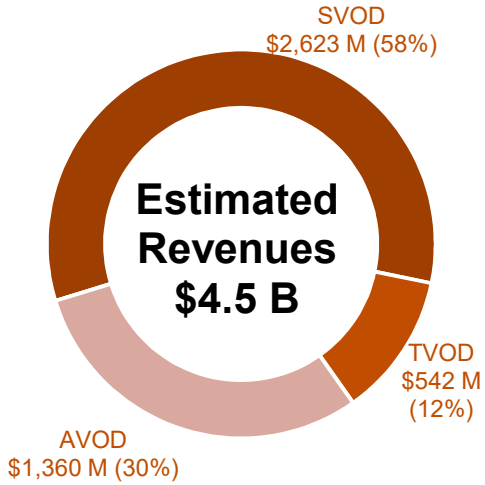
Additional information concerning Internet-based audio and video services, as well as methodology, is available on Open Data in the TV and Radio figures and tables.

Figure 3.7 Internet-based audio services estimated revenues in Canada ($ million), 2019



Source: Revenue estimates from Omdia

Figure 3.8 Internet-based video services estimated revenues in Canada ($ million), 2019



Source: Revenue estimates from Omdia

v. Spotlight: Commercial radio

Table 3.3 Commercial radio overview, 2019

	Commercial radio (total)	AM radio stations	FM radio stations	French-language radio stations	English-language radio stations	Third-language radio stations
Number of reporting stations	719	119	600	97	596	26
Revenues	$1,453 M	$252 M	$1,201 M	$245 M	$1,161 M	$47 M
2018-2019 Revenue growth	-4.0%	-6.4%	-3.5%	-3.3%	-4.4%	2.6%
Local advertising revenues (% of total revenues)	64.3%	74.4%	62.2%	59.6%	64.2%	92.6%
National advertising revenues (% of total revenues)	34.0%	23.9%	36.1%	38.6%	34.3%	4.1%
PBIT margin	17.3%	3.4%	20.2%	19.0%	17.1%	13.0%
Tuning share	73.3%	12.8%	60.5%	14.8%	57.9%	0.6%

Source: CRTC data collection, Numeris

Note: For the purposes of this table, the tuning share is based on total hours associated with reporting stations and availability of audience data.

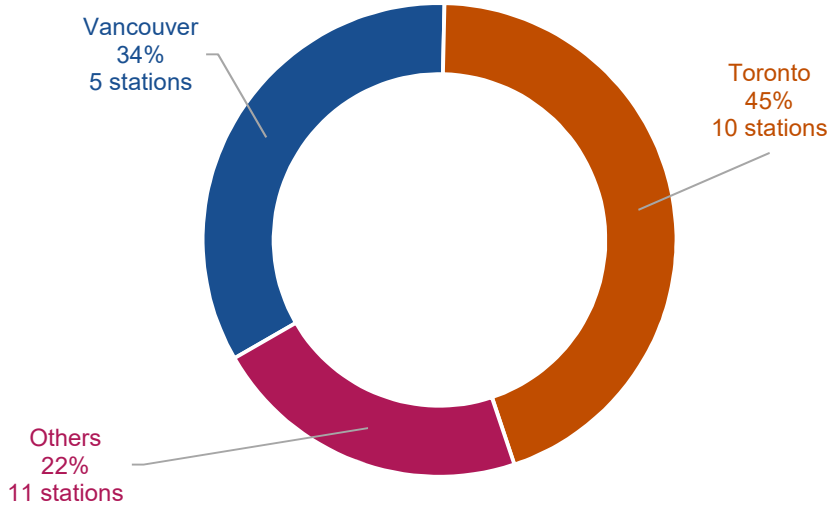
In 2019, 719 reporting commercial radio stations reported $1.45 billion in revenues, a 4% decrease from 2018. The overall profitability margin of those commercial radio stations declined slightly by 1% from 18.3% to 17.3%.

The 600 reporting FM commercial stations reported revenues of $1.2 billion in 2019, representing 83% of all commercial radio revenues. Consistent with previous years, FM stations surpassed AM stations in terms of profitably, reporting a profit before interest and taxes (PBIT) margin of 20.2%, compared to 3.4% for AM stations.

FM commercial stations relied less on local advertising revenues and more on national advertising revenues than AM stations. Whereas FM stations generated 62% of their revenues from local advertising and 36% from national advertising, AM stations generated 74% of their revenues from local advertising and 24% from national advertising.

Although the vast majority of revenues were generated by English- language radio stations, profitability in terms of PBIT margins was relatively close between French- and English-language stations at 19.0% and 17.1%, respectively, with third-language stations trailing behind at 13.0%. What sets third-language radio stations apart from French- and English-language radio stations, however, is revenue composition: they generated 93% of their revenues from local advertising, compared to 60% and 64% for French- and English-language stations, respectively. In addition, third-language stations are mainly concentrated in major markets, and have a limited presence outside of those markets.

Figure 3.9 Third-language commercial radio stations revenues (%) and number of stations by market, 2019



Source: CRTC data collection

Market composition

In 2019, the five largest radio ownership groups in Canada garnered 63.9% of total commercial radio revenues. The two largest groups, BCE (109 stations) and Rogers (57 stations) garnered close to 40% of total radio revenues in 2019.

Table 3.4 Radio ownership market composition, 2019

	BCE	Cogeco	Corus	Rogers	Stingray	Total
Number of reporting stations	109	23	39	57	74	**302**
Revenues	$347.1 M	$95.7 M	$108.6 M	$225.6 M	$152.0 M	**$929.0 M**
Share of total commercial radio revenues	23.9%	6.6%	7.5%	15.5%	10.5%	**63.9%**
French-language station revenues	$92.1 M	-	-	-	-	**$92.1 M**
English-language station revenues	$255.0 M	-	$108.6 M	$225.6 M	$152.0 M	**$741.2 M**
CCD	$12.3 M	$0.4 M	$0.5 M	$1 M	$6.1 M	**$20.4 M**
Tuning share in the French-language market	21.0%	34.0%	-	-	-	**55.0%**
Tuning share in the English-language market	18.0%	-	12.0%	12.0%	10.0%	**52.0%**

Source: Public disclosure of aggregate annual returns for large ownership groups, Numeris

The breakdown of Cogeco's revenues by language market is not provided for residual disclosure issues.

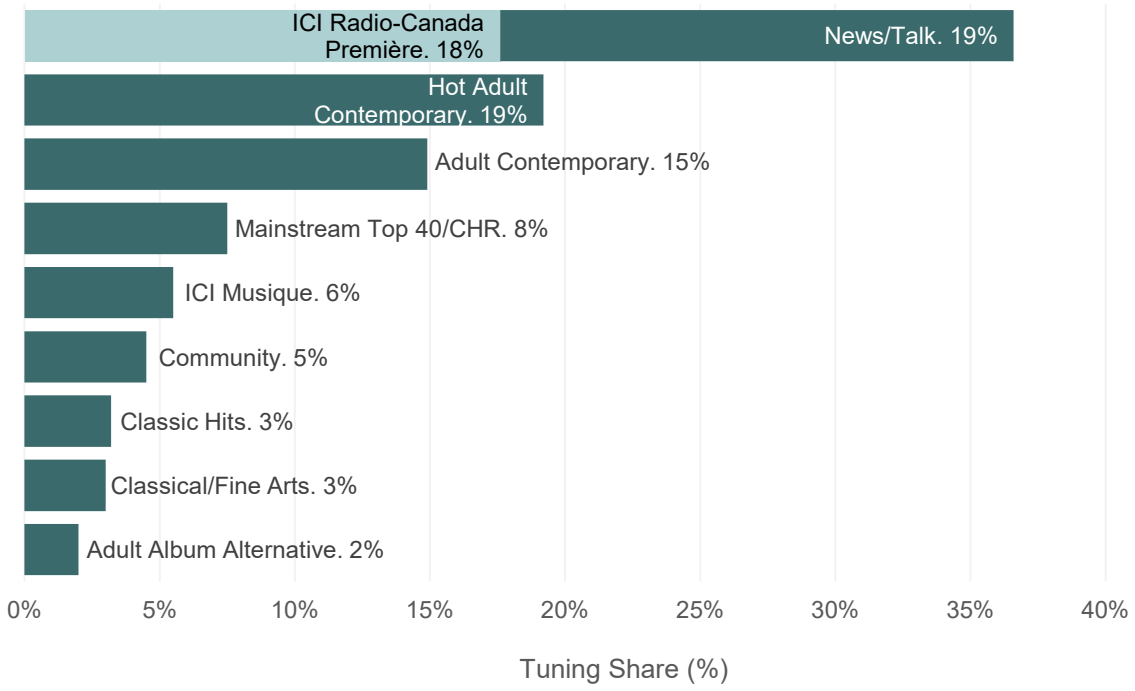
For 2019, in addition to reporting the majority of the revenues of the radio sector, these five ownership groups garnered the majority of tuning in both official-language markets. In the French-language market, Cogeco and BCE together held 55% of weekly average tuning hours, with Cogeco leading at 34%, followed by BCE at 21%. In the English-language market, BCE lead at 18%, followed by Rogers with 57 stations and Corus with 39 stations, both at 12%.

Formats

In 2019, the News/Talk radio format captured the largest share of tuning for both language-markets. However, News/Talk captured significantly more in the French-language market with over a third of the tuning share compared to the English-language market with less than a quarter.

The top three formats in the French-language market garnered approximately 71% of the tuning share, with talk radio (News/talk and Radio-Canada Première combined) leading with 37%, followed by the hot adult contemporary format at 19% and adult contemporary at 15%.

Figure 3.10 Tuning share (as a percentage of total tuning) of the most popular French-language market formats, 2019

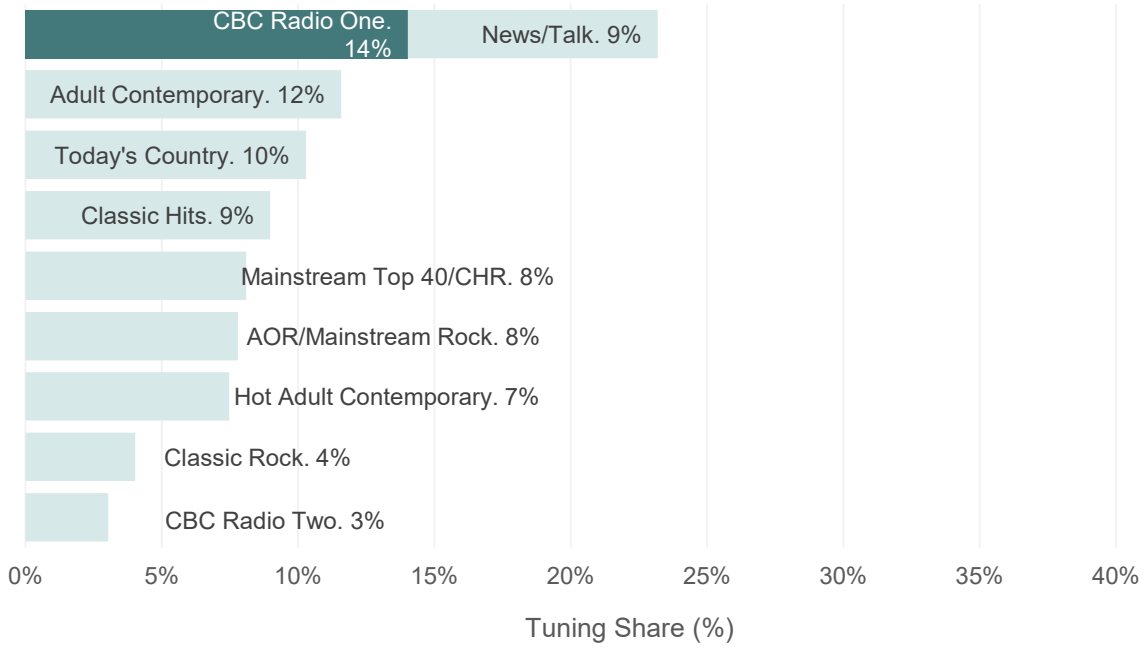


Source: Numeris audience measurements

Although CBC/SRC radio stations are not considered a format, they have been included as they hold an important radio tuning share.

The top three formats in the English-language market garnered approximately 45% of the tuning share, with talk radio (CBC Radio One and News/talk) leading with 23%, followed by the Adult Contemporary and Country formats, garnering approximately 12% and 10%, respectively, of the tuning share.

Figure 3.11 Tuning share (as a percentage of total tuning) of the most popular English-language market formats, 2019



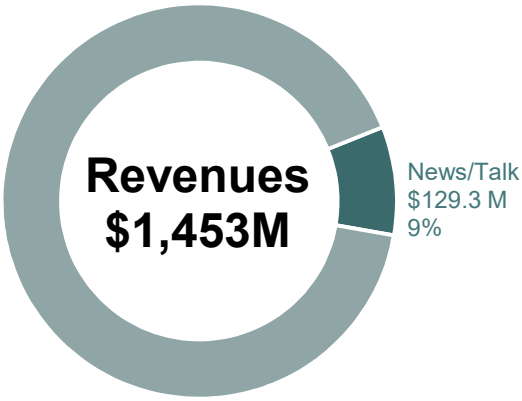
Source: Numeris audience measurements

Although CBC/SRC radio stations are not considered a format, they have been included as they hold an important radio tuning share.

The 33 News/Talk stations in Canada reported a total of $129 million in revenues in 2019, representing a 5.6% decrease from 2018. These stations represented almost 4.6% of the total commercial radio stations in Canada and reported 8.9% of the revenues. Although they reported a higher average revenue per station than the average commercial radio station, due to higher operating expenses – spoken word programming is labour intensive and involves significantly more resources to produce than musical content[15] – the average PBIT for stations operating this format is 8.0% compared to the average of 17.3% of the 719 commercial radio stations. AM talk radio stations shared 62% of talk radio revenues and had an average PBIT margin of 4.5% (compared to an average of 3.4% PBIT margin of the 119 commercial AM radio stations).

In terms of regional distribution, 46% of the revenues of the commercial radio stations in the News/Talk format were garnered by the 8 stations in Quebec. These stations reported an average revenue per station of $7.4 million in 2019 compared to $2.8 million for the 25 stations outside Quebec.

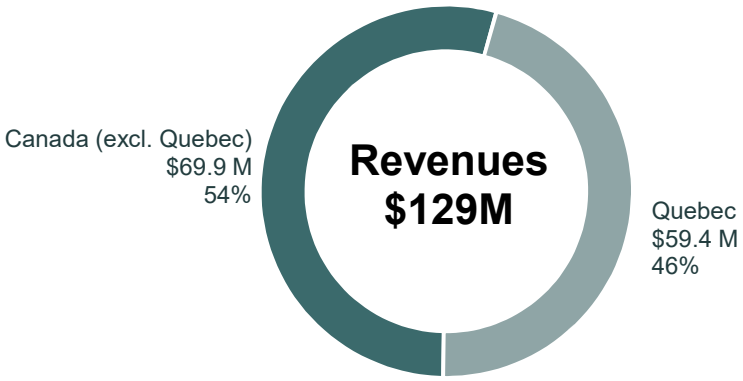
Figure 3.12 Revenues of News/Talk commercial radio stations ($ million), 2019



Source: CRTC data collection

[15] The programming of spoken word content is heavily reliant on an availability of staff to research, produce and broadcast such content. It can also be of significant relevance to the local community and allow for greater local reflection than other types of programming.

Figure 3.13 Revenues of News/Talk commercial radio stations in Canada, excluding Quebec, compared to those in Quebec ($ million), 2019



Source: CRTC data collection

vi. Spotlight: CBC/SRC

CBC/SRC Radio

Table 3.5 CBC/SRC overview, 2019

	All CBC/SRC radio stations	CBC/SRC AM radio stations	CBC/SRC FM radio stations
Number of reporting stations	64	14	50
Revenues	$325.5 M	$53.9 M	$271.5 M
2018-2019 Revenue growth	-0.6%	1.7%	-1.1%
Parliamentary appropriations (% of total revenues)	96.4%	97.4%	96.2%
Operating margin	9.1%	8.9%	9.1%
Tuning share	17.0%	3.4%	13.6%

Source: CRTC data collection, Numeris

Table 3.6 Breakdown of radio stations by market and format, 2019

Market	Format	Tuning share in the French-language market	Tuning share in the English-language market	Overall Tuning Share
French-language	ICI Radio-Canada Première	18.0%	n/a	3.6%
French-language	ICI Musique	5.0%	n/a	1.1%
French-language total		23.0%	n/a	4.7%
English-language	Radio One	n/a	14.0%	10.1%
English-language	Radio Two	n/a	3.0%	2.2%
English-language total		n/a	17.0%	17.0%
CBC/SRC total	All formats	23.0%	17.0%	17.0%
All markets	Total (all formats)	n/a	n/a	100.0%

Source: CRTC data collection, Numeris

The CBC/SRC is Canada's public broadcaster. Its 14 AM stations and 50 FM stations reported revenues of $325.5 million in 2019, a decrease of 0.6% from 2018. In 2019, Parliamentary appropriations represented 96.4% of the CBC/SRC's radio revenues.

From 2014 to 2017, national advertising sales for CBC/SRC stations represented a modest source of income. At their height in 2015, they represented 0.5% of the public broadcaster's total revenues. Since 2017, the CBC/SRC ceased receiving revenues from national advertising sales.

ICI Radio-Canada Première and its English counterpart, CBC Radio One, are popular talk radio services. ICI Radio-Canada Première, is the second most popular radio format, with 18% of French-language tuning share, while CBC Radio One is the most popular English-language radio format with 14% of English-language tuning share. Within the context of the total radio market, CBC/SRC's combined talk and music radio programming (in both languages) garnered 17% of the total tuning shares in 2019 (4.7% for French-language stations and 12.3% for the English-language stations).

CBC/SRC French- and English-language radio services are available, over-the-air, in every province, in both official languages. In many places, they are the most important source of over-the-air radio services for Canadians in the Official Language Minority (OLM) population. Without CBC/SRC

stations and rebroadcasters, the OLM population in Canada would lose 69% of radio services in their first official language spoken.

CBC/SRC Conventional television

Table 3.7 A comparison of CBC/SRC and private conventional television stations, 2019

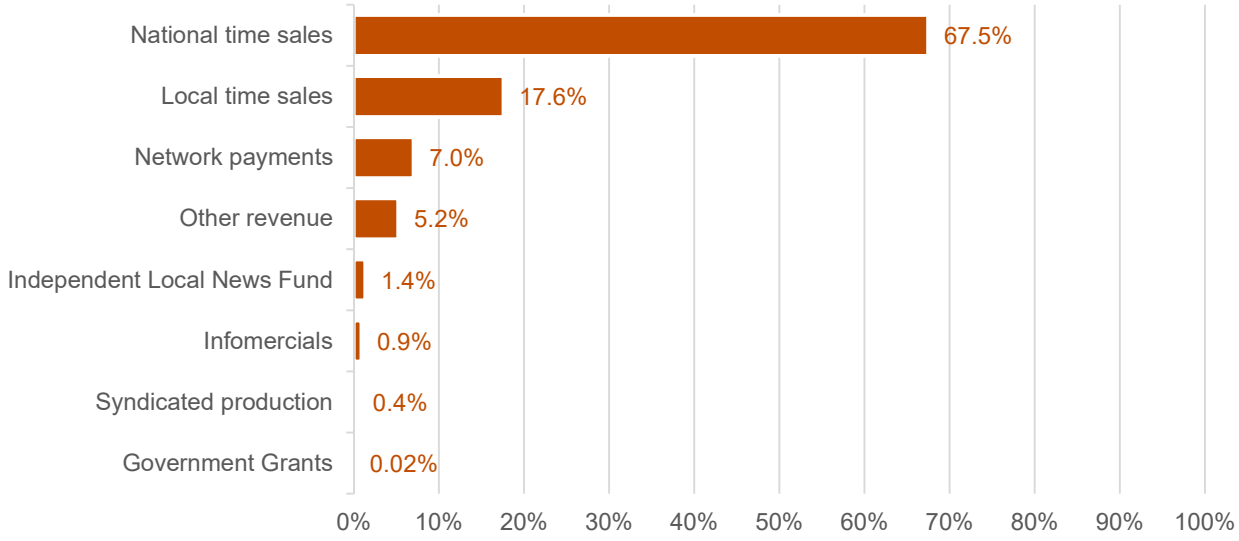
	CBC/SRC conventional television stations	Private conventional television stations
Number of reporting stations	27	93
Revenues	$947.0 million	$1.554 billion
Independent Local Programming Fund	--	$21 million
2018-2019 revenue growth	-10.9%	0.8%
CPE	$494.1 M (52.2% of revenues)	$669.9 M (43.1% of revenues)
PNI	$231.6 M (24.5% of revenues)	$78.4 M (5.0% of revenues)
Canadian News	$122.0 M (12.9% of revenues)	$374.0 M (24.1% of revenues)
PBIT/Operating Margin	11.5% (Operating Margin)	-7.0% (PBIT)
Average weekly viewing hours in the Quebec French-language market	26.0 million	61.8 million
Average weekly viewing hours in Canada (excluding the Quebec French-language market)	24.6 million	156.2 million

Source: CRTC data collection, Numeris

In 2019, the combined revenues of private and CBC/SRC conventional television stations totalled $2.5 billion, declining an average of 3.3% per year from 2015, when they were $2.9 billion.

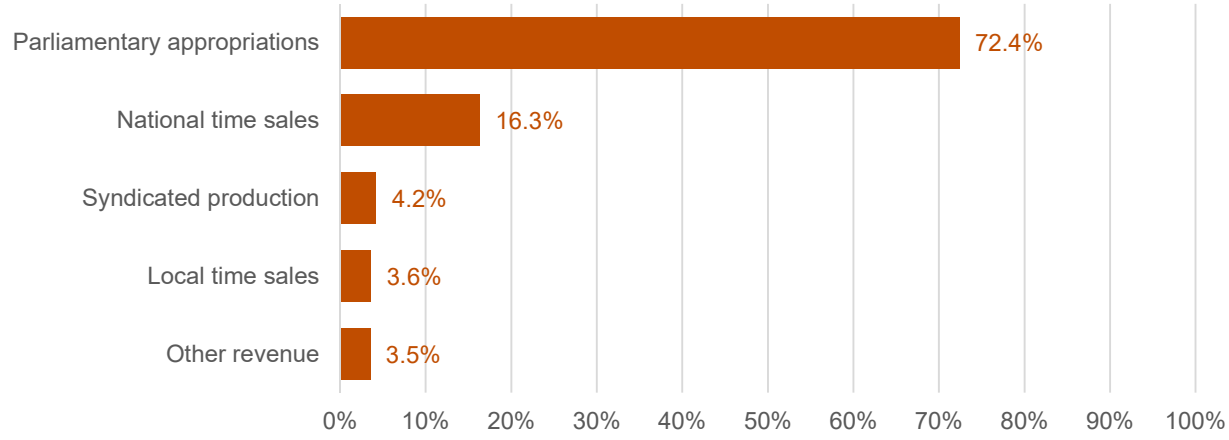
Advertising (both local and national) constituted the vast majority (85%) of the revenues of private conventional television stations and represented 20% of revenues derived from CBC/SRC conventional stations. Parliamentary appropriations represented 72% of the revenues of CBC/SRC conventional television stations in 2019. In the past five years, parliamentary appropriations allocated to the CBC/SRC's television activities have decreased, on average, by 2.5% per year while advertising revenues decreased, on average, by 3.8% per year.

Figure 3.14 Private conventional television station revenues, by source (%), 2019



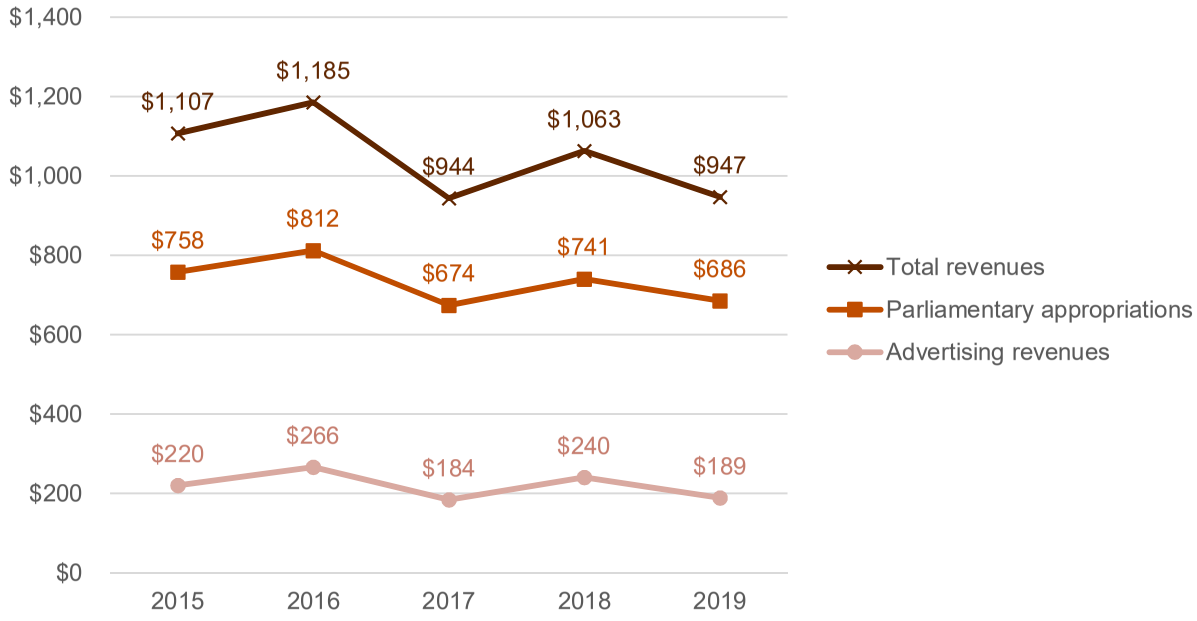
Source: CRTC data collection

Figure 3.15 CBC/SRC conventional television station revenues, by source (%), 2019



Source: CRTC data collection

Figure 3.16 CBC/SRC conventional television stations revenue by source ($ millions)



Source: CRTC data collection

"Network payments" includes net payments made to the affiliates as a reduction of the revenue. For the affiliates it should include their share of the network net payments, or the reverse as the case may be.

"Infomercials" is programming exceeding 12 minutes in length that combines entertainment or information with the sale or promotion of goods or services into a virtually indistinguishable whole.

"Syndicated production" is the revenue perceived by the sale or airing permission of a program produced by a network to another network.

"Independent Local News Fund" is made up of contributions by BDUs aimed at helping independent local television stations.

"Local time sales" are revenues from the sale of air time by local sales representative, net of advertising agency commissions and trade discounts.

"National time sales" are revenues for national advertising, net of any advertising agency commissions and trade discounts.

"Other" includes broadcast-related revenue received from the use of talent services and technical facilities.

"Parliamentary appropriations" is government funding for operating and working capital expenditures.

More information about CBC/SRC's revenues, CPE, News, PNI and tuning share for discretionary services is available on Open Data.

vii. Datasets available on Open Data

There is an Excel workbook and CSV zip related to this report that have been published on the Open Data portal. They contain the data found in the figures and tables in this section of the CMR, in addition to supplementary datasets (B-S1 to B-S9) that originate from earlier editions of the CMR.

Instructions: Use the table below to search for datasets available on Open Data that are related to this section of the CMR. When you have found the dataset, go to the Find a CMR Dataset page and download the workbook **Data - Broadcasting Sector**. Search for the 'tab name' in the Excel workbook tabs to locate the data.

Table 3.8 List of datasets available in the Data - Broadcasting Sector workbook

Tab name	Title
B-I1	Overview of industry characteristics
B-I2	Revenues and contributions by major ownership group, by sector
B-I3	Contributions to Canadian Content ($ millions)
B-I4	Overview of Internet-based audio and television services (estimated revenues)
B-F1	Distribution of total broadcasting revenues ($ million)
B-F2	Revenue distribution by region ($ millions)
B-F3	Number and share of broadcasting entities by number of sectors where service is offered
B-F4	Share of revenues generated by broadcasting entities by number of sectors where service is offered
B-F5	Contributions to Canadian content by source ($ million)
B-F6	Contributions to Canadian content compared to total broadcasting revenues ($ millions)
B-F7	Internet-based audio services estimated revenues in Canada ($ million)
B-F8	Internet-based video services estimated revenues in Canada ($ million)
B-F9	Third-language commercial radio station revenues (%) and number of stations by market
B-F10	Tuning share (as a percentage of total tuning) of the most popular French-language market formats
B-F11	Tuning share (as a percentage of total tuning) of the most popular English-language market formats
B-F12	Revenues of News/Talk commercial radio stations ($ million)
B-F13	Revenues of News/Talk commercial radio stations in Canada excluding Quebec compared to those in Quebec ($ million)
B-F14	Private conventional television station revenues, by source (%)
B-F15	CBC/SRC conventional television station revenues by source (%)
B-F16	CBC/SRC conventional television station revenues by source ($ millions)
B-T1	Overview of broadcasting revenues and contributions to Canadian content ($ millions)
B-T2	Overview of radio, television and broadcasting distribution revenues, growth and PBIT/operating margin
B-T3	Commercial radio overview
B-T4	Radio ownership market composition
B-T5	CBC/SRC overview
B-T6	Breakdown of radio stations by market and format
B-T7	Overview of conventional television stations
B-S1	Broadcasting revenues ($ millions)

B-S2	Percent of total broadcasting revenues, by ownership groups
B-S3	Percentage (%) of total commercial radio revenues by broadcaster
B-S4	Percentage (%) of television revenues by broadcaster
B-S5	Total broadcasting revenues by type of service ($ million)
B-S6	PBIT/EBITDA margins by type of service (%)
B-S7	Contributions to Canadian content by source ($ million)
B-S8	Revenues ($ million) of commercial radio stations, by radio market type
B-S9	CBC/SRC conventional television revenues ($ millions)

viii. Methodology

CRTC data collection

The CRTC data collection has sourced its statistical and financial data from the annual returns provided by commercial and CBC/SRC radio stations, conventional television stations, discretionary services, and on-demand services for the broadcast year which ended August 31, 2019.

CBC/SRC revenues include parliamentary appropriations for conventional television.

Annual returns for the broadcast year ending 31 August 2019 were required to be filed with the Commission by 30 November 2019. Data received subsequent to the compilation date is not reflected in this publication. The data reported for previous years has been updated to reflect any additional or adjusted information received by the Commission after the 31 August date for prior years' publications.

Pursuant to Broadcasting Regulatory Policy CRTC 2015-86, the term “discretionary services” now encompasses all currently licensed pay, specialty and discretionary services, while the term “on-demand service” now encompasses all licensed pay-per-view and video-on-demand services.

Media Technology Monitor (MTM)

MTM measures Canadians’ media technology adoption and use at two points in time to monitor changes in media penetration and use over the year. Telephone interviews are conducted with a regionally representative sample of Canadians who have a landline telephone service and those who rely solely on cell phone service. The fall survey includes 8,000 Canadian adults (4,000 Anglophones and 4,000 Francophones). Of those 8,000 respondents, 2,976 have also completed an online survey introduced in the fall. An independent sample of 4,000 Canadians (2,000 Anglophones and 2,000 Francophones) is surveyed in the spring.
www.mtm-otm.ca

The CMR uses data collected from the fall survey unless stated otherwise.

Omdia (formerly, Ovum)

Download-based audio services

Revenues of download-based audio services are estimated based on publicly available data such as company annual reports in addition to the country’s other media revenues such as physical music album sales and live music attendance revenues. These estimates are further refined using data about online audio subscriptions in the market as a benchmark.

In some cases where information is unavailable, Omdia based its revenue estimations on the service provider’s market shares and revenues reported in a similar country.

Streaming audio services

Streaming audio services comprise different business models for which different methodologies apply. The total revenues of subscription-based digital streaming, advertisement-based digital streaming, and audio-video streams are added to determine total revenues of streaming audio services.

- Revenues of subscription-based digital streaming services (such as Spotify) are estimated based on publicly available data, including the number of subscribers and service rates/pricing, such as company annual reports and news articles. These are then used to estimate an average monthly subscription revenue per subscriber, considering all available service plans from a given provider, and distributed to the estimated number of subscribers. The estimated average monthly subscription revenue per subscriber is then multiplied by the subscriber estimate.
- Revenues of advertisement-based digital streaming and video streams are estimated based on publicly available data about traffic, advertising load and pricing, as well as video traffic and digital advertising forecasts. These estimates are further refined based on each entity's performance in other video segments.

SVOD services

Subscription-based (SVOD) services revenues are estimated based on publicly available data on the number of subscribers and services rates/pricing such as company annual reports and news articles. These are then used to estimate an average monthly subscription revenue per subscriber considering all available service plans from a given provider and distributed among the estimated number of subscribers. The estimated average monthly subscription revenue per subscriber is then multiplied by the subscriber estimate.

TVOD services

Transactional (TVOD) services revenues are estimated based on publicly available data such as company annual reports in addition to the country's other media revenues such as home video and pay TV revenues. These estimates are further refined using data about online video subscriptions in the market as a benchmark.

In some cases where information is unavailable, Omdia based its revenue estimations on the service provider's market shares and revenues in a country similar to the one subject to analysis.

AVOD services

Advertising-based services' revenues are estimated using publicly available and, where necessary, quantitatively modelled data (informed by analyst knowledge and assumptions) about advertising load, pricing and market share. These are then applied to video traffic and digital advertising forecast models to derive revenue estimates. These estimates are further refined based on each entity's performance in other video segments.

Omdia defines AVOD revenue as revenue generated through the sale of in-stream video advertising (i.e., pre-roll, mid-roll, post-roll, and in-player overlays) delivered over the internet. This excludes out-of-stream video advertising (e.g., video ads that play independently of video content, such as in-read and in-feed social video ad formats). This revenue is from advertiser spending.

The YouTube revenue figure represents YouTube in-stream video advertising revenue, which comprises revenue generated through the delivery of in-stream video advertising (i.e., pre-roll, mid-roll, post-roll, and in-player overlays) on YouTube. This does not include revenue generated by static display, dynamic display ads, or search ads delivered on the YouTube platform. This revenue is from advertiser spending.

The broadcaster company revenue figures represent the total in-stream video advertising revenue generated by the combined total of each player's online video properties.

The Facebook revenue figure comprises revenue generated through the delivery of in-stream video advertising (i.e., mid-rolls) placed in videos viewed on the Facebook platform. This includes videos viewed within the News Feed, Suggested Videos, and Facebook's recently launched Watch platform. This revenue is from advertiser spending.

Out-of-stream video advertising revenue comprises revenue generated through the delivery of out-of-stream advertising (i.e., video ads that are served outside of the video player). This includes in-feed video advertising on all social networks. It also includes out-of-stream video advertising placed on digital publishers' sites and interstitial video advertising delivered within mobile apps. This revenue is from advertiser spending.

Mobile video advertising comprises revenue from in-stream video advertising (pre-rolls, mid-rolls, post-rolls) and out-of-stream video advertising delivered over the internet to, viewed on, and formatted for mobile devices.

Desktop and laptop video advertising comprises revenue from in-stream video advertising (pre-rolls, mid-rolls, post-rolls) and out-of-stream video advertising delivered over the internet to desktop PCs and laptops.

Connected TV video advertising comprises revenue from in-stream video advertising (pre-rolls, mid-rolls, post-rolls) delivered over the internet to smart TVs, media streamers, games consoles, and connected set-top boxes.

Omdia has restated past years Internet-based video revenue estimates, to integrate newly publicly disclosed information from entities offering services and collecting revenues in Canada. This may affect year over year comparisons.

Numeris

Audience measurement data is important not only to industry stakeholders, who use the data to help sell air time to advertisers, but also to the CRTC, which uses the data to assess the effectiveness of its policies by understanding the reach of programming across the country and across various demographics.

- Television audience measurement data sourced from Numeris was collected by portable people meter (PPM) devices.
- Radio audience measurement data is based on Numeris radio diary data from the fall surveys across Canada, Monday to Sunday from 5 am to 1am, with participants aged 12 or older.

The Numeris data presented by linguistic market divides Canada into two sections: (1) all of Canada, excluding Francophone respondents in Quebec; and (2) exclusively Francophones respondents in Quebec.

The television seasons used by Numeris were the following:

- 26 August 2013 to 31 August 2014, includes all persons 2+, Monday to Sunday, 2 a.m. to 2 a.m.

- 1 September 2014 to 30 August 2015, includes all persons 2+, Monday to Sunday, 2 a.m. to 2 a.m.
- 31 August 2015 to 28 August 2016, includes all persons 2+, Monday to Sunday, 2 a.m. to 2 a.m.
- 29 August 2016 to 27 August 2017, includes all persons 2+, Monday to Sunday, 2 a.m. to 2.a.m.
- 28 August 2017 to 26 August 2018, includes all persons 2+, Monday to Sunday, 2 a.m. to 2 a.m.
- 27 August 2018 to 30 August 2019, includes all persons 2+, Monday to Sunday, 2 a.m. to 2 a.m.

Definitions

AVOD refers to advertising video-on-demand service. This is an Internet-based service model in which a client typically has free access to content but is exposed to in-stream advertisements (e.g., YouTube).

BDU revenues refers to revenues from basic and non-basic services and excludes Internet-based service revenues, such as Netflix, Crave and Club Illico, but include IPTV services such as Bell Fibe and Telus Optik TV.

Broadcasting contributions to Canadian content include Canadian content development (CCD) contributions, Canadian programming expenditures (CPE), contributions to the creation and production of Canadian programming from BDUs and tangible benefits from ownership transactions in the form of CCD contributions and CPE.

Canadian programming expenditures refers to expenditures used to create Canadian programming and to ensure that a diversity of voices and interests are represented in our national broadcasting system. The policy objectives of the *Broadcasting Act* include encouraging the development of Canadian expression and ensuring that each element of the Canadian broadcasting system contributes to the creation and presentation of Canadian programming, in an appropriate manner. As such, Canadian broadcasters are required to allocate portions of their annual broadcasting revenues to expenditures on Canadian programming.

Canadian content development (CCD) contributions are financial contributions made by radio broadcasters to support the development and promotion of Canadian musical and spoken word content for broadcast.

Direct-to-home (DTH) refers to satellite service providers.

The term **discretionary services** encompasses all currently licensed pay, specialty and discretionary services, pursuant to Broadcasting Regulatory Policy CRTC 2015-86.

Earnings before interest, taxes, depreciation and amortization (EBITDA) is a metric used to measure financial performance. It is expressed as a percentage of total revenues.

IPTV refers to Internet protocol television such as Bell Fibe and Telus Optik TV, but excludes Internet-based services, such as Netflix, Crave and Club Illico.

The term **on-demand services** encompasses all licensed pay-per-view and video-on-demand services, pursuant to Broadcasting Regulatory Policy CRTC 2015-86.

PBIT refers to profit before interest and taxes.

Program of national interest (PNI) are programs including drama and comedy, long-form documentary, and specific Canadian award shows that celebrate Canadian creative talent. For French-language broadcasters, PNI also include music video and variety programs:

- Long-form documentary (category 2b);
- Drama and comedy (category 7);
- French-language music, dance and variety programming (categories 8 and 9); and
- English-language award shows (subset of category 11).

SVOD refers to subscription-based video-on-demand service. This is an Internet-based service model in which a client pays a subscription fee to gain access to a library of content. This category includes services that air the content of the library according to a linear schedule (e.g., Sportsnet Now) and services that permit a user to choose from a catalogue of content that is available at any time (e.g., Netflix).

Total broadcasting revenues include revenues from private commercial and CBC/SRC conventional television, discretionary and on-demand television, private commercial and CBC/SRC radio, as well as broadcasting distribution undertakings (BDU). They do not include Internet-based services unless stated otherwise.

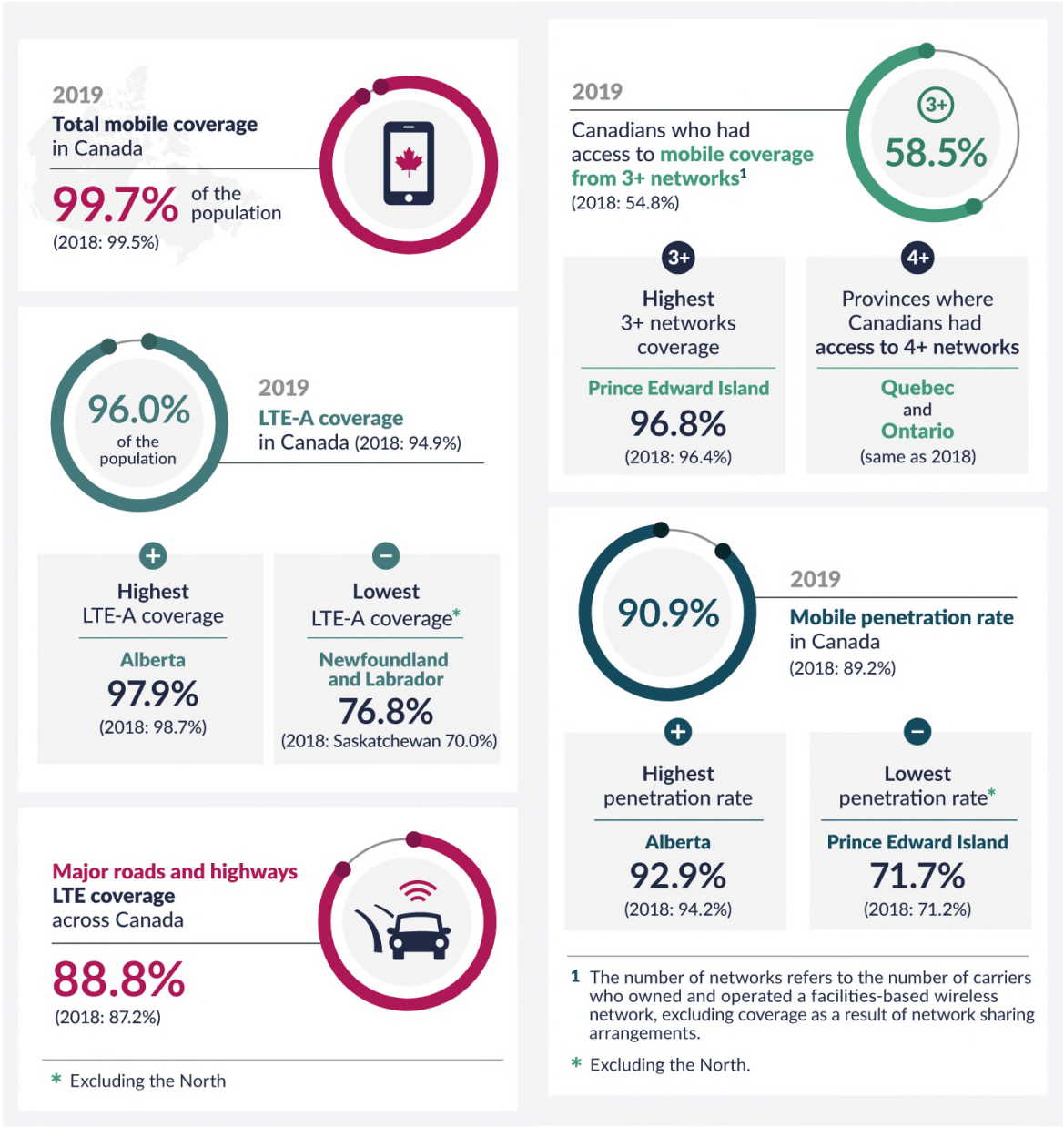
TVOD refers to transactional video-on-demand service. This is an Internet-based service model in which a client pays for specific content but generally does not pay to access the service itself (e.g., iTunes, Microsoft Movies & TV, and the PlayStation Network).

LTE AND BROADBAND AVAILABILITY

LTE and Broadband Availability

i. Mobile coverage and availability

Infographic 4.1 Highlights of mobile coverage, 2019



Source: CRTC data collection

For over a decade, more than 99% of Canadians have had access to mobile services, provided using various network technologies. However, the coverage availability by technologies such as HSPA+, LTE and LTE-A, varied significantly among the provinces and the North. For example, 97.9% of Albertans but only 76.8% of Newfoundlandians and Labradorians had access to LTE-A in 2019. Access to mobile services reflects, among other things, the investments made by the industry to

provide coverage across the country, to foster innovation and to create a more competitive marketplace.

The availability of technologies such as LTE and LTE-A generally results in faster download and upload speeds and lower latency. This enhances the consumer experience, especially for consumers using data-intensive applications.

Anticipation continues to grow around the introduction of 5G which had been announced throughout 2019. However, limited capital expenditures were reported in 2019, and 5G has yet to be made readily available to Canadians across Canada. The CRTC will be monitoring progress on this front to provide updates in future reports.

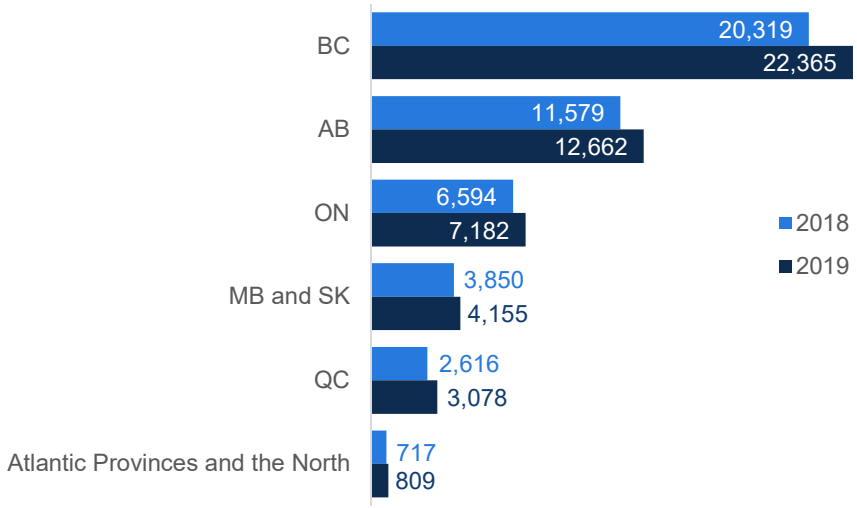
With respect to network choice, Canadians in most provinces had access to two or three facilities-based networks; however, those in the North (Yukon, Northwest Territories, and Nunavut) generally had access to only one network. In 2019, 96.8% of Prince Edward Islanders had a choice of at least three facilities-based networks[16], while only 3.2% of Saskatchewanians had access to the same number of facilities-based networks. Coverage availability by the number of facilities-based networks, by province, can be found on Open Data.

The penetration rate represents the number of subscribers as a percentage of the population. This metric reflects, among other things, the saturation and maturity of the marketplace, service providers' ability to successfully market and sell their services, a population's willingness to adopt mobile communications and the potential for future growth. Penetration rates by province and territory can be found in Open Data.

[16] The number of networks refers to the number of carriers who owned and operated a facilities-based wireless network, excluding coverage as a result of network sharing arrangements. This is a measure of facilities-based competition and does not illustrate the number of companies who marketed and offered mobile services in any particular province/territory or nationally.

WiFi hotspots are an important service that telecommunications service providers (TSPs) use to differentiate their services from each other and to extend their brands. Hotspots are locations where Internet access is offered to the public via 802.11 WiFi technology. In 2019, there were 51,001 hotspots available throughout the country and only 1.5% (750) of them required paid access.

Figure 4.1 Number of free WiFi hotspots in Canada, by region



Source: CRTC data collection

"Free" is defined as there being no charge for at least 30 minutes of access (even if this access requires being a paid customer at the location).

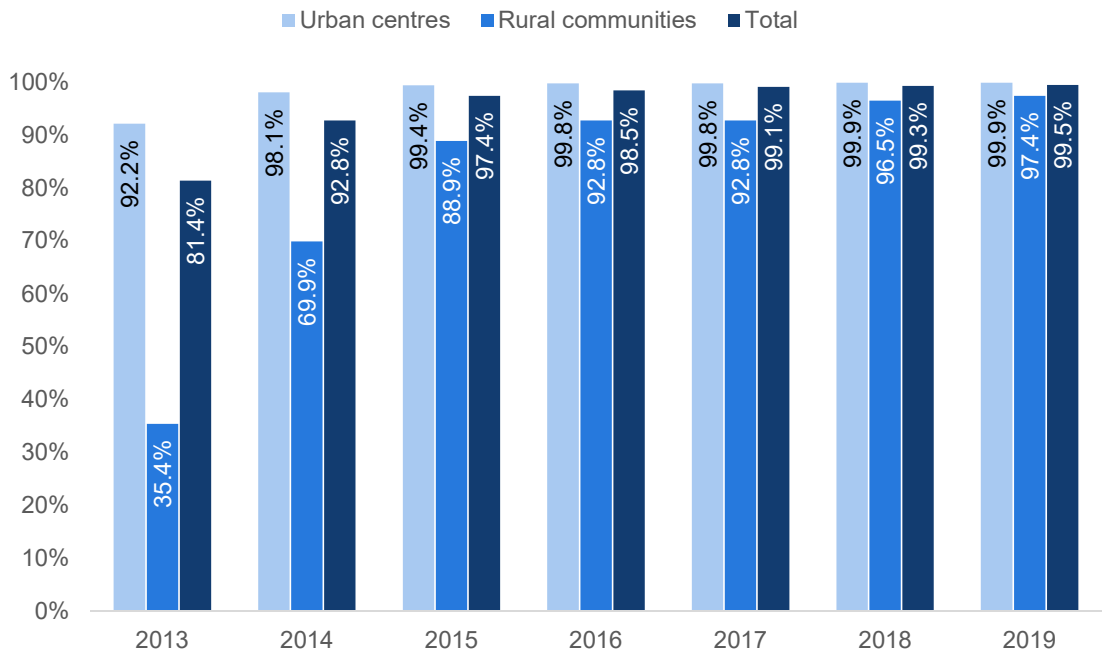
Only hotspots provided by the major TSPs are included in the figure above. It does not include hotspots that only provide access to a TSP's existing customers. It may exclude independently-run free hotspots provided by hotels, restaurants and other public facilities.

Data for Atlantic Provinces and the North has been aggregated to protect confidentiality.

Over 99% of Canadians have access to LTE networks, but this availability varies by location. Canadians living in urban centres and in the provinces have greater access to these networks than those living in rural communities and or the territories, as is evident in the two figures below.

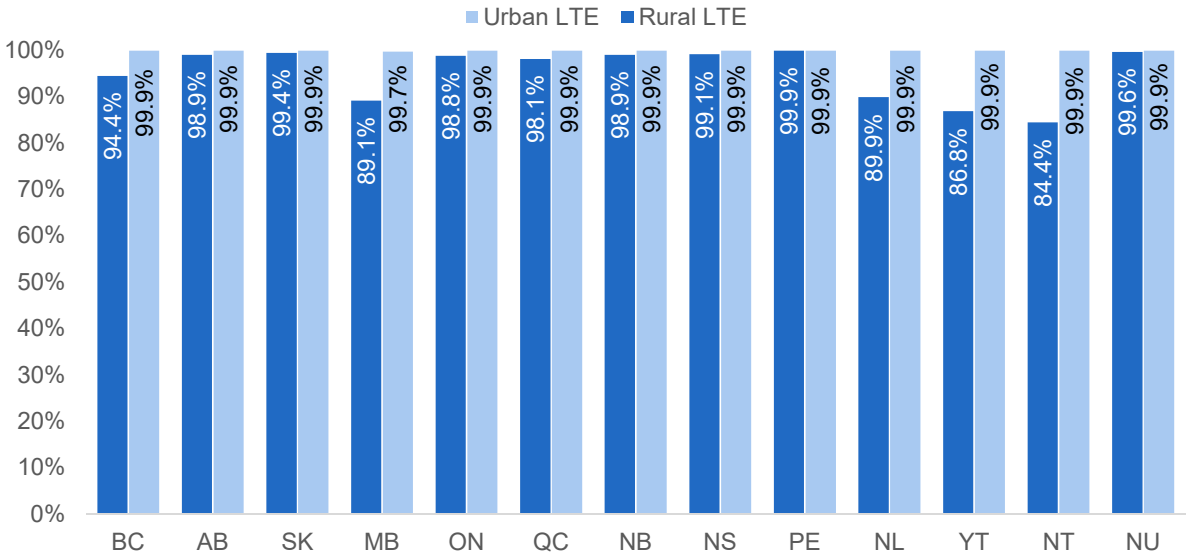
In 2013, LTE was available to over 92% of Canadians living in urban centres compared to only 35.4% in rural communities; it took over five years for LTE to reach nearly the same access availability in both urban centres and rural communities. As carriers continue to invest in their networks, more people will have access to advanced mobile networks regardless where one lives.

Figure 4.2 LTE population coverage in Canada, urban centres vs rural communities (%)



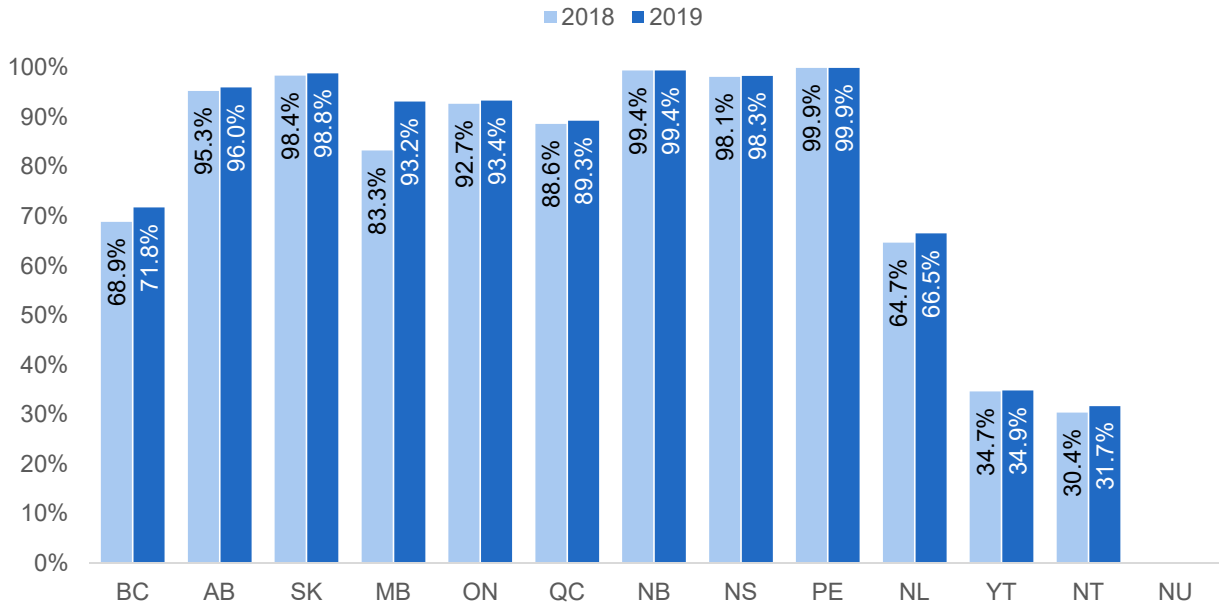
Source: CRTC data collection

Figure 4.3 LTE population coverage, by region, urban centres vs rural communities (%), 2019



Source: CRTC data collection

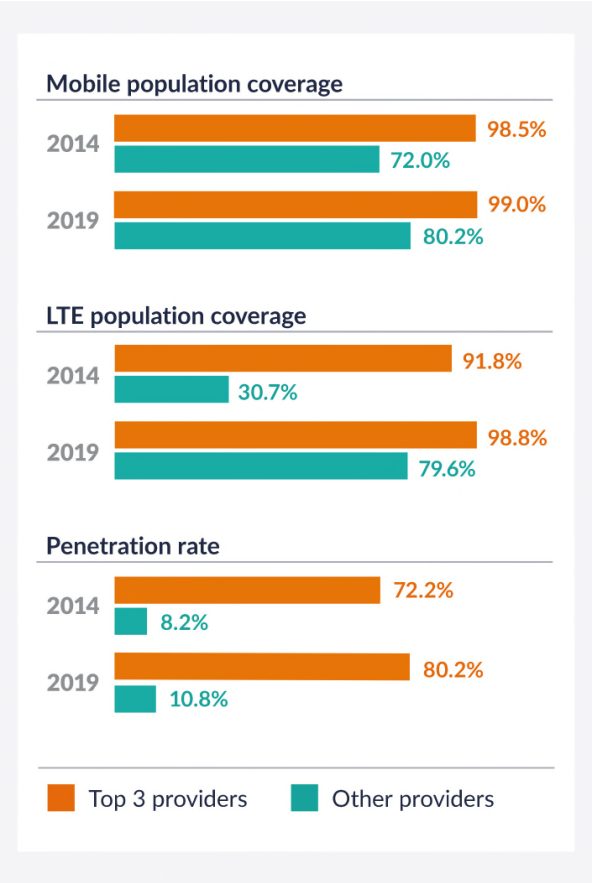
Figure 4.4 LTE coverage of major roads and highways (%), by region



Source: CRTC data collection

Competitive lens/landscape

Infographic 4.2 Mobile coverage, Top 3 and other service providers, 2014 vs 2019

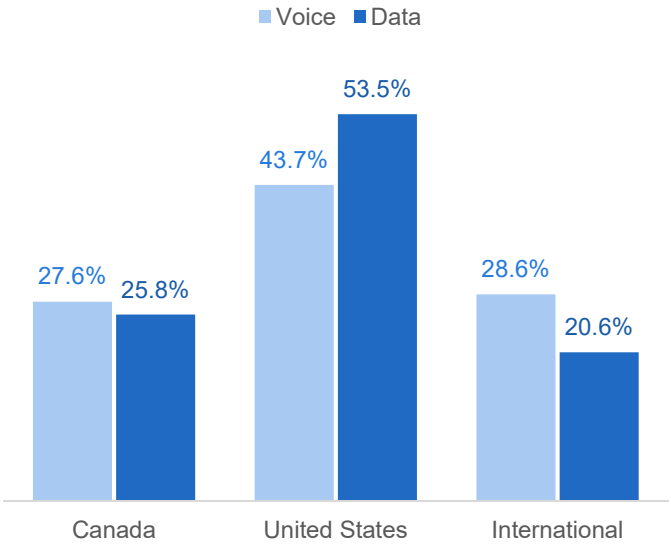


Source: CRTC data collection

Generally, the Top 3 and the other providers try to extend their service coverage across Canada in a cost-efficient manner by entering into sharing arrangements for support structures, antenna sites and networks as well as by establishing roaming arrangements. Roaming arrangements enable subscribers to have access to service outside their mobile service provider's home network, while network sharing arrangements also share the cost of building an extensive nationwide network. If a subscriber is outside its service provider's network and is connected to another WSPs' network, then the subscriber is said to be "roaming".

The figure below show the percentage of voice minutes and data traffic (excluding SMS and MMS traffic), derived from roaming in Canada, in the United States and internationally. Roaming voice calls and data traffic continued to decline in Canada and the United States however is increasing internationally.

Figure 4.5 Roaming voice and data traffic by destination (%), 2019

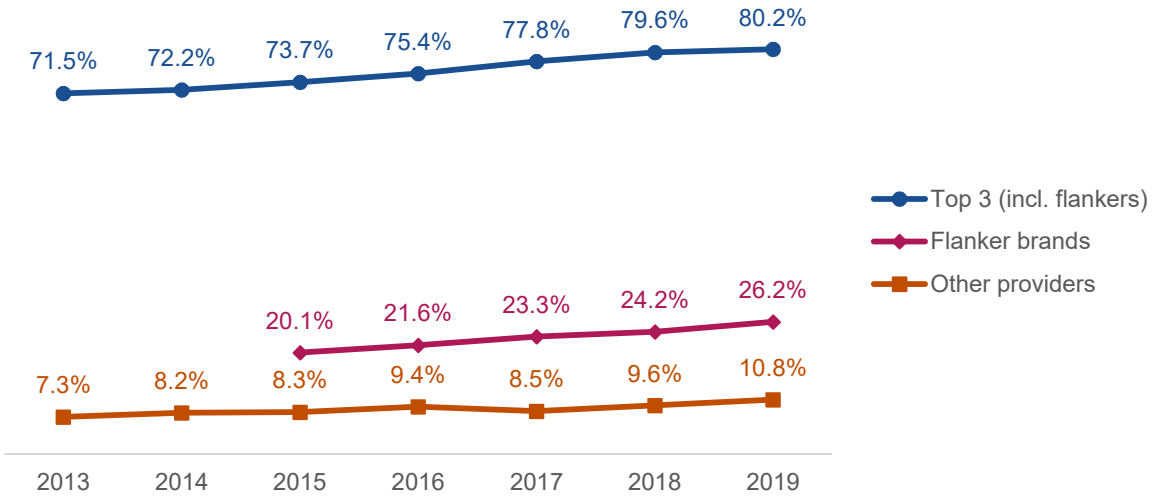


Source: CRTC data collection

Canada's wireless service market is dominated by the Top 3. They provide significantly more coverage and achieve higher subscriber penetration rates than the other providers in almost every province and territory, Saskatchewan being a notable exception. In 2019, the Top 3 and other providers offered coverage to 99.0% and 80.2% of the population, respectively. There was also a similar disparity between the two groups with respect to Canada-wide LTE coverage. For LTE, the Top 3 and other providers offered coverage to 98.8% and 79.6% of the population respectively.

The disparity between the Top 3 and other providers was also evident in penetration rates. From 2015 to 2019, the Top 3's subscriber base grew from 73.7% of the population to 80.2%, while the other service providers' base increased at slightly a faster pace, from 8.3% of the population to 10.8% over the same period.

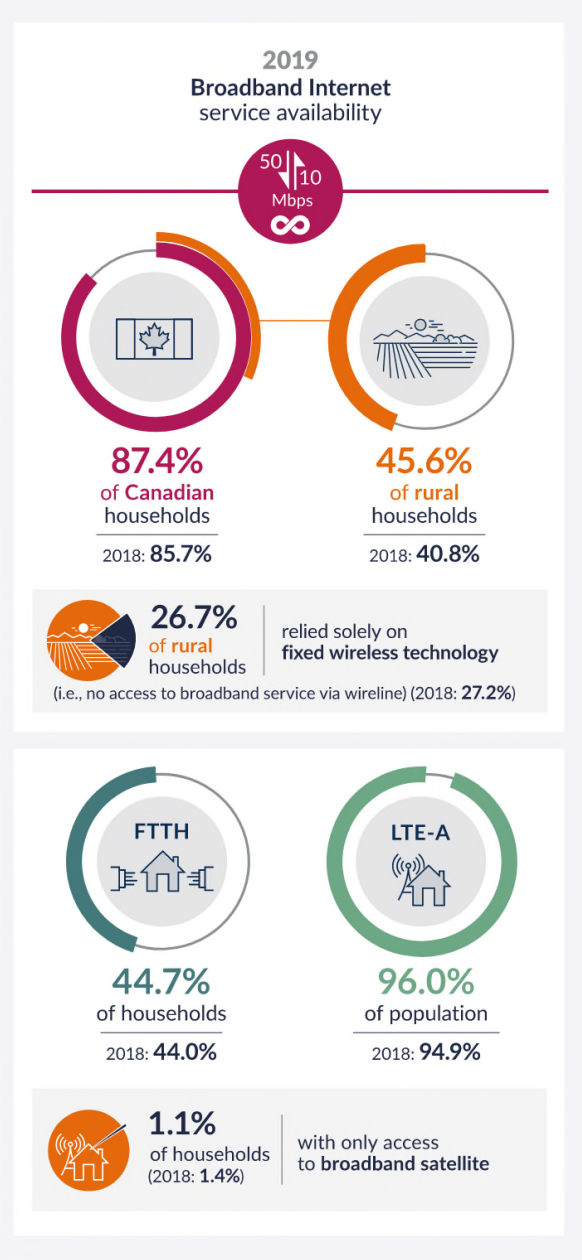
Figure 4.6 Subscriber penetration rates as a percentage of total population (%)



Source: CRTC data collection

ii. Broadband coverage and availability

Infographic 4.3 Overview of broadband Internet service availability, 2019



Source: Innovation, Science and Economic Development Canada (ISED), CRTC data collection and 2016 Census data

Broadband deployment continued to improve. Rural broadband availability of speeds 50Mbps and higher saw the greatest improvements, growing from 43.0% to 65.4%. Broadband availability in First Nations reserves also saw significant growth, rising from 32.3% to 46.5%. The Commission's target of 50 Mbps download, 10 Mbps upload, and unlimited data transfer capacity was available to 98.6% of the population in urban areas, an increase from 97.7% in 2018, and 45.6% of the population in rural areas, an increase from 40.8% in 2018.

According to the Broadband Measurement Project, the majority of broadband service offerings in Canada met or exceeded their advertised speeds, regardless of the access technology used. More details of this project and the results of the first phase can be found on the CRTC website, in the Broadband Measurement Project section.

Unless otherwise noted, broadband service availability figures exclude wireless mobile technology. "Satellite access services" in this section refer to direct-to-home (DTH) satellite, and not to the technology used to connect communities to the Internet.

National availability

Table 4.1 Key telecommunications availability indicators (% of population for mobile services and % of households for Internet services)

Type of Service	Subtype	2016	2017	2018	2019
Mobile broadband	HSPA+	99.4	99.4	99.5	99.5
	LTE	98.5	99.0	99.3	99.5
	LTE-A	83.0	92.0	94.9	96.0
Wireline broadband	DSL	77.0	72.3	70.4	83.9
	Cable modem	84.7	83.7	84.2	84.8
	FTTH	27.5	35.1	44.0	44.7
Wireline and fixed wireless	Total	98.4	98.7	98.8	98.9
Universal service objective	50 Mbps download 10 Mbps upload unlimited data transfer option	84.3	84.1	85.7	87.4
BDU services	IPTV	75.2	77.4	79.1	79.8
	Digital satellite	National	National	National	National

Source: Innovation, Science and Economic Development Canada (ISED) and CRTC data collection

Notes: The vast majority of areas that had 50/10 Mbps service also had unlimited monthly data transfer options. Mobile availability is depicted as a percentage of population.

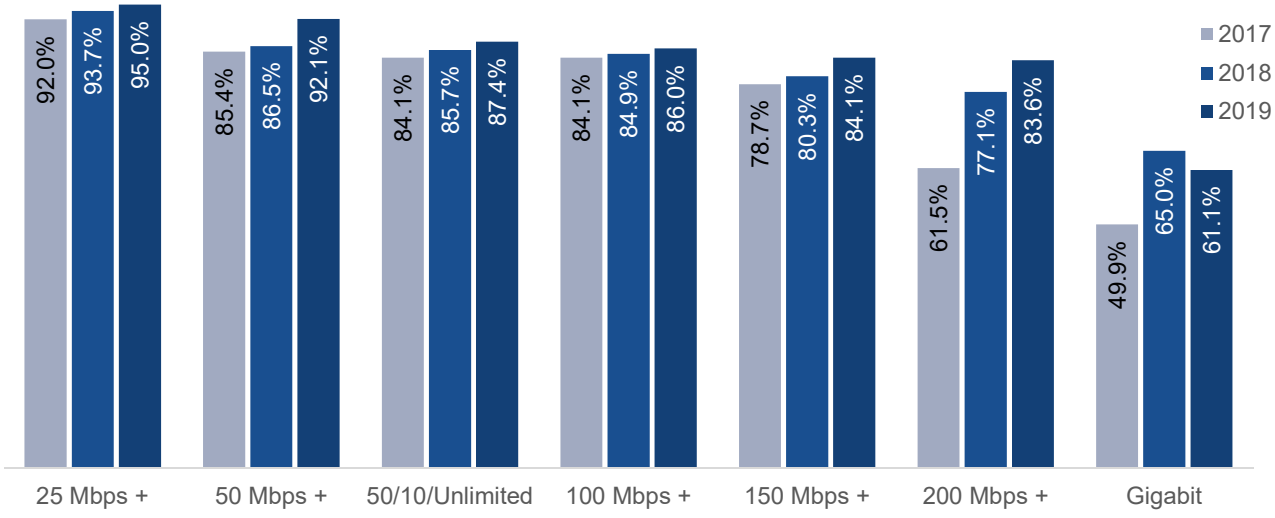
Fibre-based Internet service availability continued to increase, going from 44.0% in 2018 to 44.7% in 2019. These FTTH deployments occurred mainly in large urban areas. Incumbent TSPs used their fibre infrastructure to make gigabit service available to over 6.9 million households, while cable-based carriers used mainly DOCSIS 3.1 technology to make gigabit service available to over 6.5 million households. However, in general, fibre-based gigabit services have far faster upload speeds than their DOCSIS-based counterparts.

Incumbent TSPs and other non-traditional television providers continued to increase the availability of IP technology-based television service (IPTV), proving a source of competition to traditional cable-based systems, while leveraging their broadband infrastructure to provide services outside of Internet and legacy phone service.

Services at speeds meeting or exceeding the Commission's target of 50 Mbps download and 10 Mbps upload with unlimited monthly data transfer were available to 87.4% of Canadian households. However, the availability varied greatly between urban and rural areas, with only 45.6% of rural households having access to this kind of service, versus 98.6% in urban areas. Subscriptions to a 50/10 Mbps service with unlimited monthly data transfer increased to 35.4% of Canadian households in 2019, compared to 29.0% in 2018.

The total footprint for all areas with access to broadband service speeds between 25 Mbps and above and 200 Mbps and above saw improvement in 2019. The drop in gigabit service availability in 2019 is attributed to improvements in data accuracy.

Figure 4.7 Broadband service availability by speed (% of households)



Source: Innovation, Science and Economic Development Canada (ISED) and CRTC data collection

The availability of broadband services at higher speeds has been expanding in Canada. This graph excludes broadband services provided through satellite and mobile technologies.

Gigabit service is any service with a downstream data rate at or above 940 Mbps.

Availability of broadband by province and territory

Availability of higher-speed broadband services (≥50Mbps) varied by province and territory. Alberta, Manitoba, British Columbia, and Quebec had the highest availability of 50 Mbps+ service, while the North, Nova Scotia, and Newfoundland and Labrador, had the least coverage at the same speed.

In 2019, Newfoundland and Labrador saw the greatest improvement in gigabit broadband service availability. Gigabit service was available to 68.8% of households in Newfoundland and Labrador in 2019, an increase from 59.2% in the previous year. From 2018 to 2019, households in Ontario also saw considerable improvement, increasing from 77.3% to 83.1%.

The vast majority of areas that had broadband service had access to speeds of 5 Mbps or faster. Nunavut saw substantial growth in household availability of 5 Mbps or faster service, growing from 49.7% to 99.6% but did not have access to speeds of 25 Mbps or faster.

Table 4.2 Broadband service availability, by speed and province/territory (% of households), 2019

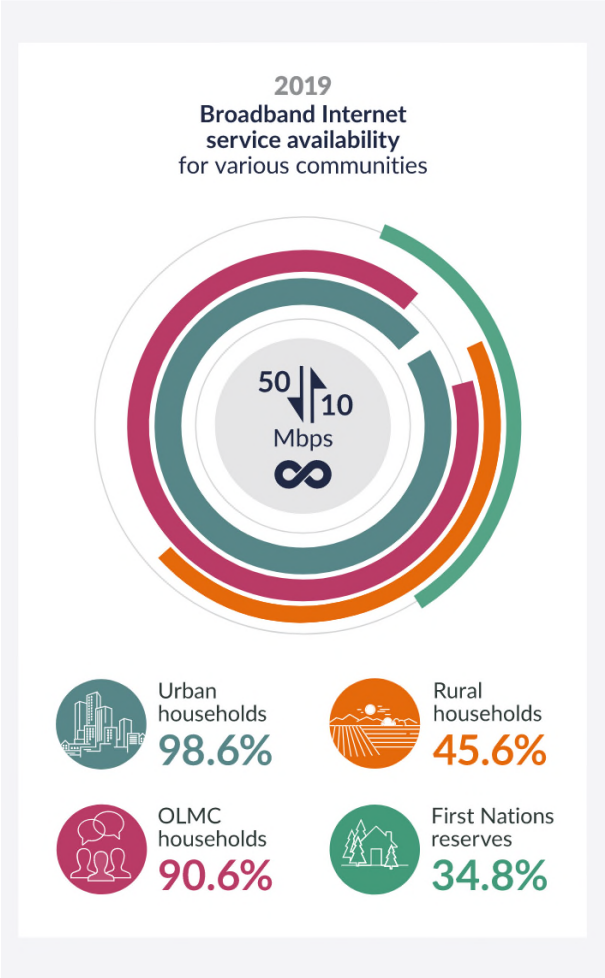
Province/Territory	5 Mbps +	25 Mbps +	50 Mbps +	50/10/ unlimited	100 Mbps +	Gigabit
British Columbia	98.3	96.4	94.1	93.5	93.5	57.7
Alberta	99.7	98.6	94.7	87.8	83.6	33.5
Saskatchewan	97.3	90.3	83.3	71.1	57.6	0.0
Manitoba	98.2	95.6	94.2	73.0	72.8	12.1
Ontario	98.6	95.8	91.8	87.7	86.8	83.1
Quebec	98.4	95.8	94.1	91.8	90.5	54.2
New Brunswick	94.8	92.1	90.8	81.2	81.1	81.1
Nova Scotia	93.9	79.2	79.2	78.4	78.4	75.9
Prince Edward Island	95.1	90.0	86.2	61.3	61.3	59.3
Newfoundland and Labrador	91.1	82.6	82.4	73.9	73.6	68.8
Yukon	93.2	60.8	60.8	0.0	60.8	0.0
Northwest Territories	97.4	61.8	61.8	0.0	53.7	0.0
Nunavut	99.6	0.0	0.0	0.0	0.0	0.0
Canada	98.2	95.0	92.1	87.4	86.0	61.1

Sources: Innovation, Science and Economic Development Canada (ISED) and CRTC data collection

Because satellite service has a national footprint, it is excluded from this table.

Availability of broadband in various communities

Infographic 4.4 Points of interest in broadband Internet service availability for various communities, 2019



Source: Innovation, Science and Economic Development Canada (ISED) and CRTC data collection

For the purposes of this report, the official language minority population is defined in terms of the first official language spoken metric as defined within the Official Languages Act, using data from the 2016 Census. In all provinces and territories except Quebec, the official language having minority status is French. The presence of official language minority populations within a 25km area of an official minority language school was used to model and map OLMCs.

First Nations reserve areas, representing total population and dwellings on reserves according to Statistics Canada, were used in the analysis, as such, it may differ from other official sources.

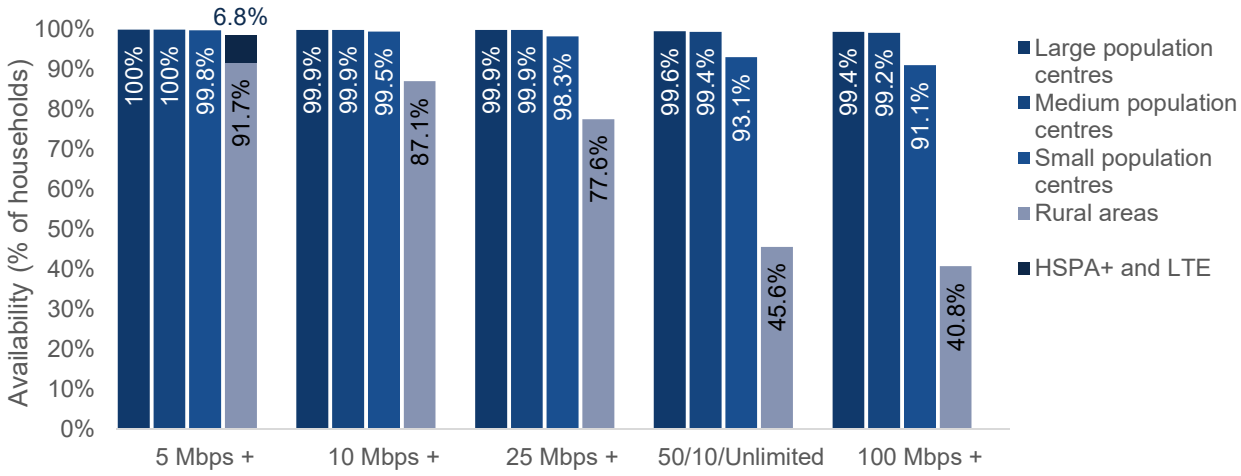
As previously stated, services at speeds meeting or exceeding the Commission's target of 50 Mbps download and 10 Mbps upload with unlimited monthly data transfer were available to 87.4% of Canadian households. However, rural and small centre populations continued to trail behind the urban population in terms of availability of these broadband services, with only 45.6% of rural households having access to these, and small population centres having 93.1% availability. This is in contrast to the near-ubiquitous availability of such services in medium and large centres. Although there is a gap in availability of 50/10/unlimited service between urban and rural, this divide is shrinking.

In 2019, 90.6% of the OLMC population across Canada had access to 50/10/unlimited Internet service with OLMC's in British-Columbia and Alberta leading with 97.5% and 93.9% availability, respectively.

Availability of 50/10/unlimited service in First Nations reserves was behind rural areas with only 34.8% having access to this service. This service was not accessible to First Nations reserves in Newfoundland and Labrador, Yukon, and Northwest Territories.

Advancements in the deployment of rural broadband were mainly for 50+ Mbps speeds, increasing from 43.0% to 65.4% availability for 50 Mbps or faster. Deployments in lower-speed categories did not increase as appreciably, due to being centred mainly on already-built areas with slower service speeds.

Figure 4.8 Broadband service availability – urban versus rural (% of households), 2019



Sources: Innovation, Science and Economic Development Canada (ISED) and CRTC data collection

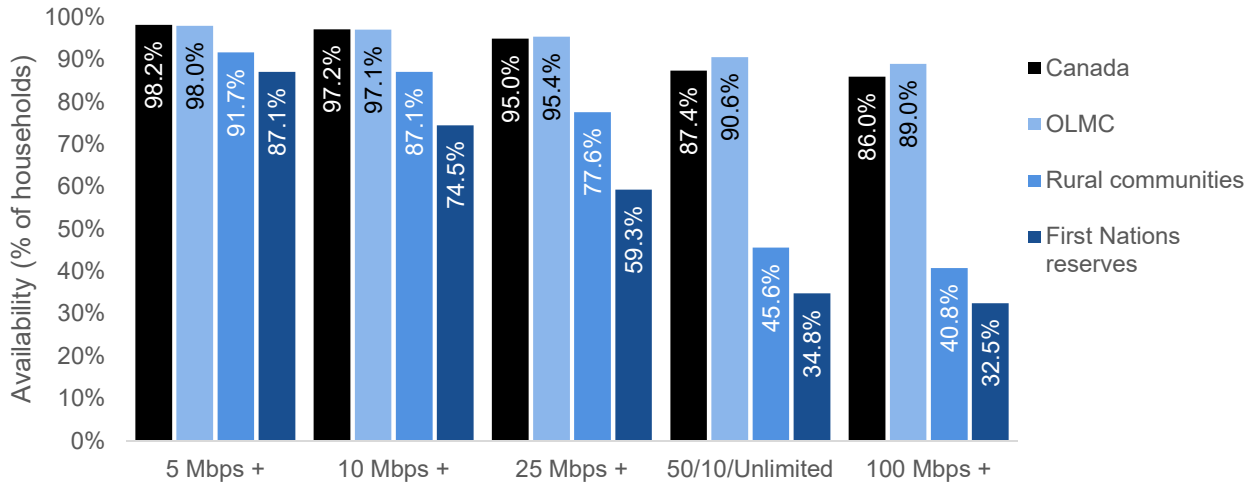
Small population centres are considered to have populations of between 1,000 and 29,999. Medium population centres are considered to have populations of between 30,000 and 99,999. Large population centres are considered to have populations greater than 100,000. Rural areas have populations of less than 1,000, or fewer than 400 people per square kilometre.

The HSPA+ and LTE bar show the additional effect that inclusion of these technologies would have on the following categories: HSPA+ and LTE for 5+ Mbps service availability.

Because satellite service has a national footprint, it is excluded from this figure.

Compared to the rest of the country and official language minority communities (OLMC) populations, availability of broadband Internet service at speeds of 50 Mbps and above was not as prevalent in rural areas and First Nations reserves. There was a notable drop in availability for these communities for offerings of 50 Mbps and above. Less than half of households in rural areas and First Nations reserves had broadband services available at speeds 100 Mbps and above.

Figure 4.9 Broadband availability across Canada compared to OLMCs, rural communities and First Nations reserves by speed (% of households), 2019

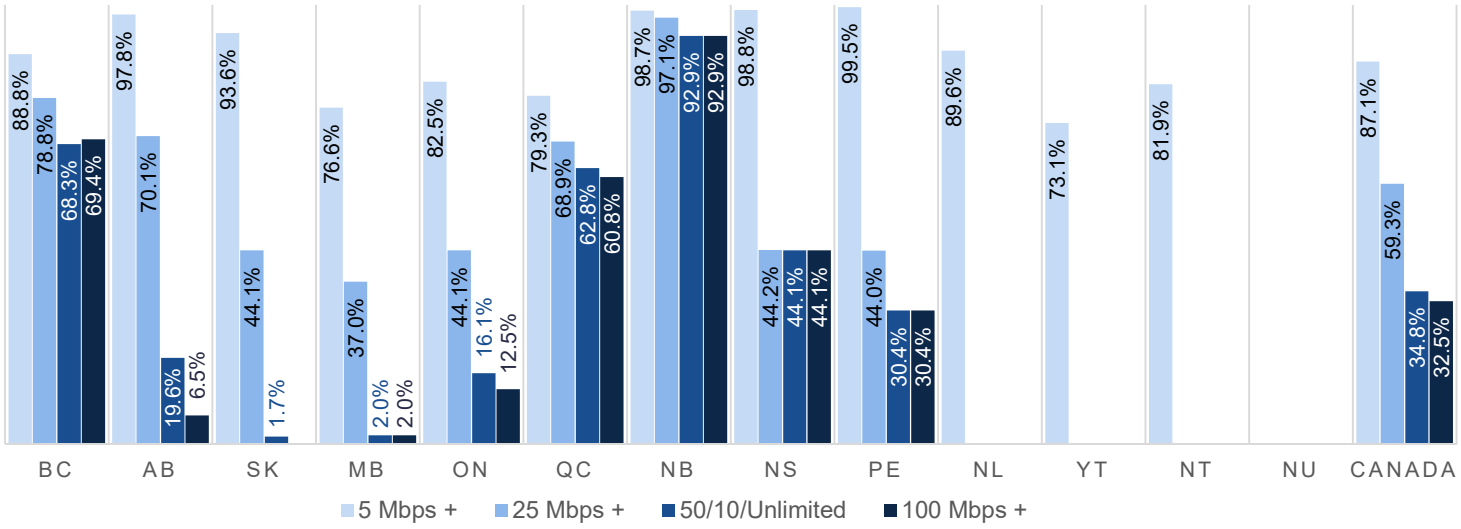


Sources: Innovation, Science and Economic Development Canada (ISED) and CRTC data collection

In 2019, 87.1% of households in First Nations reserves were able to access broadband Internet services with a speed of at least 5 Mbps. Availability decreases to below half of households at speeds of 50 Mbps or faster and to less than a third at speeds of 100 Mbps or faster.

Availability varied significantly across provinces and territories, with households in First Nations reserves in New Brunswick and British Columbia having the highest availability of Internet services at speeds of 50 Mbps or faster (95.3% and 70.1%, respectively), while these services were not yet available to households in First Nations reserves in the North as well as Newfoundland and Labrador.

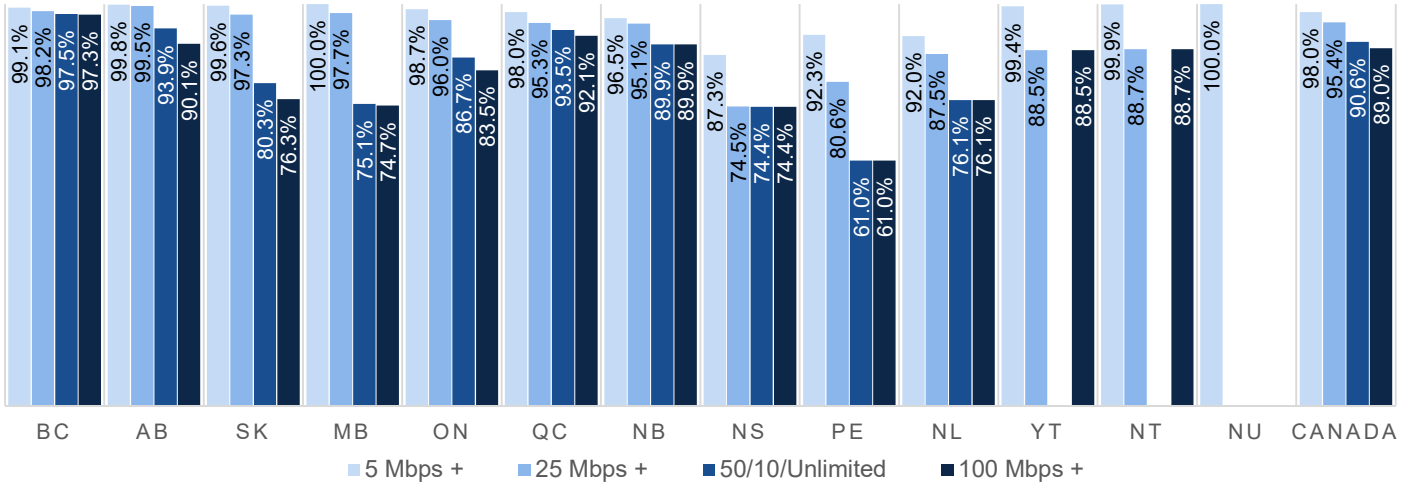
Figure 4.10 First Nations reserve broadband service availability, by speed and province/territory (% of households), 2019



Sources: Innovation, Science and Economic Development Canada (ISED) and CRTC data collection

Broadband Internet services were almost universally available to all official language minority communities (OLMCs) in 2019. British Columbia and Manitoba had the highest percentage of coverage of speeds greater than 50 Mbps while Nova Scotia and Prince Edwards Island had the lowest, where broadband services with speeds of at least 25 Mbps were not yet available to households in OLMCs in Nunavut.

Figure 4.11 OLMC broadband service availability, by speed and province/territory (% of households), 2019



Sources: Innovation, Science and Economic Development Canada (ISED) and CRTC data collection

In 2019, the Commission's target of 50/10 unlimited was available to 87.4% of all households in Canada with medium and large urban populations having nearly complete coverage and less than half (45.6%) of households in rural areas having coverage. While 34.8% of households in First Nations reserves had access to Internet services meeting the Commission's target speed and unlimited data transfer, 90.6% of households in OLMCs had access to such services.

Table 4.3 Availability of Internet services with speeds of 50/10Mbps and unlimited data, by population size and province/territory (% of households), 2019

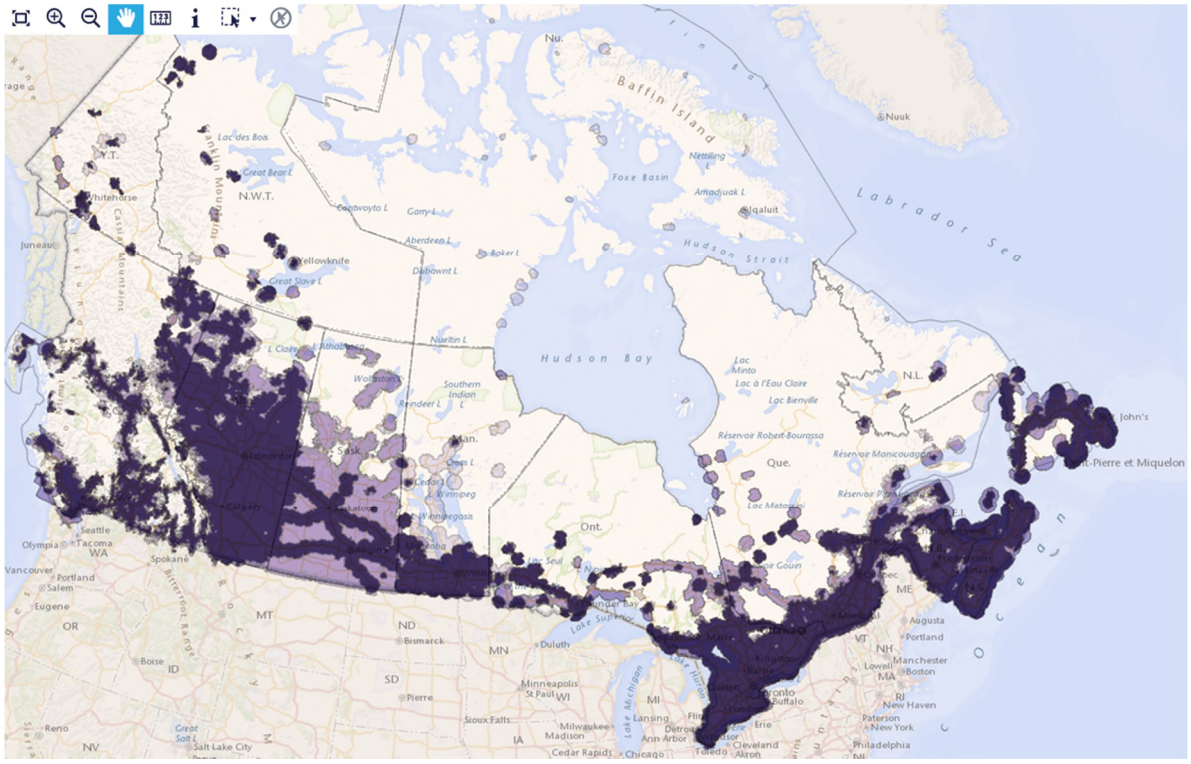
Province and Territory	All	Large Population Centres	Medium Population Centres	Small Population Centres	Rural	First Nations Reserves	OLMCs
British Columbia	93.5	99.9	99.9	96.0	62.5	68.3	97.5
Alberta	87.8	99.7	99.2	94.5	33.2	19.6	93.9
Saskatchewan	71.1	100.0	99.9	88.7	23.9	1.7	80.3
Manitoba	73.0	98.7	100.0	81.0	14.4	2.0	75.1
Ontario	87.7	99.5	98.8	94.4	30.5	16.1	86.7
Quebec	91.8	99.8	99.8	95.2	65.2	62.8	93.5
New Brunswick	81.2	99.7	99.7	99.7	63.6	92.9	89.9
Nova Scotia	78.4	99.9	n/a	98.6	52.4	44.1	74.4
Prince Edward Island	61.3	n/a	100.0	100.0	33.3	30.4	61.0
Newfoundland and Labrador	73.9	99.9	n/a	90.9	49.6	0.0	76.1
Yukon	0.0	n/a	n/a	0.0	0.0	0.0	0.0
Northwest Territories	0.0	n/a	n/a	0.0	0.0	0.0	0.0
Nunavut	0.0	n/a	n/a	0.0	0.0	n/a	0.0
Canada	**87.4**	**99.6**	**99.4**	**93.1**	**45.6**	**34.8**	**90.6**

Sources: Innovation, Science and Economic Development Canada (ISED) and CRTC data collection

iii. Coverage Maps

For the following maps, the data is available for export through the Cartovista Data panel using the Export button; the Data panel is available on the bottom left-hand side of the map. Detailed instructions on how to use Cartovista maps are available on the Cartovista website.

Map 4.1 Expansion of LTE coverage, 2014-2019



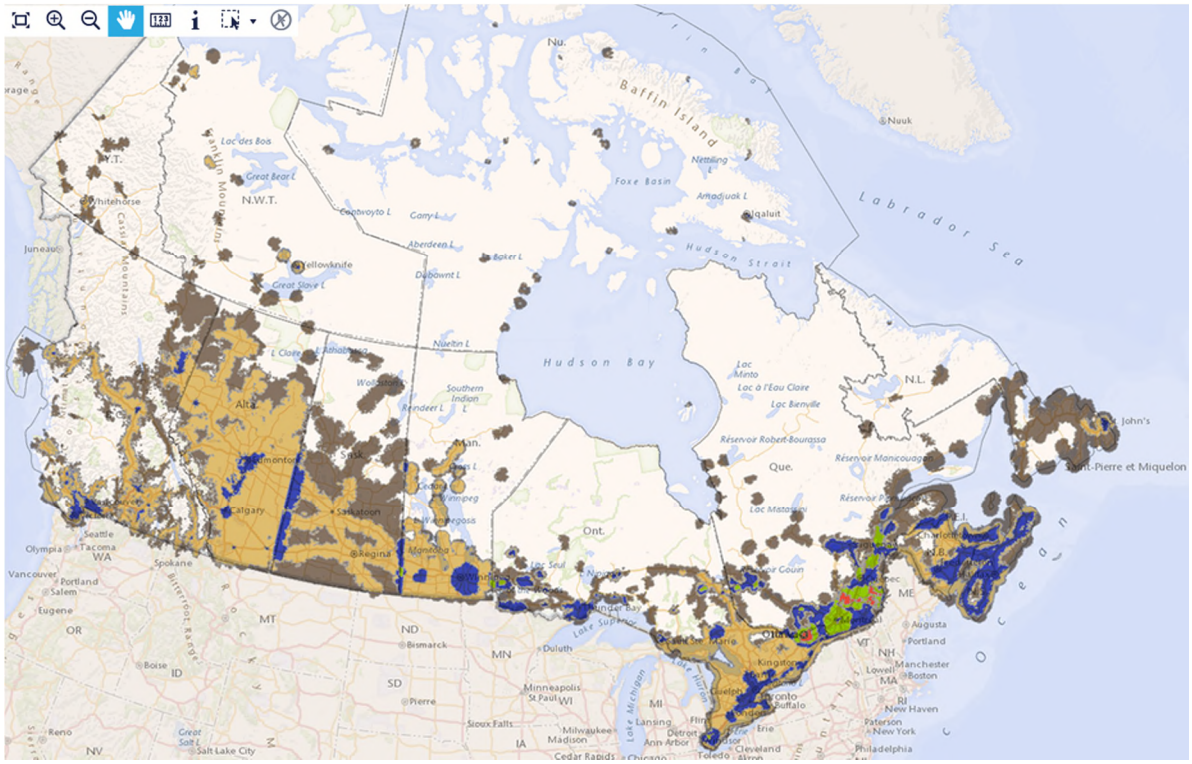
Download data: MapInfo, KML

Source: Innovation, Science and Economic Development Canada (ISED), CRTC data collection and 2016 Census, Statistics Canada

Note: This map shows the LTE coverage in Canada from 2013 to 2019.

The interactive map for the expansion of LTE coverage is also available online.

Map 4.2 LTE service coverage by number of facilities-based networks, 2019



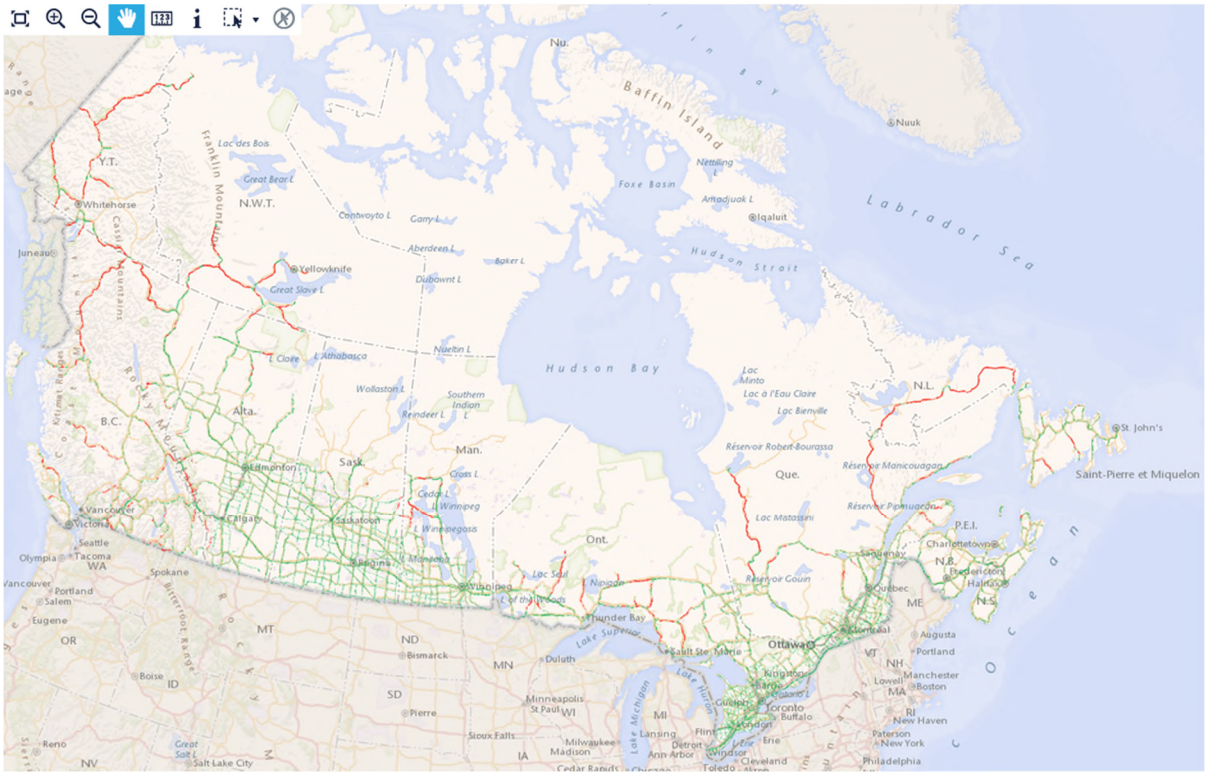
Download data: MapInfo, KML

Source: Innovation, Science and Economic Development Canada (ISED), CRTC data collection and 2016 Census, Statistics Canada

Note: This map shows the number of LTE networks by area. The number of LTE networks refers to the number of carriers who owned and operated a facilities-based wireless network, excluding coverage as a result of network sharing arrangements. This is a measure of facilities-based competition and does not illustrate the number of companies who marketed and offered mobile services in any particular province/territory or nationally.

The interactive map for LTE service coverage by number of facilities-based networks is also available online.

Map 4.3 Major roads with and without LTE service, 2019



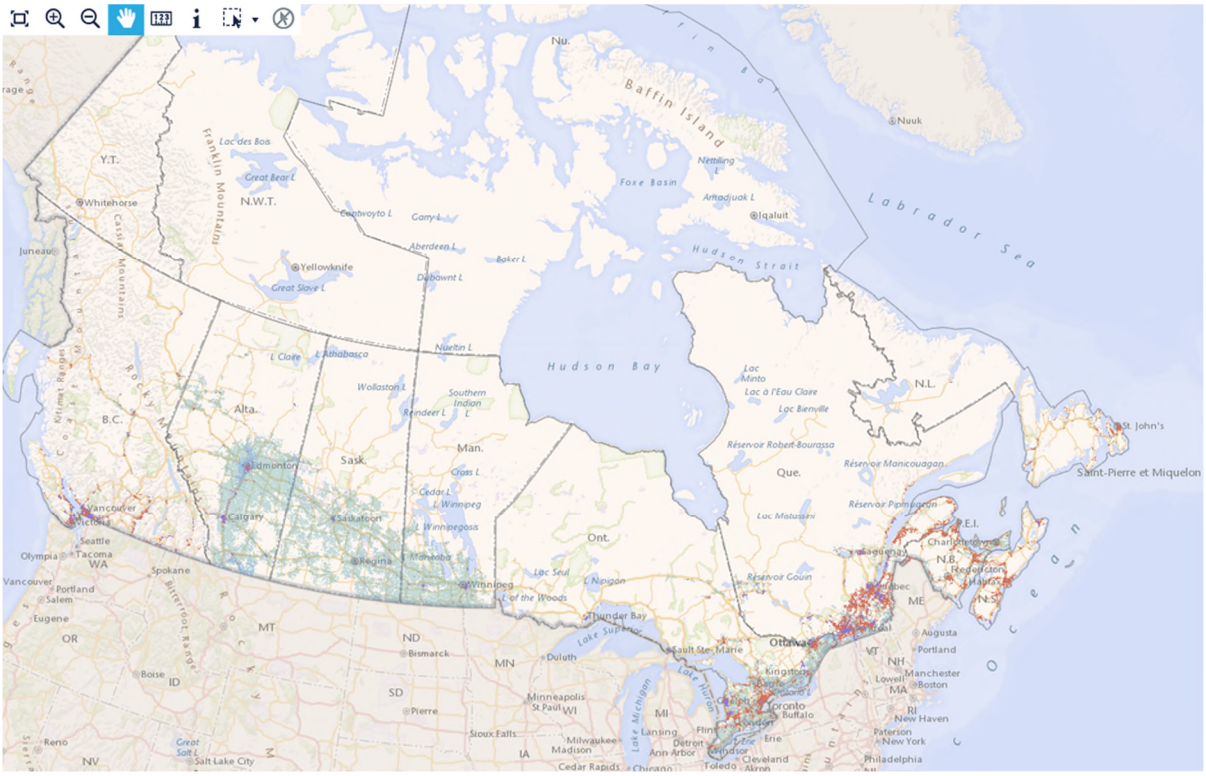
Download data: MapInfo, KML

Source: Innovation, Science and Economic Development Canada (ISED), CRTC data collection and Statistics Canada Road Network File, 2018

Note: This map shows the LTE coverage of major roads. A major road is a road classified by Statistics Canada as having a street rank code of 1 (Trans-Canada highway), 2 (National highway system), or 3 (Major highways).

The interactive map for major roads with and without LTE service is also available online.

Map 4.4 Fixed broadband service availability, 2019

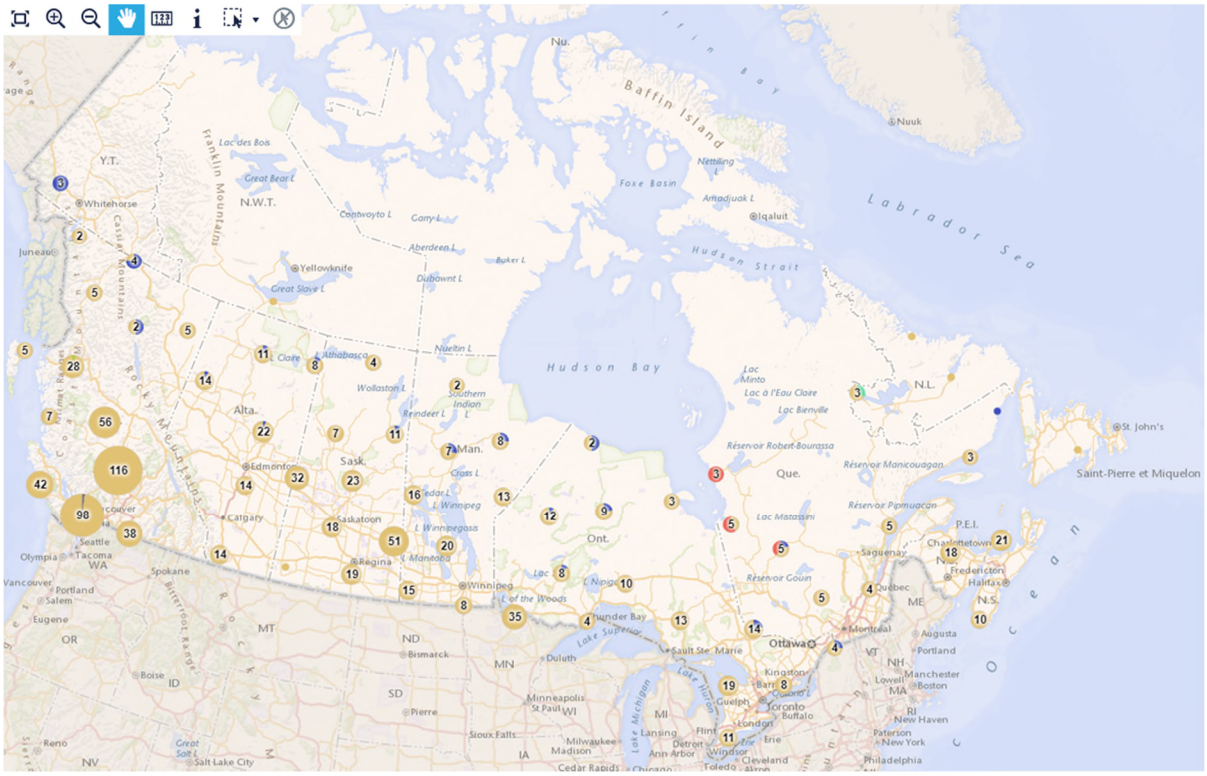


Download data: MapInfo, KML

Source: Innovation, Science and Economic Development Canada (ISED), CRTC data collection and 2016 Census, Statistics Canada

Note: This map shows where the stated speed is available to 75% of dwellings (households) in each four square kilometre area. The interactive map for the national fixed broadband service availability is also available online.

Map 4.5 Broadband and mobile service availability in First Nations reserves, 2019



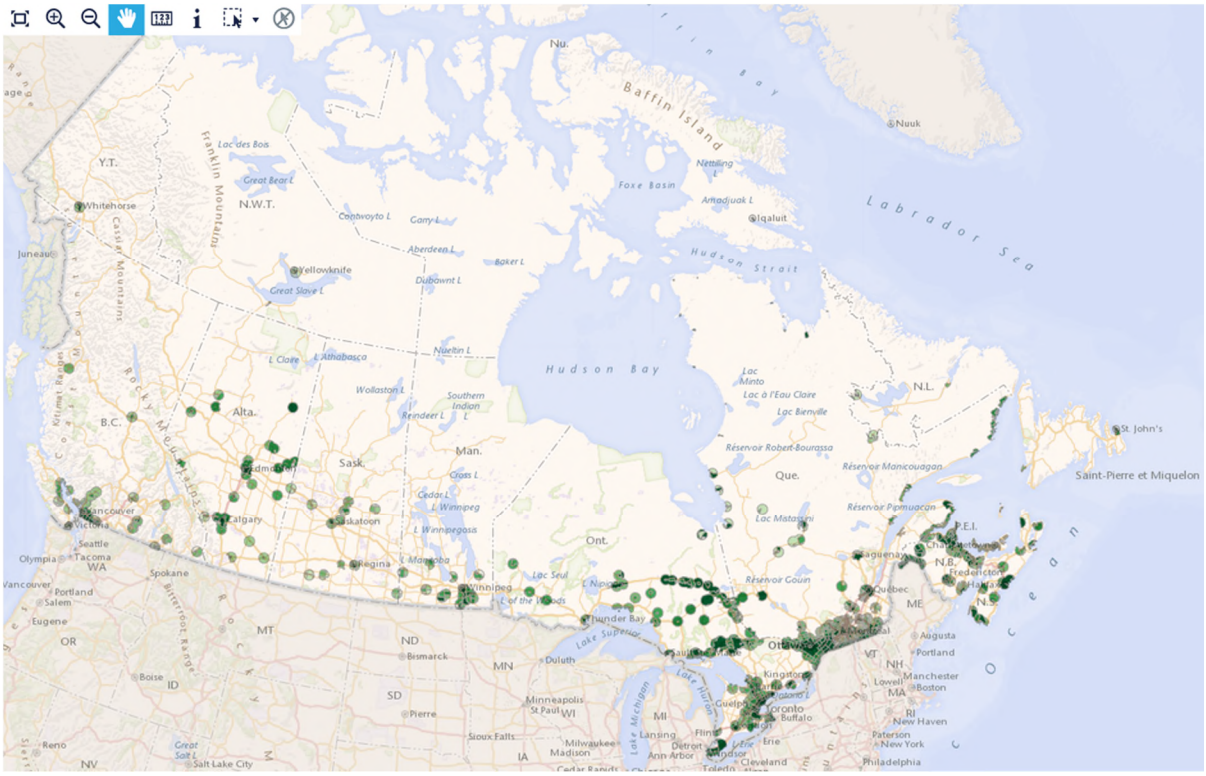
Download data: MapInfo, KML

Source: Innovation, Science and Economic Development Canada (ISED), CRTC data collection and 2016 Census, Statistics Canada

Note: This map displays areas across Canada where First Nations reserve areas are present. The colour and number inside each circle represents the specific type of reserve where First Nations reserve areas are present and the number of reserves in each area. Broadband availability within each census subdivision is available as part of the data set. Zoom into the map to update the tooltip with the broadband availability or review the Data Panel at the bottom of the map for full details. The interactive map for the number of reserve areas is also available online.

Census population and/or dwellings are not available for some reserves. In these cases, the population and/or dwellings field will show as zero and the coverage is estimated based upon pseudo-household point count.

Map 4.6 Broadband and mobile service availability in OLMCs, 2019



Download data: MapInfo, KML

Source: Innovation, Science and Economic Development Canada (ISED), CRTC data collection and 2016 Census, Statistics Canada

Note: This map displays areas across Canada where OLMCs are present. The blue circles are OLMCs, modeled as areas within 25km of an official language minority school. The interactive map for OLMCs is also available online.

iv. Datasets available on Open Data

There is an Excel workbook and CSV zip related to this report that have been published on the Open Data portal. They contain the data found in the figures and tables in this section of the CMR, in addition to supplementary datasets (C-S1 to C-S13) that originate from earlier editions of the CMR.

Instructions: Use the table below to search for datasets available on Open Data that are related to this section of the CMR. When you have found the dataset, go to the Find a CMR Dataset page and download the workbook **Data - LTE and Broadband Availability**. Search for the 'tab name' in the Excel workbook tabs to locate the data.

Table 4.4 List of datasets available in the Data - LTE and Broadband Availability workbook

Tab name	Title
C-I1	Highlights of mobile coverage
C-I2	Mobile coverage, Top 3 and other service providers
C-I3	Overview of broadband Internet service availability
C-I4	Points of interest in broadband Internet service availability for various communities
C-F1	Number of free WiFi hotspots in Canada, by region
C-F2	LTE population coverage in Canada, urban centres vs rural communities (%)
C-F3	LTE population coverage, by region, urban centres vs rural communities (%)
C-F4	LTE coverage of major roads and highways (%), by region
C-F5	Roaming voice and data traffic by destination (%)
C-F6	Subscriber penetration rates as a percentage of total population (%)
C-F7	Broadband service availability by speed (% of households)
C-F8	Broadband service availability – urban versus rural (% of households)
C-F9	Broadband availability across Canada compared to OLMCs, rural communities and First Nations reserves by speed (% of households)
C-F10	First Nations reserve broadband service availability, by speed and province/territory (% of households)
C-F11	OLMC broadband service availability, by speed and province/territory (% of households)
C-T1	Key telecommunications availability indicators (% of households for wireline services and % of population for wireless services)
C-T2	Broadband service availability, by speed and province/territory (% of households)
C-T3	Availability of Internet services with speeds of 50/10Mbps and unlimited data, by population size and province/territory (% of households)
C-S1	LTE mobile service coverage, as a percent of total households (%)
C-S2	Top 3 vs Other service providers' LTE coverage as a percentage of total population (%)
C-S3	HSPA+, LTE and LTE-A mobile service coverage, as a percent of total population, by province/region (%)
C-S4	Percent of population covered by number of different facilities-based wireless networks, by province and territory (%)
C-S5	Percent of population covered by number of different facilities-based LTE wireless networks, by province and territory (%)
C-S6	Major roads and highways LTE coverage in Canada
C-S7	Major roads and highways LTE coverage in Canada, by province/territory and road rank
C-S8	Gigabit service availability, by province/territory (% of households)

C-S9	Broadband service availability vs. subscriptions by province/territory (% of households)
C-S10	Broadband service availability at 50/10 Mbps, with unlimited data, by province/territory and size of population center (% of households)
C-S11	Availability of broadband in OLMCs, by speed and province/territory (% of population)
C-S12	Availability of broadband Internet service via satellite (% of households)
C-S13	Distance between First Nations Reserves and the closest fibre point of presence (PoP) with at least 1 Gbps capacity

v. Methodology

Top 3 mobile service providers

Throughout the mobile section, the Top 3 refers to Bell (Bell Group), Telus and Rogers; this includes the statistics of the flanker brands even where the Top 3 and their flanker brands are reported side by side for comparison. Flanker information has also been reported, where available, to allow more granular comparison with the other providers and report potential trends when viewed through a competitive lens. Approximately 1% of the flanker brand information contains data from a company not included in the Top 3.

Broadband service availability: methodology

Broadband service availability is calculated using information provided by ISPs. For 2013 to 2015, locations were considered to be serviced if their dissemination block[17] representative point fell within an area of broadband service coverage. As of 2016, ISED pseudo-households[18] are used, along with 2016 census demography. Thus, among other factors, newer, more accurate information about the extent of deployment may have slightly reduced coverage in some areas.

Broadband service availability data may not take into account capacity issues or issues regarding line of sight[19].

Mobile service availability: methodology

Between 2013 and 2017, locations were considered to be serviced if the representative point for their dissemination block fell within an area of mobile service coverage.

Since 2018, ISED pseudo-households were used along with 2016 census demography. Pseudo-households are points representing the population in an area. These points are placed along roadways within each area, and the population of the area, as determined by Statistics Canada, is distributed among these points. Additional data regarding addresses and the position of dwellings is used to guide this distribution. The use of pseudo-households aims to improve the accuracy of the availability indicators rather than making an assumption that the population within an area is located at the centre of that area.

Official language minority communities

To identify official language minority communities (OLMCs) in Canada, a number of different criteria can be used. These include identifying the first language learned at home, the language spoken at home, and the language of education.

[17] A dissemination block is an area bounded on all sides by roads and/or boundaries of standard geographic areas. The dissemination block is the smallest geographic area for which population and dwelling counts are disseminated. Dissemination blocks cover all the territory of Canada.
[18] Pseudo-households are points representing the population in an area. These points are placed along roadways within each area, and the population of the area, determined by Statistics Canada, is distributed among these points. Additional data regarding addresses and the position of dwellings is used to guide this distribution. The use of pseudo-households aims to improve the accuracy of the availability indicators over the use of the assumption that the population within an area is located at the centre of the area.
[19] The information in this section does not take into account upload speeds unless noted.\

For the purposes of this report, the official language minority population is defined in terms of the first official language spoken metric as defined within the *Official Languages Act*, using data from the 2016 Census. In all provinces and territories except Quebec, the official language having minority status is French.

The presence of official language minority populations within a 25km area of an official minority language school was used to model and map OLMCs.

As a means of mapping OLMCs and calculating the availability of 50/10 Mbps unlimited service, a method of OLMC population placement was chosen that concentrates on areas within 25 km of official language minority schools to represent the locations of the communities. This methodology, which was developed by Canadian Heritage, was used to assign OLMC populations to areas and to calculate 50/10 Mbps unlimited availability to OLMC communities.

First Nations reserve areas

The analysis of broadband availability and availability of 50/10 Mbps unlimited service was based upon First Nations reserve areas, representing total population and dwellings on reserves according to the Statistics Canada census data and, as such, it may differ from other official sources.

Statistics Canada uses census subdivisions to represent different areas in Canada. Census subdivisions are municipalities or areas that can be equated to municipalities for statistical purposes.

The different census subdivisions used by Statistics Canada were assessed. Those that represent First Nations reserve areas were used in the data analysis and mapping of this population.

Population areas

Small population centres are considered to have populations of between 1,000 and 29,999. Medium population centres are considered to have populations of between 30,000 and 99,999. Large population centres are considered to have populations greater than 100,000. Rural areas have populations of less than 1,000, or fewer than 400 people per square kilometre.

Urban centres and rural communities

Urban centres, also known as small/medium/large population centres, are defined as follows: small centres have populations between 1,000 and 29,999, medium centres have populations between 30,000 and 99,999, and large centres have populations greater than 100,000. For the purposes of this report, data for urban centres reports the average of small/medium/large centres.

Rural communities are defined as areas with a population of less than 1,000 or a density of 400 or fewer people per square kilometre.

Definitions

Average capital expenditure per user (ACEPU) is a measure of the expenditures generated per subscriber. It is computed by using only data from companies who supplied both capital expenditure and subscriber data, excluding spectrum expenditures. An end-of-year subscriber figure was used in the computation rather than an average number of subscribers during the year.

Average revenue per user (ARPU) is a measure of revenue generated per subscriber. This is calculated by dividing the whole-year total revenue by the average number of subscribers from the current and previous year. The number of subscribers is taken from year end data.

Cable-based carriers are former cable monopolies that also provide telecommunications services (e.g. wireline voice, Internet, data and private line, and wireless services). Examples of cable-based carriers include Rogers, Shaw, and Videotron.

A **dissemination block** is an area bounded on all sides by roads and/or boundaries of standard geographic areas. The dissemination block is the smallest geographic area for which population and dwelling counts are disseminated. Dissemination blocks cover all the territory of Canada.

The **estimated number of households in Canada** is calculated by dividing the 4th quarter population estimate for Canada by Statistics Canada by the population to dwelling ratio. In turn, the population to dwelling ratio is calculated by dividing the population of Canada by the number of households found in the Statistics Canada Census 2016.

Fibre-to-the-home (FTTH) refers to fibre optic communication delivery system where fibre extends from a concentrator, remote or central office to a residence.

Fibre-to-the-premises (FTTP) is the equivalent of FTTH but refers to fibre extending to a business instead of a residence.

Flanker brands are brands introduced into the wireless market by an entity that already has a well-established main brand. In the Canadian market, these include brands such as Virgin Mobile and Lucky Mobile (Bell), Fido and Chatr (Rogers), Koodo and Public Mobile (TELUS), and Fizz (Vidéotron). Starting in 2019, Fizz was added to the list of flankers and therefore, this category is no longer referred to as "Top 3's flanker brands."

HSPA, HSPA+, LTE, LTE-Advanced (LTE-A), 5G: High-Speed Packet Access (HSPA) and Long-Term Evolution (LTE) are the protocols or standards used for communications between a mobile phone and cell towers in mobile networks. HSPA is also referred to as 3G (third generation) cellular while LTE is referred to a 4G (fourth generation) cellular. HSPA+, or evolved High-Speed Packet Access, is a form of HSPA that uses technical measures to provide faster transmission speeds. LTE is the current standard that is now widely deployed in most mobile networks, while LTE-

Advanced (LTE-A) is an enhancement of the LTE standard. 5G (NR) New Radio is a new radio access technology (RAT) that is referred to as the fifth generation. These networks promise to deliver significantly faster speeds, lower latency, and gains in spectral efficiency than prior generational networks, among other benefits.

An **Incumbent Telecommunications Service Provider (TSP)** is a company that provides local telecommunications services on a monopoly basis prior to the introduction of competition. Examples of incumbent TSPs include Bell, SaskTel and TELUS. They also include small incumbent TSPs such as Sogetel and Execulink.

An **independent Internet service provider (ISP)** refers to ISPs that are not cable-based carriers or incumbent TSPs.

Major transportation roads were defined by the Commission in Telecom Regulatory Policy 2018-377 as roads that correspond to Statistics Canada's street rank codes 1 through 3.

Official Language Minority Population refers to English speaking population in Quebec and French-speaking population in the rest of Canada. More than two million Canadians belong to an official language minority community.

Other facilities-based carriers refers to providers of telecommunications services that are not incumbent providers but which own and operate telecommunications networks. Examples of other facilities-based carriers include Xplornet and Allstream Business.

Other service providers include SaskTel, other small incumbent TSPs (telecommunications service providers), certain resellers, and the remaining new entrants (Freedom Mobile, Videotron (including its flanker brand) and Bragg Communications [Eastlink]) and their applicable subsidiaries.

Pseudo-households refers to points representing the population in an area. These points are placed along roadways within each area, and the population of the area, determined by Statistics Canada, is distributed among these points. Additional data regarding addresses and the position of dwellings is used to guide this distribution.

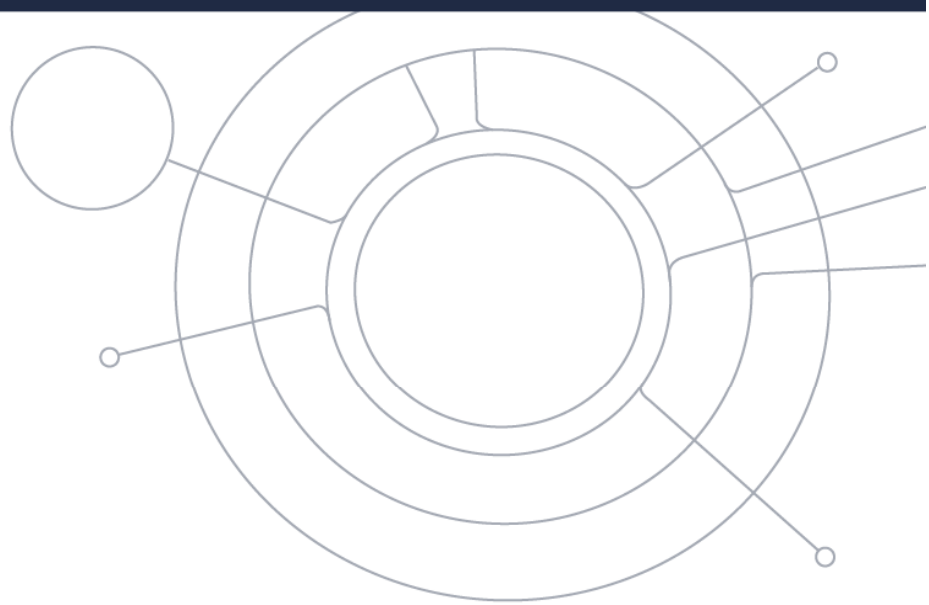
The use of pseudo-households aims to improve the accuracy of the availability indicators over the use of the assumption that the population within an area is located at the centre of the area.

The **top three mobile service providers (Top 3)**, in terms of revenues and subscribers, consists of the Bell Group, Rogers and TELUS. The Bell Group includes Bell Canada, Bell Mobility, Bell MTS, KMTS, Latitude Wireless, NorthernTel Limited Partnership, Northwestel Mobility and Télébec, Limited Partnership. In 2017, MTS Inc.'s figures were included with those of the Bell Group. In 2015, Data & Audio Visual Enterprises Wireless Inc.'s (i.e. Mobilicity, which then became Chatr) figures were included with those of Rogers. From 2013 on, Public Mobile's figures were included with those of TELUS. Throughout this section, the flanker brands are a subset of the Top 3, unless otherwise stated.

Wholesale-based service providers or non-facilities-based service carriers refers to companies that generally acquire telecommunications services from other providers and either resell those services or create their own network from which to provide services to their customers. A company that owns a small number of facilities but has the vast majority of its operations on leased facilities may also be classified as non-facilities-based. Examples of wholesale-based service providers and non-facilities-based carriers include Distributel and TekSavvy.

A **reserve** refers to land set aside by the federal government through the Indian Act or through treaties for the use of a specific band or First Nation. The band council has "exclusive user rights" to the land, but the land is "owned" by the Crown. The Indian Act states that this land cannot be owned by individual band members.

2019 YEAR-END MONTHLY PRICES FOR INTERNET, MOBILE, LANDLINE AND TV SERVICES



2019 Year-End Monthly Prices for Internet, Mobile, Landline and TV services

i. Overview

This document reports on the monthly residential prices for communication services in Canada, as provided to the CRTC by Canadian telecommunications service providers (TSPs) via the Annual Communications Pricing Survey.

The CRTC collects and evaluates pricing across four service types:

- Internet services (3 service baskets)
- Mobile services (5 service baskets)
- Basic landline services ('landline services')
- Basic television services ('basic TV services')

For the Annual Communications Pricing Survey, TSPs submitted the lowest available price per service by service basket as of December 31, 2019, for 54 rural communities and 24 urban centres across the provinces and territories in Canada.

Updates to the 2019 data collection are as follows:

- In order to better track prices of Internet plans that reflect the evolution of Canadians consumption, a new Internet service basket that includes "100 Mbps download and 15 Mbps upload with 500GB of data" was introduced and the "5/1 Mbps, any data" basket was removed.
- In order to track the prices of heavier usage mobile data plans, a new mobile service basket that includes "10GB, unlimited voice minutes and unlimited SMS" basket was added.
- In order to track the prices of lower-cost, data-only wireless mobile plans, the "1GB, 450 minutes, 300 SMS" basket was modified to include "any minutes" and "any SMS".

This year's report focuses on the national, provincial/territorial, urban and rural trends for average prices and price ranges for 50/10 unlimited, 5GB mobile plans, landline services and basic TV services. It concludes with a deeper look into the average prices of Internet and mobile services, given their ever-increasing importance, in particular:

- **50/10Mbps unlimited data plan** (the target minimum plan to be made available to all Canadians through programs such as the Broadband Fund).
- **1GB mobile plan with any minutes and any SMS** (the plan mandated by the CRTC in the lower-cost data-only wireless plan decision).
- **5GB mobile plan with unlimited voice and SMS** (reflective of consumer's average monthly mobile data usage[20]).

The data sets that the CRTC used to compile this report are available on Open Data, where users can also access additional data and analysis. See Datasets available on Open Data section for more information.

[20] The 2019 Annual Telecommunications Survey indicates that consumers used an average of 2.9 GB/month of data (up 0.46 GB from 2018 and double the amount used in 2016).

How Canadians Are Using their Services and What They're Spending

Canadians are buying larger mobile data plans, consuming more data and subscribing to faster Internet speeds.

Almost 60% of mobile subscribers had a 5GB or larger mobile plan in 2019 (compared to 40% in 2018) and mobile consumers with a data plan used an average of 2.9 GB/month of data (a 16.0% increase from 2018).

58.0% of 2019 residential high-speed Internet subscriptions were for 50/10 Mbps plans or faster (compared to 49.5% in 2018); these subscribers downloaded, on average, 245GB of data per month, an increase of 26.9% compared to 2018.

ii. Communication Services Pricing Trends 2016-2019

In this report, 'average combined price' is used to illustrate trends in the communications services market as a whole.

The 'average combined price' is based on four services:

1. 50/10 Mbps unlimited Internet ('50/10 unlimited'),
2. 5GB mobile plans with unlimited SMS and talk ('5GB mobile plan'),
3. basic landline, and
4. basic TV services.

'Average reported monthly price' ('average price') is used for standalone baskets. The 'average price' for each service basket is calculated using the formula found in the

Process for calculating averages section of the Methodology.

Average Combined Prices: National Trends

Based on year-end reported prices, the 2019 nationwide average combined price was $177/month. This represents an average annual decrease of -6.9% from 2016 and a decrease of $42.

2016 to 2019 changes in individual services used to determine the combined average price are as follows:

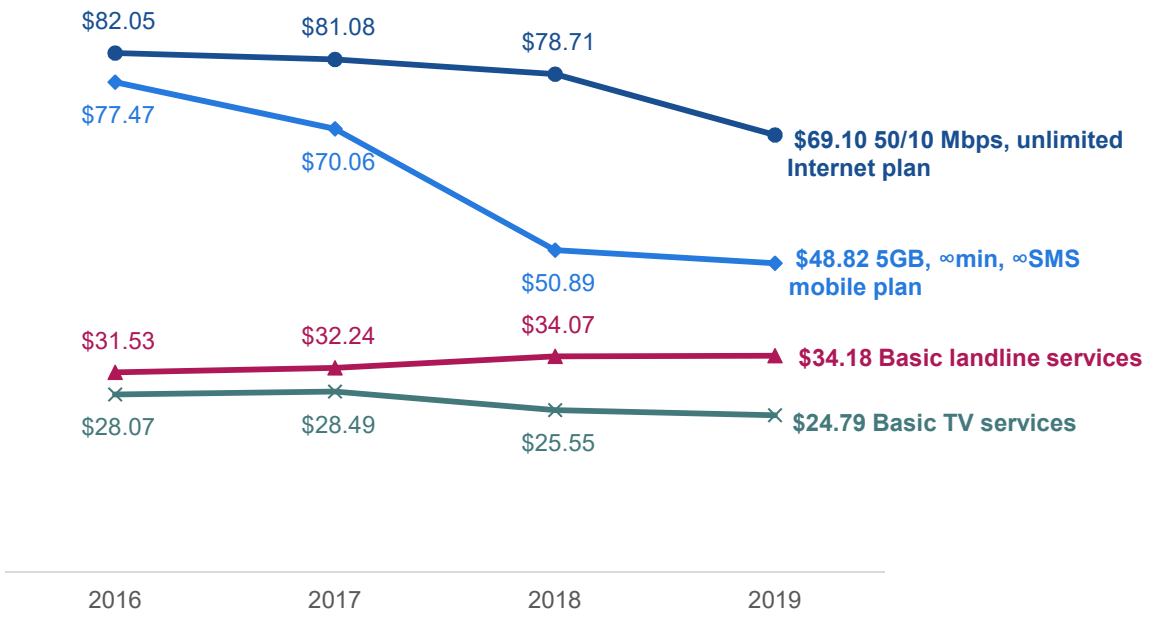
- Internet prices went down by $13 for an average annual decrease of 5.6%.
- Mobile prices went down by $29 for an average annual decrease of 14.3%.
- Basic landline prices went up by $2 for an average annual increase of 2.7%.
- Basic TV prices went down by $3 for an average annual decrease 4.1%.

Table 4.1 Average reported monthly price, price differential and growth, by service (region: Canada)

Service	2016	2017	2018	2019	Difference in prices 2016 vs 2019	2016-2019 CAGR
50/10 Mbps, unlimited Internet plan	$82.05	$81.08	$78.71	$69.10	**-$12.96**	-5.6%
Growth for 50/10Mbps	--	-1.2%	-2.9%	-12.2%	--	--
5GB, ∞min, ∞SMS mobile plan	$77.47	$70.06	$50.89	$48.82	**-$28.65**	-14.3%
Growth for 5GB	--	-9.6%	-27.4%	-4.1%	--	--
Basic landline services	$31.53	$32.24	$34.07	$34.18	**+$2.65**	2.7%
Growth for landline	--	2.3%	5.7%	0.3%	--	--
Basic TV services	$28.07	$28.49	$25.55	$24.79	**-$3.28**	-4.1%
Growth for TV	--	1.5%	-10.3%	-3.0%	--	--
Total	**$219.12**	**$211.87**	**$189.23**	**$176.89**	**-$42.23**	**-6.9%**
Growth total	--	-3.3%	-10.7%	-6.5%	--	--

Source: CRTC 2019 Annual Communications Pricing Survey
Note: For trending purposes, when there is no reported price in a rural location, the CRTC used the corresponding reported urban price. (E.g., 50/10 Mbps, unlimited Internet service was not available in rural Saskatchewan, Manitoba, Prince Edward Island or the North in 2016, therefore the CRTC used only urban prices).

Figure 4.1 Average price by service (Canada)



Source: CRTC 2019 Annual Communications Pricing Survey
Note: For trending purposes, when there is no reported price in a rural location, we used the corresponding reported urban price. (E.g. 50/10 Mbps, unlimited Internet service was not available in rural Saskatchewan, Manitoba, Prince Edward Island or the North in 2016; therefore, only urban prices were used).

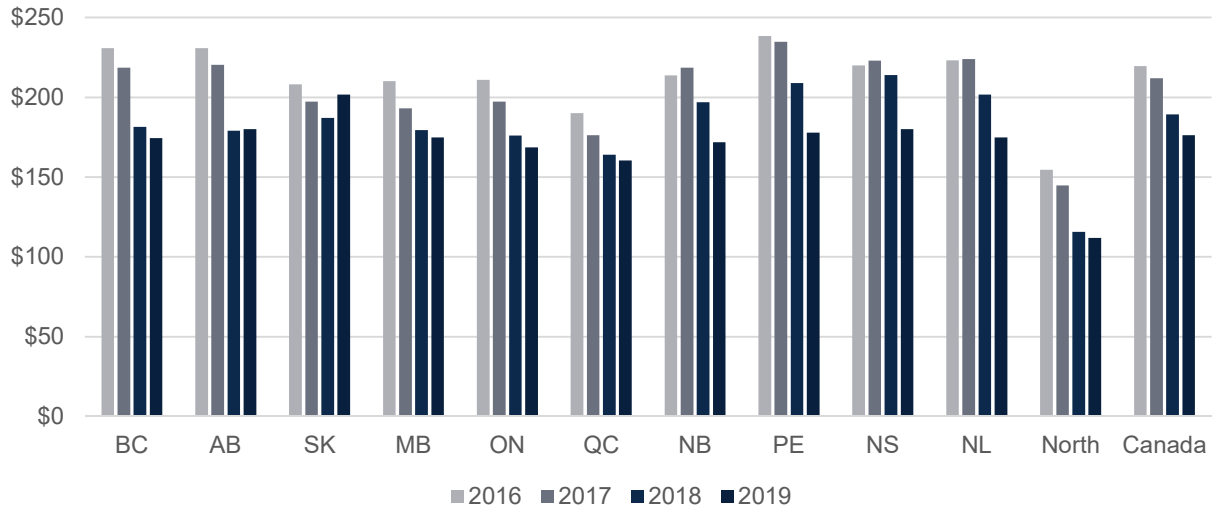
Average Combined Prices: Provincial and Territorial Trends

Figure 4.2 shows the average combined prices for Internet, mobile, basic landline telephone, and basic TV services by province and territory, between 2016 and 2019.

Average combined prices have trended down across all provinces and territories in that time period, with two exceptions: when comparing 2019 to 2018, the average combined price stayed the same in Alberta and increased by $15 per month (+7.9%) in Saskatchewan. This increase is most likely the result of *unlimited* 50/10 Mbps plans having been made available in rural Saskatchewan for the first time in 2019.

In 2019, the lowest combined average prices were in Quebec ($161) and Ontario ($169) (excluding the North, where 50/10 unlimited plans were not available). The highest combined average prices were in Saskatchewan ($202), Alberta and Nova Scotia (both $180). In comparison to 2016, 2019 average provincial combined prices decreased the most in Prince Edward Island (-$61; CAGR -9.3%) and British Columbia (-$56; CAGR -8.9%). The combined price decreased the least in Saskatchewan (-$6; CAGR -1.0%), due to pricing increases in Internet and the highest reported 5GB mobile price.

Figure 4.2 Annual breakdown: average combined prices of 50/10 unlimited, 5GB mobile plan, basic landline and basic TV (region: province/territory and national)



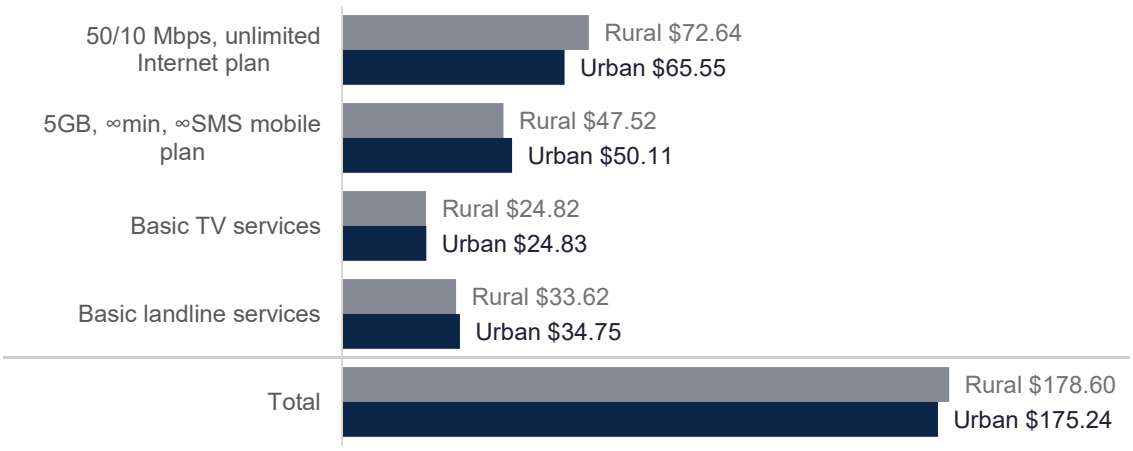
Source: CRTC 2019 Annual Communications Pricing Survey
Note: For trending purposes, when there is no reported price in a rural location, we used the corresponding reported urban price. (E.g., 50/10 Mbps, unlimited Internet service was not available in rural Saskatchewan, Manitoba, Prince Edward Island or the North in 2016, so the urban price become the 'average' for the province/territory).

Average Combined Prices: Urban and Rural Trends

In 2019, the average combined price in rural communities tended to be higher than urban centres. Nationally, the average combined price was $178/month for rural communities and $175/month for urban centres, a difference of 1.8%. The gap between prices in urban centres and rural communities varied by region; detailed breakdowns are available on Open Data (see *Datasets available on Open Data*).

Of the four individual services used to determine the combined average price, the largest urban-rural price difference was for the 50/10 Mbps unlimited data plan. However, at the national level, the differences between urban and rural average prices are narrowing.

Figure 4.3 Average combined prices of communications services (region: urban and rural), 2019



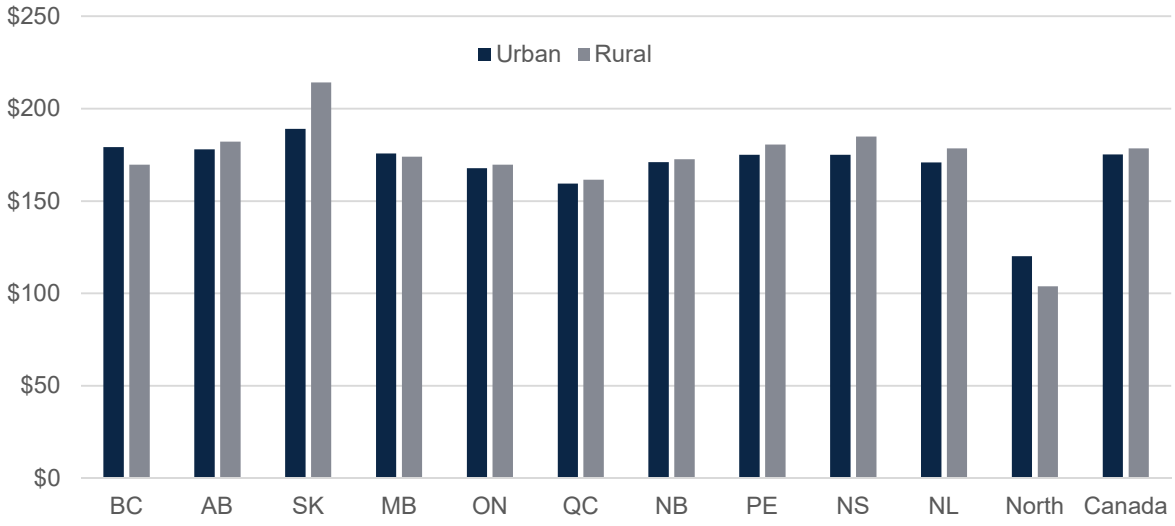
Source: CRTC 2019 Annual Communications Pricing Survey

When looking at the differences *between* provinces/territories and *within* provinces/territories (urban vs rural), there were some variations in the average combined prices. Most notably, these differences were in the North and British Columbia.

Overall, rural communities consistently had the highest average combined price. However, this trend was not observed in the North or British Columbia.[21] In northern rural communities, the average combined prices were about 14% lower than those in northern urban areas, mainly because satellite Internet access services – which are not usually available in urban areas – are generally offered at lower prices than their fixed counterparts.

In British Columbia, rural communities reported a more consistent average decrease year-over-year (2016-2019 CAGR -11.1%) than urban centres (2016-2019 CAGR -6.5%). In 2019, the average prices for 50/10 unlimited, 5GB mobile plans and landline services increased in urban centres and were higher than their rural counterparts. The average landline prices in British Columbia accounted for the largest difference between the urban and rural ($31 in rural v $36 in urban).

Figure 4.4 Urban and rural breakdown for average combined reported prices for 50/10 Mbps unlimited, 5GB unlimited mobile plans, basic landline and basic TV (region: province/territory and national), 2019



Source: CRTC 2019 Annual Communications Pricing Survey
Note: The totals for the combined average reported prices in the North exclude 50/10 Mbps unlimited because unlimited 50/10 Mbps plans are not available in the North.

Broken down by communication service, the highest average prices in urban centres for landline was in Ontario ($38/month), basic TV in Saskatchewan ($31), and 5GB mobile plans in the North ($63) whereas the lowest average prices in urban centres were for 50/10 unlimited Internet in Quebec ($56/month).

Rural communities saw the opposite trend for highest versus lowest average prices. The lowest average prices were for landline in Saskatchewan ($28/month), basic TV in Prince Edward Island

[21] The North was excluded from the low-high analysis. Despite 50/10 Mbps plans being available in these territories, none had an unlimited data cap; therefore, no prices were reported.

($20) and 5GB mobile plans in Newfoundland and Labrador, and the North (both $45), whereas the highest average price was for 50/10 unlimited Internet in Saskatchewan ($96).

Price Ranges: National Trends

In contrast to the 'average price' and 'combined average price', the range of reported prices ('price range') for a particular service illustrates the full range of what is commercially available in any given region (excluding promotions, grandfathered plans, etc.). Average prices do not necessarily fall within the middle of each price range and therefore price range offers an additional metric to gauge pricing trends.

This section outlines the price ranges by province and territory for the communications services that are used to define the combined average price: 50/10 unlimited, 5GB mobile plans, basic landline, and basic TV. A high level overview is provided, followed by a closer look at the differences for the price ranges for each of the above services by province/territory.

High-level overview for 2016 to 2019

Historically, the price ranges for 50/10 unlimited Internet and 5GB mobile plans have fluctuated and have had the widest price ranges of all the communications services.

In 2016, 50/10 unlimited had the widest price range of all communication services with an $85 difference between the highest and lowest reported price, beating out the price range for 5GB mobile plans by only $5. Between 2017 and 2018, the highest reported prices for 50/10 unlimited dropped by approximately $30 for two years and then increased in 2019 to $140/month ($5 more than 2016). The lowest reported prices, however, have slowly but consistently decreased from $50 to $40.

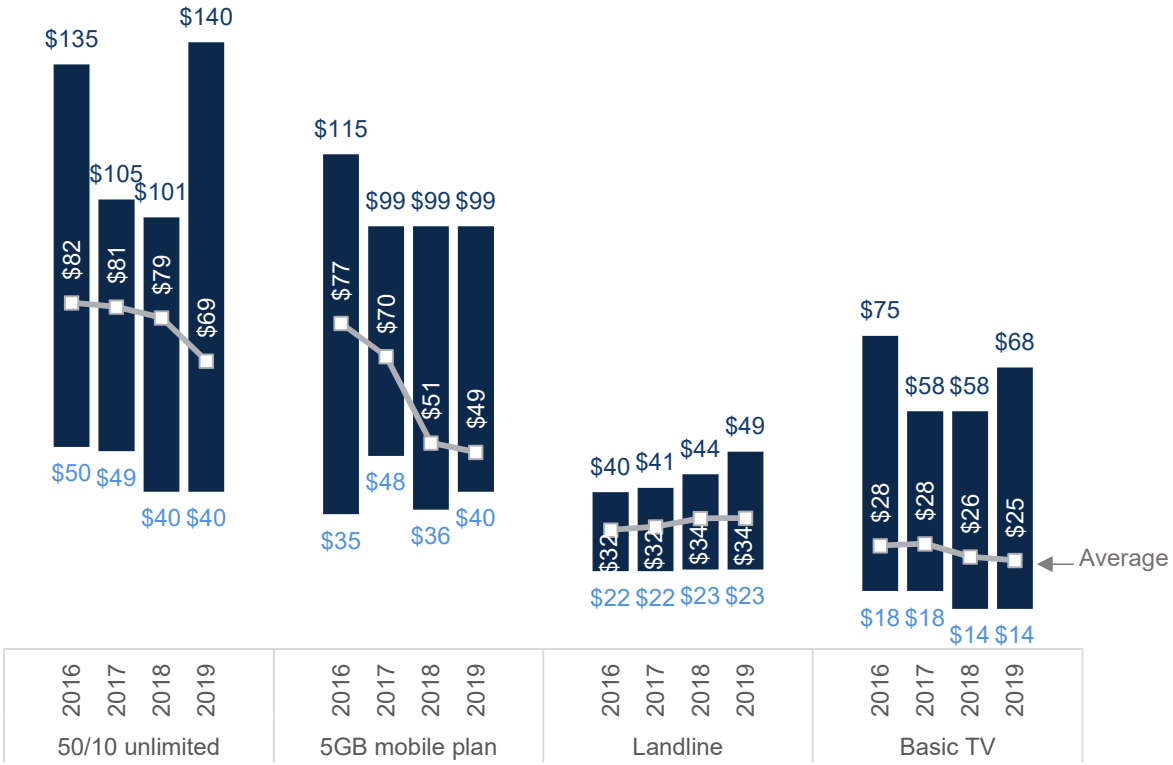
In 2016, the price range for 5GB mobile plans were $35 to $115/month. From 2017 to 2019, the highest reported price remained consistent at $99/month while the lowest reported prices fluctuated between $35 and $48 (5GB mobile plans were $40/month in 2019). However, the average reported prices have been trending down and are sitting closer to the lowest reported prices, instead of in the middle of the price range.

From 2016 to 2019, the only price range to increase of all the communications services was for landline services. Although the lowest prices have consistently hovered around $23/month, the highest reported prices have increased from $40 to $49/month. Despite this increase, variations in landlines prices have remained small in comparison to the other communications services.

From 2016 to 2019, although basic TV services had both the lowest average prices and lowest reported prices (approximately $14/month) for all communications services, the upper range of the reported prices – the highest reported prices - have been consistently $58 or more. This indicates a greater variability in available prices in the market with the average ($24/month in 2019) sitting closer to the lowest reported price.

From 2016 to 2019, basic TV reported the lowest prices (from $14 to $18/month) and had the lowest average prices (between $25 and $25/month) of all communications services. However, the highest reported price has been consistently more than $58. This indicates a greater variability in available prices in the market.

Figure 4.5 Range of reported prices for 50/10 Mbps unlimited, 5GB mobile plans, landline services and basic TV services



Source: 2019 CRTC Annual Communications Pricing Survey
Note: In the North, Internet plans tend to have data caps so while 50/10 Mbps, unlimited data plans were unavailable both 2016 and 2019, plans with data limits for multiple speeds were available.
For trending purposes, when there is no reported price in a rural location, the CRTC used the corresponding reported urban price. (E.g., 50/10 Mbps, unlimited Internet service was not available in rural Saskatchewan, Manitoba, Prince Edward Island or the North in 2016, so the CRTC used only urban prices).

Trends by province/territory

The following reports on regional pricing trends for service baskets included in the combined average prices. Subsequent sections will provide further data and analysis on the 50/10 unlimited, 1GB and 5GB mobile service baskets.

Internet: 50/10 Mbps, unlimited

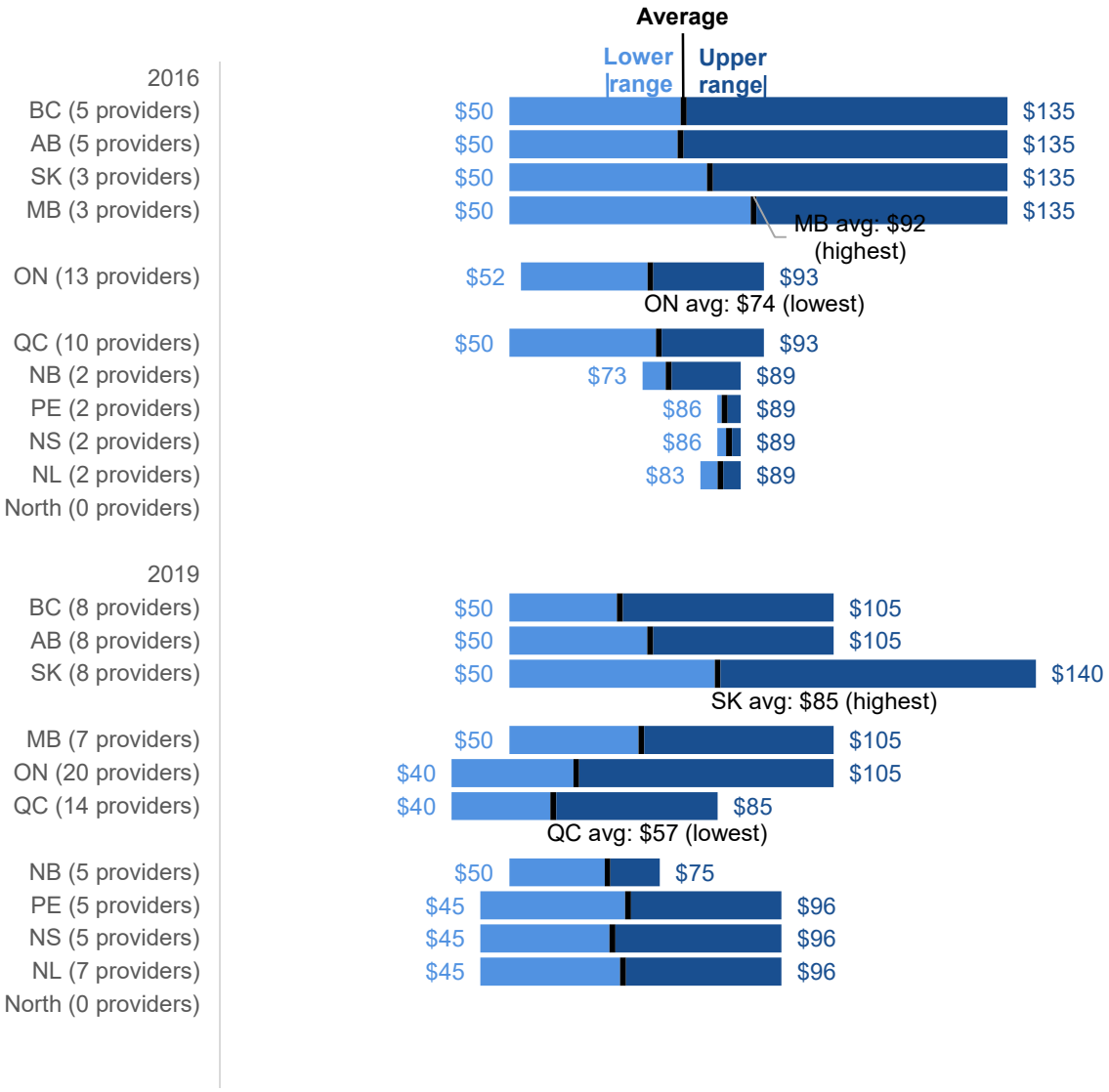
Note that in 2019, while the Northwest Territories, Yukon and Nunavut had access to 50/10 Mbps plans, none had unlimited data caps; therefore, data points for the North are unavailable for this section.

While there was a consistent price variance of approximately $50 in most of the provinces, Saskatchewan had the largest price disparity, with prices ranging between $50 and $140. This disparity accounts for the large variance at the national level and results from the introduction of 50/10 unlimited plans in rural Saskatchewan for the first time in 2019.

Otherwise, the range of prices has homogenized across provinces in comparison to 2016 ranges. Saskatchewan, Prince Edward Island, Nova Scotia, and Newfoundland and Labrador saw increases in their highest prices. Despite these increases, overall the Atlantic Provinces saw a reduction in their lowest and average prices (in Prince Edward Island, the lowest price was $86 in 2016 and $45 in 2019). Though the highest prices have increased and price ranges have widened in the Atlantic Provinces, the lowest and average prices have decreased overall.

In keeping with the national trend, provincial price averages for 50/10 Mbps unlimited data plans have trended down across all the provinces since 2016, with the exception of Saskatchewan which experienced a slight increase of 2%. There were significant average price drops in Nova Scotia (-$20, -23%), Manitoba (-$19, -21%), and Quebec (-$18, -24%). The lowest provincial average price for 50/10 unlimited Internet was offered in Quebec ($57) and the highest in Saskatchewan ($85).

Figure 4.6 Internet services: range of reported prices for 50/10 Mbps, unlimited data plan, 2016 (top group) vs 2019 (bottom group) (region: province/territory)



Source: CRTC 2019 Annual Communications Pricing Survey
Note: The number of providers in parentheses indicates the total available number of providers in the province/territory. Despite 50/10 Mbps plans being available in North, none of the plans offered had an unlimited data cap; therefore, no prices were reported.

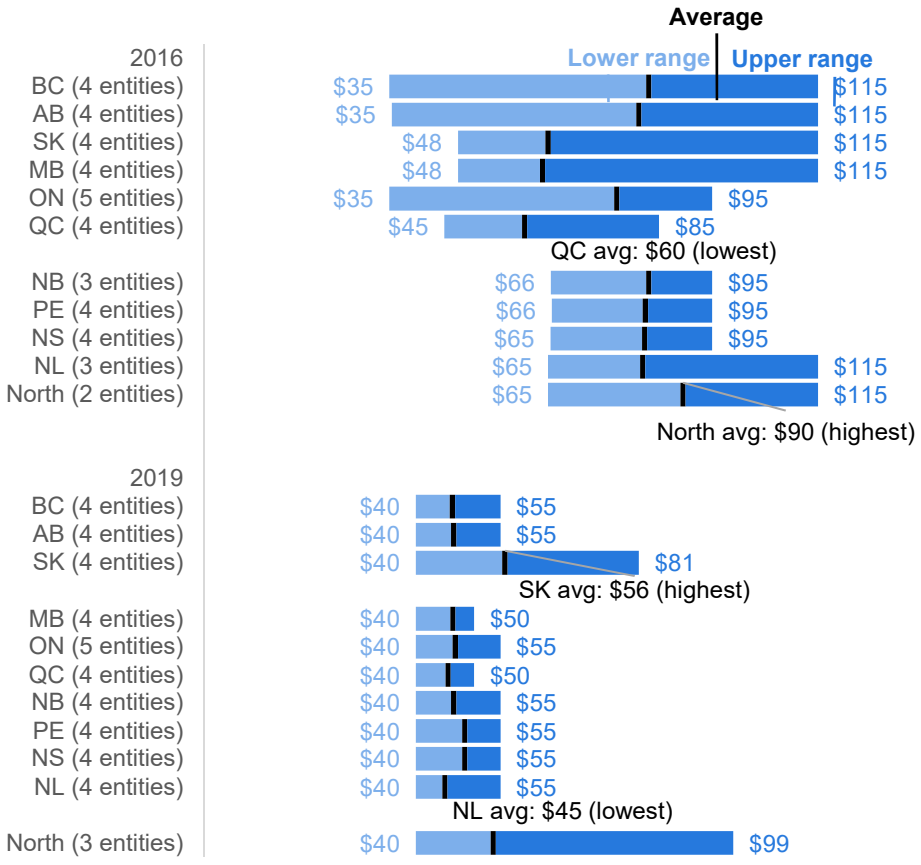
Mobile Services: 5GB, unlimited voice minutes and unlimited SMS

Similar to the national trend, the provincial and territorial ranges for 5GB plans were significantly narrower in 2019 than in 2016, demonstrating maturing normalization between provinces/territories in 2019.

The largest ranges, representing the difference between the highest and lowest reported price, shifted from Alberta and British Columbia in 2016 to the North ($59), followed by Saskatchewan ($40) in 2019. The remaining provinces saw more modest ranges between $10 and $15. The lowest price across all of Canada was consistently $40 in 2019; in contrast, the lowest prices fluctuated between $35 and $65 in 2016.

Average reported 5GB mobile prices have decreased in every province and territory since 2016. In comparison to 2016, most provinces and territories saw their average 5GB plan prices drop significantly: between 39% and 45%. The average price in the provinces was similar to that in the territories, holding steady at between $45 and $48. The only exceptions were Saskatchewan ($56) and the North ($54).

Figure 4.7 Mobile services: range of reported prices for 5GB mobile plans, 2016 (top group) vs 2019 (bottom group) (region: province/territory)



Source: CRTC 2019 Annual Communications Pricing Survey

Note: The number in parentheses indicates the total available number of entities in the province/territory.
For mobile services, entities were asked to provide the lowest reported price, regardless of whether it originated from their

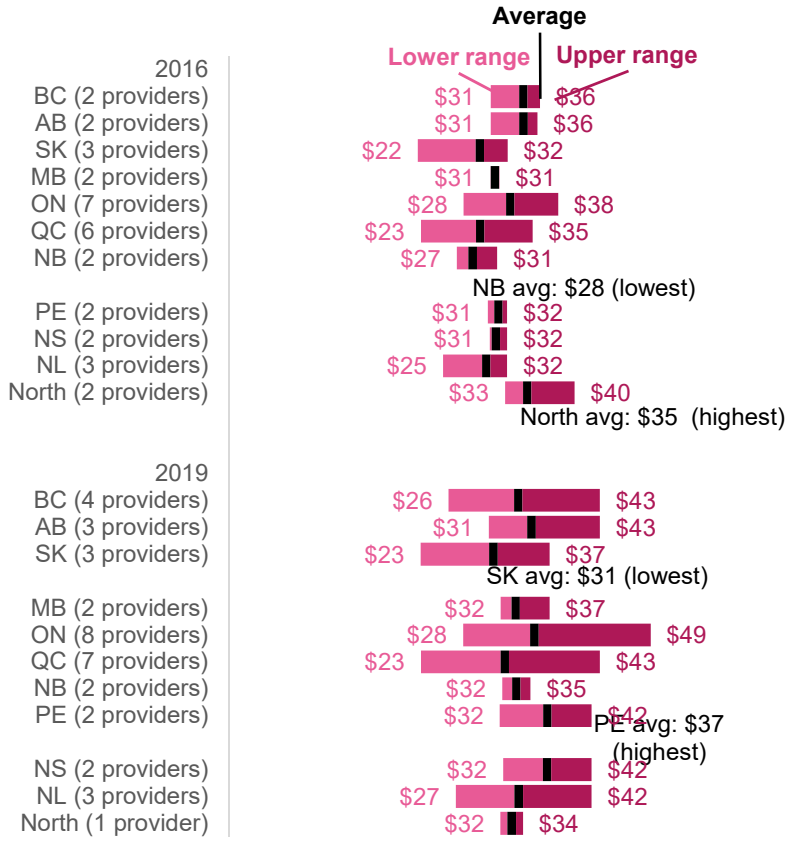
main brand (e.g. Rogers) or one of their flanker brands (e.g. Chatr). Therefore, the text in brackets is not "providers" but "entities," unlike in other graphs.

Landline Services

The range in reported prices for landline services within provinces and territories grew in 2019 compared to 2016 ($5 in 2016 and $12 in 2019, on average). Quebec and Ontario had the largest range ($20 and $21) whereas the North had the smallest range ($2). The lowest reported prices ($23) were offered in Saskatchewan and Quebec (a dollar higher than the lowest reported 2016 price).

Prince Edward Island had the highest average price for landline service ($37), and Saskatchewan had the lowest ($31). The Atlantic Provinces saw average prices rise between $4 and $6 since 2016 prices. Other provinces and territories saw more modest increases, staying fairly close to 2016 average prices.

Figure 4.8 Landline services: range of reported prices and average reported prices, 2016 (top group) vs 2019 (bottom group) (region: province/territory)



Source: CRTC 2019 Annual Communications Pricing Survey

Note: The number of providers in parentheses indicates the total available number of providers in the province/territory.

Basic TV

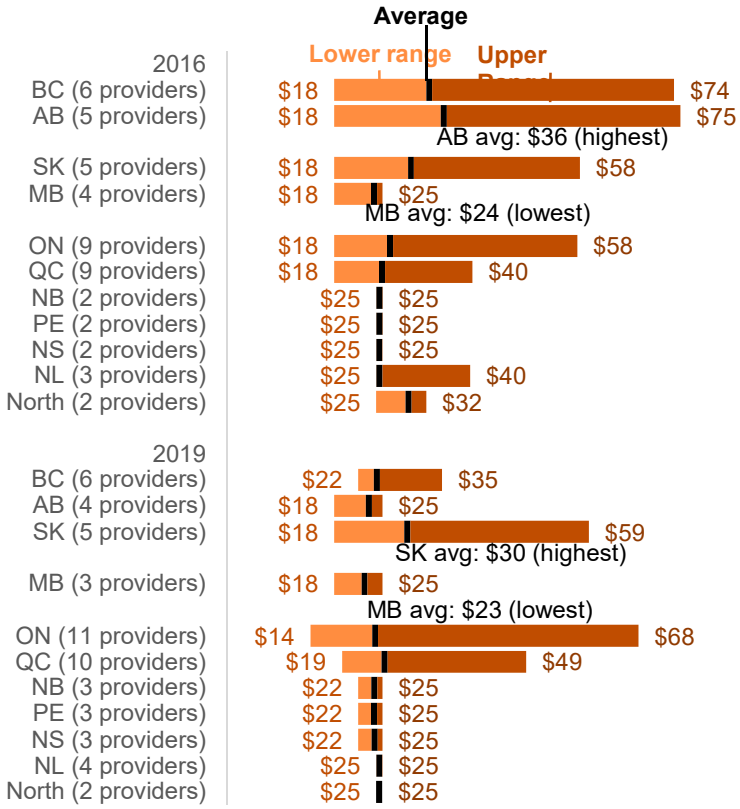
The average price for basic TV services also stayed fairly flat from 2016 to 2019, while the largest price range has dipped from its high of $80 in 2017 to $68 in 2019.

The provincial average prices for basic TV have generally decreased since 2016. While most provinces and territories saw average prices hover around the $24 mark, the lowest average price was offered in Manitoba ($23) while the highest average price was offered in Saskatchewan ($30). Saskatchewan was the only province to have an average price above the $25 national average.

British Columbia and Alberta saw the biggest decrease in average price, dropping $9 (-26%) and $12 (-35%) respectively. Quebec was the only province to see any small increase (+2%; less than a dollar).

Overall, price disparity between provinces has shrunk since 2016, with a few notable exceptions: the price disparity grew significantly in Ontario and Quebec ($54 and $30) in 2019 and remained high in Saskatchewan ($42). While it had the biggest range of prices, Ontario had the lowest provincial price of $14 (down from $18 in 2016).

Figure 4.9 Basic TV services: range of reported prices and average reported prices, 2016 (top group) vs 2019 (bottom group) (region: province/territory)



Source: CRTC 2019 Annual Communications Pricing Survey
Note: The number of providers in parentheses indicates the total available number of providers in the province/territory.

iii. Pricing: A Deeper Dive into Mobile and Internet Baskets

While the previous sections reported on the specific services included within the combined price analysis, the following section provides a broader report on pricing within the services comparing data collected for the different service baskets.

As noted with the previous section on combined prices, prices for communication services have declined overall since 2016, with the exception of the basic landline services. At the national level, the downward trend from 2016 pricing was consistent across all Internet and mobile service baskets. However, as explored within this section, there remain variation between regions and service baskets.

Pricing: Mobile Services (2016-2019)

Methodology

Pricing information for mobile services is based on the five 'baskets' of combined data, voice and SMS usage levels listed in Table 4.2 below.

'Mobile service' refers to "bring-your-own-device" (BYOD) 3G or higher (e.g. LTE or LTE-A) wireless service plans that were publicly available to residential consumers on December 31, 2019 (i.e. a grandfathered plan or promotional plan cannot be included in data collection). Each entity must submit the lowest available price on behalf of both their main and flanker brands.

Table 4.2 Mobile baskets included in the 2019 Annual Communications Pricing Survey

Basket Name	Data allotment range	Minimum voice minutes	Minimum SMS	Minimum speed
No data	Any data	150 minutes	0 SMS	3G or higher
1GB	1 to 2 GB	Any minutes	Any SMS	3G or higher
2GB	2 to 4.9 GB	1200 minutes	300 SMS	3G or higher
5GB	5 to 9.9 GB	Unlimited minutes	Unlimited SMS	3G or higher
10GB (new in the 2019 data collection)	10 or more GB	Unlimited minutes	Unlimited SMS	3G or higher

Notes:

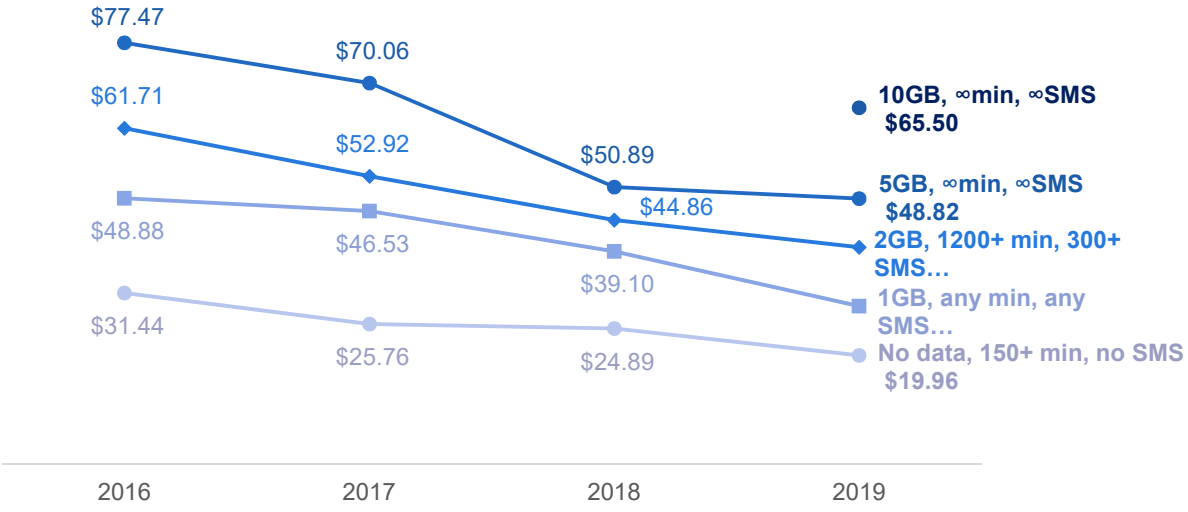
- Prior to 2019, the "No data" basket was referred to as "level 1"; 1GB basket was "level 2"; 2GB basket was "level 3"; 5GB basket was "level 4."
- Prior to 2019, the minimum voice and SMS requirements for the 1GB basket were 450 minutes and 300 SMS, respectively.

Average Reported Prices

National Prices

Consistent with the trend in previous years, combined reported monthly prices for mobile services declined by 13.8% over 2018, with the greatest decline in the 1GB basket at -28.5% (a difference of $10.07). All service baskets declined between approximately $2 and $10 over 2018.

Figure 4.10 Average of lowest reported prices ($/month) for mobile services (region: Canada)

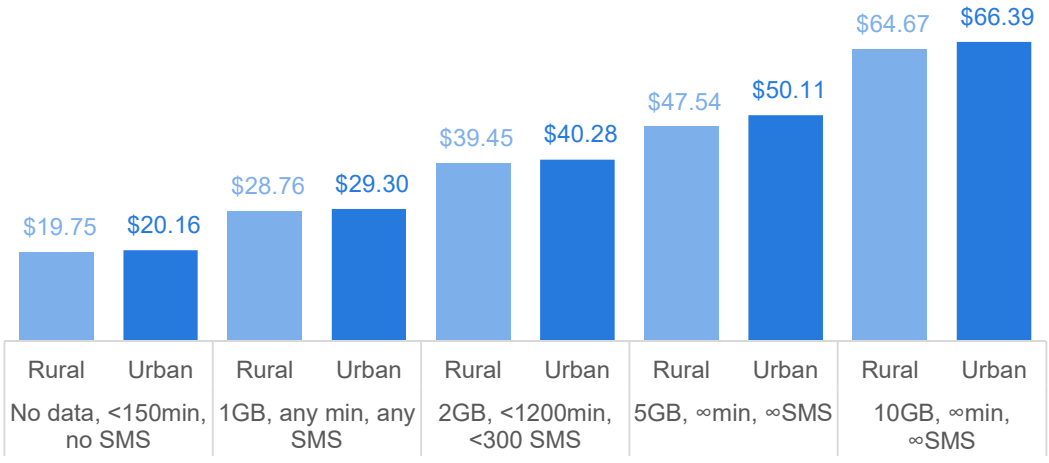


Source: 2019 CRTC Annual Communications Pricing Survey
Note: The 1GB basket was updated in 2019 from "1GB, 450 minutes, 300 SMS" to "1GB, any minutes, any SMS."

Rural and Urban Prices

The pricing that providers reported for 2019 shows little difference between pricing in rural areas and pricing in urban areas. As urban centres have more options for mobile services, there is a greater range in available prices. This increases the average for urban centres.

Figure 4.11 Average prices of mobile baskets (region: urban and rural), 2019



Source: 2019 CRTC Annual Communications Pricing Survey

Range of Reported Prices

Consistent with previous years, the larger the data plan, the larger the variance in price. However, comparing 2016 to 2019, the variance in prices has, on average, decreased significantly across service baskets and territories/provinces. In 2019, the lowest prices across all service baskets were reported in Ottawa-Gatineau, Montreal and Quebec City.

The most basic service level comprised of 150 minutes of voice, no SMS, and no data. The lowest price reported was $17, followed by $19 in the North. Prices for this service had limited variation within rural communities, ranging from $24 to $35 across the country. Urban centres reported similar or lower prices than rural communities.

Prices for the 2GB of data with 1200 minutes and 300 SMS basket shared a similar trend, with the lowest reported price reported at $28. Highest prices and ranges were reported in Regina and Saskatchewan ($45 to $81), followed by the North ($45 to $59). Urban centres reported similar or lower prices than rural ranges, with the exception of Manitoba. In Manitoba, the rural price range ($35 to $45) dipped below the single price point of $45 found in urban centres.

Within the 10GB unlimited minutes and SMS service basket, the lowest prices were reported once again in Ottawa, Quebec City and Montreal at $51. Prices in urban centres in the North were higher than the rest of the country ($75 to $119). However, the rural communities reported a single price point ($75) which was the normal range for the rest of the country.

More detailed information is available through *Datasets available on Open Data*.

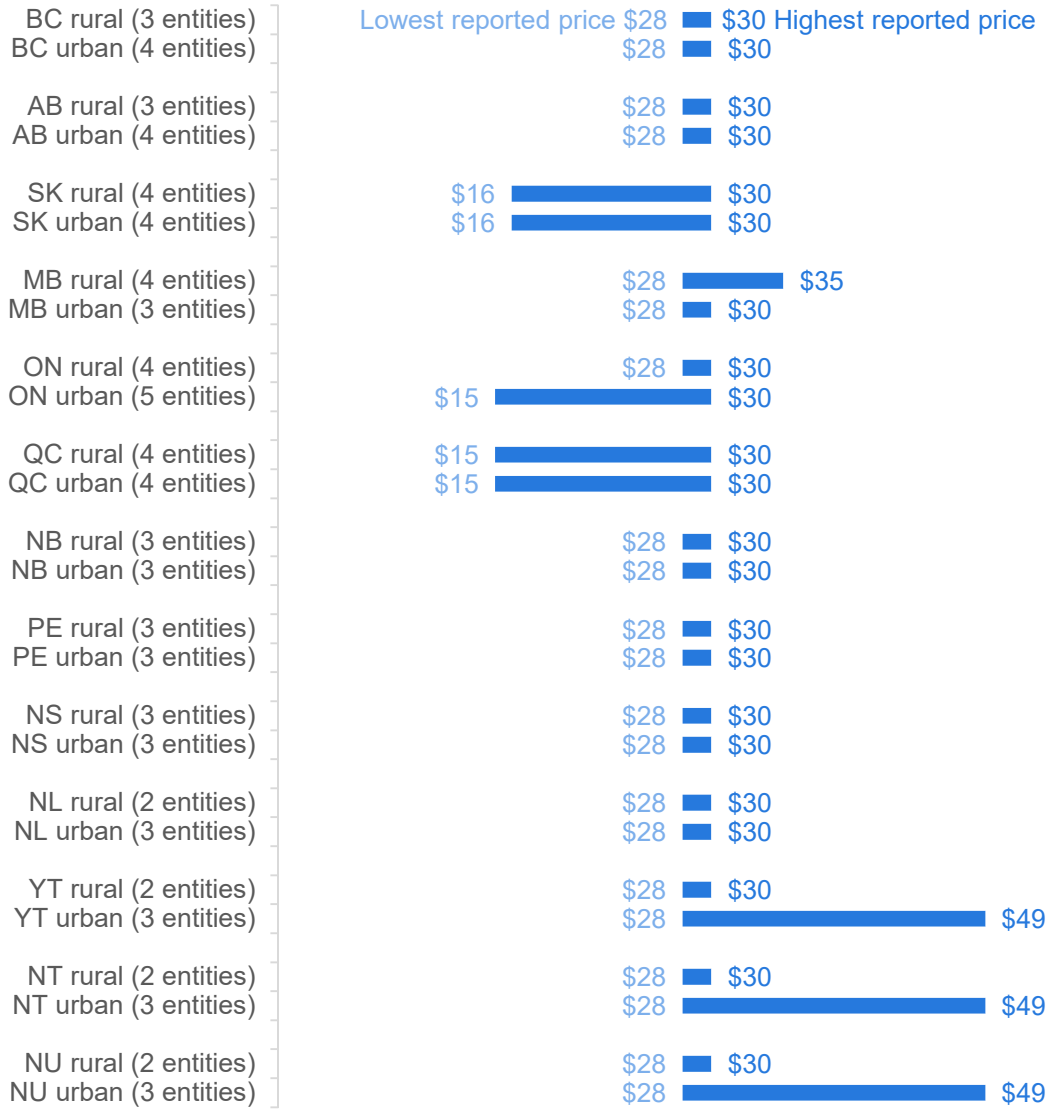
Due to interest in related regulatory initiatives, the section below provides a deeper dive into of the remaining two baskets.

Lower-cost data-only mobile plans (1GB, any minutes, any SMS): Urban vs rural and provincial/territorial comparisons

In March 2018, the CRTC concluded that there was a need in the wireless market for lower-cost data-only plans. The organization launched a proceeding to ensure that national wireless providers fill this gap. As a result, national wireless providers introduced a variety of lower-cost data-only plans that had not been previously available in the Canadian market. The proceeding required that the plans be made widely available by April 2019. Consequently, the average price for mobile plans with 1GB, any minute, any SMS has decreased by 25.8% over the previous reporting year (from $39.10 to $29.03).

Prices reported for mobile service with 1GB of data and any number of minutes and SMS were fairly consistent between urban centres and rural communities. At the provincial level, urban and rural regions reported similar prices and ranges, except for Manitoba where higher pricing was seen in rural regions and Ontario where lower prices were seen in urban regions. In the North, the plan was also offered at a higher price in urban regions.

Figure 4.12 Range of reported prices for 1GB, any minutes, any SMS mobile plans (lower-cost data-only) (region: province/territory, urban and rural), 2019



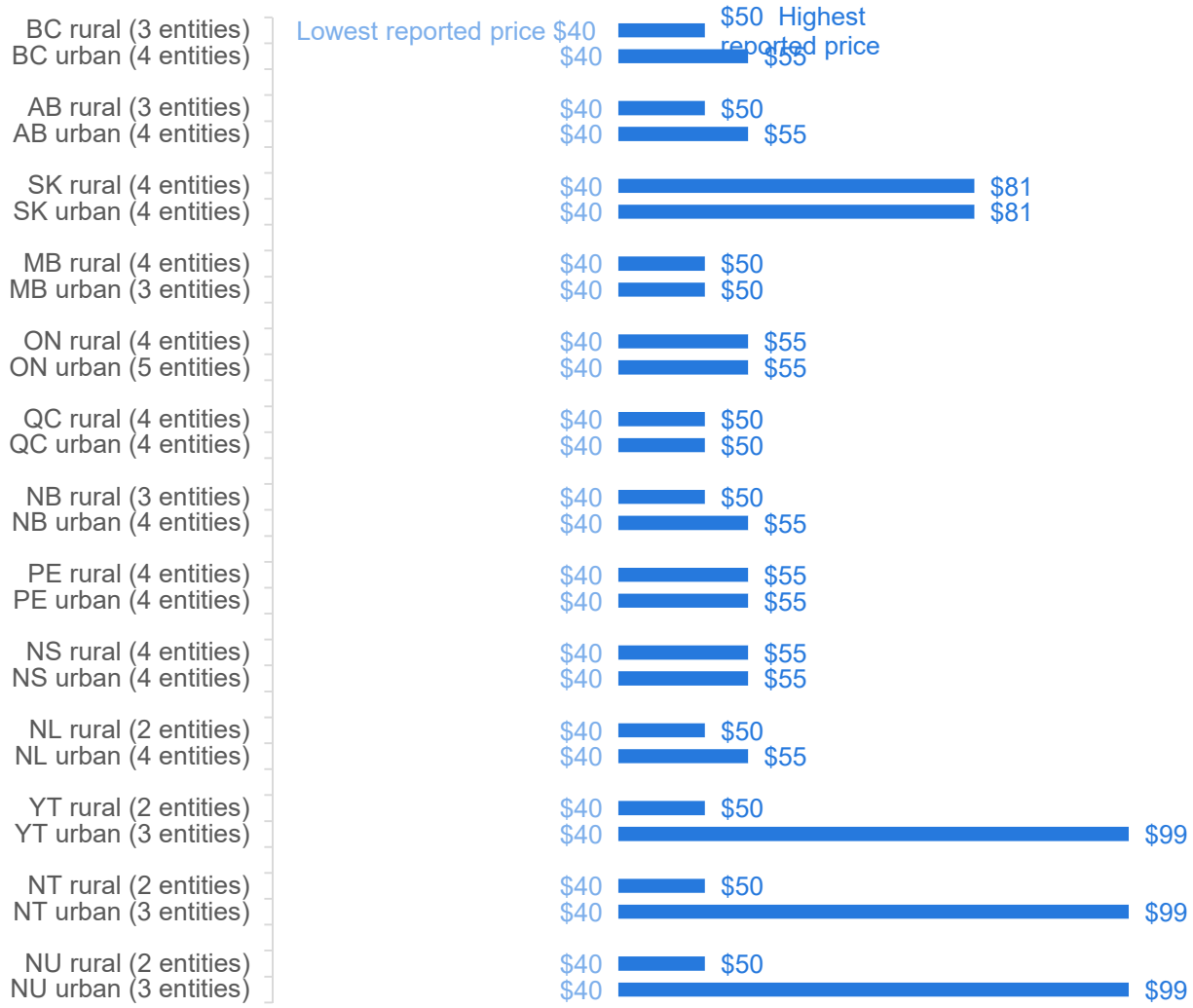
Source: 2019 CRTC Annual Communications Pricing Survey
Note: The number in parentheses indicates the number of unique entities (i.e., main brands, who reported on behalf of their flankers) that reported a price in the province/territory.

5GB, unlimited minutes, unlimited SMS mobile plan: Urban vs rural and provincial/territorial comparisons

Provincial prices in urban centres and rural communities were similar, with the lowest price being $40 across the country. The price range for the rural communities either matches or is lower than for urban centers within each province. There is a notable discrepancy in the North; the urban price range is $40-$99, much higher than its rural counterparts' range of $40-$50.

Elsewhere in Canada, the ranges are comparable. The province with largest price range was Saskatchewan ($40-$81). The prices for urban centres and most rural communities matched the prices in the figure below, with the exception of British Columbia, Alberta, New Brunswick, and Newfoundland and Labrador, where the highest reported price were $5 higher ($55) in the urban centres compared to the rural communities ($50).

Figure 4.13 Range of reported prices for 5GB, unlimited minutes, unlimited SMS mobile plans (region: province/territory, urban and rural), 2019



Source: 2019 CRTC Annual Communications Pricing Survey

Pricing: Internet Services (2016-2019)

Methodology

Pricing information for Internet services is based on three baskets with different levels of download and upload speeds and data transfer limits (i.e. data caps). 'Internet service' refers to fixed Internet available to residential consumers. The publicly available prices must meet the minimum requirements of the following baskets:

Table 4.3 Internet baskets in the 2019 Annual Communications Pricing Survey

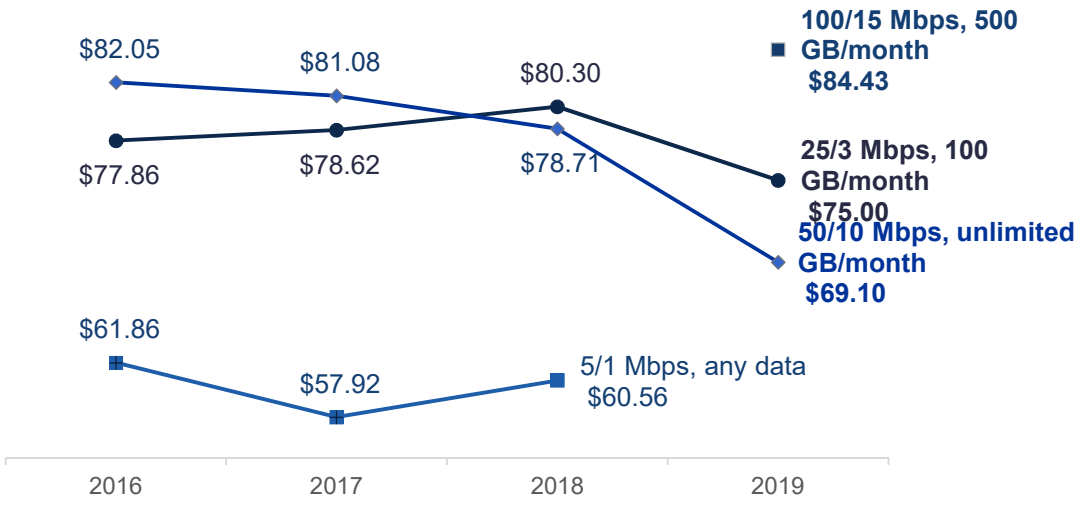
Basket Name	**Download speed range**	**Upload speed range**	**Data transfer range (i.e., "data cap")**	**Notes**
25/3 Mbps	25 to 49.9 Mbps	3 to 9.9 Mbps	100 GB/month	--
50/10 unlimited	50 to 99.9 Mbps	10 to 14.9 Mbps	Unlimited data	The target speed and universal service objective, established in 2016 by Telecom Regulatory Policy 2016-496.
100/15 Mbps (new in the 2019 data collection)	100 Mbps or higher	15 Mbps or higher	500 GB/month	--

Average Report Prices

National Prices

Nationally, average Internet prices have gone down since 2016. While the average price for 25/3 Mbps 100 GB of data/month had previously increased between 2017 and 2018, this trend reversed in 2019, resulting in the lowest average price ($75) since 2016 ($78) (CAGR -1.2%). The 50/10 Mbps unlimited Internet service has steadily decreased since 2016 (CAGR -5.57%) and now sits at $69 for the first time, falling below the average reported price for the 25/3 Mbps 100 GB/month plan ($75).

Figure 4.14 Average of lowest reported prices ($/month) for Internet services (region: Canada)



Source: 2019 CRTC Annual Communications Pricing Survey

Note: The 5/1 Mbps basket was replaced with the 100/15 Mbps, 500GB/month basket in the 2019 data collection. The average price for 50/10 unlimited excludes the North because unlimited data caps are not available. Due to this exclusion, the average price for 50/10 unlimited represents only the provinces and thus, is lower than the 25/3 average price which includes the provinces and territories – the latter of which are more expensive than the provinces.

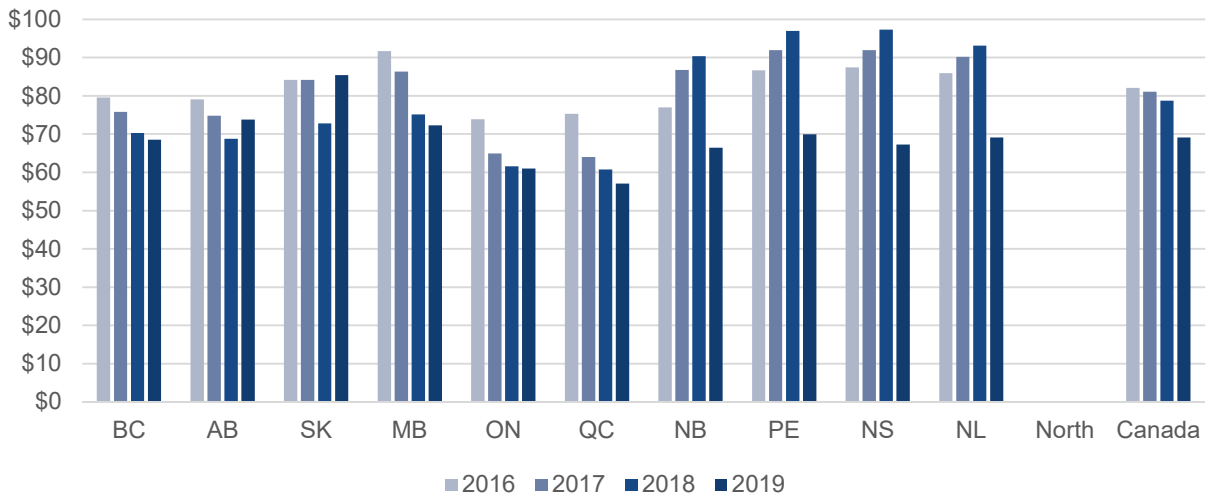
Provincial Pricing

The trend for Internet pricing at the provincial level is similar to that at the national level. The average price for 50/10 Mbps unlimited Internet has decreased since 2016 in every province except Saskatchewan, where it has risen to overtake the Atlantic with the highest average price in Canada at $85.46; slightly above the 2016 price ($84.13; CAGR 0.39%).

While still lower than the reported 2016 average price ($79.04), Alberta's reported pricing in 2019 grew slightly ($73.82; +7.36%) over its 2018 reported price of $68.75. Contrary to the previous trend of rising prices in the Atlantic provinces, 2019 marked a steep decrease in average price across the Atlantic (New Brunswick -30%, Prince Edward Island -27.83%, Nova Scotia -30.86%, and Newfoundland and Labrador -25.8%).

This service was not offered in the North.

Figure 4.15 Average price of 50/10 Mbps unlimited Internet (region: province/territory)



Source: 2019 CRTC Annual Communications Pricing Survey
Note: 50/10 unlimited is not available in the North.

Range of Reported Prices

25/3 Mbps, 100 GB/month service: Urban vs rural and provincial/territorial comparisons

Internet service with 25 Mbps download, 3 Mbps upload and a 100 GB/month data cap was available for a minimum of $25 to $50 across provincial urban centres in Canada. Prices varied significantly from $25 to $130. The lowest price, $25, was reported for urban centres throughout Ontario. Urban centres reported either the same or lower prices than their rural counterparts across the country, except for New Brunswick (lowest price was $50 in the urban centre compared to $48 in rural community).

The North reported the highest prices, fluctuating between urban and rural areas, and ranged between $100 and $130, where service was available. Additional information can be found on Open Data.

100/15 Mbps, 500GB/month service: Urban vs rural and provincial/territorial comparisons

As the Internet service basket with the highest speed, 100 Mbps download and 15 Mbps upload with a 500GB data cap reported prices between $45 and $300 across the country. In the provinces, minimum prices ranged between $45 and $75. Where available, minimum prices reported in the urban centres were either the same or lower than in rural communities, with the exception of Quebec where rural prices were reported as $5 lower than their urban counterparts (rural: $45; urban: $50). The lowest price, $45, was reported in rural Quebec and urban Ontario. However, urban Ontario also reported the highest price point of $300, far exceeding the maximum range of other provinces ($75 to $140).

100/15 Mbps availability was limited in the North with the service being offered at a single price point of $240. Additional information can be found on Open Data.

50/10 Mbps, unlimited GB/month: Urban vs rural and provincial/territorial comparisons

Within provinces, more Internet service providers offered the 50/10 Mbps service in urban centres than in rural communities, except in Nova Scotia and New Brunswick, where there were 5 providers for both urban and rural communities.

While pricing in rural communities began at a higher price point in most provinces, the starting price point for urban and rural communities in the same province were similar in half the provinces. In

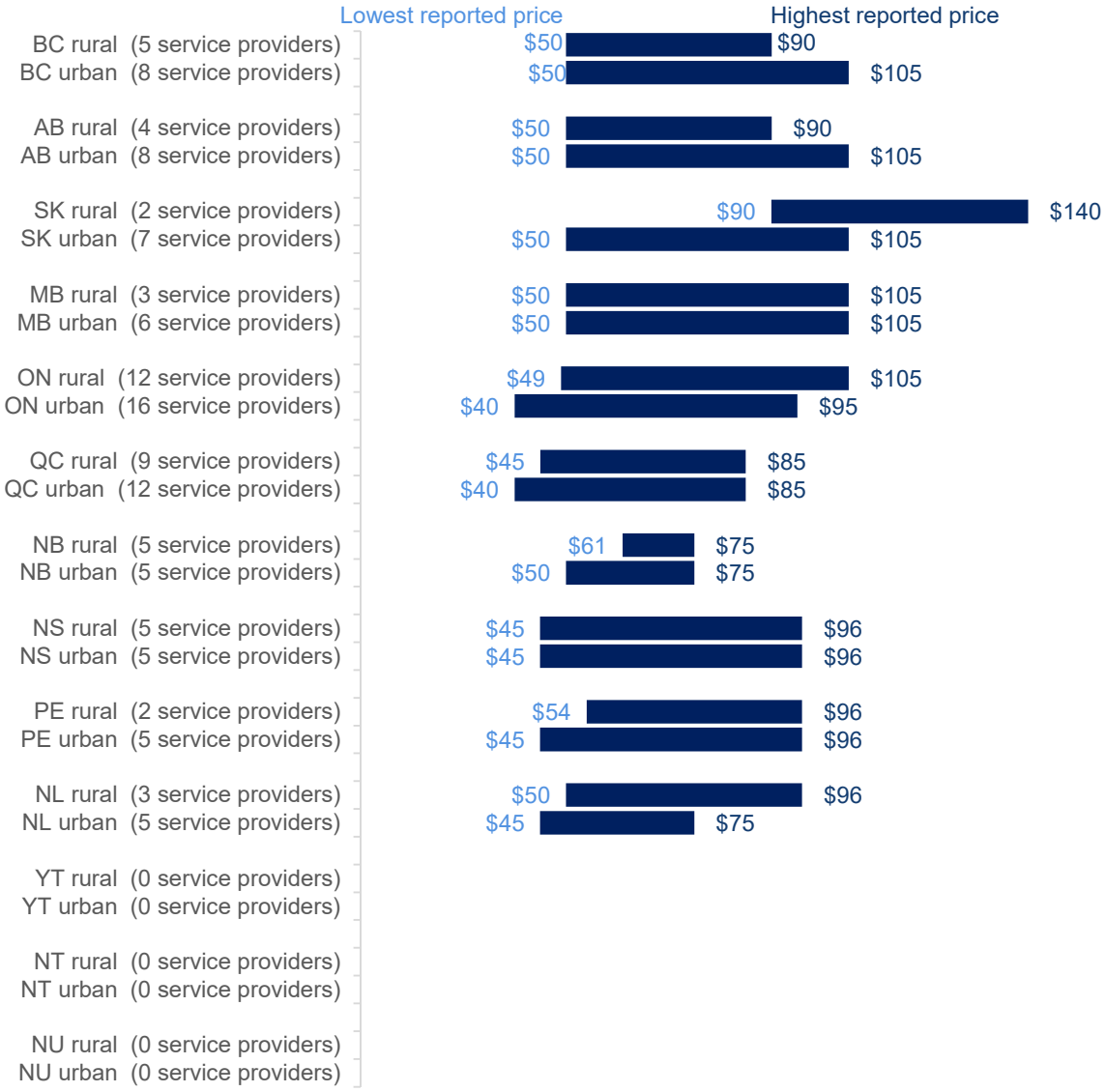
Newfoundland and Labrador, Prince Edward Island, New Brunswick, Quebec, Ontario and Saskatchewan, the starting price point for this service was higher in rural areas than in urban centres.

The highest prices were scattered between urban centres and rural communities offering fairly similar overlapping ranges. Saskatchewan's rural communities, however, had the highest Internet starting price and range, with services starting at $90 and ranging up to $140. This pricing differs significantly not only from the urban centres of Saskatchewan but also from the rest of the country, which showed an average range between $50 and $96. Urban centres in New Brunswick also saw a narrower range ($61-$75) with the second-highest starting price.

This service was not offered in the North.

More detailed information is available through *Datasets available on Open Data*.

Figure 4.16 Range of reported prices for Internet service (50/10 Mbps, unlimited GB/month) (region: province/territory, urban and rural), 2019



Source: 2019 CRTC Annual Communications Pricing Survey
Note: 50/10 unlimited is not available in the North.

iv. Datasets available on Open Data

There is an Excel workbook and CSV zip related to this report that have been published on the Open Data portal. They contain the data found in the figures and tables in this section of the CMR, in addition to supplementary datasets (P-S1 to P-S23) that originate from earlier editions of the CMR.

Instructions: Use the table below to search for datasets available on Open Data that are related to this section of the CMR. When you have found the dataset, go to the Find a CMR Dataset page and download the workbook **Data - Monthly prices at year-end**. Search for the 'tab name' in the Excel workbook tabs to locate the data.

Table 4.4 List of datasets available in the Data - Monthly prices at year-end workbook

Tab name	Title
P-F1	Average price by service (Canada)
P-F2	Annual breakdown: average combined reported prices of 50/10 Mbps unlimited, 5GB mobile plan, basic landline and basic TV (region: province/territory and national)
P-F3	Average combined prices of communications services (region: urban and rural)
P-F4	Urban and rural breakdown for average combined reported prices for 50/10 Mbps unlimited, 5GB unlimited mobile plans, basic landline and basic TV (region: province/territory and national)
P-F5	Range of reported prices for 50/10 Mbps unlimited, 5GB mobile plans, landline services and basic TV services
P-F6	Internet services: range of reported prices for 50/10 Mbps unlimited (region: province/territory)
P-F7	Mobile services: range of reported prices for 5GB mobile plans (region: province/territory)
P-F8	Landline services: range of reported prices and average reported prices (region: province/territory)
P-F9	Basic TV services: range of reported prices and average reported prices (region: province/territory)
P-F10	Average of lowest reported prices ($/month) for mobile services (region: Canada)
P-F11	Average prices of mobile baskets (region: urban and rural)
P-F12	Range of reported prices for 1GB, any minutes, any SMS mobile plans (lower-cost data-only) (region: province/territory, urban and rural)
P-F13	Range of reported prices for 5GB, unlimited minutes, unlimited SMS mobile plans (region: province/territory, urban and rural)
P-F14	Average of lowest reported prices ($/month) for Internet services (region: Canada)
P-F15	Average price of 50/10 Mbps unlimited Internet (region: province/territory)
P-F16	Range of reported prices for Internet service (50/10 Mbps, unlimited GB/month) (region: province/territory, urban and rural)
P-T1	Average reported monthly price, price differential and growth, by service (region: Canada)
P-T2	Mobile baskets included in the 2019 Annual Communications Pricing Survey
P-T3	Internet baskets in the 2019 Annual Communications Pricing Survey
P-T4	List of rural communities and urban centres by province or territory
P-S1	Comparison of basic communications services by price and share of total reported prices (region: Canada)
P-S2	Average reported prices for communications services (region: province/territory)
P-S3	Average reported prices in urban centres and rural communities for communications services by province/region
P-S4	Basic TV services: range of reported prices, by urban centre ($/month)

P-S5	Basic TV services: range of reported prices (region: province/territory, urban and rural) ($/month)
P-S6	Landline services: range of reported prices, by urban centre ($/month)
P-S7	Landline services: range of reported prices (region: province/territory, urban and rural) ($/month)
P-S8	Internet services: range of reported prices, 5/1 Mbps, by urban centre ($/month)
P-S9	Internet services: range of reported prices, 25/3 Mbps, 100 GB/month, by urban centre ($/month)
P-S10	Internet services: range of reported prices, 50/10 Mbps, unlimited GB/month, by urban centre ($/month)
P-S11	Internet services: range of reported prices, 100/15 Mbps, 500 GB/month, by urban centre ($/month)
P-S12	Internet services: range of reported prices, 5/1 Mbps (region: province/territory, urban and rural) ($/month)
P-S13	Internet services: range of reported prices, 25/3 Mbps, 100 GB/month (region: province/territory, urban and rural) ($/month)
P-S14	Internet services: range of reported prices, 100/15 Mbps, 500 GB/month (region: province/territory, urban and rural) ($/month)
P-S15	Mobile services: range of reported prices, no data, 150 minutes, no SMS, by urban centre ($/month)
P-S16	Mobile services: range of reported prices, 1GB data, any minutes, any SMS, by urban centre ($/month)
P-S17	Mobile services: range of reported prices, 2GB data, 1200 minutes, 300 SMS, by urban centre ($/month)
P-S18	Mobile services: range of reported prices, 5GB data, unlimited minutes, unlimited SMS, by urban centre ($/month)
P-S19	Mobile services: range of reported prices, 10GB data, unlimited minutes, unlimited SMS, by urban centre ($/month)
P-S20	Mobile services: range of reported prices, no data, 150 minutes, no SMS (region: province/territory, urban and rural) ($/month)
P-S21	Mobile services: range of reported prices, 1GB, any minutes, any SMS (region: province/territory, urban and rural) ($/month)
P-S22	Mobile services: range of reported prices, 2GB, 1200 minutes, 300 SMS (region: province/territory, urban and rural) ($/month)
P-S23	Mobile services: range of reported prices, 10GB, unlimited minutes, unlimited SMS (region: province/territory, urban and rural) ($/month)

v. Methodology

Definitions

Brands

Flanker brands are brands introduced into the wireless market by an entity that already has a well-established main brand. In the Canadian market, these include brands such as Virgin Mobile and Lucky Mobile (Bell), Fido and Chatr (Rogers), Koodo and Public Mobile (TELUS), and Fizz (Vidéotron).

Main brands are flagship brands that are most recognizable by consumers and are directly associated to the parent companies that own and operate the facilities to provide services. Such brands include Bell Mobility, Rogers, TELUS, and Vidéotron.

Reported prices

Reported price refers to the monthly prices that are publicly available to consumers as of December 31 for the collection year (2019). Entities report these prices to the CRTC via the CRTC's Data Collection System. Entities must submit the lowest price that meets the minimum service requirements as defined in the Annual Pricing Survey. These requirements are outlined in the *Communications services* section below.

- **Minimum service requirements:** Service providers identify and report the price of the service, including those of their flanker brands that best matches the minimum service requirements identified in the survey.
- **Exclusions**: Extra charges are excluded. These can include charges such as activation fees, device subsidies and roaming charges. Discounts are also excluded, such as customer retention discounts and bundling discounts.

Highest and lowest prices include the highest and lowest reported prices by primary brand (including their respective flankers) by urban centre and rural community.

Communication services

Mobile service refers to "bring-your-own-device" (BYOD) 3G or higher (e.g., LTE or LTE-A) wireless service plans that are publicly available to residential consumers. Both main and flanker brands are used to determine the available prices that meet the minimum of the following baskets:

Table 4.5 Mobile baskets in the 2019 data collection

Basket Name	Data allotment range	Minimum voice minutes	Minimum SMS	Minimum speed
No data	Any data	150 minutes	0 SMS	3G or higher
1GB	1 to 2 GB	Any minutes	Any SMS	3G or higher
2GB	2 to 4.9 GB	1200 minutes	300 SMS	3G or higher
5GB	5 to 9.9 GB	Unlimited minutes	Unlimited SMS	3G or higher
10GB (new in the 2019 data collection)	10 or more GB	Unlimited minutes	Unlimited SMS	3G or higher

Notes:

- Prior to 2019, the No data basket was referred to as "level 1"; 1GB basket was "level 2"; 2GB basket was "level 3"; 5GB basket was "level 4".
- Prior to 2019, the minimum voice and SMS requirements for the 1GB basket were 450 minutes and 300 SMS, respectively.

Internet service refers to fixed Internet available to residential consumers. The publicly available prices must meet the minimum requirements of the following baskets:

Table 4.6 Internet baskets in the data collection

Basket Name	Download speed range	Upload speed range	Data transfer range (i.e., "data cap")	Notes
5/1Mbps (removed from the 2019 data collection)	5 to 24.9 Mbps	1 to 3 Mbps	None	The 2011 target speed established by Telecom Regulatory Policy 2011-291.
25/3Mbps, 100GB	25 to 49.9 Mbps	3 to 9.9 Mbps	100 GB/month	--
50/10 unlimited	50 to 99.9 Mbps	10 to 14.9 Mbps	Unlimited data	The target speed and universal service objective, established in 2016 by Telecom Regulatory Policy 2016-496.
100/15 (new in the 2019 data collection)	100 Mbps or higher	15 Mbps or higher	500 GB/month	--

Process for calculating averages

We calculate averages by service, basket, and entity (regardless of flanker) using the minimum reported prices. Each entity must report the lowest non-promotional price meeting the minimum requirements for the basket.

1. To begin, we calculate an average for each province and territory by summing the prices reported in each rural community in the respective province/territory, and dividing this sum by the number of communities reported in that province/territory (communities with no prices are excluded).

$$Provincial\ Rural\ Average = \frac{\sum_{i=1}^{n} price\ for\ each\ rural\ community\ in\ the\ province}{n}$$

2. We calculate the rural average for the North by dividing the sum of the territorial averages by three (the number of territories):

$$Northern\ Rural\ Average = \frac{\sum Territorial\ Rural\ Averages}{3}$$

3. We then add this value to the sum of the provincial rural averages and divide by 11 (10 provinces and the northern rural average) to generate the national rural average:

$$National\ Rural\ Average = \frac{\sum Provincial\ Rural\ Averages + \ Northern\ Rural\ Average}{11}$$

4. We repeat the above three calculations for urban centres.

5. Finally, we calculate the national average by dividing the sum of the urban and rural averages by two:

$$Average = \frac{Urban\ Average + Rural\ Average}{2}$$

We repeat the above process for every service, basket and year of reported prices. If the rural average is not available, we use the urban average in its place.

List of national regions

- The North: Yukon, Northwest Territories and Nunavut
- Prairies: British Columbia, Alberta, Saskatchewan and Manitoba
- Central Canada: Ontario and Quebec
- Atlantic Provinces: Newfoundland and Labrador, New Brunswick, Prince Edward Island and Nova Scotia

List of rural communities and urban centres

The CRTC selected 54 rural communities and 24 urban centres to represent the provinces and territories.

We selected rural communities based on the following criteria:

- The community was not part of one of the census metropolitan areas of the 24 urban centres listed below.
- The community had a population density of fewer than 400 people per square kilometre, or its population centres had fewer than 1,000 people per centre.
- The number of communities selected in each province or territory reflected that province's or territory's proportion of the total population of Canada.
- The communities were not geographically clustered.

Table 4.7 List of rural communities and urban centres by province or territory

Territory or province	Rural communities	Urban centres
Yukon (YT)	Dawson City Mayo	Whitehorse
Northwest Territories (NT)	Fort Simpson Fort Smith	Yellowknife
Nunavut (NU)	Cape Dorset Igloolik	Iqaluit
British Columbia (BC)	Barriere Bowser Cobble Hill Hazelton Kaslo Keremeos Thrums	Vancouver Victoria
Alberta (AB)	Cremona Evansburg Glendon Hythe Wabasca	Calgary Edmonton
Saskatchewan (SK)	Broadview Gull Lake Naicam Redvers Spiritwood	Saskatoon Regina
Manitoba (MB)	Ashern La Broquerie Norway House Pine Falls Southport	Winnipeg
Ontario (ON)	Bayfield Ripley Bancroft Echo Bay Emsdale Ingleside Lion's Head	Toronto Ottawa - Gatineau Hamilton London Kitchener - Waterloo St. Catharines - Niagara Windsor Oshawa
Quebec (QC)	L'Islet La Guadeloupe Lac-Des-Écorces	Montréal Québec

Territory or province	Rural communities	Urban centres
	New Carlisle Laterrière Rock Island St-Honoré (Témiscouata Co.)	
Newfoundland and Labrador (NL)	Burin Harbour Main New Harbour	St. John's
New Brunswick (NB)	Cap-Pelé Florenceville Lamèque	Fredericton
Prince Edward Island (PE)	Crapaud Hunter River Morell-St. Peters	Charlottetown
Nova Scotia (NS)	Bear River Mahone Bay Wedgeport	Halifax

Note: Major centre boundaries are defined using Statistics Canada's census metropolitan area and census agglomeration definitions.

VANESSA FAREAU, et al. Plaintiffs	-and-	**BELL CANADA, et al.** Defendants	Court File No.: CV-20-00635778-00CP

ONTARIO
SUPERIOR COURT OF JUSTICE
Proceeding commenced at TORONTO

Proceeding under the *Class Proceeding Act, 1992*

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BELL CANADA et al.
Defendants

Court File No. CV-20-00635778-00CP

ONTARIO
SUPERIOR COURT OF JUSTICE

PROCEEDING COMMENCED AT TORONTO
Proceeding under the *Class Proceedings Act, 1992*

PLAINTIFFS' REPLY MOTION RECORD
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