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Conseil de la radiodiffusion et des
télécommunications canadiennes

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Communications Monitoring Report (CMR)

Canadian Radio-television and Telecommunications
Commission (CRTC)

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Interested parties are welcome to provide comments for improvements or additions to future editions of the report. You can send your comments to the attention of the Secretary General, CRTC, Ottawa, K1A 0N2.

Chairman's message – CMR 2016

I am pleased to present the 2016 Communications Monitoring Report, which provides a comprehensive view of the Canadian communication sector.

It is clear that Canadians are shifting towards digital platforms and mobile technologies. In 2015, Internet data consumption grew by almost 40% while data traffic over mobile wireless networks increased by 44%.

Subscriptions to landline telephones continue to decrease as mobile ownership grows. Canadians across the country depend increasingly on wireless technologies in their daily lives and wireless services now account for 51% of all retail telecommunications revenues.

To better reflect evolving technologies and shifting consumption habits, improved indicators have been added to this year's report. For example, the broadband measurement data now includes usage data for video calling and live streaming applications. Also, to better analyze patterns from a geographical perspective, provincial and regional breakdowns have been added throughout the different sections of the report.

Both the broadcasting and telecommunication sectors are at important crossroads that are determining their futures. The CRTC undertook many important proceedings in recent years and has put in place measures to ensure our communication system adapts to the digital world and that Canadians can participate in the unfolding digital economy.

This report is an important tool to evaluate where we've been and to inform our choices moving forward. We continue our ongoing efforts to consult with Canadians on these important topics that have great impacts on their daily lives. We are proud to work on behalf of the public interest and to put Canadians at the centre of their world-class communications system.

Jean-Pierre Blais, Chairman and CEO

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Executive Summary

The Communications Monitoring Report (CMR) offers a comprehensive view of the communications services sector in Canada. Specifically, it provides Canadians, industry and stakeholders with meaningful information to help them better understand the communications industry and participate in the CRTC's proceedings.

i Key trends in the communications industry

- Overall, communications industry revenues reached \$65.7 billion in 2015, up from \$64.1 billion in 2014. The revenue growth rate of 2.5% between 2014 and 2015 is slightly above the five-year average growth of 2.1%. Revenue increases for mobile and Internet services were offset by decreases in conventional television and home telephone service revenues.
- In 2015, telecommunications service revenues represented 73% of overall communications service revenues. Total telecommunications service revenues reached \$47.8 billion, and grew by 4.1% since 2014, while broadcasting service revenues decreased to \$17.9 billion, a 1.6% drop from 2014.
- The wireless service market sector represents more than half (51%) of all retail telecommunications service revenues. The wireless service market sector is the largest single retail telecommunications service sector, and has grown more than any other sector since 2008.
- Specialty services reported program & production expenses of \$2.0 billion in 2015, up by \$107.6 million (5.7%) from 2014. Specialty services' program and production expenses were composed of \$54.9 million in Production Expenditures; \$434.2 million in Non-Canadian Programming Expenditures; and \$1.5 billion in Canadian Programming Expenditures (CPE).
- Revenues for cable and IPTV companies continued on their upward trend and totaled \$6.6 billion in 2015. This represented an increase of \$113.5 million (1.7%) since 2014 and of \$702.6 million (11.9%) since 2011. By contrast, the revenues of satellite companies have been on a downward trend since 2012, recording the largest losses over the past two years. They generated revenues of \$2.2 billion in 2015, down 5.2% from 2014.
- The five largest companies accounted for 82% of overall communications revenues in 2015, relatively unchanged from 2014.
- Average monthly household spending on communications services increased from \$212 in 2013 to \$215 in 2014. The largest monthly spending increase was on mobile services, from \$79 in 2013 to \$83 in 2014. Most of Canadians' spending on communications services went to mobile wireless services (38%), followed by home television services (26%), Internet services (20%), and home telephone services (16%).
- Younger Canadians spend more than three times the amount on mobile wireless services than other Canadians. Canadians under 30 years of age spend the most on monthly mobile wireless services (\$114.42), while the lowest spenders, Canadians aged 65 years and older, spend \$33.50 a month on mobile services.

ii Device ownership and data consumption are increasingly popular among Canadians

- The migration towards wireless services continues, as more Canadian households subscribed exclusively to mobile wireless services (23.7%) than to exclusively wireline (i.e. landline) telephone services (13.6%). Similarly, more Canadian households also reported subscribing to mobile telephone services (85.6%) than to landline telephone services (75.5%).
- Canadians also continued to move towards broadband mobile services. Mobile broadband service subscribers continued to post strong gains, with over 22 million subscriptions to mobile broadband services in 2015, compared to 19.3 million in 2014, and 13.2 million in 2011.
- The number of wireless service subscribers increased to nearly 30 million in 2015. Subscriber growth increased 3.4% in 2015, compared to 1.5% in 2014.
- Wireless and Internet data usage is growing. Wireless data usage increased 44% from 2014 to 2015, while fixed Internet data usage increased nearly 40% for the same period. Approximately 70% of wireless data subscribers have plans that provide for at least 1 GB of data usage per month.
- In 2015, service contracts that exceeded 2 years accounted for only 14% of all contract lengths, compared to 33% in 2014, and 56% in 2013.
- Almost three-quarters (73%) of Canadians aged 18 and over owned a smartphone in 2015. This represents an increase of 7% over 2014 and an increase of 36% since 2011.
- LTE coverage reaches over 97% of the population, while HSPA+ is available to over 99% of the population.
- Tablet ownership continued to increase, as more than half (52%) of Canadians owned a tablet in 2015. In 2014, 49% of Canadians 18 years of age and older reported owning a tablet, compared to 10% in 2011.
- More than 80% of Canadian households have access to broadband service speeds of at least 50 Mbps.
- Residential high-speed Internet service subscribers' data download usage increased 40% from 2014, and over 50%, on average, from 2010 to 2015.

iii Canadians continue to watch TV

- Internet TV viewing continued to increase in 2015. Weekly users of 18 years of age and older watched 5.8 hours of Internet TV on a weekly basis, compared to 1.5 hours in 2008.
- Traditional TV viewing time remained relatively stable, decreasing by only 0.2 hours from 2014 to 2015. Canadians (aged 2 and over) watched, on average, 27.2 hours of traditional television per week during the 2014-2015 broadcast year, compared to 27.4 hours in 2013-2014, and 28.5 hours in 2010-2011.
- Younger Canadians watched significantly less traditional television than other Canadians. On average, Canadians 18 to 34 years of age watched less than half the number of hours of traditional television (19.7) as Canadians 65 years of age and older (42.0).
- IPTV service revenues continued to soar. IPTV service providers posted revenues of approximately \$1.6 billion in 2015, up \$273 million or 21% from 2014.

iv The use of streaming music services continues to grow

- Canadians' use of streaming music services is growing. In 2015, 55% of Canadians streamed music videos on YouTube, 23% streamed AM/FM radio online, 20% streamed personalized online music, and 22% listened to podcasts.
- In 2015, 16% of Canadians 18 years of age and older subscribed to satellite radio services. This figure is unchanged from 2014.
- Private commercial radio continued to experience slight decreases. Commercial radio stations reported a slight decrease in revenues, from \$1.61 billion in 2014 to \$1.60 billion in 2015.



1.0 Introduction

i Purpose of the Communications Monitoring Report

Over the last few decades, communications technology has undergone radical transformations. Canadians now have real-time access to a world of information and entertainment across a multitude of platforms. They rely on their communications system to create meaningful content, contribute to Canada's economy and democracy, and connect with their friends, families and communities. As Canadians adapt to technological change, the Canadian Radio-television and Telecommunications Commission (CRTC) will continue to supervise and regulate in a responsible, measured, and intelligent way in the public interest.

The Commission's *Communications Monitoring Report* is a tool for analyzing the evolving state of Canada's communication system. It is designed to support evidence-based policy development, decision making, and open public discussion of broadcasting and telecommunications regulatory policies and issues. The Commission invites parties to use the data in this report to enrich their participation in its regulatory and policy activities.

ii Scope and structure of this year's report

The 2016 *Communications Monitoring Report* captures a wide range of information on financial performance, industry characteristics, Canadian programming expenditures, service prices and availability across Canada, and many other communications-related subjects.

Building on recent efforts to provide a concise overview, Section 2.0 highlights key trends and information directly relevant to Canadians as citizens, consumers, and creators. This section provides a general summary of those key trends and of market performance and competition, pricing, and access across all services. Subsequent sections offer more granular sector-level information.

Section 3.0 surveys Canada's communications industry as a whole, focusing on such characteristics as market participants and the number of firms operating across the Canadian communications industry. The remaining sections provide information on specific markets, offering an in-depth view for those seeking granular data. For example, Sections 4.0 through 4.3 are dedicated to radio, television and broadcasting distribution markets, featuring a range of data on audience measurement, programming contributions and expenditures, and service availability. Sections 5.0 through 5.6 pertains to Canada's telecommunications sector and addresses retail and wholesale Internet, wireline telephone (i.e., landlines), wireless, and data and private line services.

iii Changes to the 2016 report

The CRTC seeks to enhance the relevance of the report to take into account emerging technologies, consumption patterns and business models in addition to shedding more light on existing services.

Additions and changes for the 2016 *Communications Monitoring Report* include the following:

- New data on monthly household spending by age group has been added to section 2.0.
- In previous years, household spending figures were projections derived from Statistics Canada data. Starting this year, data from the survey of household spending is used instead of projections. As a result, household expenditure data reported this year differs from the data in previous monitoring reports.
- CBC's total broadcasting revenues are now included in both section 4.1 (radio sector) and section 4.2 (television sector).
- New broadcasting dispute resolution statistics on the number and type of dispute resolution instances have been added to Section 4.3. Dispute resolution instances range from CRTC staff-assisted mediation, final offer arbitration to informal interventions between broadcasting distributors and/or programming services. BDU revenues and subscribers in this section no longer include estimates for non-reporting entities.
- Section 5.2 (wireline voice retail sector) no longer reports out-of-territory data separately given its small share of the total market.
- The broadband measurement data presented in section 5.3 has been modified to include usage data on a wider range of applications, including video calling and live streaming applications.
- Section 5.5 (wireless retail sector) now includes data on average revenue for downloading data.
- Greater emphasis on provincial and regional breakdowns as well as residential and business breakdowns can be found throughout the report.

These changes will provide Canadians with improved indicators and trends to further enhance their understanding of the communications sector.

1.1 The CRTC

i Who we are and what we do

The Canadian Radio-television and Telecommunications Commission (CRTC) is an administrative tribunal within the Government of Canada that is responsible for regulating and supervising Canada's communication system in the public interest.

The CRTC operates under a number of legislative authorities and Acts of Parliament. These include the following: the CRTC Act, the Bell Canada Act, the Broadcasting Act, the Telecommunications Act, Canada's Anti-Spam Legislation and the Canada Elections Act, which includes provisions that established the Voter Contact Registry.

At the heart of our mandate is the duty to serve the public interest by putting Canadians at the centre of the communications system. To this end, our role encompasses consulting Canadians on communications issues of importance to them, dealing with the many applications we receive by making decisions and rules, responding to enquiries and complaints, as well as reporting to Canadians on the progress and outcomes of our work. The CRTC promotes and enforces compliance with its regulatory policies and decisions. It encourages and facilitates industry co-regulation and self-regulation through consultations, committees and working groups with various industry stakeholders. The CRTC also plays a key role in resolving industry disputes. Finally, in the current dynamic and evolving communications environment, the CRTC collaborates with various domestic and international stakeholders to leverage capacity and intelligence on a host of interrelated policy issues and questions.

For more information on the CRTC's mandate, mission, and activities please consult the CRTC's three-year plan at <http://www.crtc.gc.ca/eng/backgrnd/plan2016/plan2016.htm>.

2.0 Canada's Communication System: An Overview for Canadians

The CRTC continues to strengthen its efforts to place Canadians at the centre of the communication system, whether as consumers of communications products and services, creators and distributors of content, or citizens who need access to information, products and services to fully engage in a democratic society. This section focuses on Canadians' use of communication services, competition, household expenditures, and access to communications services.¹

More Canadian households subscribe exclusively to mobile wireless services (23.7%) than exclusively to wireline telephone services (13.6%). Subscriptions to wireline telephone services continue to decrease each year, while mobile wireless service subscriptions are increasing.

While the majority of Canadians still own and use wireline phones, the data confirms the slow and steady shift away from this technology in favour of wireless services. Indeed, more Canadian households have mobile phones (85.6%) than landlines (75.5 %) – a big change from only ten years ago, when just over half of Canadian households subscribed to mobile phones (62.9%) and almost all subscribed to landlines (94.0%).

Canadians embrace mobile wireless services, a more precise picture emerges when examining this trend across income quintiles. For instance, wireless-only households are most prominent among the two lowest income quintiles (see Table 2.0.7). This suggests that the rise of mobile-only households does not solely reflect changing preferences but may also be driven by affordability.

In 2014, Canadian households paid an average of \$214.75 per month for their communications services, an increase of \$3.00 (or 1.4%) from 2013.

Canadian households currently spend more per month on wireless services (\$82.67) and BDU services (\$56.33) compared to Internet services (\$42.42) and wireline telephone services (\$33.33).

There are clear differences across household income quintiles. Households in the two highest income quintiles spend more than twice as much on mobile wireless services than those in the lowest income quintile – a pattern that roughly holds for cable and DTH satellite television and Internet services. In the case of landlines, spending remains relatively evenly distributed across income quintiles.

¹ Data sources: Both CRTC and Statistics Canada data are presented in this section. CRTC information presents 2015 data, while Statistics Canada's Survey of Household Spending reflects most recently available data from 2014.

i Industry landscape and competition

Canada's communication system is composed of two broad sectors: broadcasting and telecommunications. Total communications revenues increased by 2.5% since 2014. However, this overall growth masks important divergences across individual types of services. While detailed financial information can be found in separate sections of this report, this section offers a high-level overview of industry revenues and the competitive landscape in the broadcasting and telecommunications industries.

Table 2.0.1 Annual communications service industry revenues (\$ billions)

Categories	2013	2014	2015	Growth 2014-2015 (%)
Communications	62.8	64.1	65.7	2.5
Broadcasting	18.0	18.2	17.9	-1.6
Radio	1.9	1.9	1.9	-1.2
TV	7.3	7.4	7.1	-3.4
BDU	8.8	8.9	8.9	-0.1
Telecommunications (retail and wholesale)	44.8	45.9	47.8	4.1
Wireline voice (local and long distance)	10.6	10.1	9.7	-4.0
Internet	8.2	8.9	9.8	10.3
Data and private line	4.8	4.8	4.6	-2.8
Wireless (local and long distance)	21.2	22.0	23.6	7.6

Source: CRTC data collection

What are BDUs? Broadcasting distribution undertakings (BDUs) provide subscription television services to Canadians. They redistribute programming from conventional over-the-air television and radio stations. They also distribute pay audio and discretionary services (i.e. pay, specialty, pay-per-view (PPV) and video-on-demand (VOD)). Most BDUs are cable, national DTH satellite, or Internet protocol television (IPTV) service providers.

Telecommunications services remain dominant

In 2015, revenues from telecommunications services continued to capture approximately 73% of all communications service revenues, with broadcasting service revenues representing the remaining 27%. This speaks in part to the scale of revenues from mobile wireless services, which accounted for nearly half of all telecommunications service revenues. Indeed, mobile wireless services alone generated more revenues than the entire broadcasting sector.

As noted above, more Canadians now subscribe exclusively to mobile wireless services than to wireline telephone services. This reflects financial data trends that demonstrate relatively consistent mobile service revenue growth.

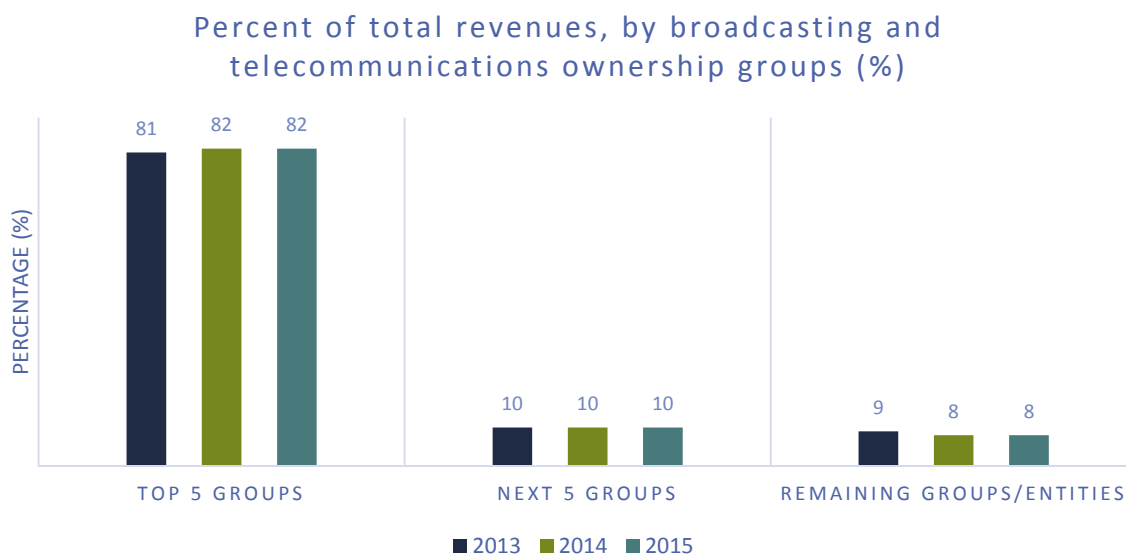
A similar phenomenon – one in which certain services drive overall sector growth while other services remain flat or shrink – has emerged across multiple subsectors of the communication system. Services introduced in the early-to-mid-20th century, including wireline voice services, conventional television services, and radio

services continue to be widely used by many Canadians. However, these services' revenues have not grown at the same pace as those of newer services; in many cases, they have even declined.

A concentrated market

The competitive landscape in the communication system as a whole remains mostly unchanged from last year. Large vertically and horizontally integrated entities hold dominant market positions. As Figure 2.0.1 indicates, the top five broadcasting and telecommunications groups/entities (Bell Canada, Québecor, Rogers, TELUS, and Shaw) together accounted for approximately 82% of total industry revenues, consistent with 2014.

Figure 2.0.1 Percentage of total combined revenues, by broadcasting and telecommunications ownership groups



Source: CRTC data collection

Bundling

This market concentration plays a role in the rise of bundling, since the largest entities are well positioned to offer their customers discounts in exchange for subscribing to a range of services. The table below shows the number of subscriptions to two or more services with one company. From 2011 to 2013, the number of subscriptions to bundled services increased from 9.4 million to 10.4 million. Following a stagnation of the number of bundled subscriptions from 2013 to 2014, a slight -1.9% decrease in the number of bundled service subscriptions occurred in 2015, showing that the market might have reached its saturation point in 2014.

Table 2.0.2 Number of subscriptions with bundled services (millions)

	2011	2012	2013	2014	2015	2011-2015 CAGR ² (%)
Number of subscriptions with bundles	9.4	10.0	10.4	10.4	10.2	2.1
Growth (%)	6.4	6.3	4.1	0.0	-2.2	n/a

Source: CRTC data collection

ii Communications service expenditures and prices

The amounts that Canadian households spend on communications services provide an important perspective on how communications services impact the household budget. These data also point, to a certain extent, to national shifts in demand and the competitive landscape.

However, it is important to recognize the limitations of expenditure data. First, it may overlook the fact that certain free services, such as over-the-air television and radio services, remain valuable to Canadians. Second, the average expenditure amount takes into account all households, including those that do not subscribe to one or more services. As a result, expenditures for households that purchase services may appear lower or higher than they actually are.

Spending on communications services continues to rise³

Throughout 2014, the average Canadian household spent \$214.75 per month on communications services, an increase of \$3.00 (1.4%) over 2013. Table 2.0.3 demonstrates that much like it is the case for telecom industry revenues, mobile and internet services are driving household expenditures growth.

The increase in overall communications spending was led by spending on wireless and Internet services which increased 4.8% and 4.3%, respectively. These increases reflect the observed trends in subscriptions to higher internet speeds and mobile plans with more data.

Canadians continued to allocate the smallest proportion of their household communications service expenditures to landline telephony service, which fell from \$35.58 per month in 2013 to \$33.33 per month in 2014, a reduction of 6.3%. Overall, cellphone ownership rates rose from a total of 84.7% in 2013 to 85.6% in 2014, compared to only 75.5% of Canadians who owned a landline in 2014, down from 79.1% in 2013 (see Figure 2.0.7).

While there is considerable variance between the average amounts spent by Canadians in each income quintile, households tended to devote more of their communications budget to either mobile wireless services or cable IPTV and DTH satellite services. In 2014, spending was greatest on mobile wireless services across all income quintiles.

² Compound annual growth rate

³ The information presented on household communications expenditures comes from Statistics Canada's Survey of Household Spending and does not include any projections or CRTC data.

Although spending on communications services by lower-income households was less than that by higher-income households, as shown in Table 2.0.3, expenditures on communications services take up a significantly larger percentage of their annual incomes – as Table 2.0.4 shows.

Table 2.0.3 Monthly household spending on communication services, by service and by income quintile (\$/month/household)

Service	Year	First quintile	Second quintile	Third quintile	Fourth quintile	Fifth quintile	Average of all quintiles	CAGR of average of all quintiles 2010-2014
Wireline telephone	2012	31.75	34.83	35.67	39.33	44.83	37.33	-5.98%
	2013	29.08	33.50	36.08	38.17	41.00	35.58	
	2014	26.58	31.08	32.50	36.17	40.33	33.33	
	Growth 2013-2014 (%)	-8.60	-7.21	-9.93	-5.24	-1.63	-6.32	
Mobile wireless	2012	34.58	50.00	68.75	83.67	110.17	69.42	7.93%
	2013	42.42	55.92	77.25	91.75	127.00	78.92	
	2014	43.92	60.42	80.83	100.42	127.83	82.67	
	Growth 2013-2014 (%)	3.54	8.05	4.64	9.45	0.66	4.75	
Internet	2012	22.00	31.50	40.67	42.17	46.25	36.50	7.02%
	2013	25.58	35.25	42.08	48.00	52.42	40.67	
	2014	29.50	37.17	44.17	48.75	52.67	42.42	
	Growth 2013-2014 (%)	15.31	5.44	4.95	1.56	0.48	4.30	
Cable, IPTV and DTH	2012	39.50	49.50	54.67	63.58	75.75	56.58	2.14%
	2013	37.00	49.33	57.67	64.58	74.50	56.58	
	2014	38.92	49.42	56.92	62.25	74.17	56.33	
	Growth 2013-2014 (%)	5.18	0.17	-1.30	-3.61	-0.45	-0.44	
Total	2012	127.83	165.83	199.75	228.75	277.00	199.83	3.43%
	2013	134.08	174.00	213.08	242.50	294.92	211.75	
	2014	138.92	178.08	214.42	247.58	295.00	214.75	
	Growth 2013-2014 (%)	3.60	2.35	0.63	2.10	0.03	1.42	
	CAGR 2010-2014	3.04%	3.53%	3.58%	3.41%	3.44%	3.43%	

Sources: Statistics Canada's Survey of Household Spending

All data in Table 2.0.3 was collected and analyzed to show the growth percentages between 2013 and 2014. The expenditure data presents per household expenditure average and excludes sales tax.

On average, for all income quintiles, spending on wireline services have continuously declined from 2010 to 2014, at a compound annual growth rate (CAGR) of -5.98%. In opposition, average wireless service expenditures for all income quintiles grew by 4.75% between 2013 and 2014 and have a 2010 to 2014 CAGR

of 7.93%. Although household spending on communications services increased across all income quintiles, households in the highest quintiles are spending more on communications services compared to those in the lower quintiles. Nevertheless, the growth rate is generally higher in the lower income quintiles. For example, Internet service spending in the first income quintile grew 15.31% since 2013.

Table 2.0.3 also shows a declining growth rate for cable and DTH service expenditures in the higher income quintiles, more specifically, in the third, fourth, and fifth quintiles. Overall, total spending grew 1.42% between 2013 and 2014, and the overall CAGR between 2010 and 2014 was 3.43%.

Table 2.0.4 Household spending on communication services, by income quintile, 2014

Characteristics	Household income less than \$30,519 (First quintile)	Household income from \$30,520 to \$53,274 (Second quintile)	Household income from \$53,275 to \$81,294 (Third quintile)	Household income from \$81,295 to \$124,838 (Fourth quintile)	Household income over \$124,839 (Fifth quintile)	Average of all quintiles
Average annual income	\$19,664	\$42,122	\$67,083	\$101,177	\$201,752	\$86,360
Members per household	1.50	2.05	2.51	2.91	3.40	2.47
Communications expenditures as a percentage of annual income	6.6%	4.1%	3.1%	2.4%	1.5%	2.4%

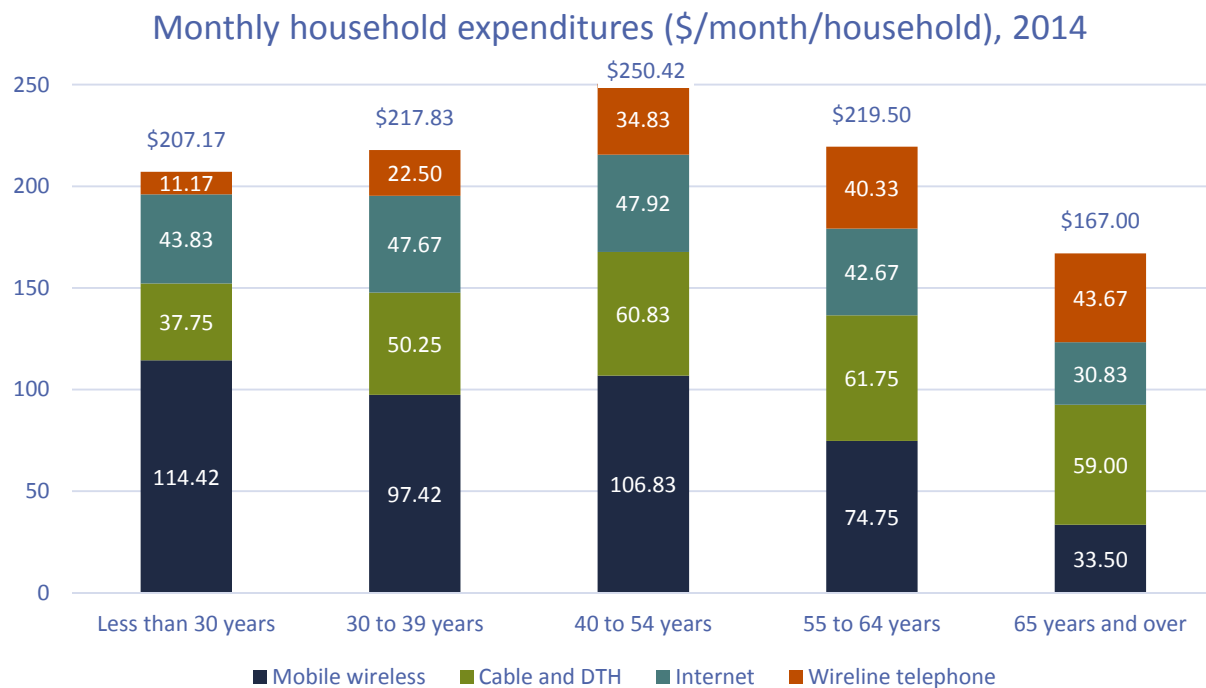
Source: Statistics Canada's Survey of Household spending

Based on Statistics Canada's Survey of Household Spending (data for 2014), the average household annual income before taxes in Canada was \$86,360. The Canadian provincial average household annual income before taxes ranged from \$71,164 to \$118,680. Alberta had the highest average household income before taxes followed by Ontario at \$89,217.

From the perspective of per-household income quintiles (each 20% of households by average annual income), the first income quintile has an average annual income of \$19,664. This quintile had an average of 1.50 members per household. The highest income in this quintile was \$30,519. The third income quintile had an average annual income of \$67,083 and an average of 2.51 members per household. The highest income in this quintile was \$81,294, an increase since last year's highest income of \$79,722. The top 20% of households had annual incomes over \$124,839. This income quintile had an average annual income of \$201,752 and an average of 3.40 members per household.

Compared to data from 2013, the average number of members per household decreased by 0.01. However, there was a significant increase in incomes per quintile. The first quintile range was the only one to decrease from \$30,668 to \$30,519. The second, third, and fourth quintile ranges increased by \$1,470, \$1,572, and \$3,541, respectively.

Figure 2.0.2 Monthly household expenditures, by service and by age of reference person (\$/month/household), 2014



Source: Statistics Canada's Survey of Household Spending

In 2014, all age groups except persons 65 years and over spent the least on wireline telephone services. All age groups, excluding persons 65 years and over, also spent the most on mobile wireless services. Persons under 30 years spent the most on mobile wireless services (\$114.42 per month), which is more than ten times the amount they spent, on average, on landline telephone services (\$11.17 per month). Persons in the 40 to 54 age group spent the most on total communications services (\$250.42 per month), while persons 65 years and over spent the least (\$167.00 per month).

The relationship between age group and the amount spent on communications services is seen between households with persons aged less than 30 years, and households with persons aged 65 years and over. A true generation gap is demonstrated through their monthly communications expenditures, since the youngest generation tends to spend more on communications services, specifically on mobile wireless services (\$114.42 per month). However, the oldest generation spends the least in total for communications services, while the service it spends the most for is cable and DTH (\$59.00 per month). Figure 2.0.2 demonstrates the difference in importance of service through the amount spent per service. For example, persons under 30 years spent the least on wireline telephone services (\$11.17), whereas persons 65 years and over spent almost four times that amount. Even though persons aged less than 30 spent the most on mobile wireless services, they spent the least on communications services overall, within persons aged 64 years and under.

Communications service price levels

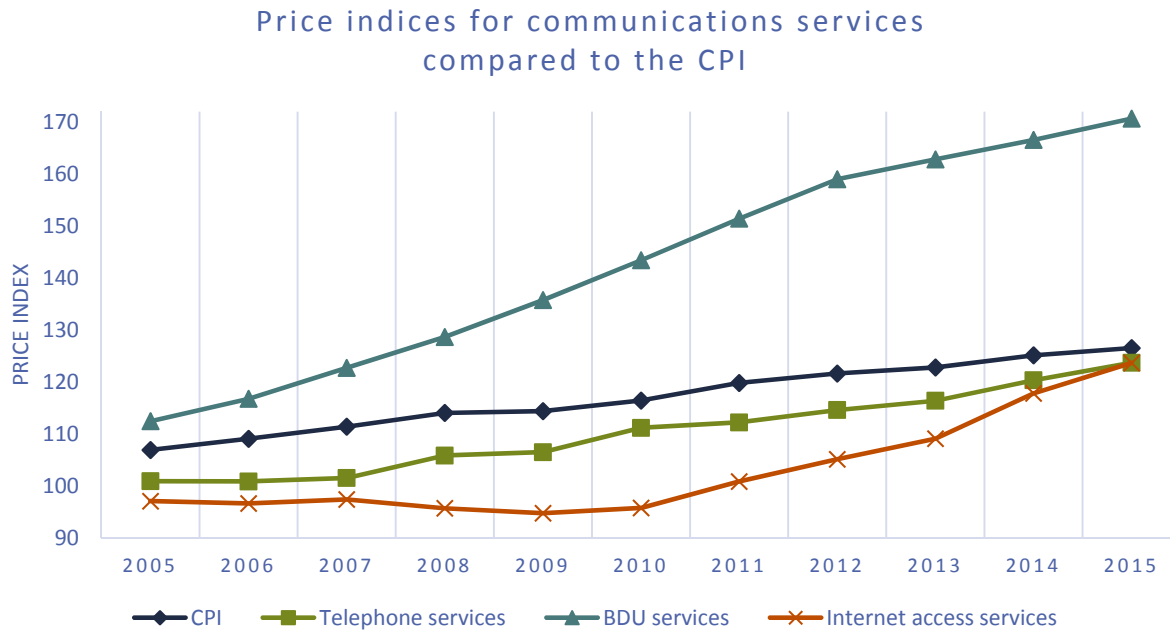
Price indices offer a perspective on the extent to which prices for a basket of goods and services change over time. Figure 2.0.3 shows the price changes for fixed baskets of telecommunications services (telephone services, Internet services, and BDU services (cable, DTH satellite, and IPTV services)), as well as overall price changes as measured by the Consumer Price Index (CPI). By maintaining a consistent basket of goods and services and comparing prices in the current year to the index reference period (2002), these indices measure price changes accurately.

Telephone services index: The telephone services index reflects the price changes experienced over time by a household for a fixed basket of telephone services, including both landline and mobile wireless services. This type of basket reflects a weighted average of consumer expenditures on basic local services, as well as other local telephone services, such as options and features, long distance services, installation, and repair services. This index does not include Internet service expenditures.

BDU services index: The BDU services index includes cable, DTH satellite, and IPTV (including pay television) services and reflects the price changes experienced over time by a household for a basket of subscription based television services. This basket includes both “basic” and “extended” television distribution services. Basic service is the minimum service to which all customers must subscribe. Extended service is the most popular package of additional channels. This index does not account for bundling discounts.

Internet services index: The internet services index reflects the price changes experienced over time by a household for a constant quantity and quality of internet services. This basket includes monthly internet access services subscription through a wired line to the household’s residence. This index does not include access to the internet bundled with voice calls over a cellular network.

Figure 2.0.3 Price indices for telephone services, BDU services and Internet services compared to the CPI

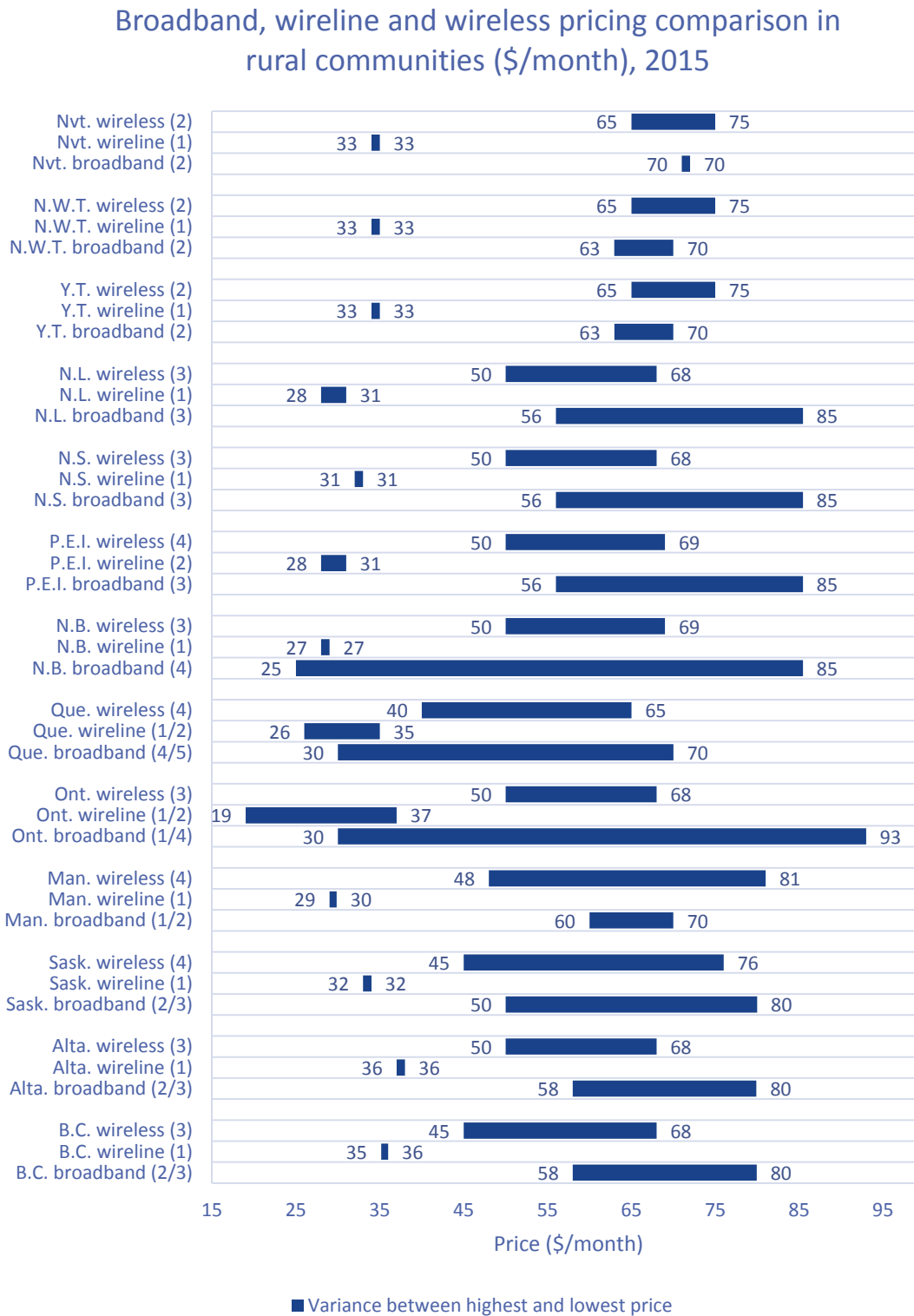


Source: Statistics Canada

As measured by the CPI, average annual inflation in Canada was 1.1% in 2015. In comparison, from 2014 to 2015, the prices of key communication services increased by 2.8% (telephone), 2.5% (cable, DTH satellite and IPTV) and 5.0% (Internet).

Prices for BDU services have increased each year, over the past decade. Similar to previous years, consumers spent on BDU services almost double the amount they spent on telephone services. Internet access service prices continued to rise since 2010. Overall, the CPI steadily increased over the 2005–2015 period.

Figure 2.0.4 Broadband, wireline and wireless pricing comparison in rural communities, per province/territory, 2015



Source: CRTC data collection

The number at the end of each bar is the highest price. The number of service providers in each province (rural areas surveyed) is indicated in parentheses. For example, "B.C. Broadband (2/3)" means the number of service providers among the rural communities in British Columbia included in the survey varied between 2 and 3.

Pricing for broadband, basic local wireline, and wireless services were compared in rural communities. Depicted broadband service prices are based on the most inexpensive service with a 5 Mbps download speed or greater offered by the provider. Basic local wireline services include unlimited calling within a specified geographic area, 9-1-1 services, message relay services, and access to long distance services. Figure 2.0.4 displays the price of basic local telephone services on a stand-alone basis in a number of rural communities. Wireless mobile services include 1,200 minutes or greater of voice service, at least 300 SMS, and over 1 GB of data per month, since nearly 50% of subscribers subscribe to a plan that includes at least 1 GB of data per month.

Broadband in rural communities

The average minimum price is \$51.92 per month for broadband services. New Brunswick has the lowest price for broadband services in rural communities (\$25.00 per month) compared to the other provinces/territories. Ontario has the highest price for broadband services in rural communities (\$93.00 per month). The variance data were calculated by finding the difference between the minimums and maximums of each province/territory. The widest spread of prices are in Ontario, where prices range from a minimum of \$30.00 to a maximum of \$93.00 per month, a variance of \$63.00.

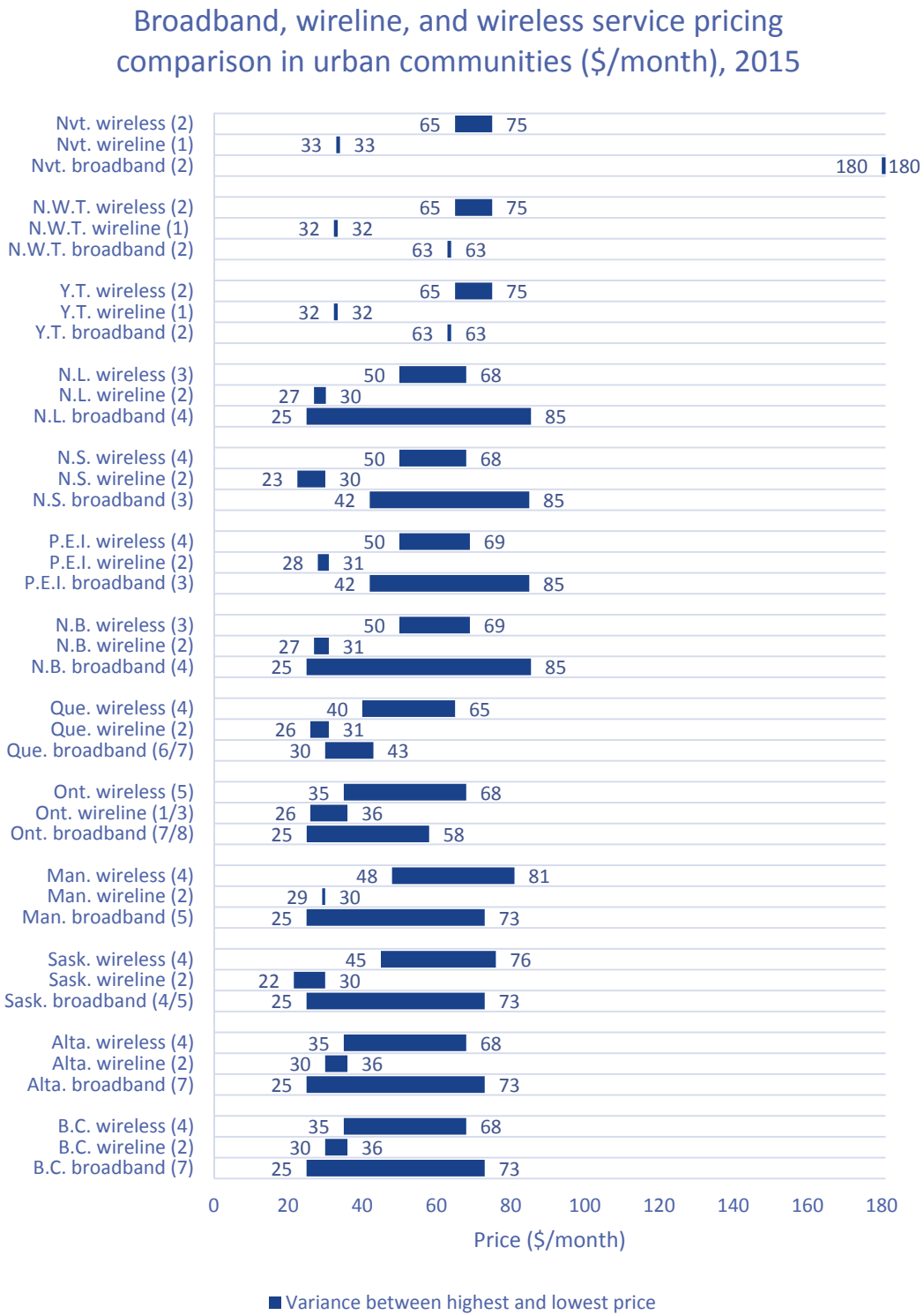
Basic local wireline in rural communities

The minimum prices are relatively the same among provinces/territories, with an average of \$29.98 per month. The lowest price, \$19.00 per month, is found in Ontario. Ontario also has the highest price of \$37.00 per month. A similar pattern is seen in the pricing data for broadband services in rural communities.

Wireless in rural communities

The minimum price for wireless services in rural communities is approximately \$51.77 per month on average, which is similar to the minimum average price for broadband services. Quebec has the lowest price at \$40.00 per month, and Manitoba has the highest price at \$81.00 per month. Manitoba has the highest variance of \$33.00 per month. Overall, pricing in rural communities is highest for broadband services, with wireless service pricing not too far behind.

Figure 2.0.5 Broadband, wireline, and wireless service pricing comparison in urban communities, per province/territory, 2015



Source: CRTC data collection

The number at the end of each bar is the highest price. The number of service providers in each province (urban areas surveyed) is indicated in parentheses. For example, "Sask. Broadband (4/5)" means the number of service providers among the urban communities in Saskatchewan included in the survey varied between 4 and 5.

Depicted broadband service prices are based on the most inexpensive service with a 5 Mbps download speed or greater offered by the provider. Basic local wireline services include unlimited calling within a geographic area, 9-1-1 services, message relay services, and access to long distance services. Figure 2.0.5 displays the price of basic local telephone services on a stand-alone basis in a number of urban centres. Mobile wireless services include 1,200 minutes or greater of voice service, at least 300 SMS, and over 1 GB of data per month.

Broadband in urban communities

Consumers in all provinces/territories, excluding Nunavut, pay a maximum of \$85.00 per month for their broadband services. Nunavut's maximum price (\$180.00 per month) is more than double the maximum price in the rest of the provinces/territories. In most provinces the minimum price for broadband services is \$25.00, as seen in Figure 2.0.5. The widest spread can be observed in Newfoundland and Labrador and New-Brunswick, where prices range from a minimum of \$25.00 to a maximum of \$85.00 per month.

Basic local wireline in urban communities

There is little to no variance in wireline service prices in urban areas. The average maximum price for these services in urban centres is \$32.23 per month. The highest price is \$36.00 per month in British Columbia, Ontario and Alberta, and the lowest price is \$21.54 per month in Saskatchewan. The highest variance is in Ontario (\$10.00), which demonstrates that most wireline service users in urban centres across the country pay approximately the same amount each month (Figure 2.0.5).

Wireless in urban communities

The average maximum wireless service price in urban centres is \$71.15 per month. British Columbia, Alberta, and Ontario all have the lowest price of \$35.00 per month. Urban centres in Manitoba have wireless services at a maximum of \$81.00 per month, the highest price in Canada, and the same price can be found in this province's rural communities (see Figure 2.0.4). Manitoba also has the highest variance (\$33.00).

Overall, compared to pricing patterns in rural communities, pricing in urban centres follows the same trend throughout most provinces/territories. However, the variance in prices is much higher in urban centres due to lower minimums.

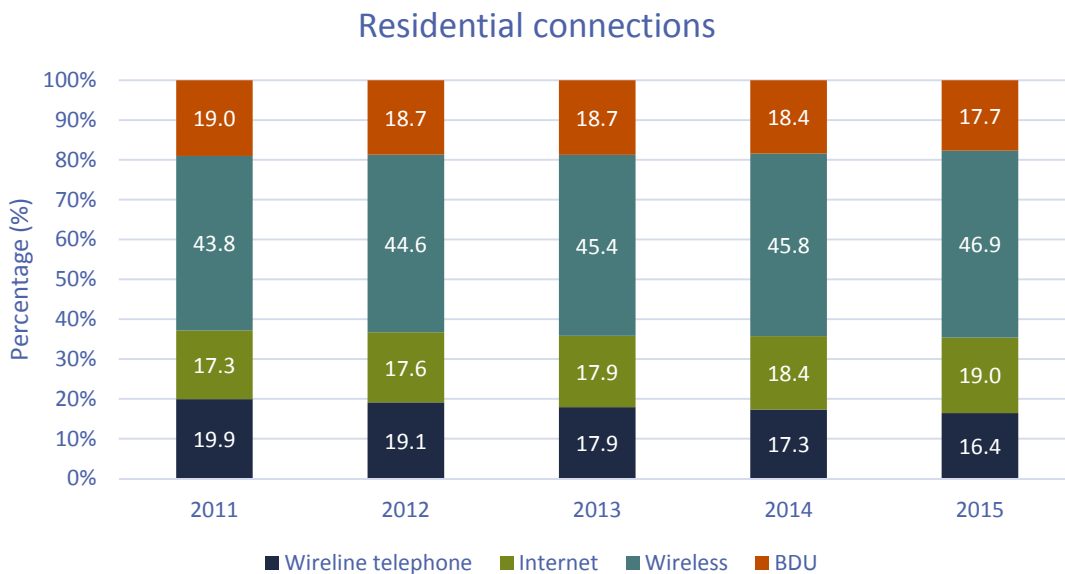
iii Access and service availability

One of the CRTC’s key goals is to ensure that Canadians have access to a world-class communication system. Achieving this objective requires quality information about the diverse challenges faced by communities across the country. To better understand how the communication system is evolving to help Canadians connect with one another and the world, the rest of this section focuses on the availability of communications services in Canada, with particular regard to official language minority communities and access to communications services in minority official languages.

Canadians are communicating through many different platforms

As Figure 2.0.6 shows, connections to mobile wireless services represent nearly half of all household connections, and Internet connections continue to expand. Landline (i.e. wireline telephone service) and BDU (e.g. cable, DTH satellite, and IPTV) connections, despite their relative declines, still comprise over one third of all subscriptions. As a whole, the average household features 4.4 connections. While mobile wireless service connections are the most widespread, Canadians clearly use a variety of ways to communicate.

Figure 2.0.6 Total residential connections distribution by service type (%)



Source: CRTC data collection

Multiple cellphone households behind the rise of wireless service subscriptions

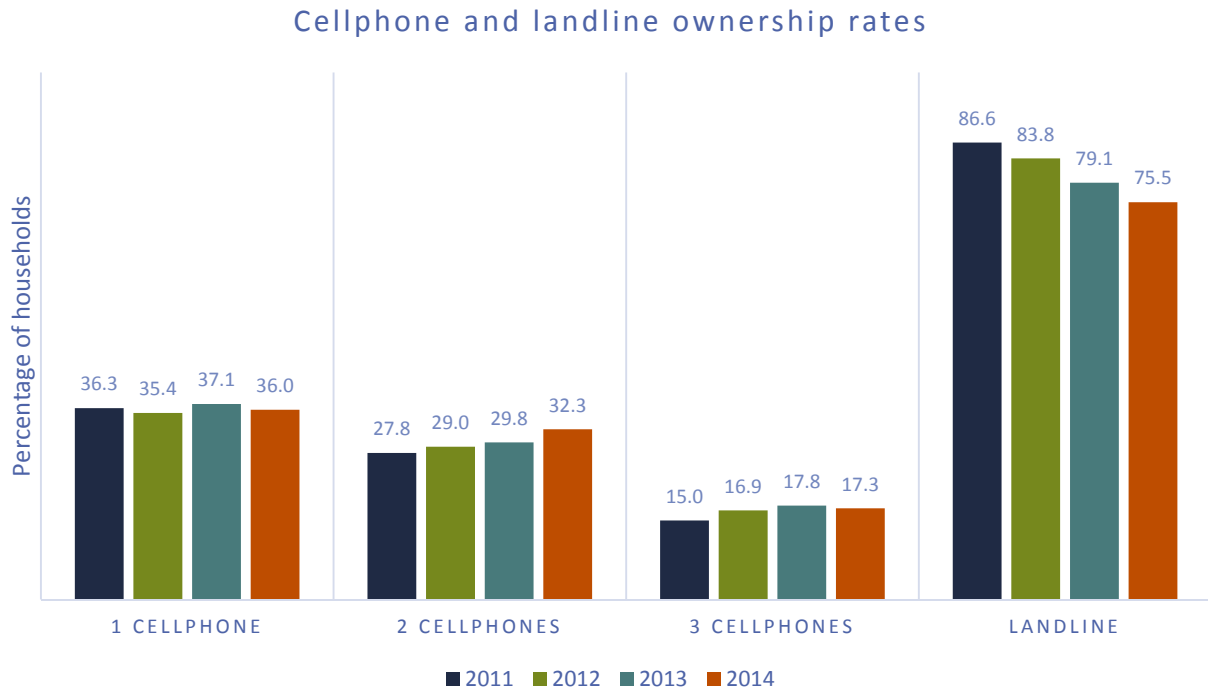
Another way of approaching the issue of availability is to consider the extent to which Canadian households subscribe to key communications services. As Table 2.0.5 shows, nearly all Canadians (99.2%) subscribed to either mobile wireless or landline telephone services in 2014. Yet, rather than stacking telephone services (i.e. subscribing to both landline and wireless mobile services), some Canadians are choosing only one service – and for the most part, this appears to be mobile wireless service. As noted in Table 2.0.5, the percentage of mobile-only households (23.7%) currently exceeds the percentage of wireline-only households (13.6%). Over the last decade, the wireline-only household percentage continuously decreased while the mobile-only household percentage steadily increased.

While the transition to widespread mobile wireless service use – partly at the expense of wireline telephone services – is a long-term process, the historical data in Table 2.0.5 shows how rapidly Canadian households have embraced this newer technology. In 2005, wireline-only households (36.0%) far outpaced their mobile-only counterparts (4.8%).

By organizing this information by province (see Table 2.0.6) and income quintile (see Table 2.0.7), it is more apparent which groups of Canadians are driving this year-over-year shift. For instance, consumers in the four western provinces (Alberta, Saskatchewan, Manitoba, and British Columbia) and Ontario have played a key role in the rise of mobile-only households. In contrast, both Quebec and the Eastern provinces continue to feature a larger percentage of landline-only households. Nevertheless, all provinces have decreasing wireline-only percentages, except Newfoundland and Labrador, whose wireline-only households increased from 13.2% in 2013 to 14.0% in 2014 (Figure 2.0.6). This may be the reason why their mobile-only households decreased to 10.2% in 2014 from 12.0% in 2013 (Figure 2.0.6). Finally, New Brunswick and Newfoundland and Labrador are the only provinces in which a decrease in mobile-only households was observed.

Figure 2.0.7 shows the rate of cellphones and landlines owned by Canadians. 99.2% of Canadian households own either a cellphone or a landline. While 85.6% of households have cellphones in 2014, from 2011 to 2014, the percentage of household owning more than one cellphone increased from 42.8% to 49.6%. During the same period, Landline ownership decreased gradually from 86.6% in 2011 to 75.5% in 2014, as seen in Figure 2.0.7.

Figure 2.0.7 Cellphone and landline ownership rates



Source: Statistics Canada’s Survey of Household Spending

This table provides the percentage of Canadian households by the number of cellphone and landline ownership between 2011 and 2014, using the most recent data available through the Survey of Household Spending.

The link between income and telephone service subscriptions

The data on telephone ownership rates by income quintile (see Table 2.0.7) illustrate the transition to mobile phones. As opposed to 2013, when the percentage of wireless only households surpassed the percentage of wireline only households in the first quintile, the percentage of mobile only and wireline only households remained relatively stable in 2014 for this quintile.

A greater change is seen within the second, third, and fourth quintiles. The exclusive use of cellphones has increased significantly (42.3% growth in the third income quintile). The overall steady decline in wireline service subscriptions shows that households are choosing to forgo wireline services in favour of mobile wireless services.

Contrary to the trend seen throughout income quintiles one to four, the exclusive subscription to wireline services has increased from 3.6% of these households to 4.8%, while the use of only mobile wireless services has decreased (8.0%) in the fifth income quintile.

Financial resources appear to play a role in whether households subscribe to wireless and wireline services, or only one of the two. While only 16.3% of households in the highest income quintile subscribe to only wireline or only wireless services, there is a significant difference in the percentage of households in lower income quintiles that subscribe to only wireline or only wireless services (62.9% in the first quintile). Indeed, the data suggest that the higher a household's income, the more likely it is that the household subscribes to both types of telephone services.

Table 2.0.5 Canadian wireline and mobile wireless service subscribers per 100 households

Year	Wireline	Mobile wireless	Wireline and/or mobile wireless	Wireline only	Mobile wireless only	Only wireline or only wireless
2003	96.3	53.9	98.8	44.9	2.5	47.4
2004	96.2	58.9	98.9	40.0	2.7	42.7
2005	94.0	62.9	98.8	36.0	4.8	40.8
2006	93.6	66.8	98.6	31.8	5.0	36.8
2007	92.5	71.9	98.8	26.9	6.3	33.2
2008	91.1	74.3	99.1	24.8	8.0	32.8
2009	89.3	77.2	99.3	22.1	10.0	32.1
2010	89.3	78.1	99.4	21.3	10.1	31.4
2011	86.6	79.1	99.3	20.2	12.7	32.9
2012	83.8	81.3	99.2	17.9	15.4	33.3
2013	79.1	84.7	99.3	14.6	20.2	34.8
2014	75.5	85.6	99.2	13.6	23.7	37.3

Source: Statistics Canada's Survey of Household Spending

Table 2.0.6 Wireline and mobile wireless telephone service subscribers per 100 households, by province, 2014

Province	Wireline	Mobile wireless	Wireline and/or mobile wireless	Wireline only	Mobile wireless only	Only wireline or wireless
British Columbia	72.5	87.7	99.4	11.7	26.9	38.6
Alberta	71.8	91.4	99.0	7.6	27.2	34.8
Saskatchewan	73.6	90.5	99.4	8.9	25.8	34.7
Manitoba	78.5	87.0	99.3	12.3	20.8	33.1
Ontario	72.9	87.6	99.4	11.8	26.5	38.3
Quebec	79.8	79.1	98.7	19.6	18.9	38.5
New Brunswick	86.2	81.1	99.0	17.9	12.8	30.7
Nova Scotia	79.5	84.1	98.7	14.6	19.2	33.8
Prince Edward Island	82.9	82.7	99.9	17.2	17.0	34.2
Newfoundland and Labrador	89.3	85.5	99.5	14.0	10.2	24.2
All of Canada	75.5	85.6	99.2	13.6	23.7	37.3

Source: Statistics Canada's Survey of Household Spending

Table 2.0.7 Canadian wireline and mobile wireless service subscribers per 100 households, by income quintile

Service	Year	First quintile	Second quintile	Third quintile	Fourth quintile	Fifth quintile
Wireline	2012	74.6	80.3	82.8	87.4	92.4
	2013	65.2	75.0	82.2	84.7	87.5
	2014	65.3	69.1	74.3	80.2	88.3
	Growth 2013-2014 (%)	0.2	-7.9	-9.6	-5.3	0.9
Mobile wireless	2012	61.7	75.1	85.9	91.0	93.4
	2013	66.8	79.7	88.5	92.9	96.4
	2014	67.4	83.2	89.4	93.2	95.0
	Growth 2013-2014 (%)	0.9	4.4	1.0	0.3	-1.5
Wireline and/or mobile wireless	2012	97.4	99.5	99.7	99.8	99.7
	2013	97.5	99.7	99.7	99.6	100.0
	2014	97.8	99.4	99.2	99.5	99.8
	Growth 2013-2014 (%)	0.3	-0.3	-0.5	-0.1	-0.2
Wireline only	2012	35.7	24.4	13.8	8.8	6.3
	2013	30.7	20.0	11.2	6.7	3.6
	2014	30.4	16.2	9.8	6.3	4.8
	Growth 2013-2014 (%)	-1.0	-19.0	-12.5	-6.0	33.3
Mobile wireless only	2012	22.8	19.2	16.9	12.4	7.3
	2013	32.3	24.7	17.5	14.9	12.5
	2014	32.5	30.3	24.9	19.3	11.5
	Growth 2013-2014 (%)	0.6	22.7	42.3	29.5	-8.0

Source: Statistics Canada's Survey of Household Spending

The results of Statistics Canada's Survey of Household Spending are released approximately two years after the data is collected. Consequently, the most recently available data is from 2014.

The link between income and Internet subscriptions

Mobile wireless devices (such as smartphones and tablets) and technologies (HSPA and LTE) enable Canadians to access the Internet from nearly any location. However, home computers still play an important role. As Table 2.0.8 shows, most Canadian households have home computers. Households in the lower income quintiles (first, second, and third) have more cellphones than home computers. For example, 67.4% of Canadian households in the lowest income quintile own cellphones (see Table 2.0.7), compared to 64.3% of those households that own home computers and 63.5% that have Internet access at home (see Table 2.0.8).

While this may be due to a number of factors, one important factor could be that low-income households are choosing to devote their resources to a technology that can provide multiple communications services (voice and Internet), rather than subscribing to each service individually. It is worth noting that the use of home computers, for the first time, has declined across all income quintiles, with the largest decrease of 3.1% in the second quintile.

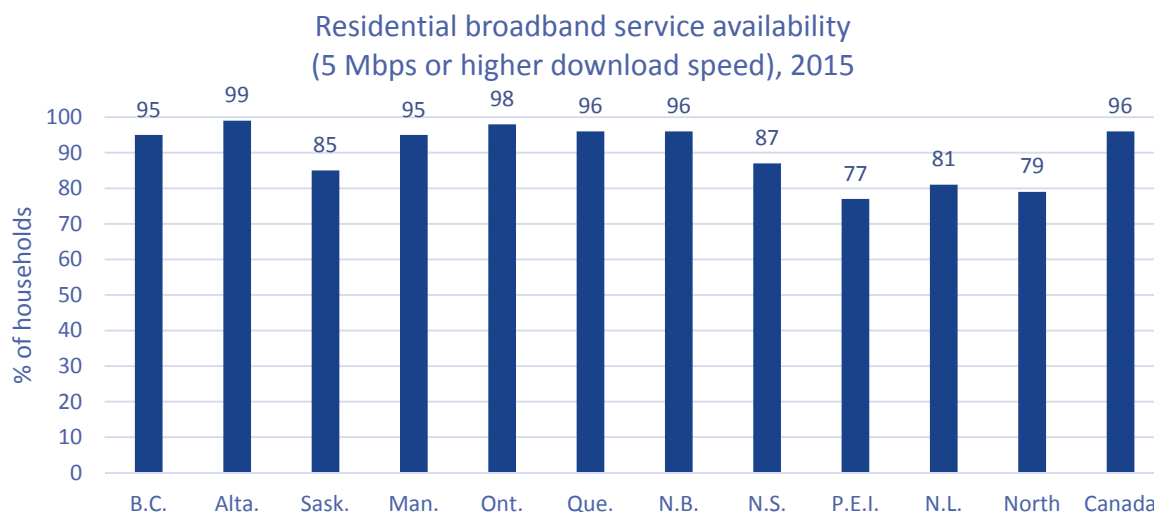
Table 2.0.8 Home computers and Internet use from home per 100 households, by income quintile

Technology	Year	First quintile	Second quintile	Third quintile	Fourth quintile	Fifth quintile	Average for all quintiles
Home computer	2013	64.4	80.6	89.8	95.4	97.9	85.6
	2014	64.3	78.1	87.7	94.0	97.4	84.3
	Growth (%)	-0.2	-3.1	-2.3	-1.5	-0.5	-1.5
Internet use from home	2013	59.7	77.6	89.0	94.9	98.4	83.9
	2014	63.5	78.5	88.7	95.5	98.3	84.9
	Growth (%)	6.4	1.2	-0.3	0.6	-0.1	1.2

Source: Statistics Canada

The rise in Internet service use across income quintiles is also reflected in overall residential Internet service availability and subscription rates. The percentage of households with access to broadband services with a download speed of at least 5 Mbps is 96% (see Figure 2.0.8). Similarly, although the CRTC's target service speeds are linked to the *availability* of 5 Mbps (download) and 1 Mbps (upload) service and not subscriptions to these service speeds, the data indicates that Canadians are clearly embracing faster connections, which are becoming more widely available: the majority of households now subscribe to Internet service packages with download speeds at or above 10 Mbps, while packages with slower service speeds have been declining in popularity.

Figure 2.0.8 Residential broadband service availability (5 Mbps or higher download speed), by province/territory (% of households), 2015



Source: INNOVATION, SCIENCE AND ECONOMIC DEVELOPMENT CANADA (ISED) and CRTC data collection

DTH satellite services are excluded as they have a national footprint. They would add approximately 1.5% to the availability of 5 Mbps broadband services.

Table 2.0.9 Residential Internet subscriptions by advertised download speed per 100 households

Advertised download speed	2011	2012	2013	2014	2015
256 kbps and higher	76	78	79	81	83
1.5 Mbps and higher	72	75	77	80	82
5 Mbps and higher	54	62	71	77	80
10 Mbps and higher	19	29	45	55	61
16 Mbps and higher	7	21	25	34	41
50 Mbps and higher	0	3	4	8	16
All speeds (including dial-up)	78	79	80	82	84

Source: CRTC data collection

2.1 Local spotlight: Access for official language minority communities

As a designated institution under section 41 of the *Official Languages Act*, the CRTC is committed to enhancing the vitality of the English- and French-language minority communities in Canada, supporting their development and addressing their needs within the context of its mandate, and fostering the full recognition and use of both official languages in Canadian society. To this end, the CRTC focuses on ensuring that official language minority communities have access to an appropriate and equitable number of quality services and that these communities are adequately represented in the programming of these services.

These objectives reflect the Canadian broadcasting policy objectives, which the Commission is tasked to pursue. In this regard, the *Broadcasting Act* specifies that the Canadian broadcasting system should demonstrate Canada's linguistic duality through programming and employment opportunities; that a range of broadcasting services in English and French shall be extended to all Canadians as resources become available; and that the programming provided by the Canadian Broadcasting Corporation be in English and in French, and reflect the different needs and circumstances of English and French linguistic minorities.

Table 2.1.1 Official language minority population as a percentage of the total population, by province and territory, 2012

Province/territory	Official language minority population (% of total population)
British Columbia	1.4
Alberta	2.0
Saskatchewan	1.7
Manitoba	3.6
Ontario	4.0
Quebec	8.0
New Brunswick	31.6
Nova Scotia	3.5
Prince Edward Island	3.8
Newfoundland and Labrador	0.5
Territories	2.8
Canada	4.8

Source: 2011 Census, Statistics Canada

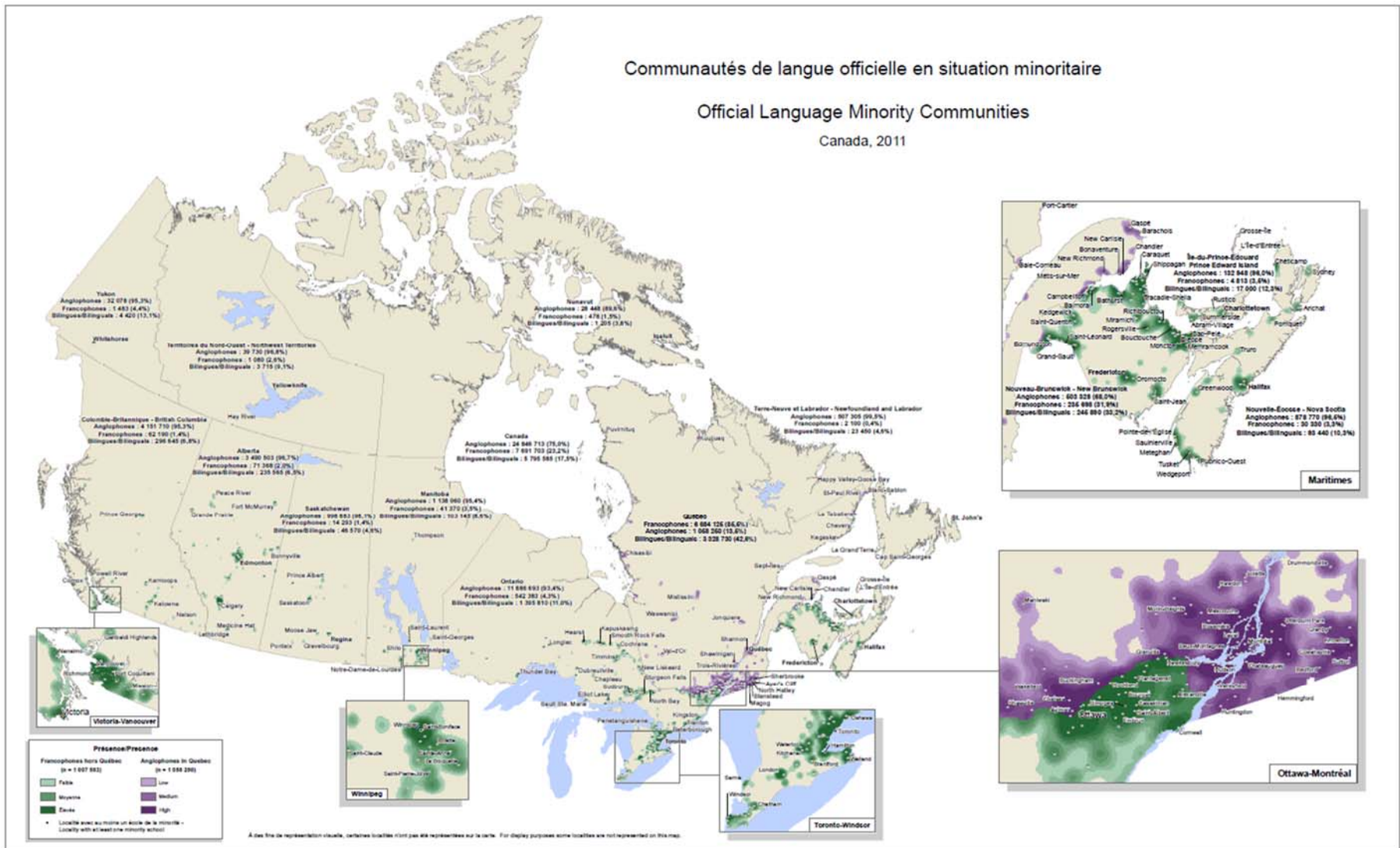
A number of different criteria can be used to identify the language of individuals. These include the first language learned at home, the language spoken at home, and the language of education.

For the purpose of this report, the official language minority population is defined in terms of the first language learned at home in childhood (i.e. the mother tongue) and still understood at the time of the 2011 Census.

This table displays the percentage of the population for whom the mother tongue is an official language in minority status in the province or territory in which they reside, and in Canada as a whole. In all provinces and territories except Quebec, the official language having minority status is French. New Brunswick has the

highest percentage of official language minority population, at 32.0%, followed by Quebec at 8.0%. This data excludes institutional residents.

Map 2.1.1 Locations of official language minority communities in Canada



Source: Canadian Heritage, Official Languages Branch

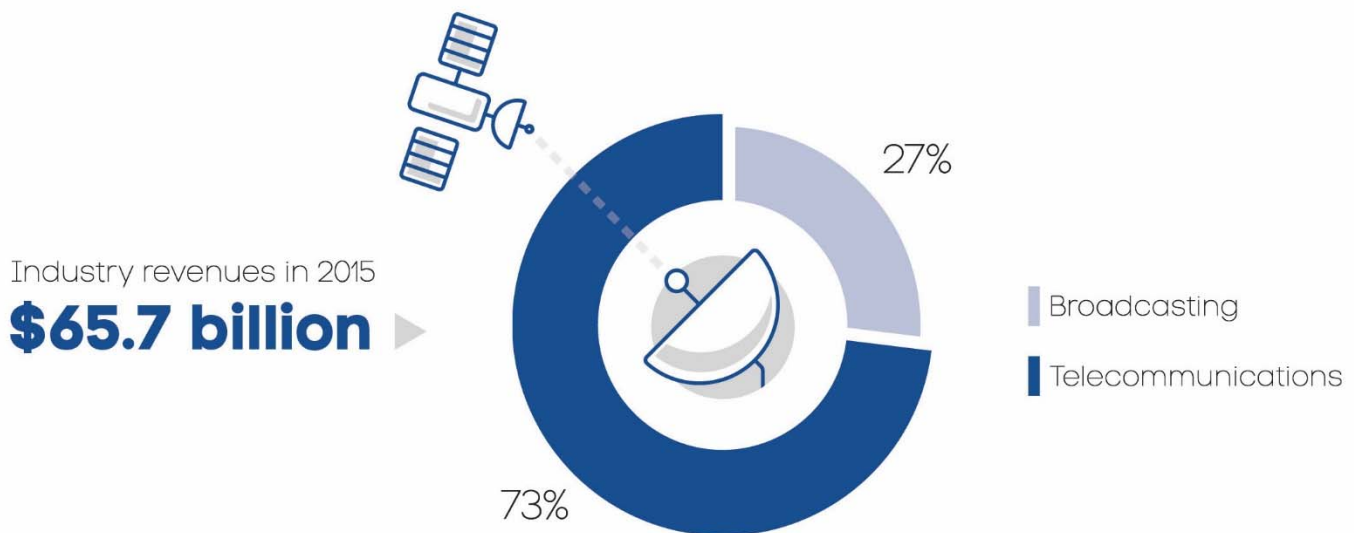
Table 2.1.2 Percentage of official language minority community households having access to communications services in their official language, by type of service, for the provinces/territories and all of Canada, 2013

Province/territory	Official language minority population as a percentage of total population	Radio	Over-the-air television	Cable distribution (excluding DTH satellite)	Broadband Internet	Mobile wireless broadband
British Columbia	1.4	71	49	94	96	98
Alberta	2.0	77	33	90	99	99
Saskatchewan	1.7	55	17	74	99	99
Manitoba	3.6	78	62	75	99	99
Ontario	4.0	71	34	88	97	99
Quebec	8.0	83	87	93	96	99
New Brunswick	31.6	94	46	93	99	99
Nova Scotia	3.5	75	1	76	99	99
Prince Edward Island	3.8	64	0	60	86	99
Newfoundland and Labrador	0.5	56	0	82	85	95
Territories	2.8	51	0	75	97	84
Canada	4.8	72	62	91	97	99

Source: 2011 Census, Statistics Canada, and CRTC data collection

This table displays the percentages of the official language minority community households in each province and in the territories that have access to radio services, television services, cable distribution services (excluding DTH satellite services since these services are generally available to all households), broadband Internet services, and mobile wireless broadband services, from which they can be served in their first official language.

3.0 The Communications industry



Revenues

\$65.7 B

Increase of 2.5%
over 2014

Revenue
Share

90%

Incumbent TSPs
& cable companies

Wireless
Revenue Share

36%

Largest sector

Internet Revenue
Growth Rate

10.3%

Fastest growth sector

The Communications industry encompasses both the broadcasting and telecommunications market sectors. In 2015, telecommunications revenues represented 73% of the communications revenues compared to 27% for broadcasting. The communications industry served over 14 million households and over a million businesses in Canada using both landline and wireless facilities. Over 59% or \$35 billion of all communications services revenues, excluding *revenues generated from discretionary and on demand television services as well as Direct-to-Home (DTH) BDU services*, were generated in the provinces of Ontario and Quebec.

This section examines key characteristics of the communications industry, including overall revenue growth and financial performance. More detailed information, including market financial performance, ownership landscape data, pricing information in rural and urban centres across the country can be found in sections 4 and 5 of the report.

The wireless market sector continue to be the largest single communications sector, capturing 36% of the \$65.7 billion communications revenues in 2015. For the first time ever, total Internet revenues surpassed broadcasting distribution by approximately \$900 million and has emerged as the second largest market sector with 15% of the communications revenues. Broadcasting distribution and Internet services remain particularly reliant on residential subscriptions, which account for 87% of their revenues.

Revenues from top five ownership groups accounted for approximately 82% of total communications revenues in 2015 compared to 81% in 2011. Of these groups of companies, two are incumbent telephone companies (Bell and TELUS) and three are traditional broadcasting distribution companies (Rogers, Shaw, and Québecor).

Over the past five years, revenues from the cable-based carriers and the incumbent TSPs, as a percentage of total communications revenues, have remained more or less stable at approximately 32% and 50%, respectively. During this period, cable-based carriers' telecommunications revenues increased by 4.2% annually from \$12.7 to \$15.0 billion. Traditional telephone companies, however, increased their BDU revenues 10.0% annually, from \$2.1 billion in 2011 to \$3.1 billion in 2015.

i Revenues

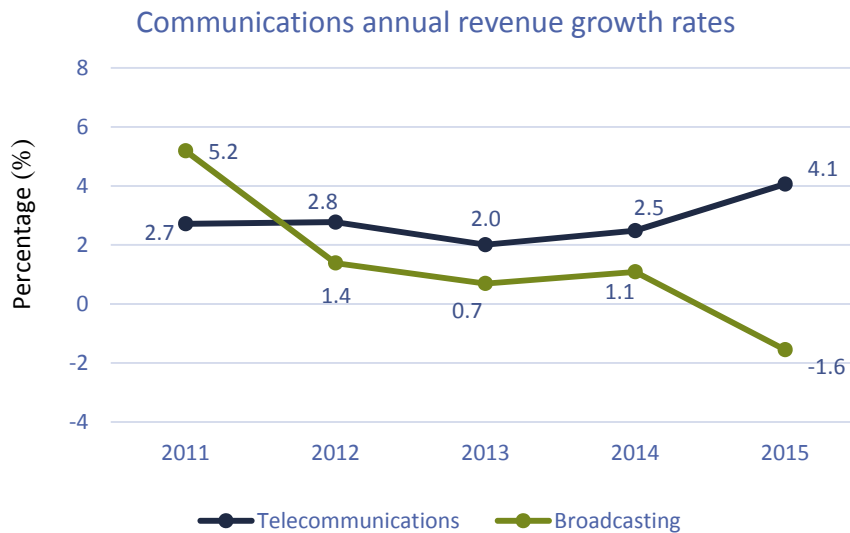
Table 3.0.1 Communications revenues (\$ billions)

Category	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Telecommunication	42.8	43.9	44.8	45.9	47.8	4.1	2.8
Broadcasting	17.6	17.9	18.0	18.2	17.9	-1.6	0.4
Total revenues	60.4	61.8	62.8	64.1	65.7	2.5	2.1

Source: CRTC data collection

Revenues are one of the principal means to measure the performance of the communications industry. This table shows revenues, growth rate as well as the compound annual growth rate (CAGR) from 2011 to 2015 for telecommunications service providers (TSPs) and broadcasters (including all CBC revenues and broadcasting distribution undertakings (BDUs)).

Figure 3.0.1 Communications annual revenue growth rates



Source: CRTC data collection

Annual revenue growth rates are an indicator of overall broad trends in the communications industry. This graph shows annual revenue growth rates for the telecommunications and broadcasting industries from 2011 to 2015.

Table 3.0.2 Communications revenue distribution by region (\$ billions)

Region	2014	2015	Percentage of total (%)	Growth (%) 2014-2015
Atlantic	3.8	4.0	6.8	4.2
BC and Territories	7.8	8.1	13.7	4.4
Ontario	22.7	23.0	38.8	1.1
Prairies	11.5	12.1	20.4	4.9
Québec	11.6	12.0	20.3	3.1

Source: CRTC data collection

This table excludes revenues generated from discretionary and on demand television services as well as DTH BDU services as those services are licensed as national services. These services generated \$4.3 and \$2.3 billion in 2015, respectively. Estimates were made for companies that were not required to provide provincial and territorial telecommunications data.

Table 3.0.3 Communications revenues, by type of service provider (\$ billions)

Type	Subtype	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Incumbent TSPs	Telecommunications	27.7	28.0	28.3	28.9	29.7	2.7	1.8
	Broadcasting distribution revenues	2.1	2.4	2.7	3.0	3.1	5.3	10.0
	Subtotal	30.8	30.3	31.0	31.8	32.8	3.0	2.4
Alternative service providers	Other facilities-based service providers	0.9	1.2	1.2	1.2	1.5	19.1	14.4
	Resellers	1.5	1.5	1.5	1.6	1.7	5.6	2.9
Cable-based carriers	Telecommunications	12.7	13.3	13.8	14.2	15.0	5.4	4.2
	Broadcasting distribution revenues	6.3	6.2	6.1	6.0	5.8	-2.8	-2.2
	Subtotal	19.0	19.5	19.9	20.2	20.8	3.0	2.2
Other broadcasting	Broadcasting – Radio & TV	9.2	9.3	9.2	9.3	9.0	-2.9	-0.5
Total	All	60.4	61.8	62.8	64.1	65.7	2.5	2.1

Source: CRTC data collection

Canadians receive broadcasting and telecommunications services from a range of types of service providers, through a range of technologies. This table lists each type of telecommunications and broadcasting service provider and shows changes in total annual revenues for each of year between 2011 and 2015.

ii Industry characteristics

Table 3.0.4 Industry convergence – Cable vs. telecommunications

Year	Percentage of cable-based carriers revenues from telecommunications services	Percentage of incumbent TSPs revenues from television services
2015	72.1	9.6
2014	70.5	9.3
2013	69.4	8.8
2012	68.1	7.8
2011	66.8	7.2

Source: CRTC data collection

This table shows the extent to which cable-based carriers collect revenues from telecommunications services and incumbent TSPs (traditional telephone companies) collect revenues from television services. It illustrates one measure of the state of convergence in the industry between 2011 and 2015. Telecommunications services include local telephone, long distance, Internet, data and private line, and wireless services.

Table 3.0.5 Percentage of broadcasting and telecommunications revenues generated by companies operating in multiple sectors

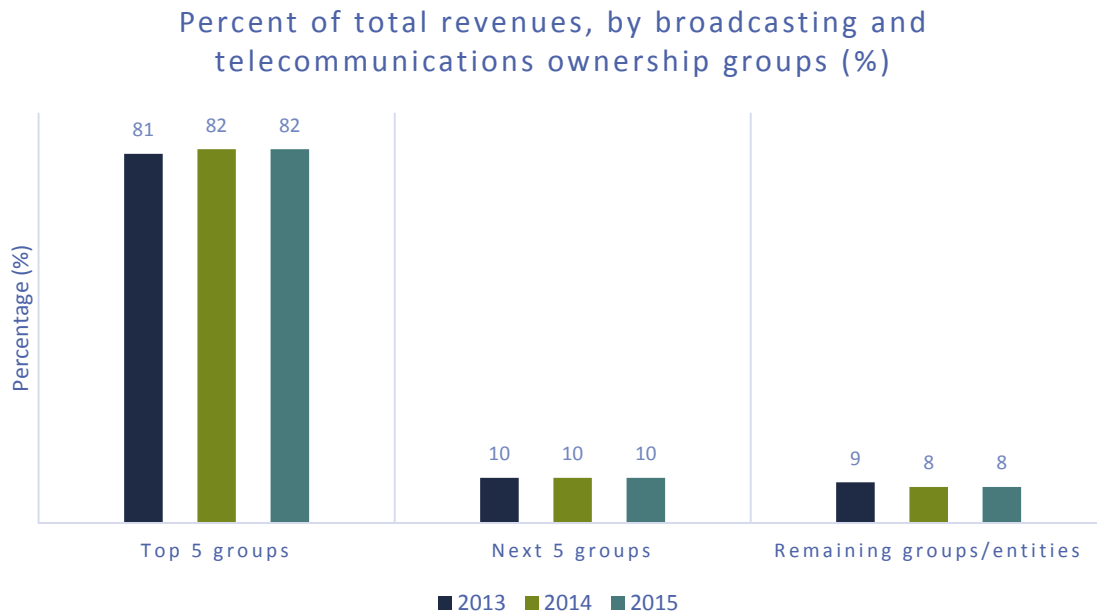
Number of sectors in which companies offer service	Number of reporting groups or entities operating in these sectors			Percentage of broadcasting and telecommunications revenues generated in these sectors		
	2013	2014	2015	2013	2014	2015
10	3	3	3	59	60	59
9	0	0	0	0	0	0
8	5	7	7	27	30	30
7	0	0	0	0	0	0
6	4	3	2	2	0	0
5	12	11	17	1	0	1
4	32	28	27	2	1	1
3	44	44	39	5	5	4
2	42	38	45	1	1	2
1	224	215	220	3	3	3

Source: CRTC data collection

The table above shows that three communications service providers offered services in all 10 market sectors (radio (1), television (2), BDU (3), discretionary and on demand television (4), in the broadcasting industry, and local and access, (5) long distance (6), Internet (7), wireless (8), data (9), and private line (10) in the telecommunications industry) and generated 59% of communications revenues. In contrast, 220 providers that offered only one service generated 3% of communications revenues.

iii Financial performance

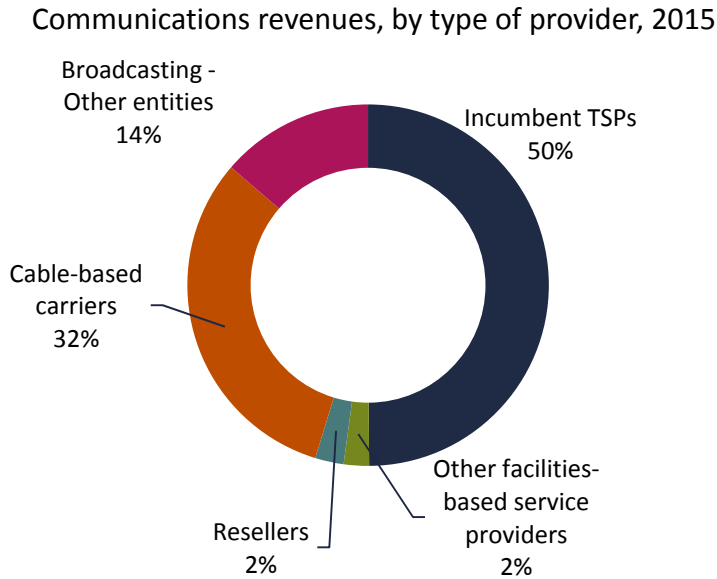
Figure 3.0.2 Percent of total revenues, by broadcasting and telecommunications ownership groups



Source: CRTC data collection

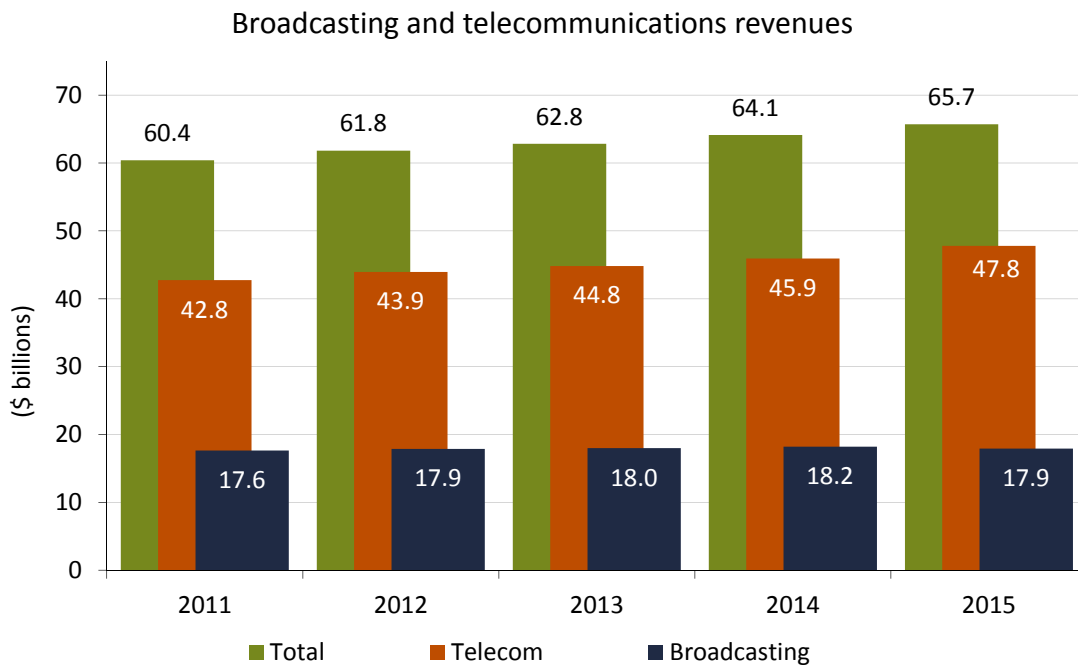
Canada's communications services market is dominated by a small number of large ownership groups. The top five groups, Bell, Québecor, Rogers, TELUS, and Shaw, account for approximately 82% of total industry revenues. The next five largest groups/entities gather approximately 10%, and all remaining groups/entities gather 8%. Revenues include those of their affiliates.

Figure 3.0.3 Communications revenues, by type of provider, 2015



Source: CRTC data collection

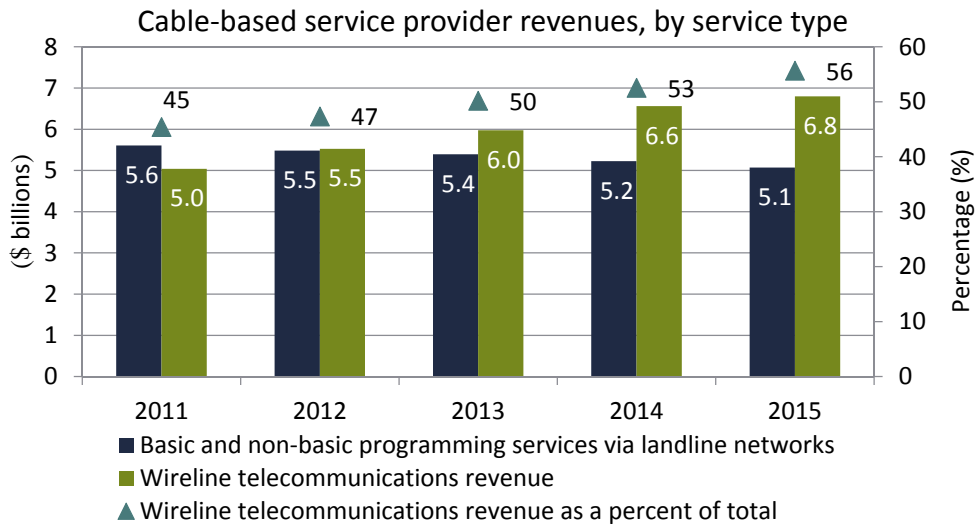
Figure 3.0.4 Broadcasting and telecommunications revenues (excluding non-programming and exempt services)



Source: CRTC data collection

This bar graph compares cable-based service provider revenues from two principal sources: basic and non-basic programming services (i.e. revenues from the distribution of television services) and wireline telecommunication services (i.e. local, long distance, data, private line, and Internet) between 2011 and 2015.

Figure 3.0.5 Cable-based service provider revenues, by service type

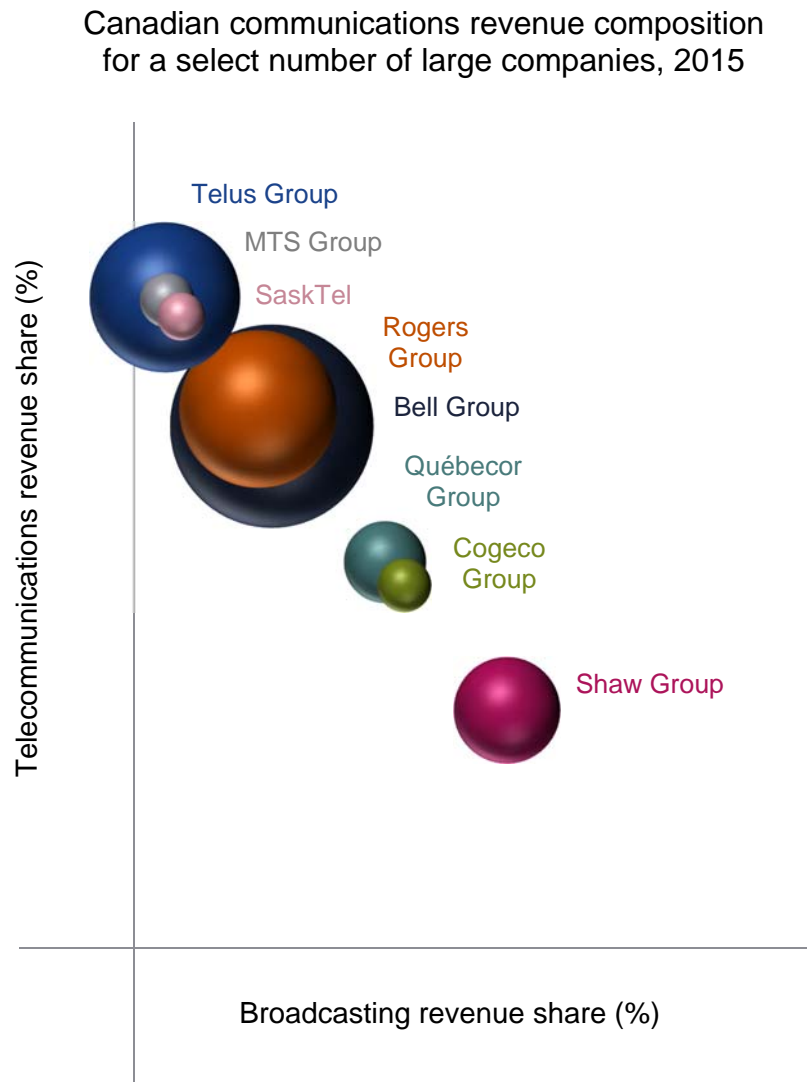


Source: CRTC data collection

This bar graph compares cable-based service provider revenues from two principal sources: basic and non-basic programming services (i.e. revenues from the distribution of television services), and wireline telecommunication services (i.e. local, long distance, data, private line, and Internet) between 2011 and 2015.

This graph excludes revenues from BDU satellite services and mobile wireless services.

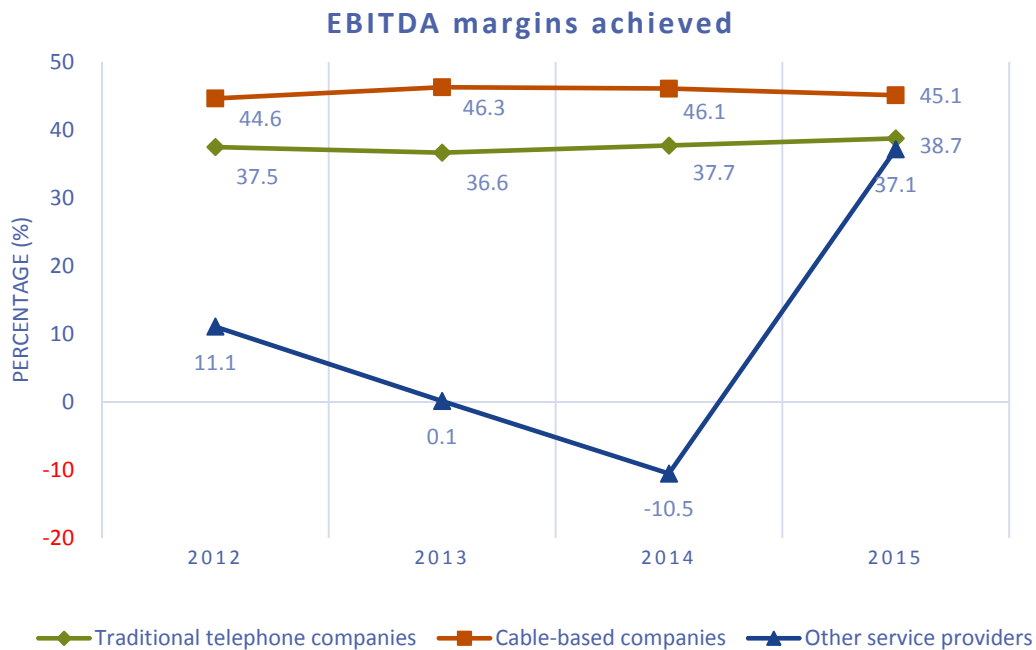
Figure 3.0.6 Canadian communications revenue composition for a select number of large companies, 2015



Source: CRTC data collection

Many of Canada's largest communications service companies offer telecommunications services as well as broadcasting services. This graph plots the total revenues of Canada's largest communications companies by size (the larger the circle, the greater the company's revenue) and by industry (proximity to an axis indicates a larger share of revenue derived from that industry service).

Figure 3.0.7 EBITDA margins achieved by cable-based BDUs, traditional telephone companies, and other service providers



Source: CRTC data collection

This graph shows earnings before interest, taxes, depreciation, and amortization (EBITDA) margins for cable-based BDUs, traditional telephone companies, and other service providers (including resellers and other alternative facilities-based providers) for BDU and telecommunications services for the period 2012 to 2015. Only companies with Canadian communications revenues greater than 80% of their total revenues were included in the calculation of EBITDA.

EBITDA margin is a measure of profitability. Higher EBITDA margins are generally associated with greater profitability. The figure demonstrates an extreme jump in the EBITDA margins of other service providers; this was mainly due to some companies reporting “extraordinary accounting items” in their income statement in 2015, it does not represent a change in their position in the market.

iv Consumer voices

Table 3.0.6 Number of communications-related contacts received by the CRTC, by type of issue

Type of contact	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
Broadcasting-related enquiries ¹	5,829	6,358	4,802	4,938	4,559
Broadcasting-related complaints ¹	12,419	11,507	11,055	10,115	8,584
Telecommunications-related contacts ²	N/A	N/A	25,153	27,077	23,453

1. For the 12-month period from 1 April to 31 March.

2. For the 12-month period from 1 January to 31 December.

Source: [CRTC correspondence tracking system](#)

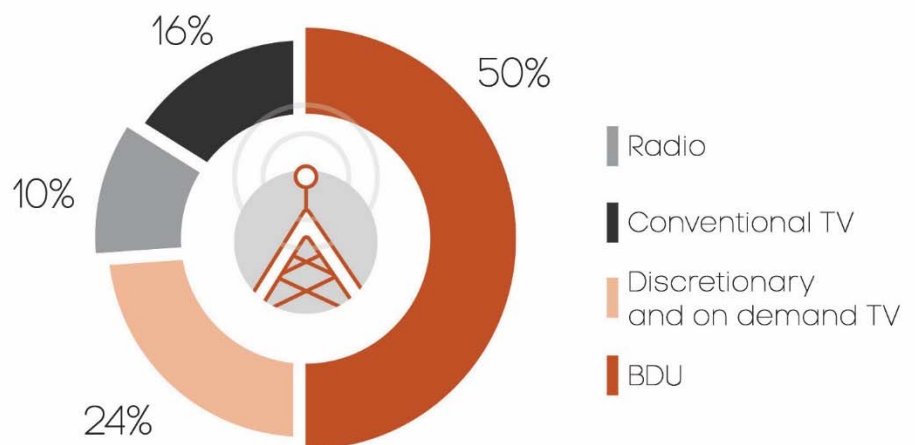
The CRTC tracking system counts multiple communications from the same client on the same complaint as separate units; therefore, the actual number of complaints received should be slightly lower.

***Enquiries** refer to citizens looking for information. **Complaints** refer to a consumer lodging a complaint, expecting feedback and resolution. **Contacts** refer to the total of cases (comments, questions, complaints, campaign and petition) that were assigned and dealt by Client Services across Canada.*

4.0 Broadcasting sector overview

Broadcasting revenues in 2015

\$17.9 billion ▶



Revenues

\$17.9 B

Decrease of 1.6%
over 2014

EBITDA

19.0%

BDUs

PBIT

18.9%

Private
commercial
radio

PBIT

-8.0%

Private
conventional
television

PBIT

20.8%

Discretionary
and on demand TV

The Canadian broadcasting sector consists of radio (private and CBC), conventional television (private and CBC), and discretionary and on demand television services (pay, pay per view (PPV), video-on-demand (VOD) and specialty services) and broadcasting distribution undertakings (BDU) (cable, satellite and IPTV).⁴

Revenues reported by the Canadian broadcasting sector in 2015 decreased by 1.6% to \$17.9 billion, from \$18.2 billion in 2014. Broadcasting revenues represents 27.3% of all Canadian communications revenues. From 2011 to 2015, overall broadcasting revenues in the communications sector increased at an average annual rate of 0.4%.

Private radio sector revenues and profitability remained relatively stable from 2014 to 2015, while private conventional television sector revenues and profitability have experienced decreases during the same period. Private radio broadcasters reported \$1,603 million in revenues and a PBIT margin of 18.9% in 2015, similar to previous year's \$1,614 million revenues and PBIT margin of 18.5%, while private conventional television broadcasters reported \$1,757 million in revenues and PBIT margins of -8.0% in 2015, a 2.6% decrease compared to previous year's \$1,804 million revenues and PBIT margin of -7.7%.

Discretionary and on demand services rely primarily on subscriber revenues while conventional broadcasters rely essentially on advertising revenues. In 2015, approximately 92% of private conventional broadcasters' revenues and 31% of discretionary and on demand services' revenues came from advertising revenues.

In 2015, the top 5 companies, in terms of revenues, generated \$14.5 billion in broadcasting revenues and accounted for approximately 81% of total broadcasting revenues. The remaining entities reported combined revenues of \$3.4 billion, or 19% of total broadcasting revenues.

Companies operating in all broadcasting segments (i.e. radio, conventional television, discretionary and on demand television and BDU) generated approximately 64% of total Canadian broadcasting revenues in 2015. In comparison, companies operating in only one market sector generated 6% of total Canadian broadcasting revenues.

⁴ Internet radio and internet television revenues are not included in the Communications Monitoring Report.

i Revenues

Table 4.0.1 Broadcasting revenues (\$ millions)

Category	Sub-category	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Radio	Private commercial AM stations	311	306	295	291	286	-1.7	-2.1
	Private commercial FM stations	1,303	1,312	1,328	1,323	1,317	-0.5	0.3
	Private commercial Total	1,614	1,618	1,623	1,614	1,603	-0.7	-0.2
	CBC AM stations	80	73	58	53	49	-7.6	-11.6
	CBC FM stations	257	253	246	235	228	-3.0	-3.0
	CBC total	337	326	305	288	277	-3.9	-4.8
	Total	1,951	1,944	1,927	1,902	1,879	-1.2	-0.9
Conventional television	Private conventional	2,139	2,038	1,944	1,804	1,757	-2.6	-4.8
	CBC conventional	1,339	1,369	1,247	1,328	1,107	-16.6	-4.6
	Total conventional	3,478	3,407	3,191	3,132	2,864	-8.5	-4.7
Discretionary and on demand television	Discretionary and on demand services	3,748	3,968	4,091	4,236	4,255	0.4	3.2
Total television	Total	7,226	7,375	7,282	7,367	7,119	-3.4	-0.4
BDU	Cable and IPTV	5,927	6,068	6,322	6,516	6,630	1.7	2.8
	DTH/MDS	2,532	2,492	2,472	2,414	2,289	-5.2	-2.5
	Total	8,459	8,561	8,794	8,930	8,918	-0.1	1.3
All Broadcasting services	Total	17,636	17,880	18,004	18,199	17,916	-1.6	0.4

Source: CRTC data collection

In this table, broadcasting revenues are presented for each type of service and their component parts, for the years 2011 to 2015. It also shows a compound annual growth rate (CAGR) for each component. For more details, visit the CRTC's financial summaries page: <http://www.crtc.gc.ca/eng/stats.htm>

The notable decrease in CBC conventional television revenues comes from a decrease in advertising revenues and LPIF revenues. The decrease in advertising revenues is in part linked with the loss of the National Hockey League TV rights, combined with the absence of major sports events – namely the Olympics and FIFA World Cup – that generated additional advertising revenues in 2014.

Table 4.0.2 Broadcasting revenue distribution by region (\$ billions)

Region	2014	2015	Percentage of total (%)	Growth (%) 2014-2015
Atlantic	0.8	0.8	6.7	0.9
BC and Territories	1.5	1.5	13.0	-0.5
Ontario	4.5	4.3	37.9	-4.4
Prairies	2.1	2.1	18.2	0.8
Québec	2.7	2.8	24.2	0.2

Source: CRTC data collection

This table excludes revenues generated from discretionary and on demand television services as well as DTH BDU services as those services are licensed as national services.

ii Industry characteristics

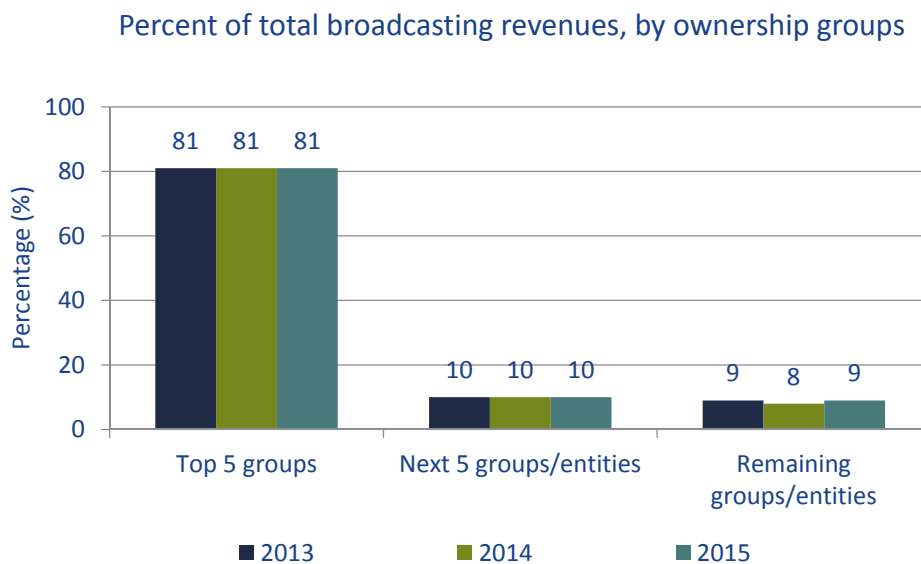
Table 4.0.3 Percentage of broadcasting revenues generated by companies operating in multiple sectors

Number of sectors in which companies offer service	Number of reporting group or entities operating in these sectors			Percentage of broadcasting revenues generated in these sectors		
	2013	2014	2015	2013	2014	2015
4	3	3	3	63	63	64
3	5	4	4	23	22	21
2	17	17	16	8	8	9
1	172	171	161	6	6	6

Source: CRTC data collection

The broadcasting industry comprises four sectors: radio (1); conventional television (2); discretionary and on demand television (3); and BDUs including cable, satellite and IPTV (4). While most companies operate in only one sector, several operate in all four. This table shows the number of companies that operate in different numbers of sectors, and the percentage of total revenues generated by those companies according to the number of sectors in which they operate. Taken together, the data illustrate that the small number of companies operating in multiple sectors earned about two-thirds of total industry revenues. Affiliated companies are included with their parent company.

Figure 4.0.1 Percent of total broadcasting revenues, by ownership groups

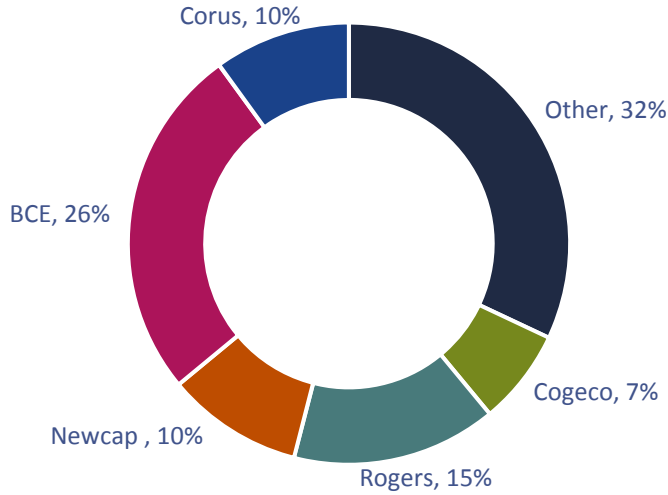


Source: CRTC data collection

This figure shows the combined percentage of broadcasting revenues of Canada's five largest groups—BCE, Shaw (including Corus), Rogers, Québecor, CBC,—as well as the next five largest, and the remaining 175 groups/entities in the industry. Groups' revenues include those of their affiliates.

Figure 4.0.2 Percentage of total commercial radio revenues by broadcaster, 2015

Percentage of commercial radio revenues by broadcaster, 2015



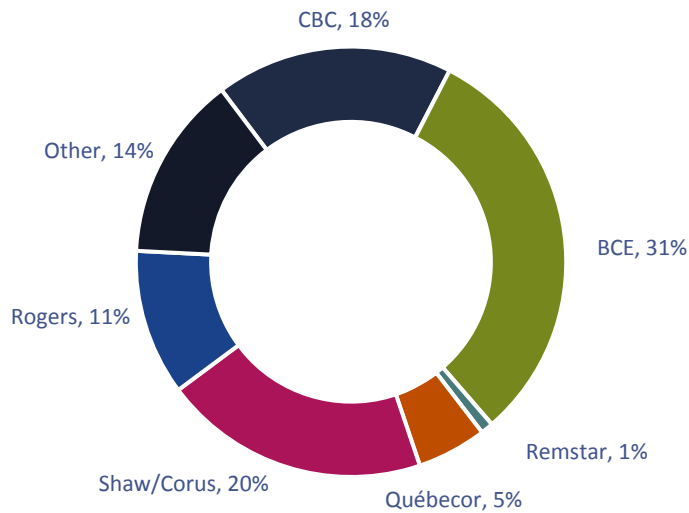
Source: CRTC data collection

Canada's five largest commercial radio broadcasters reported for more than 68% of the sector's total revenues in 2015.

The "percentage of total revenue" calculation is based on total revenues reported for each service controlled by the broadcaster. Control was determined where the broadcaster had greater than 50% direct and indirect voting interest as of 31 August 2015.

Figure 4.0.3 Percentage of television revenues by broadcaster, 2015

Percentage of television revenues by broadcaster, 2015



Source: CRTC data collection

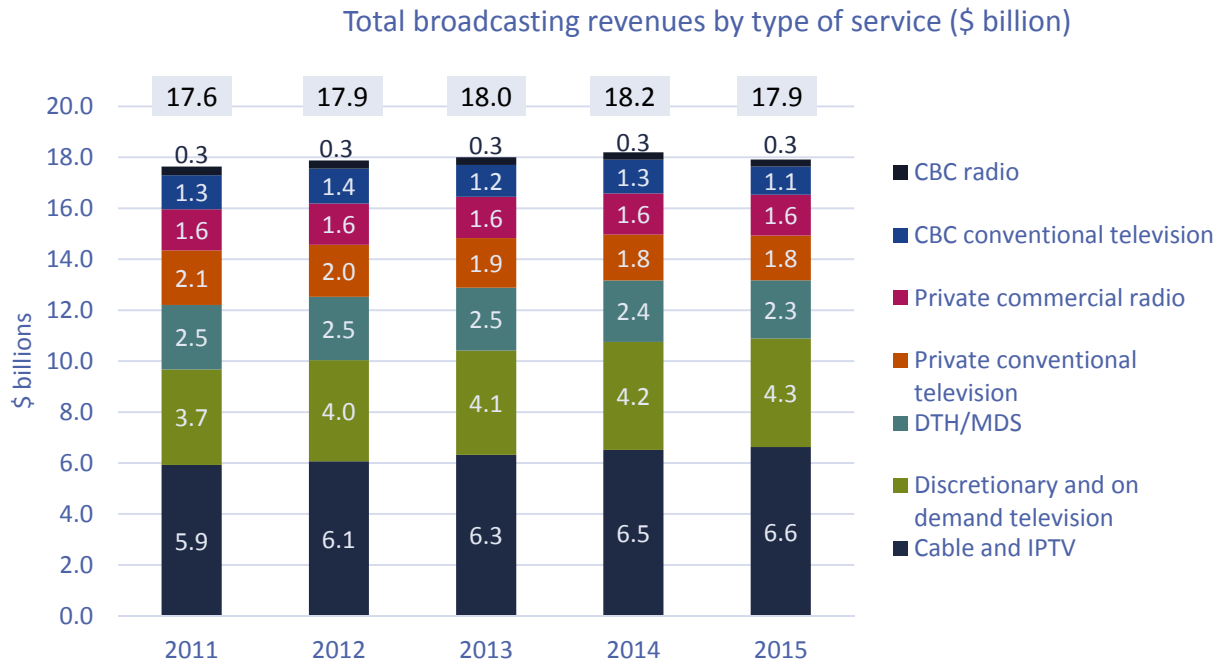
The six largest television broadcasters accounted for 86% of the sector's total industry revenues in 2015. In the determination of the top 5 companies, Shaw and Corus were counted as one entity.

The "percentage of total revenue" calculation is based on total revenues reported for each service controlled by the broadcaster. Control was determined where the broadcaster had greater than 50% direct and indirect voting interest as of 31 August 2015.

CBC revenues include advertising, subscriber, and other commercial revenues and Parliamentary appropriations.

iii Financial performance

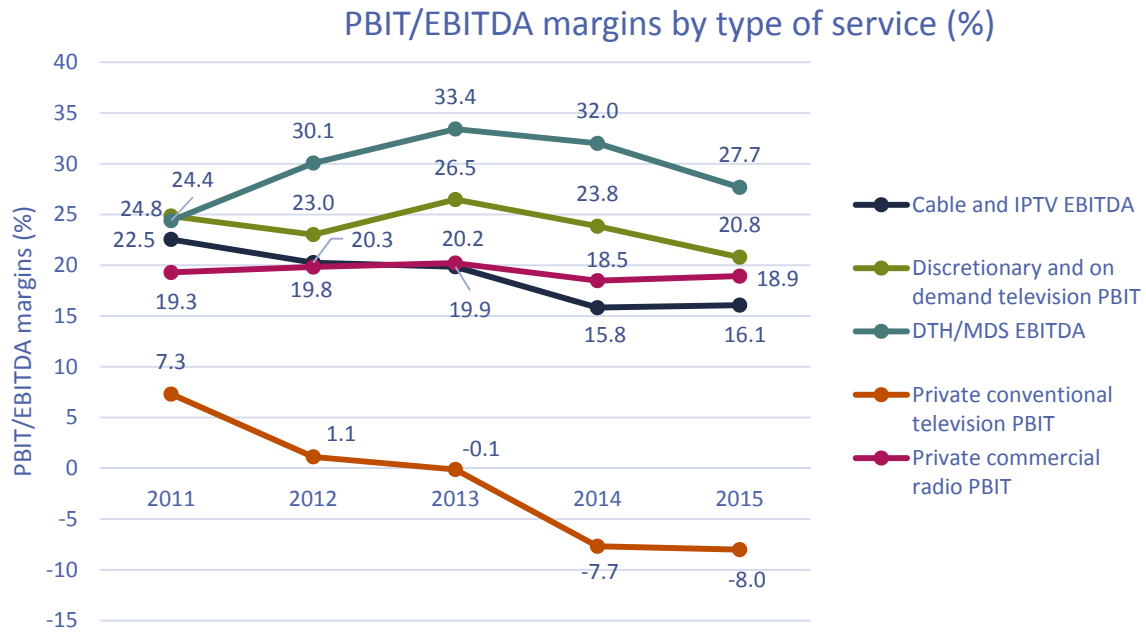
Figure 4.0.4 Total broadcasting revenues by type of service (\$ billion)



Source: CRTC data collection

The bar graph shows total broadcasting industry revenues and total revenues generated in each of the industry's subcategories (BDU, commercial television, commercial radio, and the CBC).

Figure 4.0.5 PBIT/EBITDA margins by type of service (%)



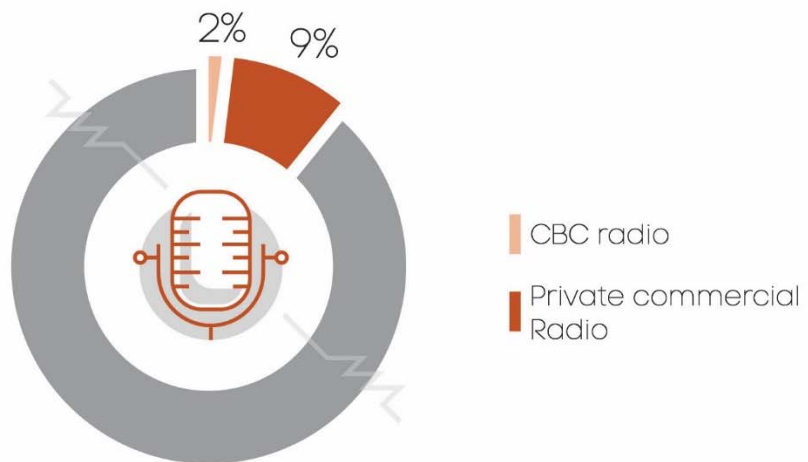
Source: CRTC data collection

The line graph shows PBIT margins for private radio and television services and EBITDA margins for BDUs, as measures of profitability.

4.1 Radio sector

Broadcasting revenues in 2015

\$17.9 billion ▶



Revenues

\$1.9 B

Total radio decrease of 1.2% over 2014

Listening

16 HRS

Canadians (12+) listen to radio each week on average

Revenues

\$1.6 B

Private commercial radio decrease of 0.7% over 2014

Revenues

\$0.3 B

CBC radio decrease of 3.9% over 2014

Canadians continued to have access to a wide variety of musical choices and local, regional and national news platforms with over 1,100 radio and audio services broadcasting across the country. Over 75% of all private commercial radio stations in Canada are located in Ontario, Quebec, Alberta or British Columbia.

The Canadian Broadcasting Corporation (CBC), Canada's public broadcaster, operates 69 radio stations, in English and in French, across Canada. Revenues for CBC's radio unit have steadily declined from \$337 million in 2011 to \$277 million in 2015.

There are over 700 private commercial radio stations in Canada. They operate in hundreds of different markets and account for over three-quarters of the total number of radio stations in operation in Canada. Over the last five years, commercial radio stations reported a slight average annual revenue decrease of approximately 0.2%. In 2015, these services reported \$1,603 million in revenues and a profitability margin of 19%. During the same period, revenues reported by AM radio stations have dropped to from \$311 million in 2011 to \$286 million in 2015. This can be attributed, in part, to the faltering advertising revenues. FM stations have reported a marginal annual revenue increase of 0.3% over the same period.

Country and contemporary music formats together garnered the largest national listener share. The popularity of these genres on Canadian radio has been steadily increasing over the last few years.

In 2015, the Commission issued 14 new licences, half of which were non-commercial entities. Community, campus and Aboriginal radio stations play an important role in the communities they serve and in the broadcasting sector as a whole. In 2015, these radio stations numbered 187 and reported \$61 million in revenues.

Canadians are increasingly using a range of audio content services in addition to over-the-air radio. According to the Media Technology Monitor (MTM), 23% of Canadians (18+) stream AM/FM radio online and 55% of Canadians (18+) stream music videos on YouTube, an increase of 3% over 2014. National satellite subscribership has remained stagnant over the past year, as MTM again estimates 16% of Canadians (18+) subscribe to satellite radio.

i Revenues

In 2015, the 704 commercial radio stations in operation generated total revenues of \$1,603 million, relatively unchanged from 2011. There were 12 additional FM services in operation in 2015, compared to the previous year, bringing the total number of FM station to 580 services. They reported combined total revenues of \$1,317 million. Revenues for FM services have grown on average by 0.3% a year since 2011.

The number of AM radio stations, on the other hand, was down 3 units from 2014 to 124 services reporting in 2015. AM radio stations have been struggling over the last 5 years: their revenues have dropped 2.1% per year on average since 2011 to \$286 million in 2015.

A total of 23 radio services were offering third-language programming in 2015 nation-wide, 12 of them on the AM band and 11 on the FM band. These services generated a combined \$46.7 million in revenue in 2015, up 1.5% from 2014. As a matter of fact, total revenues for ethnic radio services have recorded an average growth rate of 1.3% per year between 2011 and 2015, while those for French and English-language services declined by an average rate of 0.1% and 0.3% per year respectively over that period.

Table 4.1.1 Revenues (\$ millions) of private commercial radio stations, by language of broadcast and frequency band

Type of station	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
English-language - AM	274.9	274.9	264.6	262.0	257.1	-1.9	-1.7
French-language - AM	11.7	6.1	4.9	4.3	4.0	-6.2	-23.5
Third-language - AM	24.4	25.2	25.1	24.7	24.9	0.9	0.5
All languages - AM	311.1	306.2	294.6	290.9	286.0	-1.7	-2.1
English-language - FM	1,035.3	1,040.1	1,053.8	1,042.7	1,040.1	-0.2	0.1
French-language - FM	247.7	251.9	253.2	259.2	254.7	-1.8	0.7
Third-language - FM	19.8	20.2	21.1	21.3	21.8	2.1	2.4
All languages - FM	1,302.8	1,312.2	1,328.0	1,323.3	1,316.6	-0.5	0.3
All languages – AM and FM	1,613.8	1,618.4	1,622.7	1,614.2	1,602.5	-0.7	-0.2

Source: CRTC data collection

This table show revenue trends for private English-, French-, and Third-language commercial AM and FM radio stations, for the period 2011 and 2015, and includes the annual growth between 2014 and 2015, and over the entire study period.

Network results are included; however, results for pay and specialty audio programming services, as well as for multi-channel subscription radio services, are excluded.

Table 4.1.2 Number of private commercial radio stations reporting financial results, by language of broadcast and frequency band

Type of radio station	2011	2012	2013	2014	2015
English-language - AM	115	111	109	109	105
French-language - AM	7	6	8	6	7
Third-language - AM	12	12	12	12	12
All languages - AM	134	129	129	127	124
English-language - FM	434	444	454	466	477
French-language - FM	89	90	89	90	92
Third-language - FM	11	12	13	12	11
All languages - FM	534	546	556	568	580
All languages – AM and FM	668	675	685	695	704

Source: CRTC data collection

The Canadian Broadcasting Corporation (CBC), Canada's public broadcaster, operates a total of 14 AM and 55 FM radio stations across Canada. These services' total revenues have steadily declined from \$337 million in 2011 to \$277 million in 2015. The majority of this decrease is attributable to a change in Parliamentary Appropriation.

2015 marked the 2nd year of eligibility for the CBC to generate national advertising revenues on Ici Musique and Radio 2. A total of \$1.4 million in advertising revenue was generated, up 27.2% from 2014. Nonetheless, advertising revenues remain a modest source of income for the CBC's radio services – it accounted for 0.5% of the broadcaster's total radio revenues in 2015.

Of note, the number of radio stations operated by the CBC declined by 13 units between 2014 and 2015 to 69. This is explained by the fact that the CBC ended a pilot project whereby it was airing local content on these 13 stations, which have since reverted back to rebroadcasters.

Table 4.1.3 Revenues of CBC radio stations summary, by type of revenue

Metric	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Advertising revenues	0	0	0	1,074	1,366	27.2	n/a
Parliamentary appropriations	327,267	316,508	295,523	277,310	266,880	-3.8	-5.0
Sales/syndication of programs	859	952	1,087	1,328	1,816	36.8	20.6
Other revenues	8,803	8,432	8,145	7,924	6,480	-18.2	-7.4
Total revenues	336,928	325,892	304,756	287,636	276,542	-3.9	-4.8
Number of stations	78	78	81	82	69	-15.9	-3.0

Source: CRTC data collection

In its Broadcasting Decision CRTC 2013-263, the Commission allowed the broadcast of national advertising on Ici Musique and Radio 2. Advertising revenues for CBC in 2014 and 2015 in the above table reflect this decision.

Table 4.1.4 Revenues (\$ millions) of commercial radio stations, by radio market type

Market Type	2011	2012	2013	2014	2015	CAGR (%) 2011-2015
Designated	1,215.3	1,224.8	1,217.9	1,203.0	1,196.3	-0.4
Non-designated	398.5	393.6	404.8	411.2	406.2	0.5
All markets	1,613.8	1,618.4	1,622.7	1,614.2	1,602.5	-0.2

Source: CRTC data collection

Designated markets generate 75% of all revenues reported by commercial radio stations, they include markets formally known as medium, large and major markets in addition to additional markets. To find out more information on designated and non-designated markets, please consult the CRTC's 2011-2015 commercial radio financial summaries:

<http://www.crtc.gc.ca/eng/publications/reports/BrAnalysis/radio2015/radio2015.htm>.

Table 4.1.5 Revenues (\$ millions) of ethnic commercial radio stations, by province

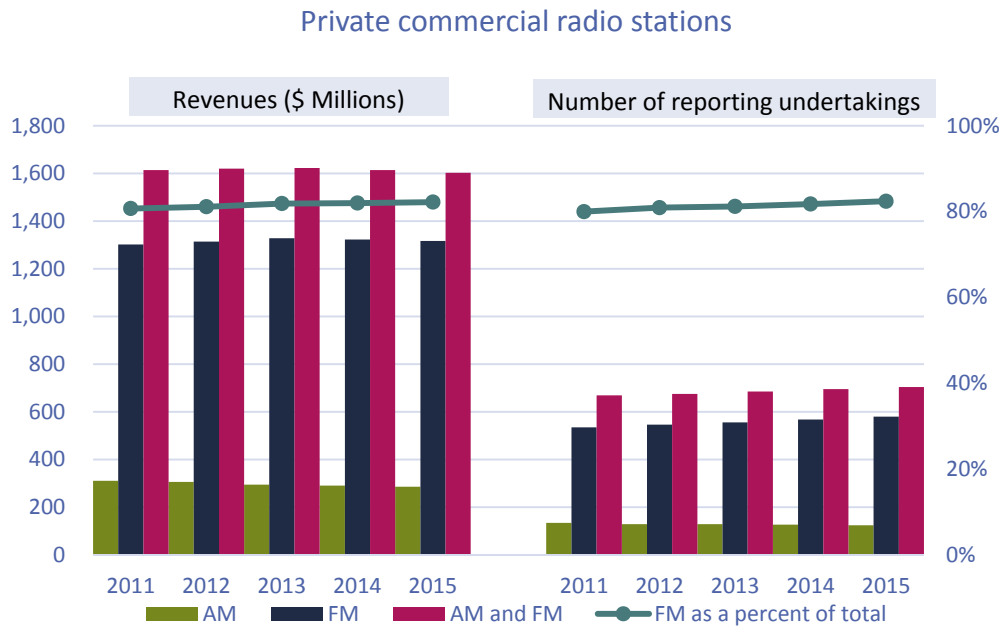
Province	2011	2012	2013	2014	2015	CAGR (%) 2011-2015
British-Columbia	14.2	15.2	15.2	14.7	14.6	0.7
Alberta/Manitoba	3.4	3.2	3.7	5.0	5.4	12.3
Ontario	23.3	23.6	23.7	23.1	23.5	0.2
Québec	3.3	3.3	3.5	3.2	3.1	-1.6
Total	44.2	45.4	46.2	46.0	46.7	1.5

Source: CRTC data collection

This table shows radio revenues reported by ethnic radio stations by province from 2011 to 2015. There were no ethnic commercial stations to report for in Saskatchewan, the Atlantic Provinces and the North.

The data in the four following figures present the revenues of private commercial English, French, and third-language AM and FM radio stations. The data on average annual revenues are compared to profit before interest and taxes (PBIT) to indicate the financial health of groups of radio stations. The data for AM and FM stations, as well as the language of broadcast, are segmented to show the variations for each of these criteria.

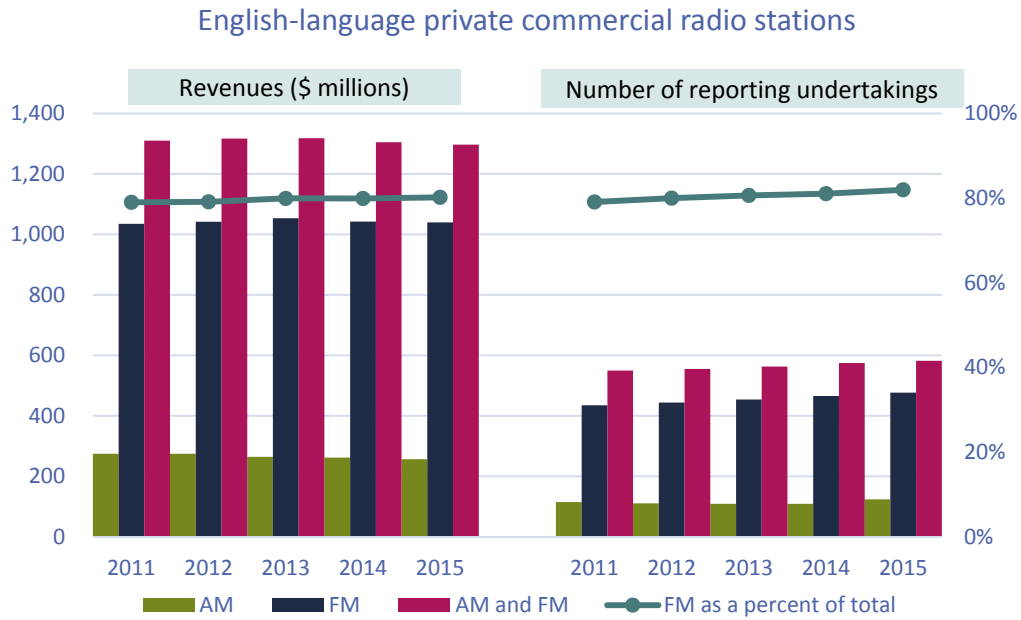
Figure 4.1.1 Revenues of private commercial radio stations and number of reporting undertakings



Source: CRTC data collection

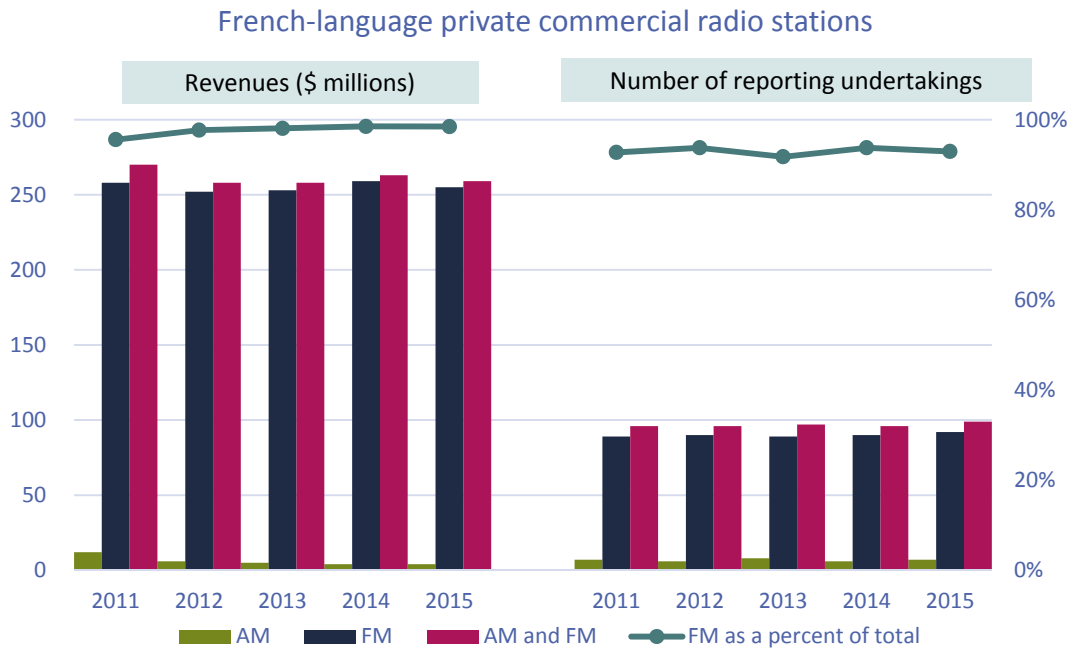
The data in figures 4.1.1 through 4.1.3 include network results, but exclude pay and specialty audio programming services, as well as multi-channel subscription audio services.

Figure 4.1.2 Revenues of English-language private commercial radio stations and number of reporting undertakings



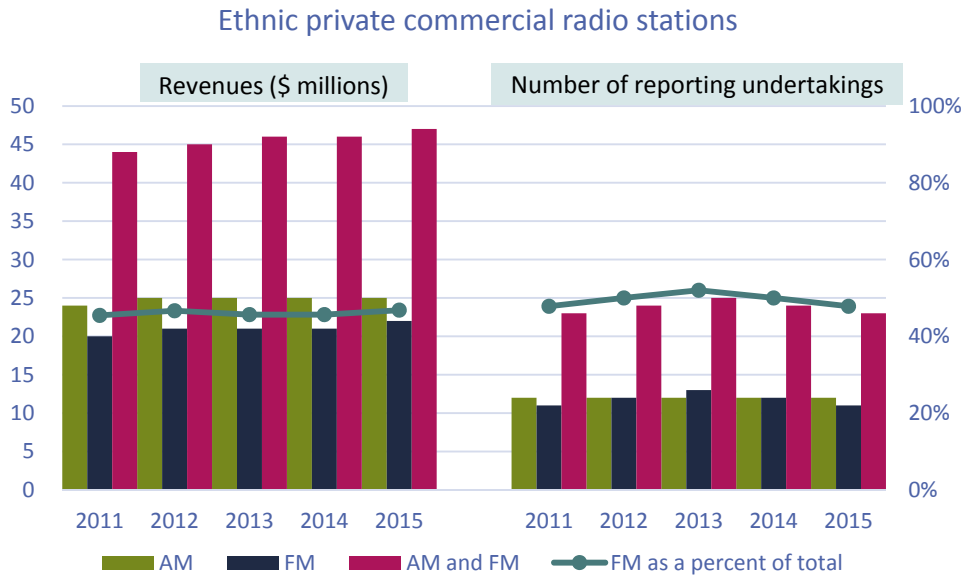
Source: CRTC data collection

Figure 4.1.3 Revenues of French-language private commercial radio stations and number of reporting undertakings



Source: CRTC data collection

Figure 4.1.4 Revenues of Ethnic private commercial radio stations and number of reporting undertakings



Source: CRTC data collection

Revenues from private commercial radio stations operating in the context of the Ethnic Broadcasting Policy trended upwards from 2011 to 2015.

Table 4.1.6 Financial summary (\$ thousands) of native, community, and campus radio stations

Type of station	Metric	2011	2012	2013	2014	2015
Native stations ⁵	Number of stations reporting	33	33	35	27	21
	Advertising revenues	5,820	5,397	4,569	3,984	4,316
	Other revenues	12,450	10,772	11,203	8,731	8,847
	Total revenues	18,270	16,168	15,772	12,715	13,162
	Advertising as a percent of total revenues (%)	31.9	33.4	29.0	31.3	32.8
	PBIT margin (%)	0.5	-4.7	-14.6	11.1	0.1
Community radio stations	Number of stations reporting	107	110	112	111	113
	Advertising revenues	15,201	15,512	15,223	14,973	15,816
	Other revenues	14,987	15,126	17,190	16,815	18,448
	Total revenues	30,188	30,638	32,412	31,787	34,264
	Advertising as a percent of total revenues (%)	50.4	50.6	47.0	47.1	46.2
	PBIT margin (%)	10.5	3.7	7.4	4.4	5.9
Campus radio stations	Number of stations reporting	48	49	47	47	47
	Advertising revenues	1,082	1,019	889	1,337	907
	Other revenues	7,401	7,814	8,323	8,440	8,839
	Total revenues	8,483	8,833	9,213	9,777	9,746
	Advertising as a percent of total revenues (%)	12.8	11.5	9.7	13.7	9.3
	PBIT margin (%)	20.3	10.5	8.5	7.9	4.8

Source: CRTC data collection

This table shows the number of stations reporting revenues and PBIT margins (PBIT divided by total revenues) for radio stations operating in the context of the Native Broadcasting Policy, as well as community and campus stations from 2011 to 2015.

For all three types of radio stations, "other revenues" include fundraising and other sources. For native radio stations only, "other revenues" also include band council grants and contributions.

⁵ Native type B stations as defined in the CRTC Public Notice 1990-89 are referred to as native stations in this document.

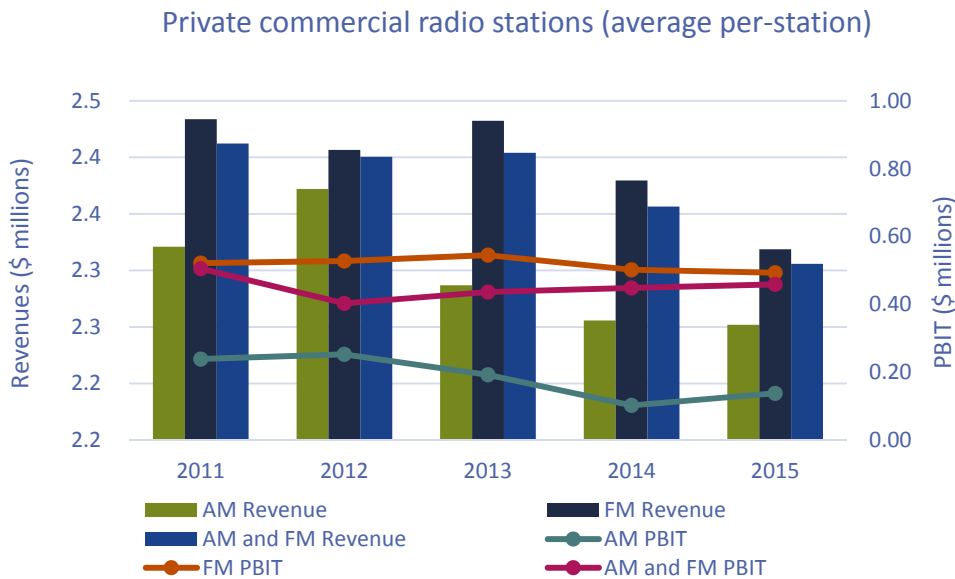
ii Financial performance

Overall, the average Profit Before Interest and Taxes margin (PBIT margin) of the commercial radio industry has remained in the 18-20% range over the past 5 years as expenses remained relatively constant in response to stagnating revenues. In 2015, the sector reported an average PBIT margin of 18.9%, up 0.4 percentage points from 2014.

FM radio services report higher-than-average PBIT margins. In 2015, their combined profitability stood at almost 22% (or \$286 million), while that of the AM services was of 6% (\$17 million).

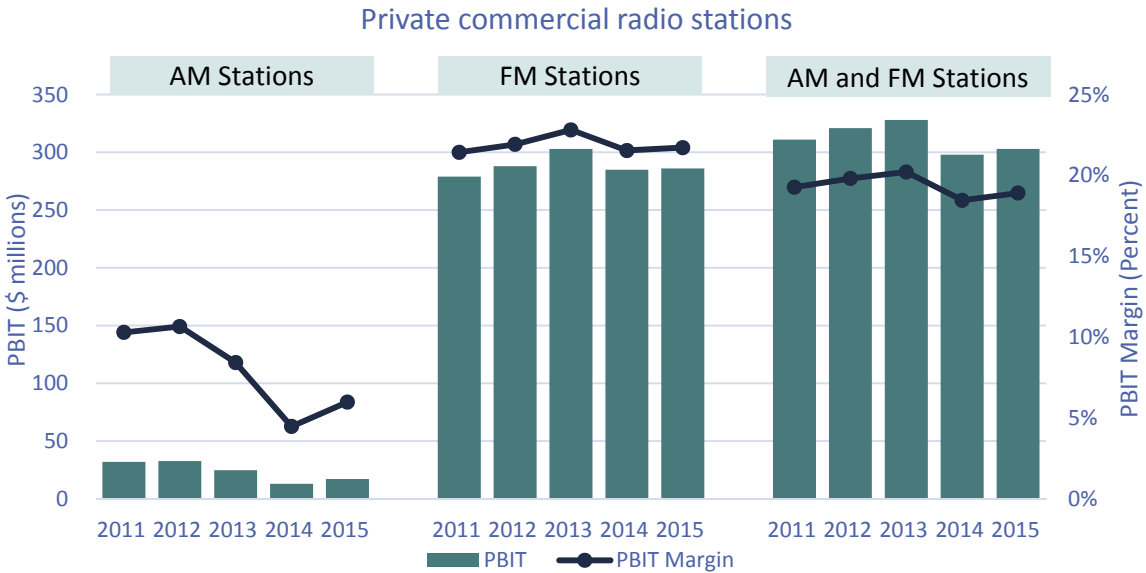
The data presented in figures 4.1.5 through 4.1.12 include network results, but exclude results for pay and specialty audio programming services, as well as for multi-channel subscription audio services.

Figure 4.1.5 Average per-station annual revenues and PBIT of private commercial radio stations



Source: CRTC data collection

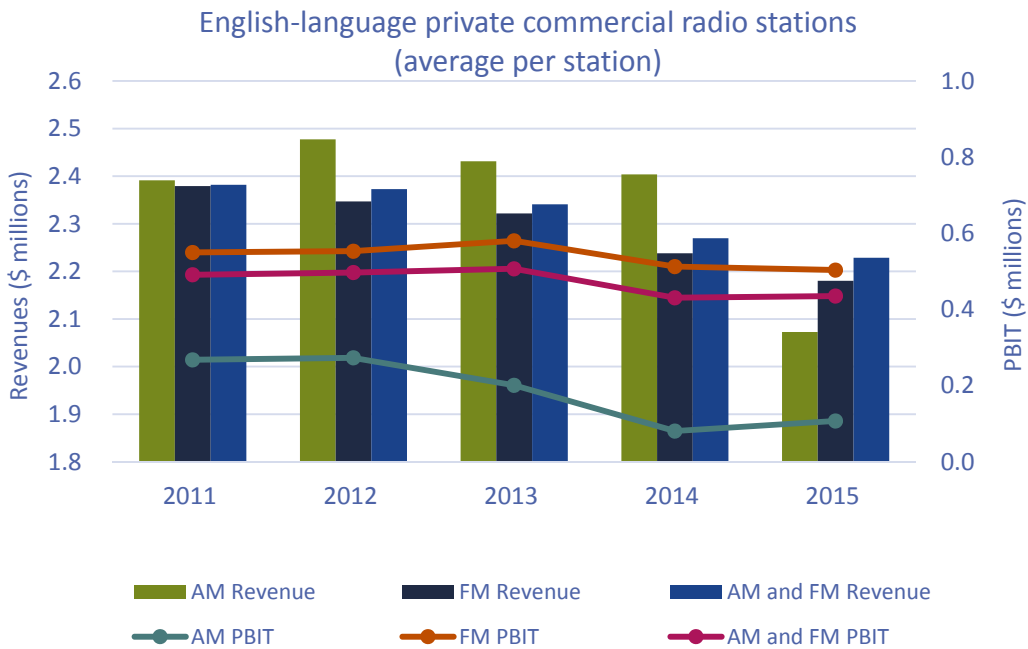
Figure 4.1.6 PBIT and PBIT margins of private commercial radio stations



Source: CRTC data collection

There was an overall increase in the PBIT and PBIT margins for all radio stations from 2010 to 2013, followed by decrease in 2014 and a slight increase in 2015.

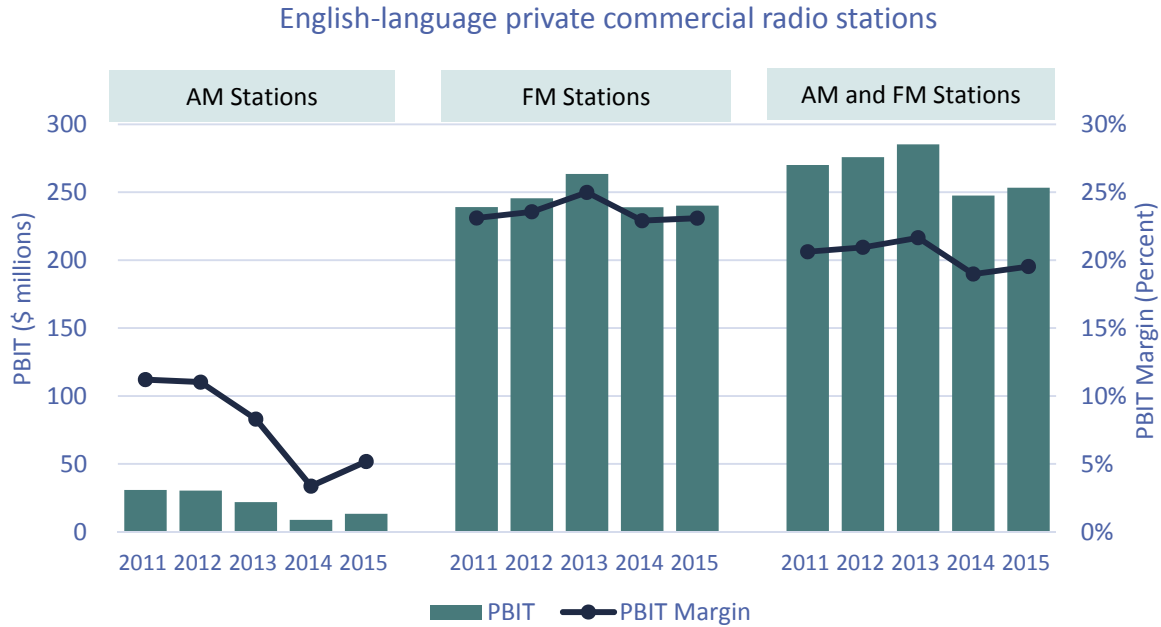
Figure 4.1.7 Average annual revenues and PBIT per station of English-language private commercial radio stations



Source: CRTC data collection

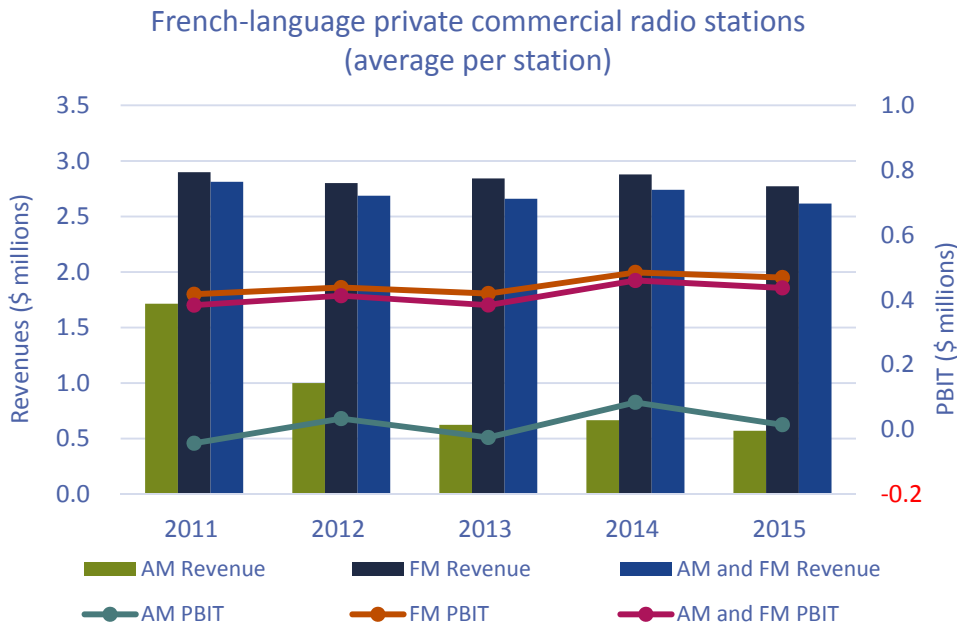
Average annual per-station revenues for both AM and FM English-language private commercial radio stations have decreased in 2015, although the average PBIT for AM and FM stations rose slightly in 2015.

Figure 4.1.8 PBIT and PBIT margins of English-language private commercial radio stations



Source: CRTC data collection

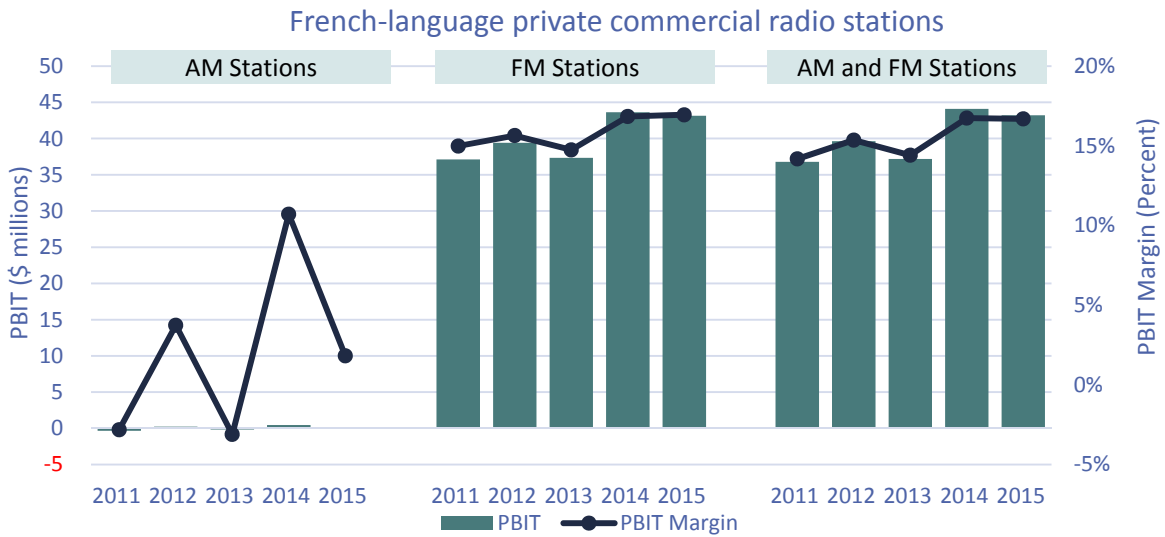
Figure 4.1.9 Average annual revenues and PBIT per station of French-language private commercial radio stations



Source: CRTC data collection

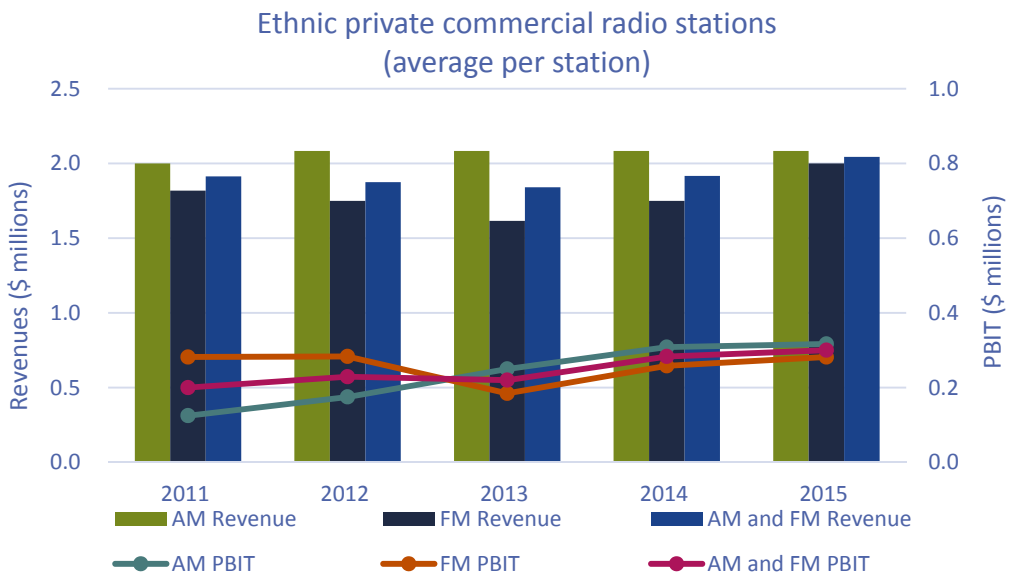
Average annual per-station revenues for French-language private commercial radio stations remained constant from 2011 to 2015. This was largely due to the strength of revenues from FM stations. Revenues from French-language AM radio stations have declined considerably since 2011.

Figure 4.1.10 PBIT and PBIT margins of French-language private commercial



Source: CRTC data collection

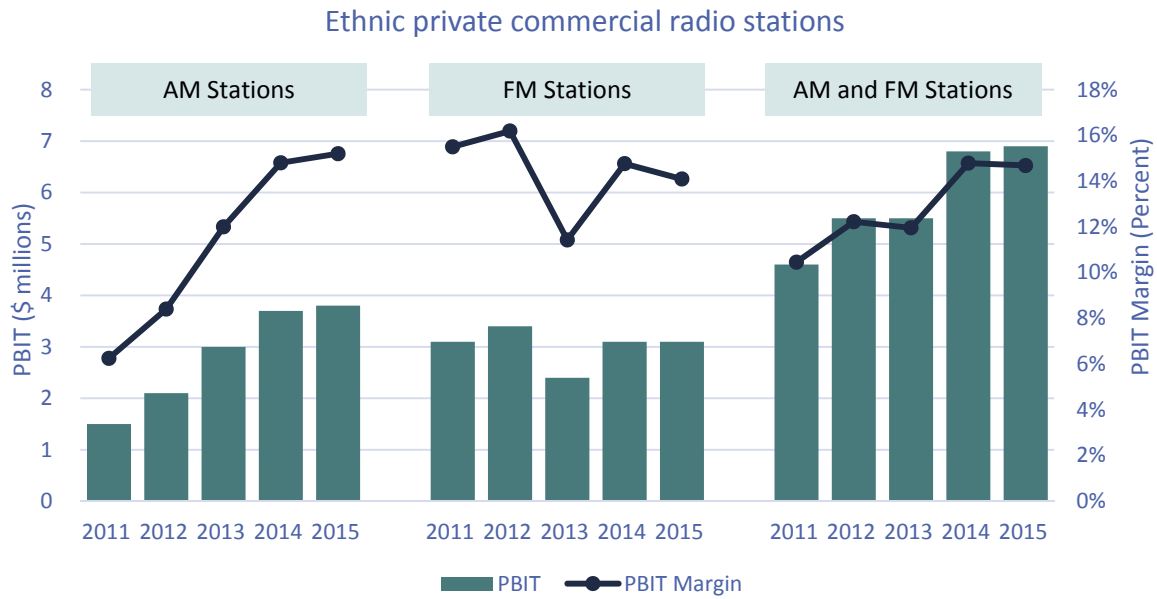
Figure 4.1.11 Average per-station annual revenues and PBIT of Ethnic private commercial radio stations



Source: CRTC data collection

Average annual revenues of private ethnic commercial radio stations fluctuated around the \$2-million mark over the last five years. From 2011 to 2015, AM radio stations outperformed FM radio stations in terms of revenues, although the gap is closing.

Figure 4.1.12 PBIT and PBIT margin – Ethnic private commercial radio stations



Source: CRTC data collection

PBITs and PBIT margins for private ethnic commercial AM radio stations increased every year over the past 5 years. PBIT and PBIT margins for the private ethnic commercial FM radio stations remained relatively stable from 2014 to 2015, following a strong increase in 2014.

iii Availability of radio and audio services

Canadians have access to a number of different audio services such as private AM and FM commercial radio, non-commercial AM and FM radio, Satellite subscription radio services and pay and specialty audio services.

In 2015, a total of 1,120 services were authorized to broadcast in Canada, an increase of 14 over-the-air services and a decrease of 1 pay/specialty service over 2014. Private commercial radio stations account for almost two thirds of all the audio services in Canada, while community stations, the second most numerous type of audio service, represented 12% of all audio services in 2015.

Table 4.1.7 Number and type of radio and audio services authorized to broadcast in Canada, by language of broadcast

Type of station	English-language		French-language		Third-language		All languages	
	2014	2015	2014	2015	2014	2015	2014	2015
CBC Radio One / ICI Radio-Canada Première	39	39	21	21	0	0	60	60
CBC Radio 2 / ICI Musique	14	14	14	14	0	0	28	28
CBC Radio network licences	2	2	2	2	0	0	4	4
Private commercial AM stations	107	106	9	9	12	14	128	129
Private commercial FM stations	482	482	92	93	16	19	590	594
Private commercial AM and FM network licences	0	0	1	1	0	0	1	1
Religious (music and spoken word)	39	44	5	5	1	1	45	50
Community	51	58	65	67	1	3	117	128
Community Developmental	6	5	1	1	0	0	7	6
Campus Community-based	42	42	6	5	0	0	48	47
Campus Instructional	8	0	0	0	0	0	8	0
Aboriginal stations	41	41	5	5	3	3	49	49
Other (tourist/traffic, etc.)	9	11	1	2	0	0	10	13
Total number of over-the-air Canadian radio services	840	844	222	225	33	40	1,095	1,109
Satellite subscription radio service	2	2	0	0	0	0	2	2
Specialty audio (commercial / non-profit, regional/national)	4	2	0	0	5	5	9	7
Pay audio	0	0	0	0	1	2	1	2
Total number of Canadian radio and audio services	846	848	222	225	39	47	1,107	1,120

Source: CRTC internal database

This table shows the number of radio services approved by the Commission. Not all are necessarily in operation. "Over-the-air radio services" exclude radiocommunication distribution undertakings, rebroadcasters, and radio services exempt from licensing requirements. These figures are as of 31 December 2015.

Table 4.1.8 Number of public/community-based and private radio services authorized to broadcast over-the-air, by province and language of broadcast, 2015

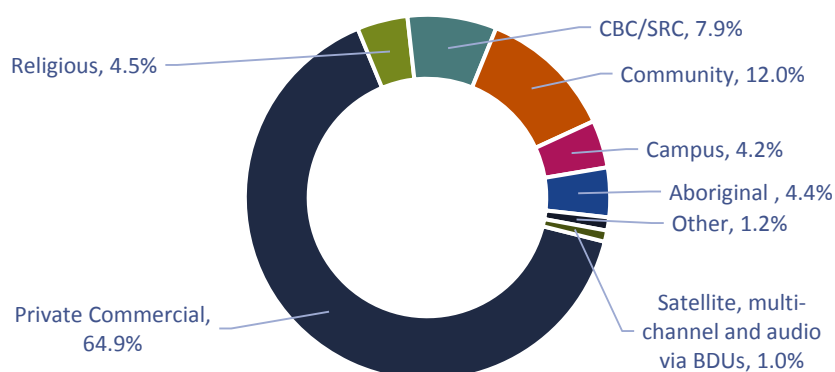
Province/territory	English-language		French-language		Third-language		Total	
	Public/ community	Private	Public/ community	Private	Public/ community	Private	Public/ community	Private
British Columbia	34	109	3	0	0	6	37	115
Alberta	8	113	4	0	0	3	12	116
Saskatchewan	8	52	2	0	0	0	10	52
Manitoba	7	39	3	0	0	1	10	40
Ontario	52	241	14	5	1	15	67	261
Quebec	10	15	59	102	0	7	69	124
New Brunswick	7	32	13	5	0	0	20	37
Nova Scotia	14	36	6	0	0	1	20	37
Prince Edward Island	1	6	1	0	0	0	2	6
Newfoundland and Labrador	11	20	1	0	0	0	12	20
The North	8	8	2	0	0	0	10	8
Canada	160	671	108	112	1	33	269	816

Source: CRTC internal database

Non-commercial, tourist information and emergency radio services, as well as rebroadcasters are excluded. Third-language includes Native-language services. This table shows the number of radio services approved by the Commission. All are not necessarily in operation.

Figure 4.1.13 Types of radio and audio services authorized to broadcast in Canada, as a percentage of all such services, 2015

Types of radio and audio services authorized to broadcast in Canada, as a percentage of all such services, 2015



Source: CRTC data collection

In 2015, private commercial radio stations accounted for almost two-thirds of the total number of stations licensed for broadcast in Canada.

Table 4.1.9 Number of new over-the-air radio stations licensed categorized by language, licence category, type and licensing process

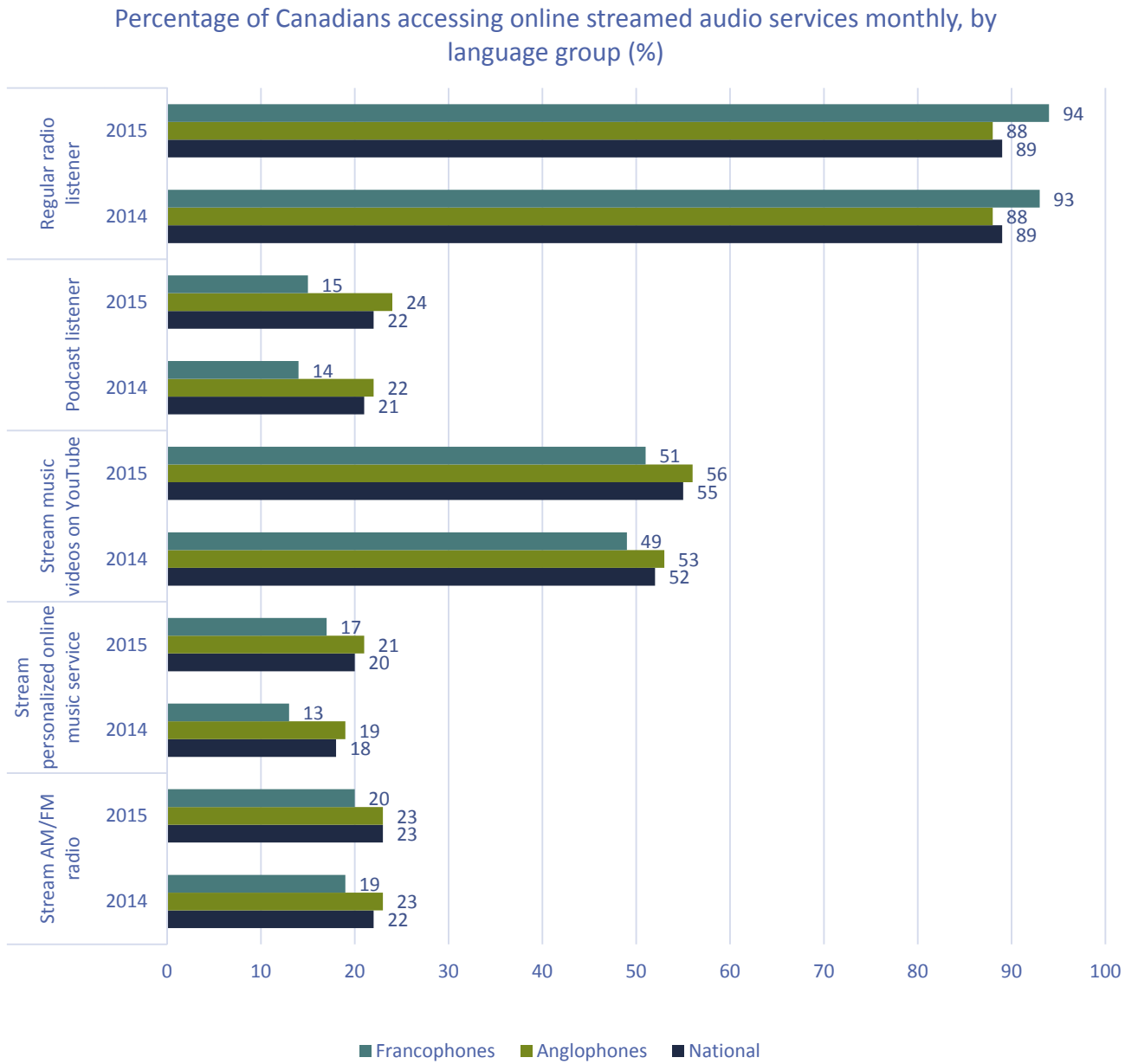
Category	Sub-category	2011	2012	2013	2014	2015	Total
Language	English-language	27	26	20	24	10	107
	French-language	2	1	5	2	3	13
	Third-language	1	1	0	3	1	6
	Total	30	28	25	29	14	126
Licence category	Commercial	11	18	12	20	7	68
	Community	9	5	7	6	2	29
	Campus	-	-	0	1	1	2
	Native	7	3	0	2	1	13
	Other	3	2	6	0	3	14
	Total	30	28	25	29	14	126
Type	Stand-alone digital	-	-	0	0	0	0
	Digital radio	-	-	0	0	0	0
	AM frequency	2	-	0	2	1	5
	FM frequency	28	28	25	27	13	121
	AM to FM conversions (included in FM)	1	2	5	0	2	10
	Total	30	28	25	29	14	126
Process	Competitive	1	7	0	5	1	14
	Non-competitive	29	21	25	24	13	112
	Total	30	28	25	29	14	126

Source: CRTC decisions issued from 1 January 2011 to 31 December 2015

This table shows the number of stations licensed by language, licence category, type of service and process used in granting the licence.

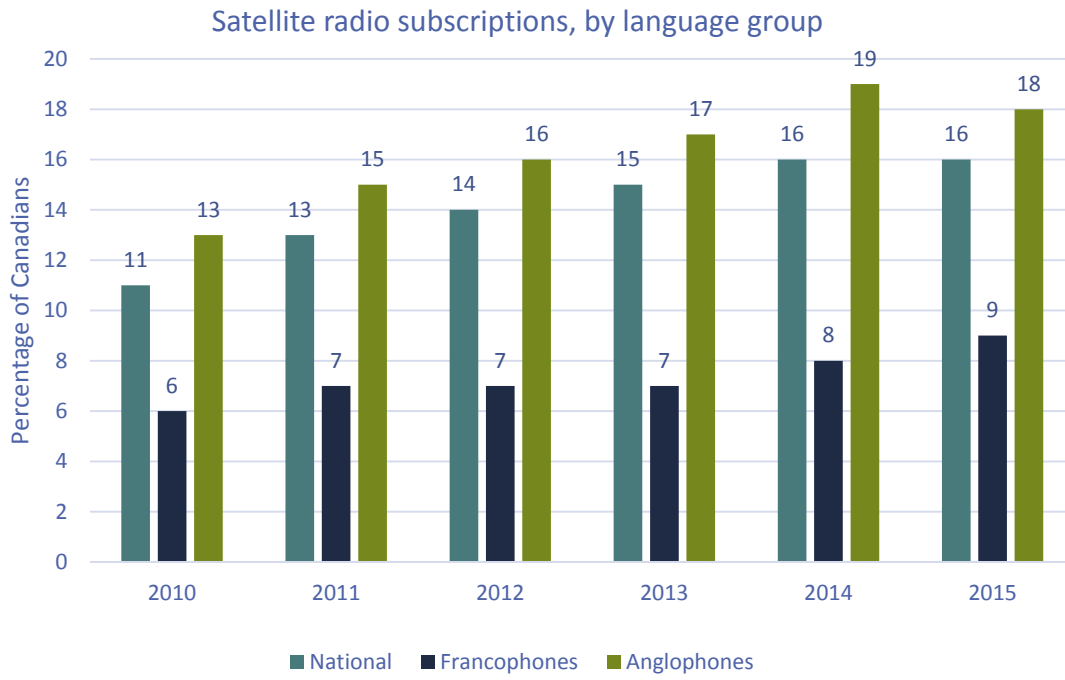
The following are excluded: radiocommunication distribution undertakings, rebroadcasters, pay audio services, specialty audio services, and multi-channel subscription services. The "Other" licence category includes not-for-profit stations, such as those operated in English and in French by the CBC, and Environment Canada.

Figure 4.1.14 Percentage of Canadians accessing online streamed audio services monthly, by language group



Source: MTM, 2015 (respondents: Canadians aged 18+)

Figure 4.1.15 Satellite radio subscriptions, by language group



Source: MTM, 2010-2015 (respondents: Canadians aged 18+)

iv Audience measurement

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.

- Audience measurement data is compiled by Numeris through the use of portable people meter (electronic data) and diary surveys (written logs). National figures are based on both datasets.
- PPM data includes only PPM meter service stations reported by Numeris on an individual basis in designated PPM markets. PPM markets are Calgary, Edmonton, Montréal, Toronto and Vancouver. All remaining stations, including diary spill stations, are included in the diary data.
- Radio seasons used by Numeris were:
 - 2015 PPM weeks 1-13 (31 August to 29 November, inclusive), all persons 12+, Monday to Sunday, 2 a.m. to 2 a.m. (Total Canada), and Fall 2015 Radio Diary Survey Data (7 September to 1 November, inclusive), all persons 12+, Monday to Sunday, 5 a.m. to 1 a.m. (Total Diary Canada);
 - 2014 PPM weeks 1-13 (1 September to 30 November, inclusive), all persons 12+, Monday to Sunday, 2 a.m. to 2 a.m. (Total Canada), and Fall 2014 Radio Diary Survey Data (1 September to 26 October, inclusive), all persons 12+, Monday to Sunday, 5 a.m. to 1 a.m. (Total Diary Canada);
 - 2013 PPM weeks 1-13 (26 August to 24 November, inclusive), all persons 12+, Monday to Sunday, 2 a.m. to 2 a.m. (Total Canada), and Fall 2013 Radio Diary Survey Data (2 September to 27 October, inclusive), all persons 12+, Monday to Sunday, 5 a.m. to 1 a.m. (Total Diary Canada);
 - 2012 PPM weeks 1-13 (27 August to 25 November, inclusive), all persons 12+, Monday to Sunday, 2 a.m. to 2 a.m. (Total Canada), and Fall 2012 Radio Diary Survey Data (3 September to 28 October, inclusive), all persons 12+, Monday to Sunday, 5 a.m. to 1 a.m. (Total Diary Canada);
 - 2011 PPM weeks 1-13 (29 August to 27 November, inclusive), all persons 12+, Monday to Sunday, 2 a.m. to 2 a.m. (Total Canada), and Fall 2011 Radio Diary Survey Data (5 September to 30 October, inclusive), all persons 12+, Monday to Sunday, 5 a.m. to 1 a.m. (Total Diary Canada);

Table 4.1.10 Average weekly hours of radio tuned per capita by age group for all Canada

Age group	2011		2012		2013		2014		2015		Growth (%) 2014-2015	
	Diary	PPM	Diary	PPM	Diary	PPM	Diary	PPM	Diary	PPM	Diary	PPM
All persons 12+	17.7	8.3	17.5	7.1	17.0	7.1	16.5	7.0	16.2	7.0	-1.8	0.0
Teens 12 – 17	7.3	4.0	6.9	3.7	6.5	3.7	6.0	3.7	5.8	3.3	-3.3	-10.8
18 – 24	12.5	5.8	12.5	5.0	11.5	4.4	11.4	4.6	10.6	4.7	-7.0	2.2
25 – 34	16.8	6.5	16.6	5.8	16.0	5.7	15.4	5.8	15.0	5.9	-2.6	1.7
35 – 49	19.8	8.2	19.3	7.8	18.7	7.4	18.0	7.4	17.4	7.6	-3.3	2.7
50 – 54	21.3	9.5	20.9	8.8	21.1	8.5	19.8	7.6	19.8	8.0	0.0	5.3
55 – 64	20.0	9.5	19.9	7.6	19.4	8.2	18.9	8.0	18.5	7.7	-2.1	-3.8
65 +	19.4	12.0	19.1	9.1	18.8	9.3	18.4	9.1	18.3	9.1	-0.5	0.0

Source: Numeris

This table shows that for the third consecutive year, all age demographics, except the 65+, recorded decreases in diary markets⁶. The average number of hours per week per capita is determined by dividing the total number of hours tuned by the population.

Table 4.1.11 Radio tuning share (%) in an average week for English- and French-language AM and FM stations

Radio station type	2011		2012		2013		2014		2015		Growth (%) 2014-2015	
	Diary	PPM	Diary	PPM	Diary	PPM	Diary	PPM	Diary	PPM	Diary	PPM
English-language AM	15.7	21.8	14.7	21.2	14.2	20.9	13.6	22.6	14.5	25.7	6.6	13.7
English-language FM	57.0	55.0	57.5	54.3	58.4	55.4	59.1	56.5	57.2	54.1	-3.2	-4.3
English total	72.7	76.8	72.2	75.5	72.6	76.2	72.7	79.0	71.7	79.8	-1.4	1.0
French-language AM	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0
French-language FM	20.3	22.8	21.3	24.1	20.9	23.2	21.0	20.6	20.7	19.8	-1.4	-3.9
French total	20.5	22.9	21.4	24.2	20.9	23.4	21.1	20.7	20.8	19.9	-1.4	-3.9
Other	6.9	0.2	6.4	0.3	6.5	0.4	6.2	0.3	7.2	0.2	16.1	-33.3

Source: Numeris

This table shows radio tuning by frequency band and by language of broadcast over the past five years. The “Other” category is mainly over-the-air tuning to U.S. border stations (diary), but also includes tuning to Internet radio that is not attributed to Canadian over-the-air radio stations, multi-channel subscription (satellite radio) services, pay and specialty audio services, over-the-air and video services available on cable, and unknown sources.

⁶ Diary markets are defined as markets other than Calgary, Edmonton, Montréal, Toronto and Vancouver.

Table 4.1.12 Average weekly hours of radio tuned by listener for English- and French-language AM and FM stations

Tuning	2011		2012		2013		2014		2015		Growth (%) 2014-2015	
	Diary	PPM	Diary	PPM	Diary	PPM	Diary	PPM	Diary	PPM	Diary	PPM
Average number of weekly hours per listener	19.9	9.9	19.6	9.8	19.3	9.7	18.8	9.5	18.4	9.7	-2.1	2.1
Total average weekly national hours (millions)	303.8	164.5	303.9	166.5	299.0	167.7	289.0	167.6	288.0	169.4	-0.3	1.1

Source: Numeris

The average number of weekly hours per listener is determined by dividing the total number of hours tuned by reach, which is the number of different persons who tune in for at least one quarter hour within a specified time period, as estimated by Numeris.

Table 4.1.13 Tuning (millions of hours) and tuning share (%) achieved by the largest English-language private commercial radio operators in Canada in an average week

Commercial radio operator	Metric	2013		2014		2015	
		Diary	PPM	Diary	PPM	Diary	PPM
BCE	Tuning	40.5	38.1	34.2	32.4	32.2	32.6
	Share (%)	18.6	36.3	16.3	29.3	15.5	26.6
Cogeco	Tuning	-	-	-	-	-	-
	Share (%)	-	-	-	-	-	-
Corus	Tuning	21.5	21.0	19.0	18.7	16.6	16.7
	Share (%)	9.8	20.0	9.0	16.9	8.0	13.6
Harold R. Steele (Newcap)	Tuning	18.8	2.6	19.2	10.5	18.5	13.2
	Share (%)	8.6	2.5	9.1	9.5	8.9	10.8
Rogers	Tuning	22.5	23.5	21.8	17.3	21.6	21.3
	Share (%)	10.3	22.4	10.4	15.6	10.4	17.4
Total	Tuning	218.2	104.8	210.4	110.6	207.2	122.6
	Share (%)	100	100	100	100	100	100

Source: Numeris

Table 4.1.14 Tuning (millions of hours) and tuning share (%) achieved by the largest French-language private commercial radio operators in Canada in an average week

Commercial radio operator	Metric	2013		2014		2015	
		Diary	PPM	Diary	PPM	Diary	PPM
BCE	Tuning	19.9	8.6	17.4	6.9	17.5	6.2
	Share (%)	31.7	26.9	28.8	24.1	29.3	20.3
Cogeco	Tuning	12.6	21.3	12.7	18.7	13.5	17.9
	Share (%)	20.1	66.7	20.9	65.4	22.6	58.5
Total	Tuning	62.7	31.9	60.9	28.6	59.8	30.6
	Share (%)	100	100	100	100	100	100

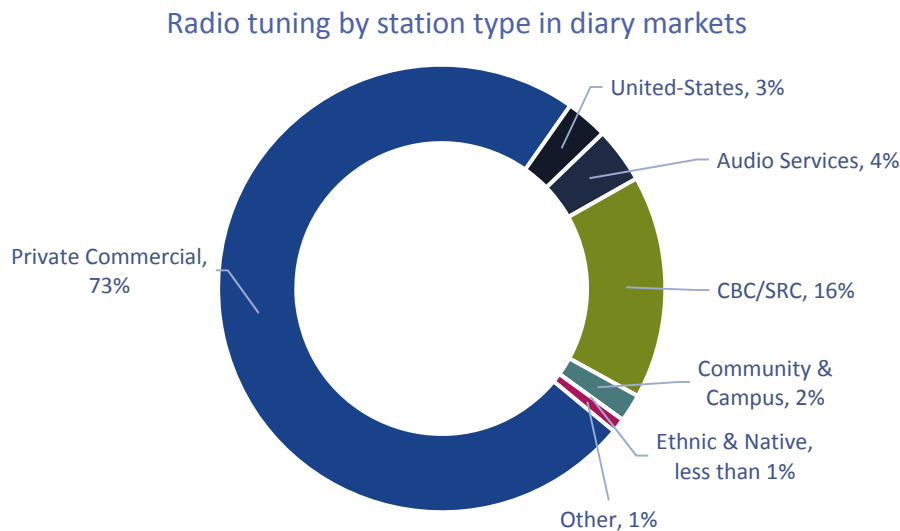
Source: Numeris

These tables present tuning data by large radio ownership groups, by language, for the years 2013 through 2015.

In Broadcasting Decision 2013-310, the Commission approved the change in effective control of Astral's 21 French-language and 63 English-language radio stations to BCE, subject to the divestiture by BCE of 10 English-language (7 Astral and 3 BCE) radio stations, and the transfer of their management and control to a trustee (Pierre Boivin), pending their sale to third parties;

Several divested stations from Pierre Boivin have been acquired by other large private commercial radio operators, hence the fluctuation by operator in listening hours (2013-2014).

Figure 4.1.16 Radio tuning by station type in diary markets, 2015



Sources: Numeris, 2015 and CRTC data collection

This table shows the different types of radio stations tuned by listeners in diary markets in 2015.

The "Audio services" segment includes tuning to multi-channel subscription (satellite radio) services, pay and specialty audio services, over-the-air radio stations, and video services broadcast over cable and the Internet.

Table 4.1.15 Radio tuning shares - English-language radio station formats in diary markets, 2015

Top formats	Audience share	Number of stations
Today's Country	16%	103
CBC Radio One	15%	34
Adult Contemporary	10%	107
Hot Adult Contemporary	10%	85
Album-oriented/mainstream Rock	8%	53
News/Talk	8%	41
Classic Hits	7%	58
Mainstream Top 40/CHR	7%	41
Classic Rock	5%	26
CBC Radio Two	3%	9
Other	8%	128

Sources: Numeris Fall 2015 and CRTC data collection

Other formats rounding to 100 include: Modern Rock (12 stns, 2%), community/campus/tourism (88 stns, 1%), Gold/Oldies (11 stns, 1%), Adult Standards (1 stn, 1%), Alternative Rock (12 stns, 2%), Classical/Fine Arts (4 stns, 1%).

Table 4.1.16 Radio tuning shares - French-language radio station formats in diary markets, 2015

Top formats	Audience share	Number of stations
Adult Contemporary	24%	36
News/Talk	17%	8
Mainstream Top 40/CHR	14%	15
Hot Adult Contemporary	13%	19
Ici Radio-Canada Première	12%	17
Community	7%	50
Ici Musique	4%	10
Classic Hits	2%	3
Adult Album Alternative	2%	1
Classical/Fine Arts	2%	2
Other	2%	4

Sources: Numeris Fall 2015 and CRTC data collection

Other formats rounding to 100 include: Modern/Alternative Rock (1stn, 1%), Oldies (3 stn, 1%).

Among Canadians in diary markets listening to English-language radio stations, over 50% of listening hours went to country, CBC Radio One, adult contemporary, and hot adult contemporary formats. Among French-language radio station listeners, almost a quarter of listening hours went to the adult contemporary format.

Table 4.1.17 Radio tuning shares - English-language radio station formats in PPM markets, 2015

Top formats	Audience share	Number of stations
News/Talk	17%	11
Adult Contemporary	15%	10
CBC Radio One	13%	5
Mainstream Top 40/CHR	10%	10
Hot AC	8%	4
Classic Hits	8%	7
Classic Rock	6%	4
Mainstream/Modern Rock	6%	7
Sports Talk	5%	7
Country	4%	4
Other	9%	9

Sources: Numeris 2015 and CRTC data collection

Other formats rounding to 100 are: CBC Radio 2 (5 stns, 4%), Adult Standards (2 stns, 4%), Jazz (1 stn, 0.5%) and Campus (1 stn, 0.5%).

Table 4.1.18 Radio tuning shares - French-language radio station formats in PPM markets, 2015

Top formats	Audience share	Number of stations
Adult Contemporary	32%	3
News/Talk	28%	2
CHR	20%	2
ICI Radio-Canada Première	12%	4
Classical Music	4%	1
ICI Musique	4%	4

Sources: Numeris 2015 and CRTC data collection

Other format rounding to 100 are: Traffic (1 stn, 0%)

v Programming contributions and expenditures

The CRTC uses a number of approaches to achieve the cultural, social, and economic objectives set out in the *Broadcasting Act*. One such instrument has been the establishment of various contribution and expenditure regimes.

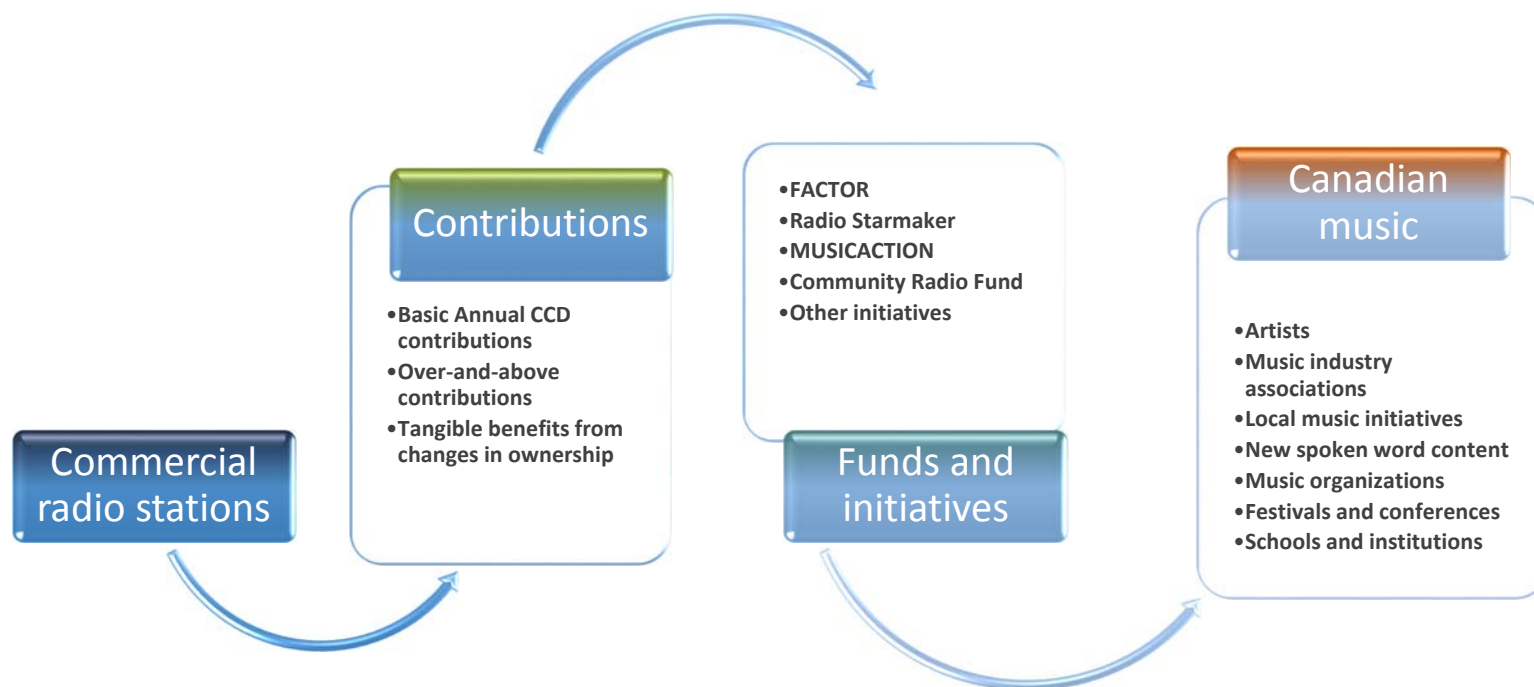
In the 2014-2015 broadcast year, commercial radio operators contributed 3 cents per revenue dollar to support Canadian Content Development (CCD). Collectively, they contributed nearly \$48 million to the development of Canadian content, a decrease of 20% over the previous period. Approximately 55% of the funds were a direct result of the conditions of licence issued to new radio stations and tangible benefits paid following a change in ownership or control of radio stations.

What are tangible benefits and CCD contributions? In the absence of a competitive licensing process relating to transfers of ownership or control of radio or television services, tangible benefits, which are financial contributions proportionate to the value of the transaction (6% minimum for radio and 10% minimum for television service), are required to be made to the broadcasting system by the purchaser of a licensed radio or television service. They are usually paid over five to seven consecutive broadcast years. Tangible benefits is one means, used by the Commission, of ensuring the best possible proposal by the applicant and that approval is in the public interest, consistent with the overall objectives of the *Broadcasting Act*.

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. Most applicants make specific CCD commitments as part of applications for new licences and as tangible benefits at the time of transfer of ownership and control of radio stations. Commercial and ethnic stations are further subject to regulations requiring annual CCD contributions.

These financial contributions serve, among other things, to foster the creation of Canadian content, to help advance the careers of emerging Canadian artists, and to increase the supply of quality Canadian music in a variety of genres.

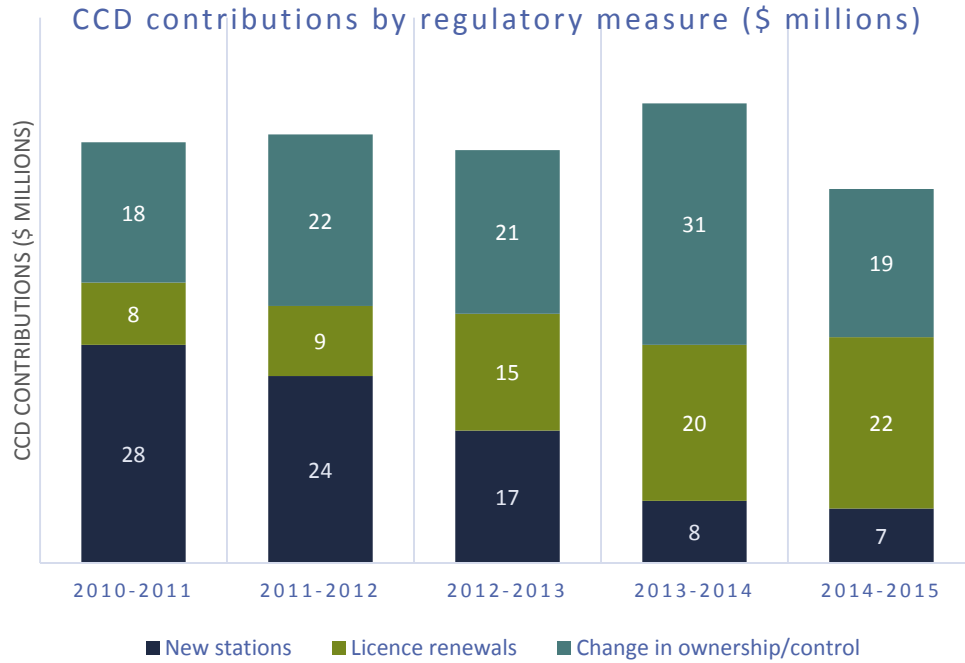
Chart 4.1.1 Radio CCD contributions structure



Commercial radio broadcasters support CCD financially as a result of three regulatory processes:

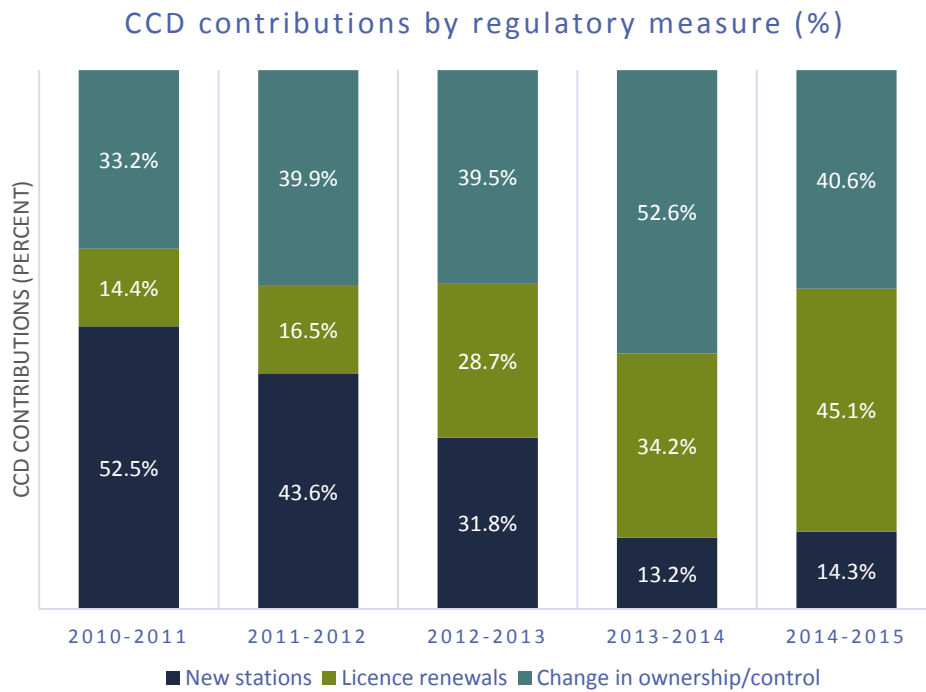
- Basic annual CCD contributions;
- Additional contributions over and above the basic CCD contribution (usually related to applications for new licences); and
- Contributions made in relation to applications for transfers of ownership or control (tangible benefits).

Figure 4.1.17 CCD contributions by regulatory measure (\$ millions)



Source: CRTC data collection

Figure 4.1.18 CCD contributions by regulatory measure (percentage)



Source: CRTC data collection

Table 4.1.19 Summary of annual CCD contributions reported by radio station licensees (\$ thousands)

CCD category	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	Growth (%) 2013-14 to 2014-15	CAGR (%) 2010-11 to 2014-15
FACTOR	10,755	10,545	12,022	13,982	10,090	-27.8	-1.6
MUSICACTION	1,930	2,538	2,426	3,596	3,461	-3.7	15.7
CRFC	346	1,509	1,722	2,922	2,954	1.1	71.0
Music Industry Association	4,360	3,754	4,334	3,168	3,591	13.4	-4.7
Local music initiatives	10,833	13,777	10,538	10,731	10,552	-1.7	-0.7
New spoken word content	1,340	943	253	292	75	-74.3	-51.3
Audio content initiatives	135	135	531	968	638	-34.1	47.5
Schools and educational institutions	2,700	2,383	1,430	1,818	1,405	-22.7	-15.1
Radio Starmaker Fund/Fonds RadioStar	10,783	11,783	10,985	15,902	9,479	-40.4	-3.2
Other eligible CCD initiatives	10,815	7,713	8,114	6,190	5,507	-11.0	-15.5
Total	53,996	55,080	52,356	59,567	47,753	-19.8	-3.0

Source: CRTC data collection

Contributions are based on annual payments reported by licensees for the broadcast year (i.e., 1 September to 31 August). Contributions include those made under both the CCD and the former Canadian talent development regimes. Figures for the 2012-2013 broadcast year include contributions made by pay audio undertakings. The contributions made by satellite radio services have been split between the first licence term and the licence renewal sections (25% and 75%, respectively), based on a licence renewal date of 1 December.

Table 4.1.20 Annual CCD contributions reported by new radio station licensees during the first licence term (\$ thousands)

CCD category	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	Growth (%) 2013-14 to 2014-15	CAGR (%) 2010-11 to 2014-15
FACTOR	2,719	2,615	2,818	2,008	1,544	-23.1	-13.2
MUSICACTION	791	563	242	255	403	57.9	-15.5
Community Radio Fund of Canada	-	165	17	21	21	4.6	-
Music Industry Association	2,493	2,221	2,342	1,754	1,477	-15.8	-12.3
Local music initiatives	7,485	9,106	5,524	3,275	2,446	-25.3	-24.4
New spoken word content	1,139	545	192	171	-	-	-
Audio content initiatives	-	-	172	585	153	-73.9	-
Schools and educational institutions	2,020	1,553	886	516	435	-15.8	-31.9
Radio Starmaker Fund/Fonds RadioStar	1,982	1,038	466	-	-	-	-
Other eligible CCD initiatives	9,714	6,195	3,986	352	355	0.8	-56.3
Total	28,342	24,001	16,644	8,935	6,833	-23.5	-29.9

Source: CRTC data collection

Contributions are based on annual payments reported by licensees for the broadcast year (i.e., 1 September to 31 August). Contributions include those made under both the CCD and the former Canadian talent development regimes. Figures for the 2012-2013 broadcast year include contributions made by pay audio undertakings. The contributions made by satellite radio services have been split between the first licence term and the licence renewal sections (25% and 75%, respectively), based on a licence renewal date of 1 December.

Table 4.1.21 Annual CCD contributions reported by radio licensees in the context of licence renewals (\$ thousands)

CCD category	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	Growth (%) 2013-14 to 2014-15	CAGR (%) 2010-11 to 2014-15
FACTOR	2,629	1,971	3,152	4,156	4,847	16.6	16.5
MUSICACTION	808	727	1,414	1,681	1,695	0.9	20.3
Community Radio Fund of Canada	-	617	1,020	1,305	1,342	2.8	-
Music Industry Association	823	966	1,607	932	1,735	86.2	20.5
Local music initiatives	1,947	2,381	3,352	4,417	5,665	28.2	30.6
New spoken word content	201	398	61	121	35	-71.1	-35.4
Audio content initiatives	-	-	-	-	446	-	-
Schools and educational institutions	473	614	342	948	760	-19.9	12.6
Radio Starmaker Fund/Fonds RadioStar	-	246	35	52	-	-100.0	-
Other eligible CCD initiatives	873	1,194	4,026	5,716	5,020	-12.2	54.9
Total	7,754	9,114	15,010	19,328	21,545	11.5	29.1

Source: CRTC data collection

Contributions are based on annual payments reported by licensees for the broadcast year (i.e., 1 September to 31 August). Contributions include those made under both the CCD and the former Canadian talent development regimes. Figures for the 2012-2013 broadcast year include contributions made by pay audio undertakings. The contributions made by satellite radio services have been split between the first licence term and the licence renewal sections (25% and 75%, respectively), based on a licence renewal date of 1 December.

Table 4.1.22 Annual CCD contributions reported by radio licensees in the context of changes in ownership and/or control (\$ thousands)

CCD category	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	Growth (%) 2013-14 to 2014-15	CAGR (%) 2010-11 to 2014-15
FACTOR	5,407	5,959	6,053	7,818	3,699	-52.7	-9.1
MUSICACTION	331	1,248	770	1,660	1,362	-17.9	42.4
Community Radio Fund of Canada	346	727	684	1,596	1,591	-0.4	46.5
Music Industry Association	1,044	567	386	482	379	-21.5	-22.4
Local music initiatives	1,401	2,290	1,662	3,038	2,442	-19.6	14.9
New spoken word content	-	-	-	-	40	-	-
Audio content initiatives	135	135	359	383	40	-89.6	-26.2
Schools and educational institutions	207	216	203	354	211	-40.4	0.4
Radio Starmaker Fund/Fonds RadioStar	8,801	10,499	10,483	15,850	9,479	-40.2	1.9
Other eligible CCD initiatives	228	324	102	122	133	8.6	-12.7
Total	17,900	21,965	20,702	31,303	19,376	-38.1	2.0

Source: CRTC data collection

Contributions are based on annual payments reported by licensees for the broadcast year (i.e., 1 September to 31 August). Contributions include those made under both the CCD and the former Canadian talent development regimes. Figures for the 2012-2013 broadcast year include contributions made by pay audio undertakings. The contributions made by satellite radio services have been split between the first licence term and the licence renewal sections (25% and 75%, respectively), based on a licence renewal date of 1 December.

vi Tangible benefits

In 2015, 6 transactions were approved for both English and French language services resulting in total tangible benefits of \$7.9 million, a 49% decrease over 2014.

Table 4.1.23 Number of radio service transactions, value of those transactions and corresponding tangible benefits for the period from 1 January 2011 to 31 December 2015 (\$ millions)

Language of services	Metric	2011	2012	2013	2014	2015	Total
English	Number of Transactions	9	5	4	9	6	33
	Value (\$M)	316.2	80.4	756.7	257.7	55.1	1,446.1
	Benefits (\$M)	19.0	4.8	52.0	15.5	4.0	95.3
French	Number of Transactions	3	2	1	-	6	12
	Values (\$M)	-	1.5	357.7	-	54.6	413.8
	Benefits (\$M)	-	0.1	25.0	-	3.9	29.0

Sources: CRTC decisions and administrative approvals

The BCE/CTVglobemedia Inc. ownership transaction, which occurred in 2011 (see Broadcasting Decision 2011-163), resulted in \$17.5 million in tangible benefits; and

The BCE/Astral ownership transaction, which occurred in 2013 (see Broadcasting Decision 2013-310), resulted in \$71.5 million in tangible benefits. Approximately \$46.5 million of this amount was committed to English-language initiatives and \$25 million to French-language initiatives. In its decision, the Commission directed BCE to divest itself of 10 radio services. These divestitures are expected to generate not less than \$11 million in additional tangible benefit commitments from other purchasers. In December 2013, the Commission approved the divestiture of 3 radio stations (CFQX-FM Selkirk and CHIQ-FM Winnipeg, Manitoba, and CKCE-FM Calgary, Alberta) to the Jim Pattison Broadcast Group Limited Partnership (Pattison). Pattison has committed \$1.8 million in tangible benefits initiatives.

vii Programming of high standards

The *Broadcasting Act* sets out that programming provided by broadcasting undertakings should be of high standard. In addition to the CRTC, two bodies deal with programming complaints relating to public and community broadcasters, as well as non-members of the CBSC. The CRTC also deals with issues that are outside the parameters of the codes administered by the CBSC.

The CBSC administers specific codes of broadcast conduct and provides a means of recourse for members of the public regarding the application of the standards set out in the following codes:

- CAB Code of Ethics;
- CAB Violence Code;
- CAB Equitable Portrayal Code; and
- Radio Television Digital News Association of Canada (RTDNA Canada) Code of Ethics.

The Canadian Broadcast Standards Council (CBSC) is an independent organization created by the Canadian Association of Broadcasters (CAB) to administer standards established by Canada's private broadcasters. The CBSC's membership includes more than 790 private-sector radio and television stations, specialty services, pay services, and networks across Canada. Membership includes broadcasters broadcasting in English, French, and third languages. For more information, visit www.cbsc.ca.

The Advertising Standards Canada (ASC) is a national, not-for-profit advertising self-regulatory body that responds to complaints by consumers and special interest groups regarding advertising with respect to all media subject to the Canadian Code of Advertising Standards, the principal instrument of advertising self-regulation.

The ASC responds to complaints by consumers and special interest groups regarding advertising with respect to all media subject to the Canadian Code of Advertising Standards, the principal instrument of advertising self-regulation. In addition, the ASC undertakes pre-clearance functions in five industry categories, which consist of reviewing advertisements based on applicable legislation, regulations, and/or industry codes and guidelines.

Additional information on the ASC can be found at: www.adstandards.com/en/

Table 4.1.24 Number of radio-related contacts received by the CRTC, by type of issue

Fiscal year	CRTC – policies/decisions	Billing	Quality of service/delivery	Terms and conditions	Accessibility issues	Programming	Loudness	Other
2014-2015	847	3	41	3	0	802	9	227
2015-2016	695	4	33	0	0	456	13	46

Source: CRTC correspondence tracking system

Table 4.1.25 Number of radio complaints by subject matter

Subject Matter	2011-2012		2012-2013		2013-2014		2014-2015		2015-2016	
	Complaints received	Referrals to the CBSC	Complaints received	Referrals to the CBSC	Complaints received	Referrals to the CBSC	Complaints received	Referrals to the CBSC	Complaints received	Referrals to the CBSC
Abusive comment	38	3	64	32	32	8	46	16	39	12
Adult content	14	6	9	3	5	1	4	1	10	2
Alcohol advertising	1	-	4	-	3	-	2	0	-	-
Gender portrayal	5	4	1	-	2	1	2	1	2	-
Offensive comment	258	95	283	135	702	582	317	203	163	48
Offensive language	22	9	50	14	31	13	41	16	27	9
Total	338	117	411	184	775	605	412	237	241	71

Source: CRTC correspondence tracking system

Together, the CRTC and the CBSC receive and address a range of complaints regarding radio and subscription radio services. This table shows the number of complaints received by the CRTC—and referred to the CBSC—regarding various issues across diverse market sectors for the 2011-2012 through 2015-2016. No complaints were received for satellite radio between 2011-2012 and 2015-2016.

The CRTC's correspondence tracking system counts multiple communications from the same client regarding the same complaint as separate units. Consequently, the actual number of complaints received is likely to be slightly lower than the figures indicated.

The category "Abusive comment" includes complaints alleging hatred or contempt incited on air against one of the groups identified in the Television Broadcasting Regulations, 1987 or the Specialty Services Regulations, 1990.

The category "Offensive comment" includes complaints alleging offensive humour, or other comments that do not fall under the "abusive comment" provision in CRTC regulations.

The category "Offensive language" includes complaints alleging offensive language in song lyrics or in spoken word programming.

Table 4.1.26 Radio complaints handled by the CBSC in 2015 by language and national origin

Category	Sub-category	Radio	Subscription radio (satellite)	Total
Language of Broadcast of program	English	212	4	216
	French	215	0	215
	Third language	8	0	8
	Other	0	0	0
	Total	435	4	439
National origin of program	Canadian	415	1	416
	Foreign	13	2	15
	Other	7	1	8
	Total	435	4	439

Source: CBSC, 2014-2015 annual report

Table 4.1.27 Complaints handled by the ASC

Statistics	2011	2012	2013	2014	2015
Total number of complaints	1,809	1,310	1,310	1,274	1,774
Complaints about radio advertisements	85	55	84	64	94
Radio complaints as percentage of total (%)	5%	4%	6%	5%	5%

Source: ASC complaint reports

This table shows the number of complaints handled by the ASC relating to advertisements on radio as a percentage of the total number of complaints handled. In 2015, 5% of those complaints related to radio advertisements.

viii Ownership groups

Between 2013 and 2015, Canada's six largest commercial radio operators together accounted for nearly 70% of the commercial radio industry's revenues. They also accounted for approximately 40% of the total number of radio undertakings in the country.

Table 4.1.28 English-language and French-language radio revenues and number of undertakings reporting for the largest commercial radio operators in Canada

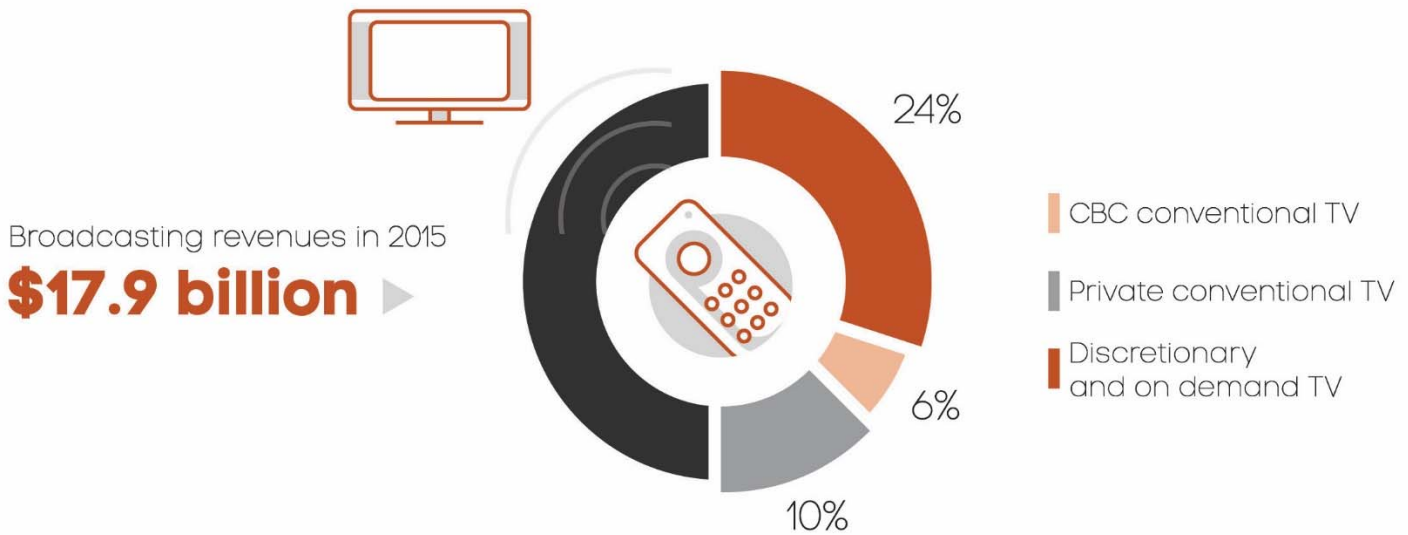
Language	Radio operators	Revenues (\$ thousands)			Number of radio undertakings reporting			Share of total revenue (%)		
		2013	2014	2015	2013	2014	2015	2013	2014	2015
All languages	BCE	422,708	414,116	410,835	109	107	106	26	26	26
	Pierre-Boivin (BCE in-trust)	51,518	N/A	N/A	10	N/A	N/A	3	N/A	N/A
	Astral	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Rogers	224,520	228,485	233,380	55	55	53	14	14	15
	Corus	173,909	164,525	152,433	37	39	39	11	10	10
	Harold R. Steele (Newcap)	122,365	156,289	152,471	62	69	67	8	10	10
	Cogeco	106,613	109,943	106,718	13	13	13	7	7	7
	Total largest commercial radio operators	1,101,633	1,073,357	1,055,837	286	283	278	69	67	68
Total all commercial radio operators	1,621,944	1,613,471	1,602,534	718	703	715	100	100	100	
English-language	BCE	313,998	306,288	305,905	88	86	85	24	23	24
	Pierre-Boivin (BCE in-trust)	51,518	N/A	N/A	10	N/A	N/A	4	N/A	N/A
	Astral	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Rogers	223,374	227,267	232,096	54	54	52	17	18	18
	Corus	173,909	164,525	152,433	37	39	39	13	13	12
	Harold R. Steele (Newcap)	122,365	156,289	152,471	62	69	67	9	12	12
	Total English-language largest commercial radio operators	885,164	854,367	842,906	251	248	243	67	65	66
	Total English-language commercial radio operators	1,317,706	1,304,965	1,297,201	595	583	593	100	100	100
French-language	BCE	108,710	107,828	104,930	21	21	21	42	41	41
	Astral	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Cogeco	N/A	N/A	N/A	12	12	12	N/A	N/A	N/A
	Total - largest commercial radio operators	108,710	107,828	104,930	33	33	33	42	41	41
	Total French-language commercial radio operators	258,025	263,513	263,513	98	96	99	100	100	100

Source: CRTC data collection

The total number of services owned by private, English- and French-language radio operators includes commercial networks and ethnic commercial radio stations. Transfers of ownership or control of radio services to or from ownership groups are deemed to have occurred in the broadcast year in which the proposed transfer was approved by the CRTC and not on the closing date of the transaction. Further, the radio service's entire annual revenue is attributed to its deemed ownership group. Cogeco's revenue data have been removed from the category "largest French-language commercial radio corporations" due to residual disclosure issues;

In Broadcasting Decision 2013-310, the Commission approved the change in effective control of Astral's 21 French-language and 63 English-language radio stations to BCE, subject to the divestiture by BCE of 10 English-language (7 Astral and 3 BCE) radio stations, and the transfer of their management and control to a trustee (Pierre Boivin), pending their sale to third parties. The services being held in trust by Pierre Boivin are indicated separately, but are included in the BCE 2013 data.

4.2 Television sector



Revenues	Viewing	Revenues	Revenues	Revenues
\$7.1 B	27.2 HRS	\$1.8 B	\$1.1 B	\$4.3 B
Decrease of 3.4% over 2014	Canadians (2+) watch TV each week	Private conventional television decrease of 2.6% over 2014	CBC conventional television decrease of 16.6% over 2014	Discretionary and on demand TV Increase of 0.4% over 2014

Canadians have access to over 600 Canadian and non-Canadian television services. Most still watch television by traditional means, whether it be over-the-air, or via cable, satellite or IPTV. However, Canadians are also turning to new platforms and devices connected to the Internet for their video content consumption.

According to 2014-15 audience measurement data, Canadians two years of age and older are watching an average of more than 27 hours of television each week. Younger demographics are watching less television. For example, during that period, the 18-34 demographic watched 19.7 hours of television each week, three hours less than five years earlier.

In 2015, the private conventional television sector reported \$1.76 billion in revenues, compared to \$4.3 billion for discretionary services (pay, pay-per-view, video-on-demand and specialty services). The television industry's five large ownership groups reported over 90% of all television revenues.

The English-language private conventional television sector includes three major ownership groups: BCE (CTV and CTV Two), with a 49% revenue share; Shaw (Global), with a 28% revenue share; and Rogers (City and OMNI), with a 15% revenue share. The French-language private conventional television sector has two major players: Québecor (TVA), with a 70% revenue share; and Remstar (V), with a 20% revenue share.

In 2015, the CBC, Canada's national public broadcaster, reported \$1.1 billion in revenues, 68% of which was parliamentary appropriations.

Collectively, broadcasters contributed nearly \$3 billion to Canadian programming expenditures (CPE), 15% of which was spent on Programs of National Interest (PNI) in 2015. For each dollar earned, television services invested 45 cents in support of Canadian programming during the 2014-2015 broadcast year.

i Revenues

Total revenues generated in the television industry⁷, private and CBC conventional television and discretionary services combined, edged down 0.4% a year over the 2011-2015 period and totalled \$7,118 million in 2015.

Conventional television services owned by both private operators and the CBC generated \$2,864 million in revenues in 2015, an 8.6% decrease over 2014.

The 93 privately-owned conventional stations in operation in 2015 garnered \$1,757 million, down 2.6% (or \$46.6 million) from 2014. The termination of the Local Programming Improvement Fund (LPIF) accounts for \$21.7 million of the year-over-year loss for private conventional stations.

The 27 CBC/Radio-Canada conventional television stations reported total revenues of \$1.11 billion in 2015, down \$220.9 million (or 16.6%) from 2014. The termination of the LPIF resulted in \$17.6 million less revenues for the CBC in 2015 compared to the previous year.

Revenues generated by discretionary services, all types of services combined, advanced 3.2% a year on average between 2011 and 2015 to reach \$4,255 million in 2015. On a year-over-year basis, however, these services edged up a modest 0.4% (\$19.0 million) in 2015 in comparison to 2014, the slowest pace of growth in that sector since 2009.

Table 4.2.1 Revenues of television services, by type of service (\$ millions)

Type	Subtype	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Conventional television services	Private	2,139	2,038	1,944	1,804	1,757	-2.6	-4.8
	CBC	1,339	1,369	1,247	1,328	1,107	-16.6	-4.6
	Subtotal	3,478	3,407	3,191	3,132	2,864	-8.6	-4.7
Discretionary services	Pay, PPV, and VOD	856	837	799	788	738	-6.3	-3.6
	Specialty	2,892	3,130	3,292	3,448	3,516	2.0	5.0
	Subtotal	3,748	3,968	4,091	4,236	4,255	0.4	3.2
All services	Total	7,226	7,375	7,282	7,368	7,118	-3.4	-0.4

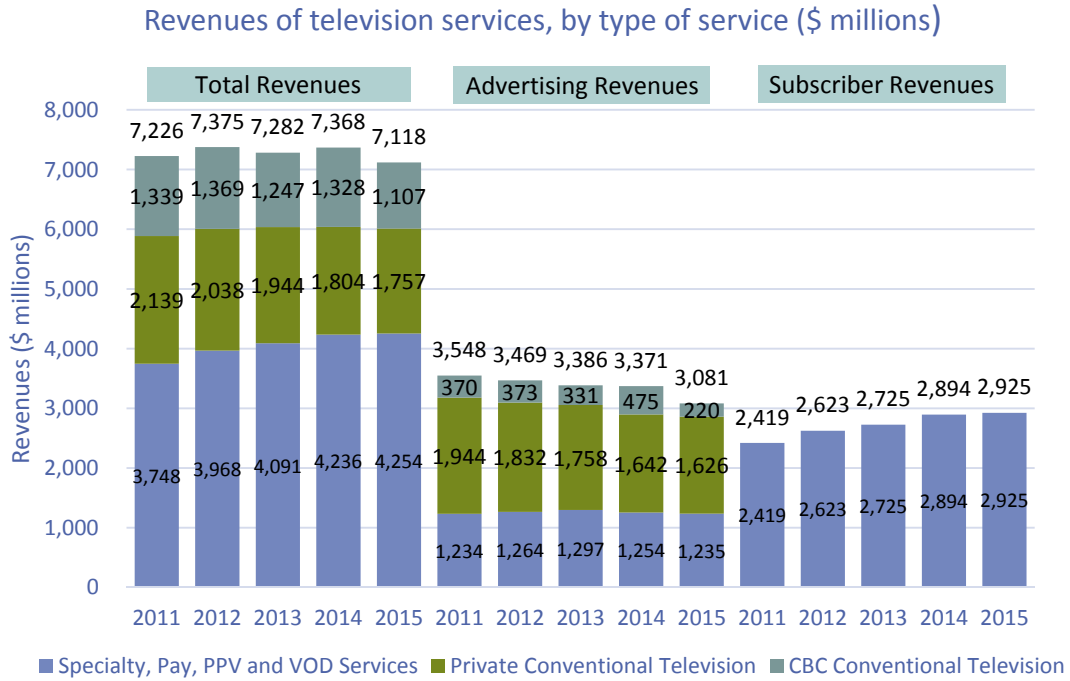
Source: CRTC data collection

This table shows the change in television revenues by type of service for the period from 2011 to 2015.

Revenue declines for conventional television services are partly attributable to an approximate drop of \$300 million for CBC conventional television advertising. Also, LPIF was terminated on August 31, 2014.

⁷ Total revenues generated in the television industry does not include digital media revenues.

Figure 4.2.1 Television services revenues, by type of service (\$ millions)

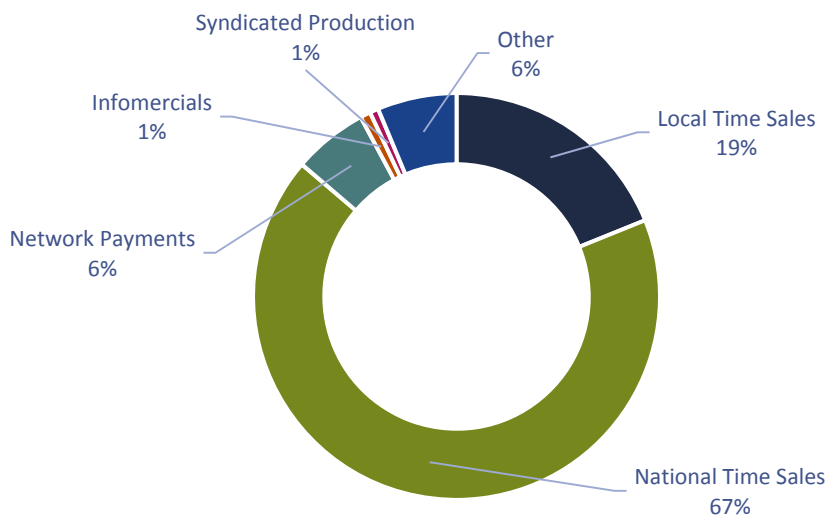


Source: CRTC data collection

Total revenues include “other revenues” (i.e., those tied to a broadcasting licence but not stemming from broadcasting activities, for example, fundraisers) and funding from the Local Programming Improvement Fund (LPIF). Advertising revenues include infomercial sales.

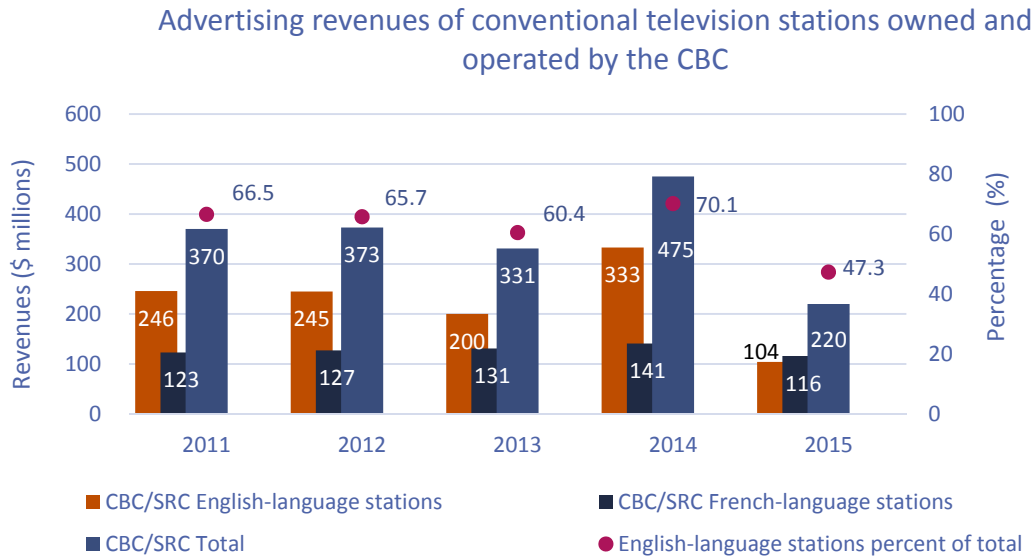
Figure 4.2.2 Private conventional television revenue sources (%), 2015

Private conventional television revenue sources, 2015



Source: CRTC data collection

Figure 4.2.3 Advertising revenues of conventional television stations owned and operated by the CBC



Source: CRTC data collection

Table 4.2.2 CBC conventional television revenues (\$ millions)

Type	2011	2012	2013	2014	2015	Growth (%) 2014-15	CAGR (%) 2011-2015
English-language stations advertising	246	245	200	333	104	-68.9	-19.4
French-language stations advertising	123	127	131	141	116	-17.7	-1.5
Advertising total	370	373	331	475	220	-53.6	-12.2
Other revenues	130	135	133	127	129	1.6	-0.2
Parliamentary appropriation	839	861	783	726	758	4.4	-2.5
Total revenues	1,339	1,369	1,247	1,328	1,107	-16.6	-4.6

Source: CRTC data collection

"Other revenues" include syndication revenues and funding from the LPIF from 2011 to 2014.

Table 4.2.3 Advertising and other revenues: private conventional television stations, by language of broadcast

Language of broadcast	Type of revenue	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
English	Advertising	1,655	1,540	1,468	1,369	1,366	-0.2	-4.7
	Other	129	131	115	106	81	-23.6	-11.0
	Subtotal	1,784	1,672	1,583	1,475	1,447	-1.9	-5.1
French	Advertising	289	291	290	273	260	-4.8	-2.6
	Other	66	75	70	56	50	-10.7	-6.7
	Subtotal	356	367	361	329	310	-5.8	-3.4
Total	Advertising	1,944	1,832	1,758	1,642	1,626	-1.0	-4.4
	Other	195	206	186	162	131	-19.1	-9.5
	Total	2,139	2,038	1,944	1,804	1,757	-2.6	-4.8

Source: CRTC data collection

Revenues for English-language private conventional television stations include revenues for ethnic stations since a significant portion of these stations' revenues was derived from English-language programming. "Other" revenues include funding from the LPIF for 2011-2014.

Table 4.2.4 Revenues of discretionary services, by language of broadcast

Type of services	Language	Categories	Revenues (\$ thousands)			PBIT (\$ thousands)			PBIT margin (%)		
			2013	2014	2015	2013	2014	2015	2013	2014	2015
Specialty	English-language	Category A	1,376,935	1,409,549	1,368,309	495,284	469,288	475,284	36.0	33.3	34.7
		Category B	373,721	375,938	376,558	111,385	112,605	113,814	29.8	30.0	30.2
		Category C	850,891	968,017	1,010,483	218,905	211,780	218,527	25.7	21.9	21.6
		All Categories	2,601,547	2,753,504	2,755,350	825,574	793,673	807,625	31.7	28.8	29.3
	French-language	Category A	296,800	288,126	302,735	91,640	74,712	76,210	30.9	25.9	25.2
		Category B	37,418	42,983	51,755	-2,876	-4,533	29,837	-7.7	-10.5	57.7
		Category C	269,679	282,522	327,938	49,354	34,815	-11,788	18.3	12.3	-3.6
		All Categories	603,897	613,346	682,428	138,118	104,994	94,259	22.9	17.1	13.8
	Ethnic and third-language	Category A	60,429	57,392	54,985	15,268	9,935	8,462	25.3	17.3	15.4
		Category B	26,151	23,246	23,505	2,841	3,851	5,203	10.9	16.6	22.1
		All Categories	86,580	80,638	78,490	18,109	13,786	13,665	20.9	17.1	17.4
	All languages	Category A	1,734,163	1,755,067	1,726,029	602,191	553,935	559,956	34.7	31.6	32.4
		Category B	437,291	442,168	451,818	111,350	111,923	122,000	25.5	25.3	27.0
Category C		1,120,570	1,250,539	1,338,421	268,259	246,594	206,739	23.9	19.7	15.4	
All Categories		3,292,024	3,447,774	3,516,268	981,800	912,452	913,599	29.8	26.6	26.0	
Pay	All languages	N/A	444,785	435,350	423,950	99,297	110,667	63,643	22.3	25.4	15.0
PPV	All languages	N/A	99,652	101,326	95,149	10,543	8,336	-10,909	10.6	8.2	-11.5
VOD	All languages	N/A	254,532	251,336	219,226	-8,862	-31,603	-56,509	-3.5	-12.6	-25.8
Pay, PPV and VOD	All languages	N/A	798,969	788,012	738,325	100,978	87,400	-3,775	12.6	11.1	-0.5
Total	All services	All Categories	4,090,993	4,235,786	4,254,593	1,082,778	999,852	909,824	26.5	23.6	21.4

Source: CRTC data collection

English-language specialty services accounted for the majority of the total number of services (62%) as well as of revenues (64.9%). They also were the most profitable language group (average PBIT margin of 29.3%). Their revenues totalled \$2,755 million in 2015, virtually unchanged from 2014.

Revenues of the French-language specialty services rose by 11.3% from 2014 to 2015 as a result of a \$50 million gain in subscriber revenues. In particular, the sports-related specialty services TVA Sports saw its total revenues increased fivefold, with its subscriber revenues multiplied by 4 in 2015 relative to 2014, as the service aired NHL hockey games.

Ethnic and third-language specialty services' revenues decreased by 2.6% in comparison to 2014 and generated 1.8% (\$78.5 million) of total revenues in 2015.

On-demand services, namely pay-per-view and video-on-demand, continued their downward trend in 2015. These two categories of services combined reported revenues of \$314 million in 2015, down \$38 million (-10.9%) from 2014, and \$40 million (11.2%) from 2013.

Figure 4.2.4 Ranking by revenue of individual discretionary services, in descending order, 2015

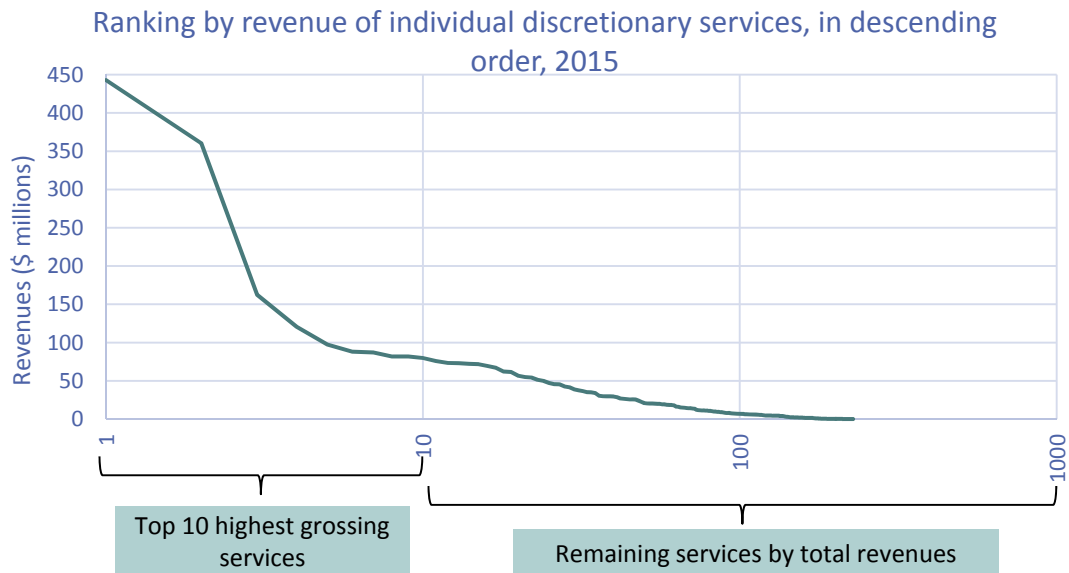
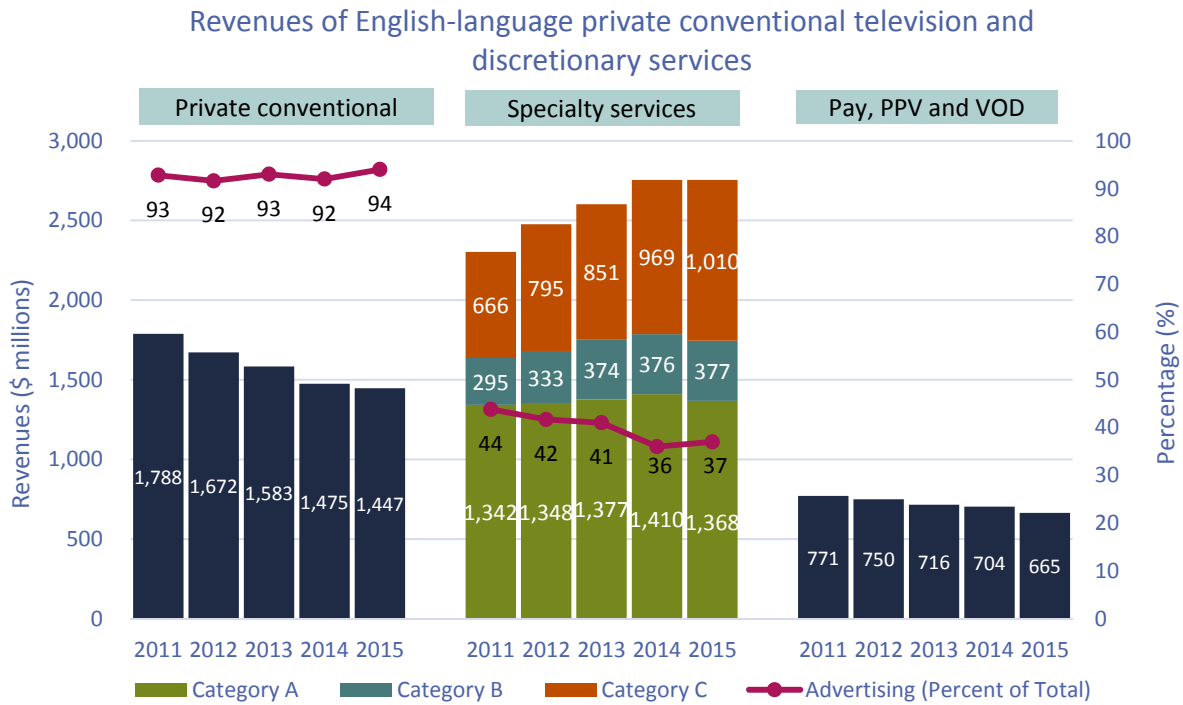


Figure 4.2.5 Revenues of English-language private conventional television and discretionary services

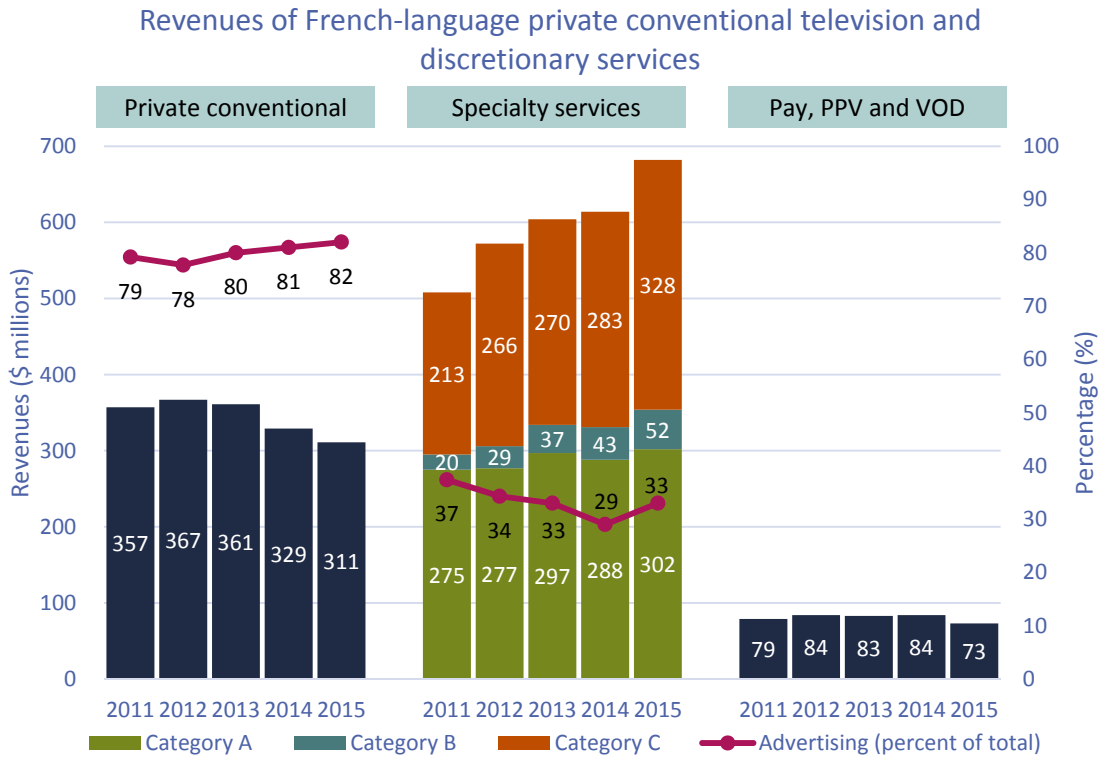


Source: CRTC data collection

Ethnic conventional television stations have been included under “private conventional” since a significant portion of their revenues is derived from English-language programming. English-language discretionary services include bilingual services.

The line in the chart shows advertising revenues as a percentage of total revenues for private conventional television and specialty services (all categories included).

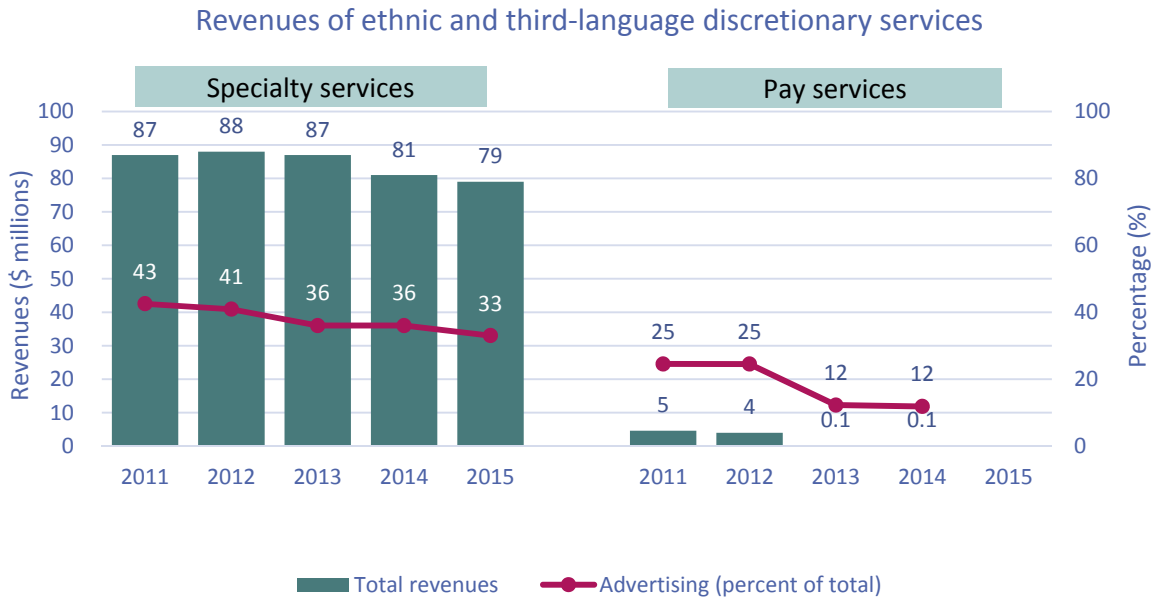
Figure 4.2.6 Revenues of French-language private conventional television and discretionary services



Source: CRTC data collection

The line in the chart shows advertising revenues as a percentage of total revenues for private conventional television and specialty services (all categories included).

Figure 4.2.7 Revenues of ethnic and third-language discretionary services

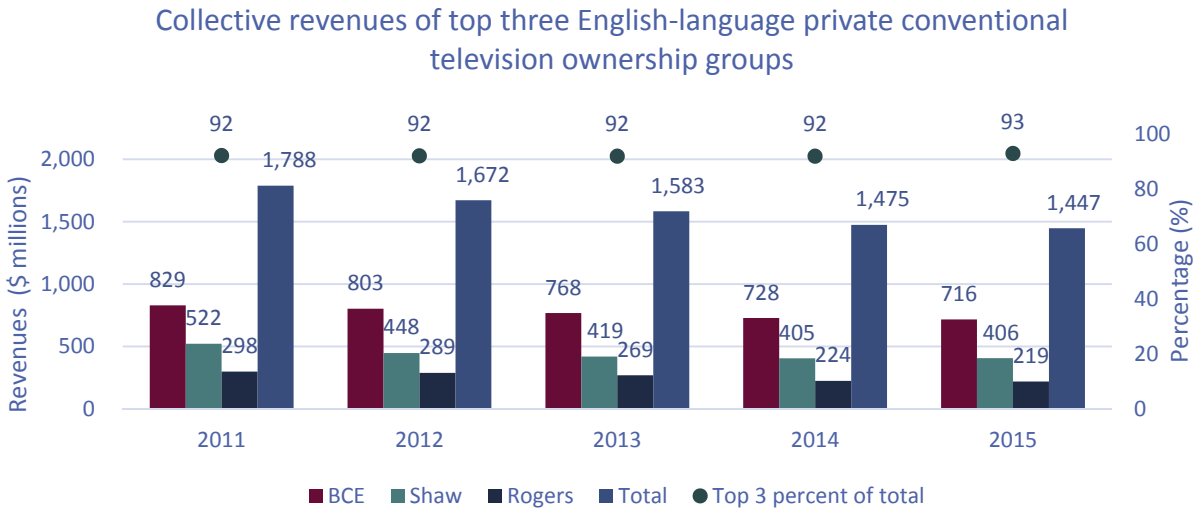


Source: CRTC data collection

In 2015, no ethnic or third language pay services were in operation. From 2012 to 2014, the remaining ethnic and third-language pay services either ceased operations or changed licence type to specialty.

The line in the chart shows advertising revenues as a percentage of total revenues for specialty services (all categories included) and pay services.

Figure 4.2.8 Collective revenues of top three English-language private conventional television ownership groups

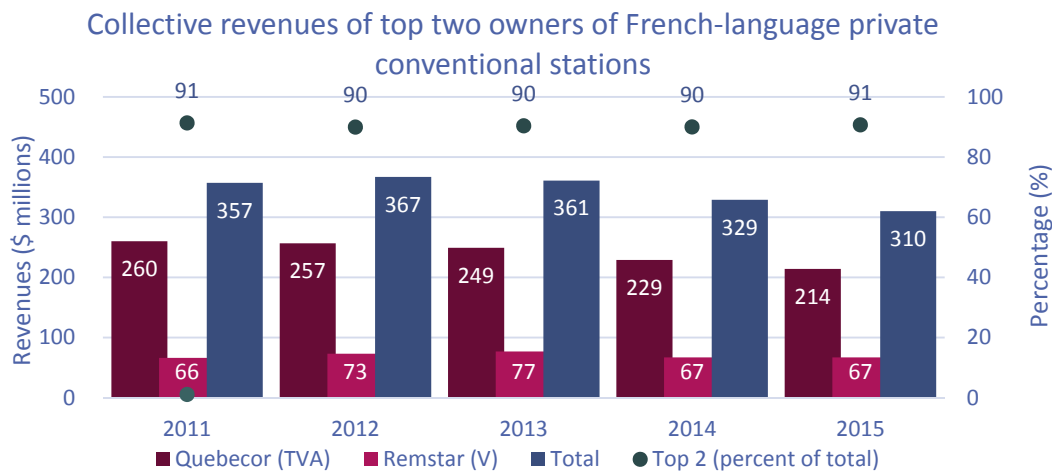


Source: CRTC data collection

This graph shows the revenues of each of the three largest English-language private conventional television ownership groups in each of the 2011 to 2015 broadcast years. It also shows the total revenues of these three groups as a percentage of the revenues of all groups for the same years. Ethnic private conventional television stations have been included since a significant portion of their revenues is derived from English-language programming.

Each group’s total annual revenues are based on total revenues of stations controlled by the broadcaster. Control was determined where the broadcaster had a greater than 50% direct and indirect voting interest as of 31 August of that year. Total revenues include funding from LPIF for 2011-2014.

Figure 4.2.9 Collective revenues of top two owners of French-language private conventional stations



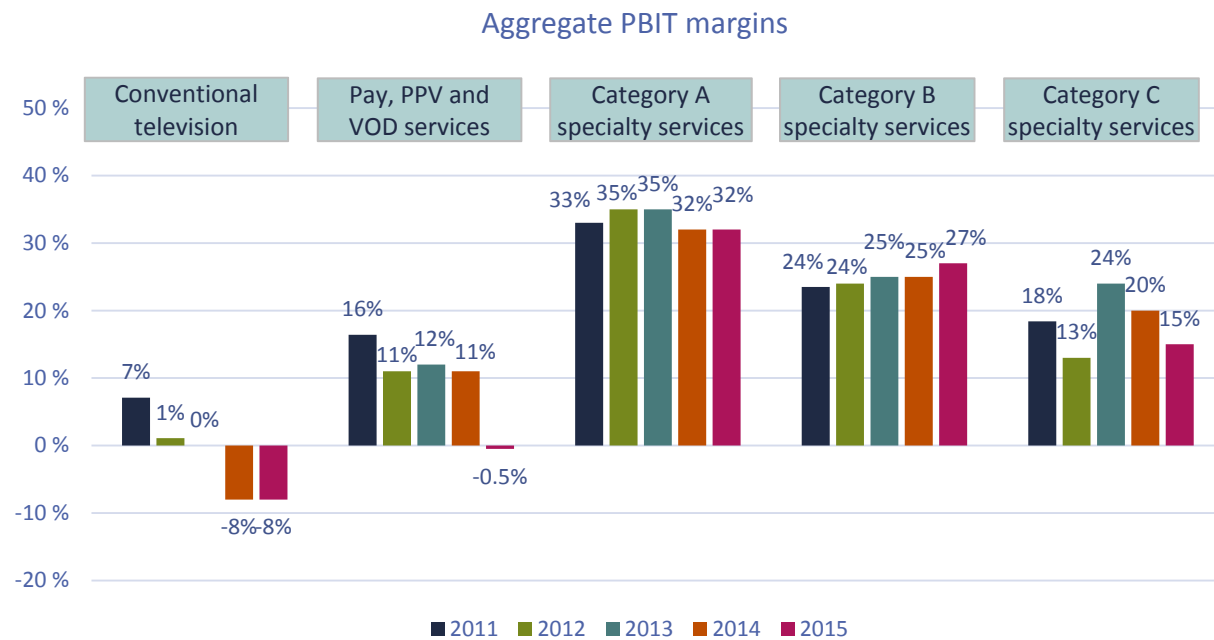
Source: CRTC data collection

ii Financial performance

Private conventional television stations were unprofitable in 2015. Profitability, as measured by the Profit Before Interest and Taxes (PBIT) margin fell to -8.0% in 2015, down from -7.7% in 2014. 2015 market the third consecutive year of financial losses for the private conventional television stations.

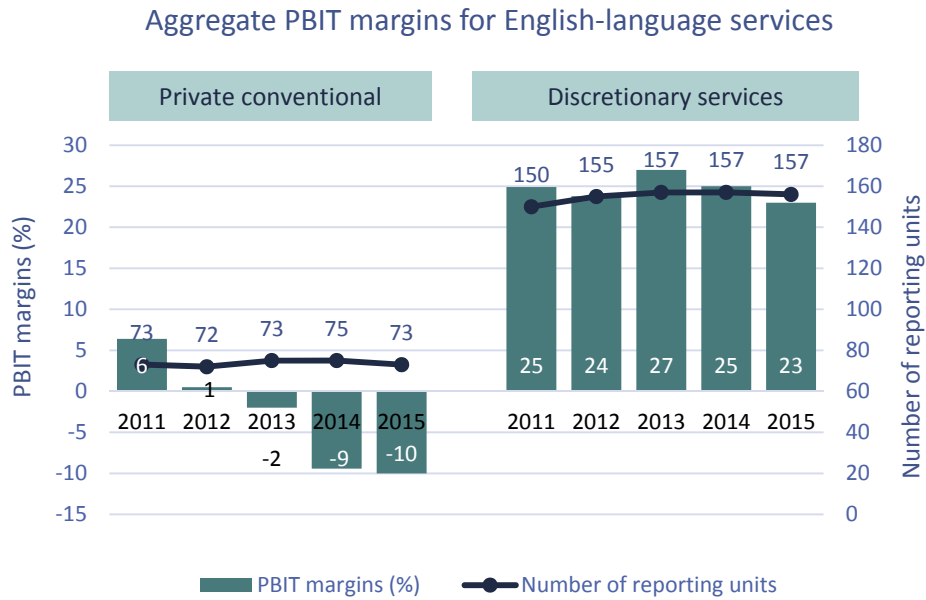
Discretionary service reported an average PBIT margin of 20.8% in 2015, down 3 percentage points from 2014. Specialty services, notably category A services with a 32.4% PBIT margin, were the most profitable of all types of services in 2015. While pay services remained profitable in 2015 despite lower revenues, on-demand services (PPV and VOD services) reported a significant drop in profitability in 2015 as their combined PBIT margin fell 14.8 percentage points between 2014 and 2015 to -21.4%. As a result, Pay, PPV and VOD service together recorded an overall PBIT margin of -0.5%, down from 11% the previous year, and the first time this category was not profitable.

Figure 4.2.10 Aggregate PBIT margins for private conventional television and discretionary services



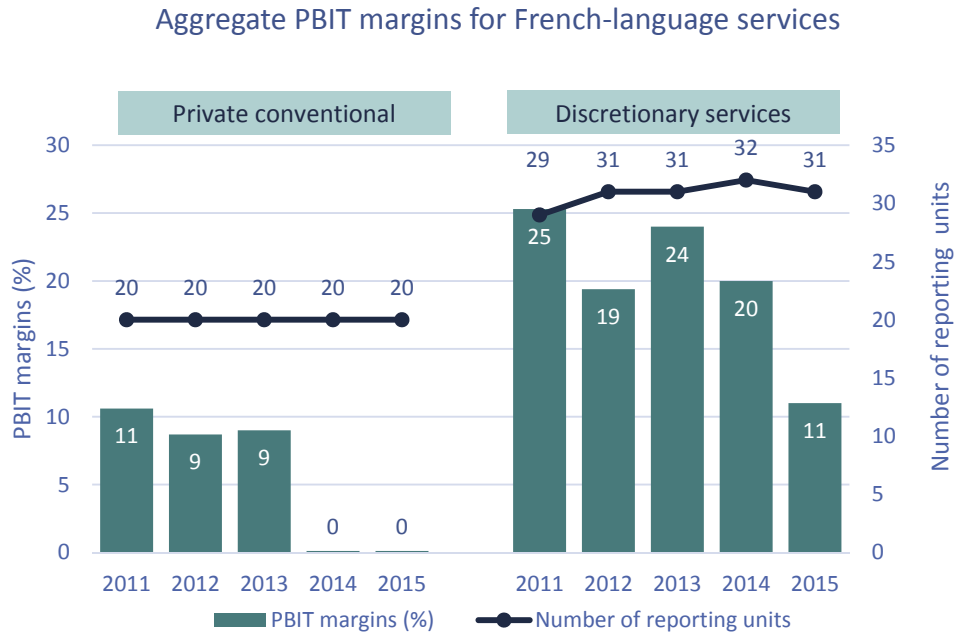
Source: CRTC data collection

Figure 4.2.11 Aggregate PBIT margins for English-language private conventional television and discretionary services



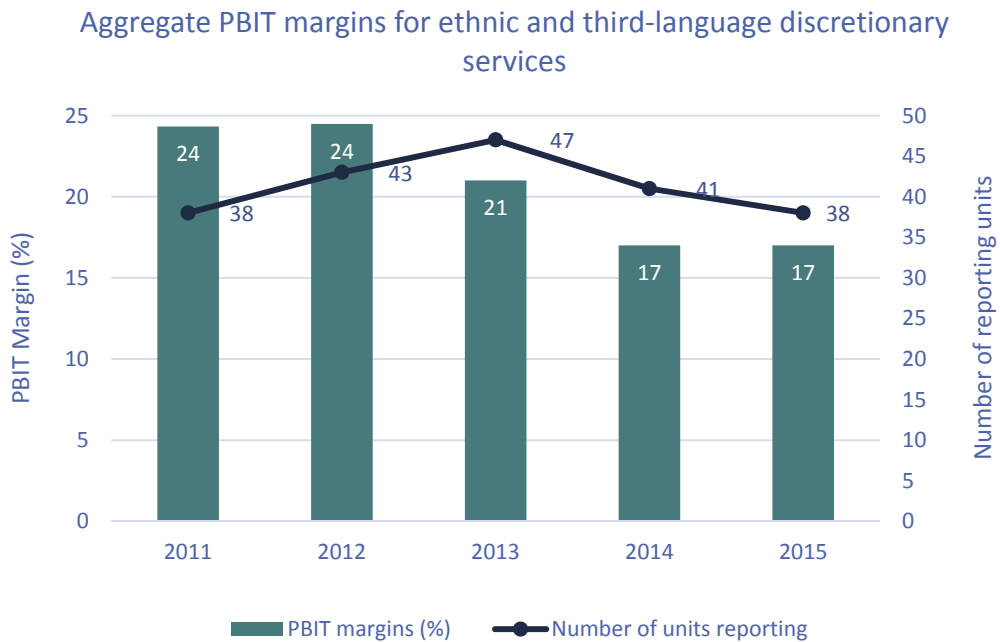
Source: CRTC data collection

Figure 4.2.12 Aggregate PBIT margins for French-language private conventional television and discretionary services



Source: CRTC data collection

Figure 4.2.13 Aggregate PBIT margins for ethnic and third-language discretionary services

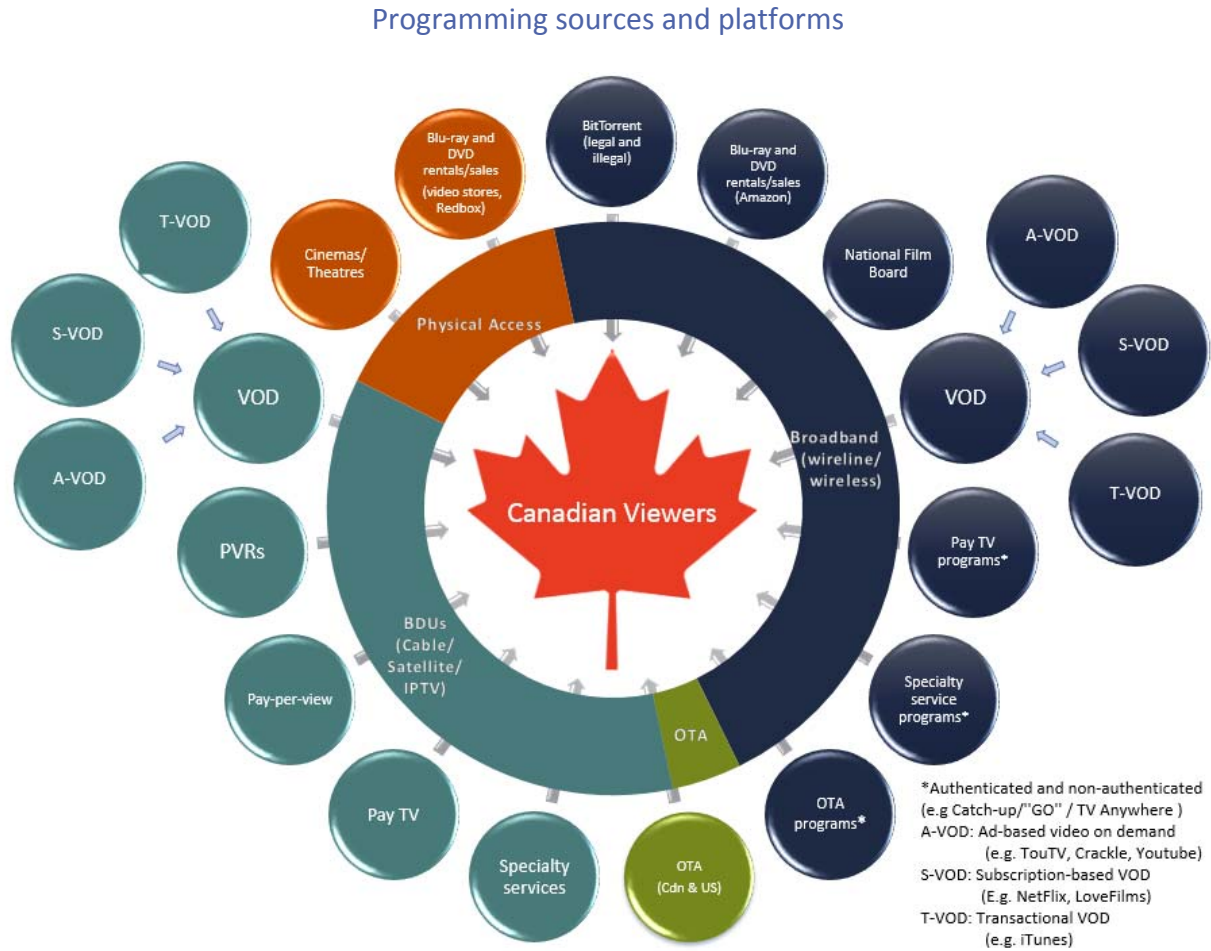


Source: CRTC data collection

iii Availability of television and video services

Canadians enjoy multiple sources and means of accessing content, from conventional over-the-air linear broadcasting to digital media provided over the Internet. The following chart shows the various categories and types of programming sources and platforms.

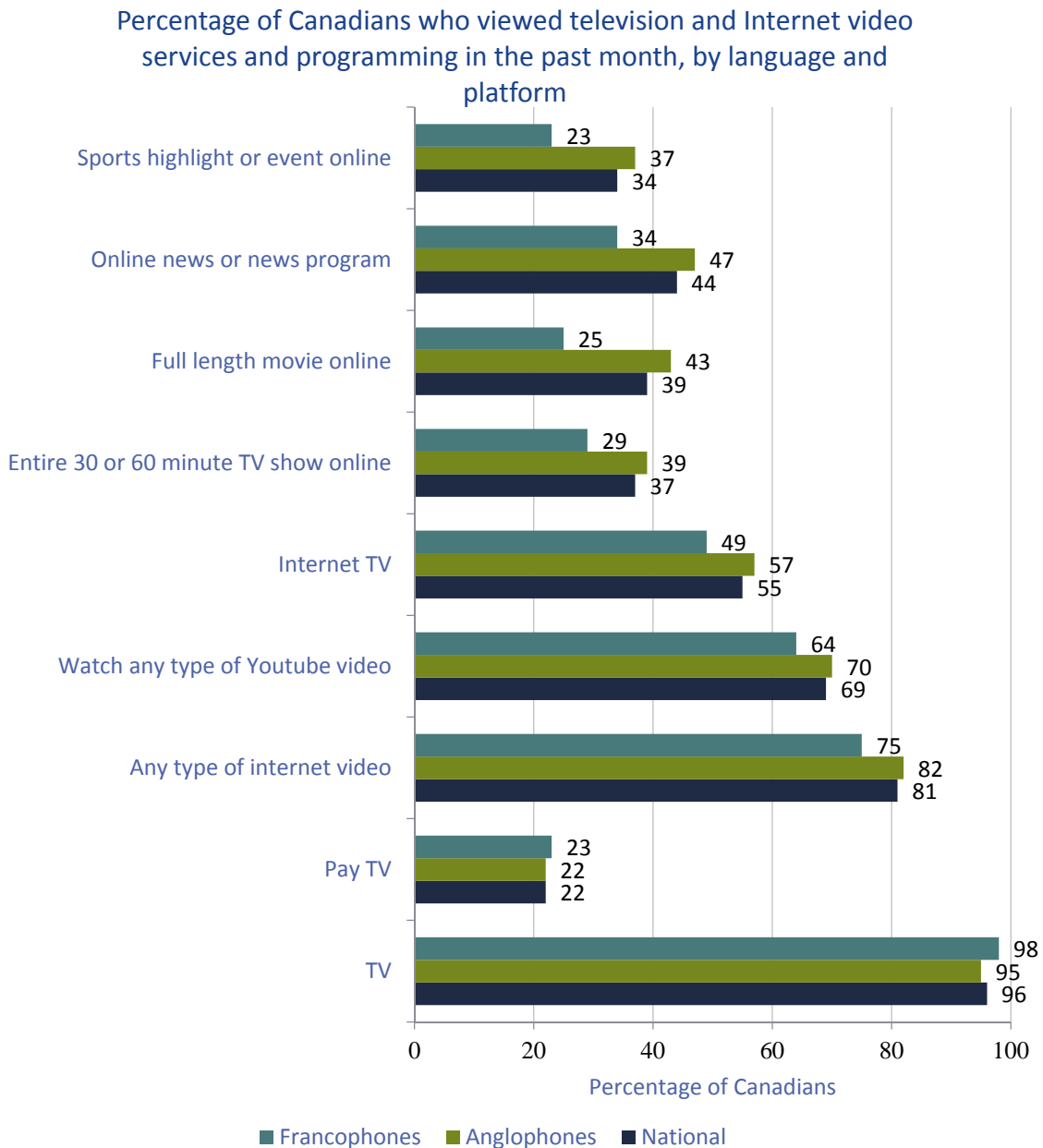
Chart 4.2.1 Programming sources and platforms



For figures and tables with the Media Technology Monitor (MTM) as a source, note that:

- “Internet video” is defined as watching or streaming video available over the Internet (e.g. video clips on YouTube, television programs, sports, movies, etc.); and
- “Internet TV” is defined as watching or streaming television programs or clips available over the Internet.

Figure 4.2.14 Percentage of Canadians who viewed television and Internet video services and programming in the past month, by language and platform



Source: MTM, 2015 (Respondents: Canadians18+)

Table 4.2.5 Type and number of television services authorized to broadcast in Canada, by language of broadcast

Category	Subcategory	English-language		French-language		Third-language		All languages	
		2014	2015	2014	2015	2014	2015	2014	2015
Canadian conventional television services	CBC/SRC (owned and operated)	14	14	13	13	0	0	27	27
	Private commercial	64	64	20	20	6	6	90	90
	Religious	8	7	0	0	0	0	8	7
	Educational	4	4	3	3	0	0	7	7
Canadian discretionary services	Specialty Category A services	44	44	16	16	5	5	65	65
	Specialty Category B services	77	78	10	10	35	33	122	121
	Specialty Category C services	8	5	5	4	0	0	3	9
	Pay television services	7	7	2	2	0	0	9	9
	PPV services (DTH and terrestrial)	10	12	0	0	0	0	10	12
	VOD services	23	20	1	1	0	0	24	21
Other Canadian services	Community services	11	11	2	4	0	0	13	15
	House of Commons (CPAC)	1	1	1	1	0	0	2	2
Non-Canadian services	All services	120	128	11	22	141	149	272	299
Total	Total	391	395	84	96	187	193	662	684

Source: CRTC internal database

This table shows the types and number of television services that are authorized to broadcast in Canada. Types include conventional television services; various discretionary services (i.e., specialty, pay, PPV, and VOD); community services and the House of Commons (CPAC) service; and non-Canadian programming services authorized for distribution.

Radiocommunication distribution undertakings (RDUs), rebroadcasters, exempt television services, specialty services for which broadcast authority has expired, and some network licences are not included. Private commercial does not include private commercial religious stations. Specialty Category B services include only services that have been launched and have filed annual returns with the Commission. Pay television services include only pay services that launched as of 31 December 2012. VOD services include services that have been approved but are not necessarily in operation. The number of services presented in the table has decreased following the issuance of Exemption order for small video-on-demand undertakings, Broadcasting Order CRTC 2011-60, 31 January 2011. Carriage of authorized non-Canadian services is at the discretion of the BDU. Appendix 2 to List of non-Canadian programming services authorized for distribution – Annual compilation of amendments, Broadcasting Regulatory Policy CRTC 2015-27, 30 January 2015, sets out a complete list of non-Canadian programming services approved as of 31 December 2014. English-language services include those considered bilingual (English/French and English/Native). Other Canadian services exclude community channels reported by BDU licensees.

Table 4.2.6 Number of Canadian public/community/educational and private conventional television services authorized to broadcast, by province and language of broadcast, 2015

Province/territory	English-language		French-language		Third-language		Total	
	Public, community and educational	Private conv.	Public, community and educational	Private conv.	Public, community and educational	Private conv.	Public, community and educational	Private conv.
British Columbia	7	11	1	0	0	1	8	12
Alberta	3	16	1	0	0	2	4	18
Saskatchewan	2	6	1	0	0	0	3	6
Manitoba	2	4	1	0	0	0	3	4
Ontario	5	24	3	0	0	2	8	26
Quebec	1	3	11	20	0	1	12	24
New Brunswick	2	3	1	0	0	0	3	3
Nova Scotia	3	3	0	0	0	0	3	3
Prince Edward Island	1	0	0	0	0	0	1	0
Newfoundland and Labrador	1	1	0	0	0	0	1	1
The North	2	0	0	0	0	0	2	0
Canada	29	71	19	20	0	6	48	97

Source: CRTC internal database

Nationally, Canadians have access to 97 private conventional television services and 48 public/community/educational television services. Québec leads all provinces in regard to public, community and education stations (11). Ontario leads all provinces in regard to private conventional television stations (26).

iv Audience measurement

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.

Unless otherwise specified, audience measurement data sourced from Numeris was collected by portable people meter (PPM) devices;

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:

- 30 August 2010 to 28 August 2011, includes all persons 2+, Monday to Sunday, 2 a.m. to 2 a.m.;
- 29 August 2011 to 26 August 2012, includes all persons 2+, Monday to Sunday, 2 a.m. to 2 a.m.;
- 27 August 2012 to 25 August 2013, includes all persons 2+, Monday to Sunday, 2 a.m. to 2 a.m.;
- 26 August 2013 to 31 August 2014, includes all persons 2+, Monday to Sunday, 2 a.m. to 2 a.m.; and
- 1 September 2014 to 30 August 2015, includes all persons 2+, Monday to Sunday, 2 a.m. to 2 a.m.

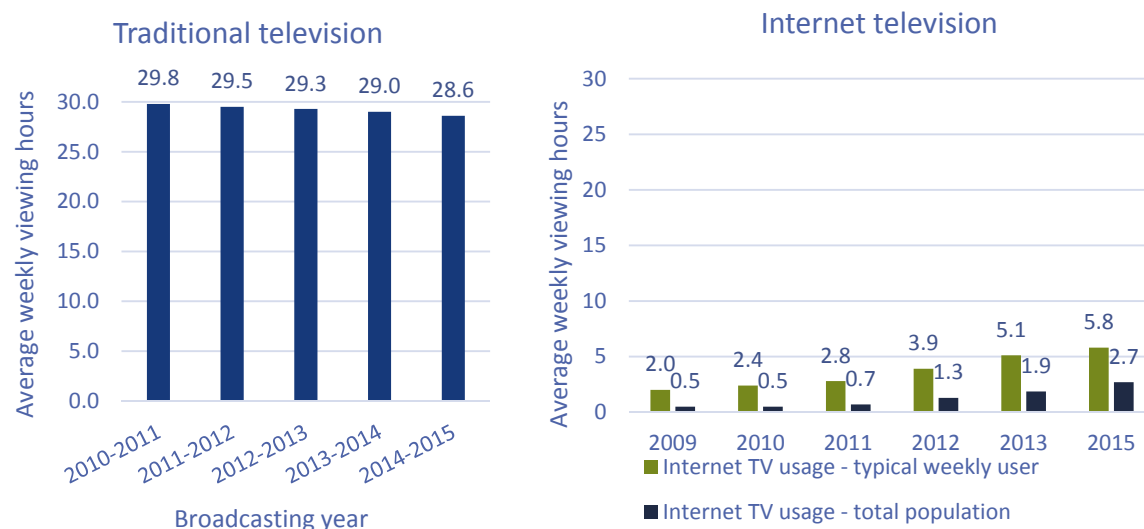
For figures and tables with the Media Technology Monitor (MTM) as a source, note that:

- “Internet video” is defined as watching or streaming video available over the Internet (e.g. video clips on YouTube, television programs, sports, movies, etc.); and
- “Internet TV” is defined as watching or streaming television programs or clips available over the Internet.

For tables with data by ownership groups:

- Where ownership transactions were in progress at the time of data collection, ownership was based on the date of the approval decision, not the official closing date of the transaction.
- Viewing for the entire television season was attributed to the ownership group holding direct and indirect voting interests greater than 50% on 31 December of each year.

Figure 4.2.15 Average number of hours Canadians watched traditional television (2010-2011 through 2014-2015 broadcast years) and Internet television (2009 to 2015)



Source: Numeris, MTM (respondents: Canadians 18+)

These graphs show the national average number of hours Canadians 18 years of age and older watched traditional television (excluding digital media) and Internet television each week. The graph displaying Internet television data shows the viewing habits of respondents who watch Internet television every week, as well as those of the national average. 2014 data for Internet TV is unavailable.

Whereas weekly viewing of traditional television has decreased by approximately 1 hour over the last 5 years, weekly Internet television viewing in the total population increased by approximately 2 hours and by approximately 4 hours for typical Internet TV weekly users over the same period.

Table 4.2.7 Average number of hours Canadians watched traditional television each week, by age group

Age group	Average number of hours watching traditional television (Weekly)					Growth (%) 2013-14 to 2014-15
	2010-11	2011-12	2012-13	2013-14	2014-15	
All persons 2+	28.5	28.2	27.9	27.4	27.2	-0.7
Children 2-11	22.7	22.2	21.6	20.6	21.4	3.9
Teens 12-17	22.4	22.7	21.0	19.9	18.8	-5.5
18-34	23.0	22.8	21.9	20.6	19.7	-4.4
35-49	25.3	24.8	24.7	24.0	23.6	-1.7
50-64	33.6	33.1	33.2	33.4	33.0	-1.2
65+	42.2	41.9	41.5	41.8	42.0	0.5

Source: Numeris

This table shows the national average of weekly viewing hours by age group. It does not include digital media. For the third consecutive year, average weekly viewing declined across all age groups except for children 2-11 and the 65+ age group which saw little movement over the same timeframe.

Table 4.2.8 Viewing share of Canadian and non-Canadian television services, by language and type of service, for all of Canada, excluding the Quebec francophone market

Category of services	Subcategory	Viewing share (%)					Growth (%) 2013-14 to 2014-15
		2010- 2011	2011- 2012	2012- 2013	2013- 2014	2014- 2015	
Canadian English-language	CBC	6.4	5.5	5.1	6.9	5.2	-24.6
	Private conventional	25.0	25.6	24.9	25.3	26.1	3.2
	Discretionary and on-demand services	49.3	49.6	51.1	50.3	52.0	3.4
	Other services	2.3	2.2	2.3	2.0	2.3	15.0
	All services	83.0	82.8	83.4	84.5	85.6	1.3
Canadian French-language	SRC	0.2	0.2	0.1	0.1	0.1	0
	Private conventional	0.1	0.1	0.1	0.1	0.1	0
	Télé-Québec	0	0	0	0	0	n/a
	Discretionary and on-demand services	0.4	0.4	0.4	0.4	0.3	-25.0
	All services	0.8	0.8	0.7	0.6	0.5	-16.7
Canadian other languages	Private conventional	1.3	1.1	0.9	0.6	0.4	-33.3
	Discretionary and on-demand services	1.2	1.0	0.9	1.0	0.9	-10.0
	APTN	0.2	0.1	0.2	0.2	0.2	0
	All services	2.6	2.3	2.0	1.8	1.5	-16.7
Canadian all languages	Community services	0.3	0.3	0.3	0.3	0.3	0
	VOD/PPV	0	0	0	0	0	n/a
	All services	86.7	86.1	86.4	87.2	87.9	0.8
Non-Canadian	U.S. conventional	5.3	5.4	5.0	4.5	4.8	6.7
	U.S. discretionary	8.0	8.5	8.8	8.0	7.2	-10.0
	International	0	0	0	0	0.1	n/a
	All services	13.3	13.9	13.7	12.5	12.1	-3.2
All services	Total hours (millions)	713.2	720.0	712.0	710.7	704.7	-0.8

Source: Numeris

Table 4.2.9 Viewing share of Canadian and non-Canadian television services, by language and type of service, in the Quebec francophone market

Category of services	Subcategory	Viewing share (%)					Growth (%) 2013-14 to 2014-15
		2010- 2011	2011- 2012	2012- 2013	2013- 2014	2014- 2015	
Canadian French- language	CBC	12.9	11.8	12.8	13.4	12.3	-8.2
	Private conventional	32.3	32.0	32.4	30.8	30.5	-1.0
	Télé-Québec	3.0	2.9	3.0	3.0	3.4	13.3
	TFO	0.1	0.1	0.1	0.3	0.3	0
	Discretionary and on demand services	43.8	45.8	44.7	45.0	45.8	1.8
	All services	92.2	92.7	93.0	92.5	92.3	-0.2
Canadian English- language	CBC	0.5	0.6	0.4	0.8	0.6	-25.0
	Private conventional	1.9	1.7	1.7	1.7	1.9	11.8
	Discretionary and on demand services	3.5	3.1	3.1	3.2	3.8	18.8
	Other services	0	0.1	0	0	0	n/a
	All services	6.0	5.5	5.2	5.7	6.3	10.5
Canadian other languages	Private conventional	0.1	0.1	0.2	0	0	n/a
	Discretionary and on demand services	0	0	0	0	0.1	n/a
	APTN	0	0	0.1	0	0	n/a
	All services	0.2	0.2	0.3	0.1	0.1	0
Canadian all languages	Community services	0.2	0.2	0.2	0.2	0.2	0
	VOD/PPV	0	0	0	0	0	n/a
	All services	98.5	98.6	98.8	98.3	98.9	0.6
Non-Canadian	US conventional	1.0	0.8	0.8	1.0	0.8	-20.0
	US discretionary	0.5	0.6	0.5	0.5	0.5	0
	International	0	0.1	0.1	0.1	0	n/a
	All services	1.5	1.5	1.4	1.6	1.3	-18.8
All services	Total hours (millions)	219.5	211.3	216.5	220.3	225.5	2.4

Source: Numeris

Table 4.2.10 Average weekly viewing hours (millions) for Canadian programs broadcast by Canadian television services, by language market, program origin, and program category

Programming Category	Viewing Metric	English-language and ethnic services, all of Canada (excluding Quebec francophone market)				French-language services, Quebec francophone market			
		2011-2012	2012-2013	2013-2014	2014-2015	2011-2012	2012-2013	2013-2014	2014-2015
News (category 1)	Viewing hours (M)	76.7	84.7	84.8	82.2	29.8	30.7	26.4	27.1
	% Canadian	100	100	100	99.9	98.8	98.8	98.7	98.1
	% of total	13.3	14.6	14.2	13.6	15	15	13.2	13.4
Long-form documentary (category 2(b))	Viewing hours (M)	22.5	21.6	11.2	28.6	11.4	10.9	10.4	11.3
	% Canadian	43.8	46.9	48.2	47.6	44.6	42.9	47	48.7
	% of total	3.9	3.7	3.9	4.7	5.7	5.4	5.2	5.6
Other informational (categories 2 through 5, excluding 2(b))	Viewing hours (M)	52.7	52.2	50.2	53.8	32.6	32.7	28.7	29
	% Canadian	55.6	56.9	59.1	56.6	91.1	91.1	91.3	89.5
	% of total	9.1	9	8.4	8.9	16.4	16	14.4	14.3
Sports (category 6)	Viewing hours (M)	84.5	70.9	95.5	93.8	13.4	10.7	17.7	18.6
	% Canadian	72	65.9	72.9	67.3	82.1	67.8	75	70.5
	% of total	14.6	12.2	16	15.6	6.8	5.3	8.9	7.7
Drama and comedy (category 7)	Viewing hours (M)	236.5	237.4	227.5	230.8	75.3	79.8	76	78.2
	% Canadian	20.1	20	19.4	19.2	29.3	29.1	28.8	29.2
	% of total	40.9	40.9	38.1	38.3	38	39.1	38.1	38.7
Music, dance, and variety (categories 8 and 9)	Viewing hours (M)	9.7	10.5	9	7.3	3.5	3.8	3.1	3.1
	% Canadian	27.4	23.8	34.6	40.9	80.8	81.5	85.4	83.5
	% of total	1.7	1.8	1.5	1.2	1.8	1.8	1.6	1.5
Game show (category 10)	Viewing hours (M)	4.9	8.1	9.1	8.5	8.9	9.1	9	7.2
	% Canadian	28.8	26.7	23.6	22.5	92.5	94.1	95.4	89.3
	% of total	0.8	1.4	1.5	1.4	4.5	4.5	4.5	3.5
General entertainment/ Human interest/ Reality (category 11)	Viewing hours (M)	91	94.6	97.6	97.4	23	25.9	28.1	30.4
	% Canadian	27.7	29.7	31.7	32.1	71.9	68.9	68.2	65.4
	% of total	15.7	16.3	16.3	16.2	11.6	12.7	14.1	15
Other (categories 12 through 15)	Viewing hours (M)	0	0.1	4.1	4.1	0.4	0.4	18.6	0.4
	% Canadian	98	96.4	61.5	81.1	98.2	91.6	67.8	98.3
	% of total	0	0	0	0	0.2	0.2	0	0.2
All Categories	Viewing hours (M)	578.6	580.1	596.8	602.5	198.2	204.1	199.5	202.3
	% Canadian	43.8	43.4	46.1	44.8	63.2	61.4	61.5	59.9

Source: Numeris

Table 4.2.11 Average weekly viewing hours for Canadian programs broadcast by private conventional television services, by language market, program origin, and program category

Programming Category	Viewing Metric	English-language and ethnic services, all of Canada (excluding Quebec francophone market)				French-language services, Quebec francophone market			
		2011-2012	2012-2013	2013-2014	2014-2015	2011-2012	2012-2013	2013-2014	2014-2015
News (category 1)	Viewing hours (M)	35.4	36.7	37.3	34.1	9.4	10.3	9.2	9.2
	% Canadian	100	100	100	100	100	100	100	100
	% of total	20.2	21.6	22.0	19.9	14.1	14.8	13.6	13.6
Long-form documentary (category 2(b))	Viewing hours (M)	1.0	1.5	1.8	1.8	0.3	0.3	0.2	0.4
	% Canadian	91.9	95.2	89.2	96.6	76.4	90.5	79.9	80.2
	% of total	0.6	0.9	1.1	1.0	0.4	0.4	0.4	0.6
Other informational (categories 2 through 5, excluding 2(b))	Viewing hours (M)	11.0	10.4	10.5	11.5	15.1	14.5	12.3	12.3
	% Canadian	58.3	62.2	65.8	67.2	99.6	100	99.8	99.3
	% of total	6.3	6.1	6.2	6.7	22.5	20.8	18.3	18.2
Sports (category 6)	Viewing hours (M)	11.6	4.6	3.8	6.8	1.3	0	0.7	0.1
	% Canadian	66.0	6.5	7.4	32.8	96.9	85.9	60.9	71.8
	% of total	6.6	2.7	2.3	4.0	2.0	0.0	0.1	0.1
Drama and comedy (category 7)	Viewing hours (M)	67.1	64.9	65.3	66.4	23.7	26.9	28.4	29.4
	% Canadian	10.5	10.3	10.0	7.7	23.9	22.7	22.5	22.2
	% of total	38.3	38.1	38.6	38.8	35.3	38.7	42.2	43.5
Music, dance, and variety (categories 8 and 9)	Viewing hours (M)	6.3	7.3	5.4	3.6	1.0	0.9	0.3	0.2
	% Canadian	3.4	2.0	3.5	5.4	67.5	59.7	71.1	85.4
	% of total	3.6	4.3	3.2	2.1	1.5	1.3	0.4	0.3
Game show (category 10)	Viewing hours (M)	1.8	5.0	6.0	5.5	6.2	6.6	6.9	5.3
	% Canadian	0	3.7	2.9	3.3	97.6	99.5	99.5	94.4
	% of total	1.0	2.9	3.5	3.2	9.3	9.6	10.2	7.9
General entertainment/ Human interest/ Reality (category 11)	Viewing hours (M)	40.9	40.0	39.1	41.5	9.7	9.7	9.9	10.4
	% Canadian	23.7	22.9	29.0	37.7	80.2	81.5	85.9	85.5
	% of total	23.4	23.5	23.1	24.2	14.5	14.0	14.8	15.4
Other (categories 12 through 15)	Viewing hours (M)	0	0	0	0.3	0.4	0.3	0	0.4
	% Canadian	0	0	0	95.3	100	100	0	100
	% of total	0	0	0	0	0.6	0.5	0	0.5
All Categories	Viewing hours (M)	175.0	170.1	169.2	171.1	67.1	69.4	67.2	67.6
	% Canadian	38.5	35.9	38.0	39.1	69.3	66.9	64.9	63.2

Source: Numeris

Table 4.2.12 Average weekly viewing hours for Canadian programs broadcast by CBC conventional services, by language market, program origin, and program category

Programming Category	Viewing Metric	English-language and ethnic services, all of Canada (excluding Quebec francophone market)				French-language services, Quebec francophone market			
		2011-2012	2012-2013	2013-2014	2014-2015	2011-2012	2012-2013	2013-2014	2014-2015
News (category 1)	Viewing hours (M)	6.6	7.1	7.2	7.3	3.8	4.4	4.1	3.9
	% Canadian	100	100	100	100	100	100	100	100
	% of total	17.2	20.4	14.9	20.9	15.4	15.9	13.9	14.0
Long-form documentary (category 2(b))	Viewing hours (M)	1.5	1.6	1.3	1.6	0.3	0.3	0.3	0.4
	% Canadian	96.1	96.6	98.4	89.8	98.8	93.0	98.7	97.7
	% of total	3.8	4.7	2.8	4.2	1.2	1.1	1.0	1.4
Other informational (categories 2 through 5, excluding 2(b))	Viewing hours (M)	2.2	2.9	2.1	2.3	4.0	3.6	2.8	3.0
	% Canadian	100	99.9	100	100	100	99.9	99.9	100
	% of total	5.6	8.3	4.3	6.5	16.0	12.9	9.6	11.0
Sports (category 6)	Viewing hours (M)	11.5	9.9	25.4	10.8	0.2	0.3	2.9	0.4
	% Canadian	99.9	100	100	100	99.6	100	99.9	100
	% of total	29.6	28.3	52.6	30.8	1.0	1.0	9.7	1.3
Drama and comedy (category 7)	Viewing hours (M)	11.5	9.4	8.6	10.9	7.4	9.0	8.4	9.6
	% Canadian	42.6	54.1	56.0	63.4	73.1	70.0	70.0	66.0
	% of total	29.6	26.9	17.8	31.1	29.7	32.4	28.6	34.9
Music, dance, and variety (categories 8 and 9)	Viewing hours (M)	0.2	0.1	0.1	0.1	1.1	1.4	1.5	1.5
	% Canadian	36.2	100	100	51.1	99.4	100	100	100
	% of total	0.5	0.2	0.2	0.4	4.4	5.1	5.1	5.4
Game show (category 10)	Viewing hours (M)	2.5	0.2	0	0.2	1.8	1.7	1.5	1.2
	% Canadian	0	0	0	100	100	100	100	100
	% of total	6.6	0.5	0	0.4	7.3	6.2	5.1	4.2
General entertainment/ Human interest/ Reality (category 11)	Viewing hours (M)	2.8	3.7	3.6	2.0	6.2	7.0	7.9	7.7
	% Canadian	99.6	99.5	99.6	98.9	100	100	100	100
	% of total	7.2	10.6	7.4	5.6	25.0	25.3	26.9	27.8
Other (categories 12 through 15)	Viewing hours (M)	0	0	2.2	0	0	0.0	0.3	0.0
	% Canadian	0	0	100	100	100	100	100	100
	% of total	0	0	0	0	0	0	0	0
All Categories	Viewing hours (M)	38.8	35.0	48.3	35.0	24.8	27.6	29.5	27.6
	% Canadian	75.9	86.9	92.1	87.9	92.0	90.2	91.4	88.1

Source: Numeris

Table 4.2.13 Average weekly viewing hours for Canadian programs broadcast by discretionary services, by language market, program origin, and program category

Programming Category	Viewing Metric	English-language and ethnic services, all of Canada (excluding Quebec francophone market)				French-language services, Quebec francophone market			
		2011-2012	2012-2013	2013-2014	2014-2015	2011-2012	2012-2013	2013-2014	2014-2015
News (category 1)	Viewing hours (M)	35.1	41.2	40.3	40.8	16.5	16.0	13.1	13.1
	% Canadian	100	100	99.9	99.8	97.8	97.7	97.5	96.3
	% of total	9.8	11.2	10.6	10.3	16.5	15.9	12.8	14.0
Long-form documentary (category 2(b))	Viewing hours (M)	17.6	16.0	20.0	25.4	10.3	9.8	9.9	9.8
	% Canadian	39.0	41.0	41.1	41.8	43.1	41.2	44.6	45.6
	% of total	4.9	4.3	5.3	6.4	10.3	9.7	9.6	10.5
Other informational (categories 2 through 5, excluding 2(b))	Viewing hours (M)	37.1	36.6	37.6	40.0	12.4	13.5	13.6	12.8
	% Canadian	51.4	51.2	55.0	51.0	78.5	79.4	81.7	78.5
	% of total	10.3	9.9	9.9	10.1	12.4	13.4	13.3	13.7
Sports (category 6)	Viewing hours (M)	61.5	56.5	66.3	76.2	11.9	10.4	14.8	14.2
	% Canadian	67.9	64.7	66.3	65.7	80.1	66.9	70.2	69.8
	% of total	17.1	15.3	17.5	19.2	11.8	10.4	14.4	15.2
Drama and comedy (category 7)	Viewing hours (M)	154.9	159.1	153.6	153.6	40.5	40.2	39.2	36.6
	% Canadian	22.1	21.7	21.3	21.0	22.9	23.5	24.5	25.4
	% of total	43.0	43.2	40.5	38.7	40.4	40.0	38.1	39.2
Music, dance, and variety (categories 8 and 9)	Viewing hours (M)	3.2	3.1	3.5	3.6	1.1	1.3	1.3	1.3
	% Canadian	74.1	73.6	81.3	75.7	69.6	72.8	71.8	65.2
	% of total	0.9	0.8	0.9	0.9	1.1	1.3	1.3	1.4
Game show (category 10)	Viewing hours (M)	2.0	3.2	3.1	2.9	0.8	0.6	0.6	0.7
	% Canadian	69.9	62.4	63.0	55.2	32.1	15.9	35.8	32.8
	% of total	0.6	0.9	0.8	0.7	0.8	0.6	0.6	0.7
General entertainment/ Human interest/ Reality (category 11)	Viewing hours (M)	48.7	53.1	54.8	54.0	6.8	8.7	10.2	11.5
	% Canadian	26.1	28.7	29.1	25.3	32.9	28.0	26.4	27.1
	% of total	13.5	14.4	14.5	13.6	6.7	8.7	9.9	12.3
Other (categories 12 through 15)	Viewing hours (M)	0	0	0.2	0	0	0	0.2	0
	% Canadian	0	0	16.7	4.8	56.6	33.3	62.0	77.8
	% of total	0	0	0	0	0	0	0	0
All Categories	Viewing hours (M)	360.1	368.8	379.3	396.3	100.2	100.5	102.8	107.1
	% Canadian	42.6	42.6	43.9	43.4	52.2	50.0	50.8	50.5

Source: Numeris

Table 4.2.14 Viewing share of English- and French-language Canadian services, by ownership group in all of Canada, excluding the Quebec francophone market

Owner	Language	Viewing share (%)								
		2012-2013			2013-2014			2014-2015		
		Conventional	Discretionary	Total	Conventional	Discretionary	Total	Conventional	Discretionary	Total
BCE	All	15.4	22.9	38.3	15.6	19.9	35.5	16.5	20.1	36.6
	English	15.4	22.7	38.1	15.6	19.7	35.2	16.5	19.9	36.4
	French	-	0.2	0.2	-	0.3	0.3	-	0.2	0.2
Shaw	All	8.5	15	23.5	8.3	14.3	22.6	8.6	15.2	23.8
	English	8.5	15	23.5	8.3	14.3	22.6	8.6	15.2	23.8
	French	-	-	-	-	-	-	-	-	-
Corus	All	0.3	12.8	13.1	1.7	11.7	13.3	1.6	11.3	12.9
	English	0.3	12.8	13.1	1.7	11.6	13.2	1.6	11.2	12.8
	French	-	0	0	-	0.1	0.1	-	0.1	0.1
Rogers	All	4.6	4.7	9.3	4.5	5.2	9.7	4.4	6	10.4
	English	4.6	4.7	9.3	4.5	5.2	9.7	4.4	6	10.4
	French	-	-	-	-	-	-	-	-	-
CBC-SRC	All	6.0	1.8	7.8	8.1	1.8	9.9	6.1	1.9	8.0
	English	5.9	1.8	7.6	8.0	1.8	9.7	5.9	1.8	7.8
	French	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0	0.2

Source: Numeris

Table 4.2.15 Viewing share of English- and French-language Canadian services, by ownership group in the Quebec francophone market

Owner	Language	Viewing share (%)								
		2012-2013			2013-2014			2014-2015		
		Conventional	Discretionary	Total	Conventional	Discretionary	Total	Conventional	Discretionary	Total
Québecor	All	24.4	8.6	32.9	23.4	8.7	32.1	23.3	11.2	34.5
	French	24.4	8.6	32.9	23.4	8.7	32.1	23.3	11.2	34.5
	English	0	0	0	0	0	0	-	-	-
BCE	All	0.9	21.9	22.8	0.8	21.3	22.1	1	19.8	20.8
	French	-	20.3	20.3	-	19.8	19.8	-	18.3	18.3
	English	0.9	1.6	2.5	0.8	1.5	2.3	1	1.4	2.4
SRC-CBC	All	13.4	5.1	18.5	14.4	4.9	19.3	13.1	4.6	17.7
	French	13.0	5.0	18.0	13.6	4.8	18.5	12.4	4.5	17.0
	English	0.4	0.1	0.5	0.8	0.1	0.8	0.6	0.1	0.7
Remstar	All	8.6	-	8.6	8	0.9	9	7.8	0.9	8.7
	French	8.6	-	8.6	8	0.9	9	7.8	0.9	8.7
	English	-	-	-	-	-	-	-	-	-
Corus	All	-	-	-	-	8	8	0	7.8	7.8
	English	-	-	-	0	7.7	7.7	-	7.4	7.4
	French	-	-	-	-	0.3	0.3	0	0.4	0.4

Source: Numeris

In Tables 4.2.14 and 4.2.15:

- Calculations were based on the total average viewing hours for Canadian services, for all persons 2 years of age or older, Monday to Sunday, 2 a.m. to 2 a.m.
- Totals for Rogers' conventional services include OMNI stations.
- As of 2014, total for Corus' services include Historia, Séries +, Teletoon, Teletoon Retro, Télétoon and Télétoon Rétro, and exclude Telelatino.

Table 4.2.16 Total viewing hours (millions) by market

Market	Total hours (millions)								
	2012-2013			2013-2014			2014-2015		
	Conventional	Discretionary	Total	Conventional	Discretionary	Total	Conventional	Discretionary	Total
Canada (excluding the Quebec francophone market)	237.5	368.3	605.8	238.1	362.5	600.7	229.8	369.5	599.3
Quebec francophone market	109.3	103.6	212.8	109.7	106.1	215.7	109.7	111.5	221.2

Source: Numeris

This table presents total viewing hours per market. Total viewing was based on viewing for all Canadian conventional stations (including ethnic stations) and Canadian discretionary and on demand services (specialty and pay only; excludes PPV and VOD services).

v Programming expenditures

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 in an appropriate manner to the creation and presentation of Canadian programming. As such, Canadian broadcasters are required to allocate portions of their annual broadcasting revenues to expenditures on Canadian programming. These expenditures are used to create Canadian programming and to ensure that a diversity of voices and interests are represented in our national broadcasting system.

Television service providers contributed 45 cents per revenue dollar in support of Canadian programming during the 2014-2015 broadcast year. Canadian programming expenditures (CPE) totalled \$3 billion, 15% of which was spent on program of national interest (PNI).

Spending on non-Canadian programming by private conventional television stations decreased by \$60.9 million (-8.5%) to \$656.1 million in 2015.

The CRTC has defined programs of national interest (PNI) as 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.

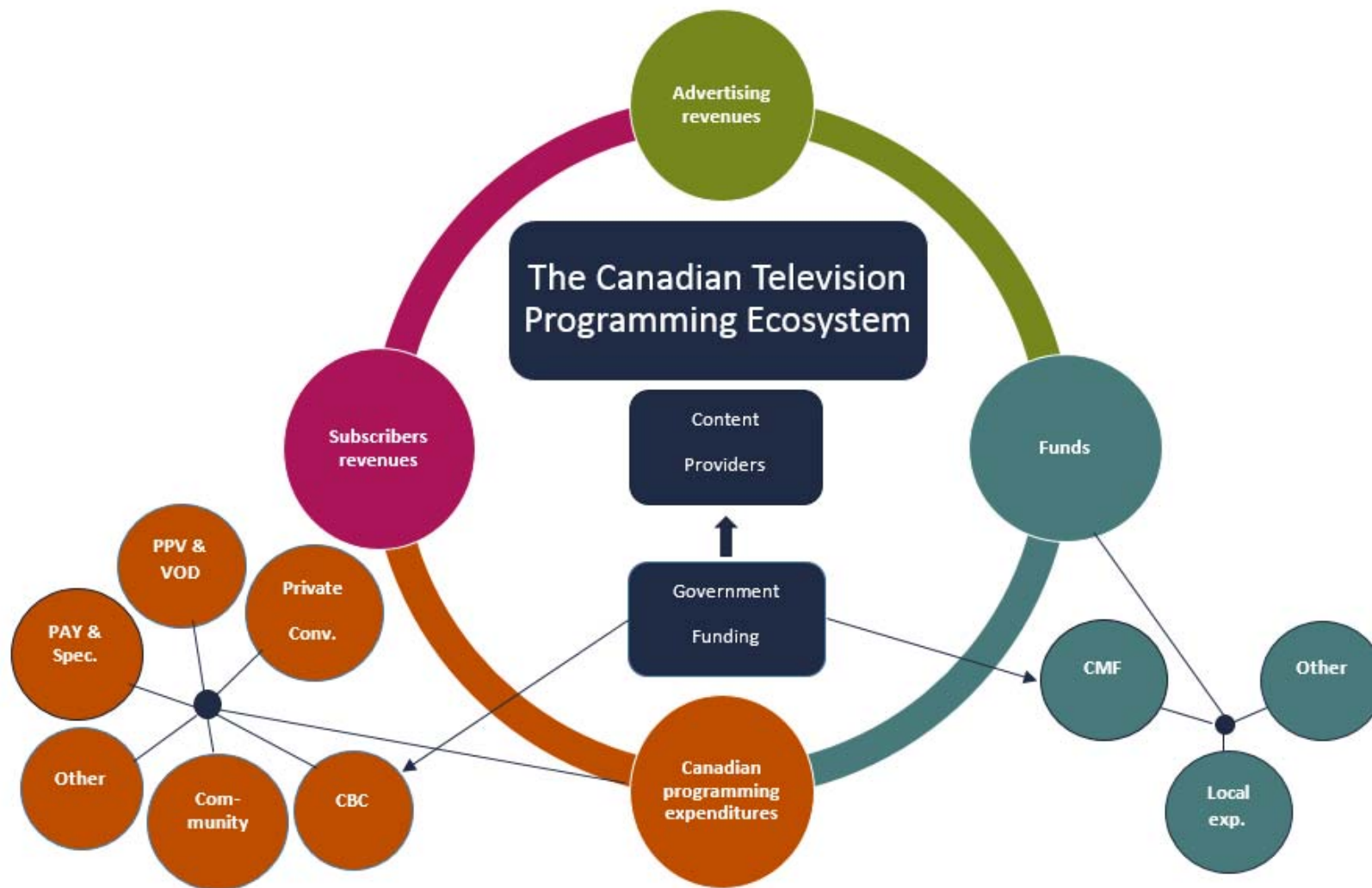
For the purposes of this report, PNI expenditures include expenditures in any of the following program categories:

- 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).

The PNI data presented in this section include all PNI expenditures reported by broadcasting undertakings, regardless of conditions of licence requiring such expenditures.

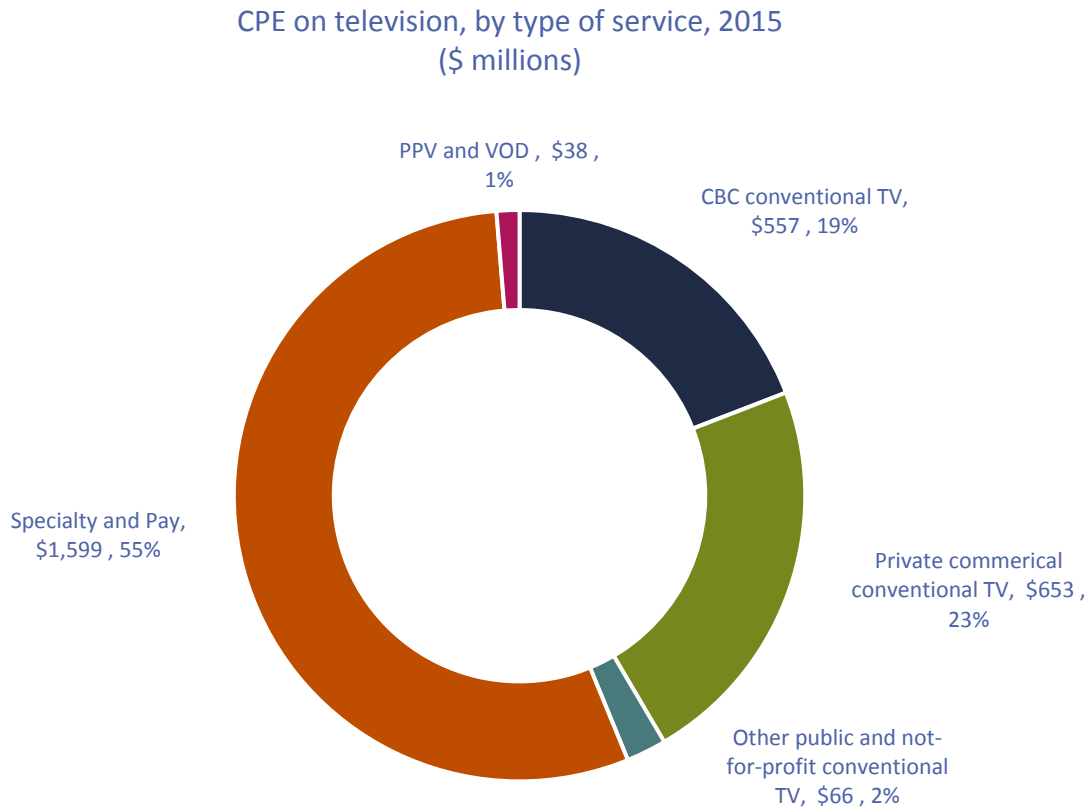
Chart 4.2.2 illustrates the flow of funding to the creation of Canadian programming. A percentage of BDU subscriber revenues is used to fund Canadian discretionary (pay, specialty, PPV and VOD) services, as well as local expression (community television), the Canada Media Fund (CMF), the LPIF, and various independent funds. Commercial television services (specialty, pay, and private conventional OTA) and the CBC rely on funds generated by advertising. Government funding is also provided to the CMF, the CBC (via parliamentary appropriations), and various independent content providers.

Chart 4.2.2 Canadian programming funding ecosystem (2014-2015 broadcast year)



This chart provides an overview of the major sources of television program funding in Canada.

Figure 4.2.16 CPE on television, by type of service, 2015 (\$ millions)



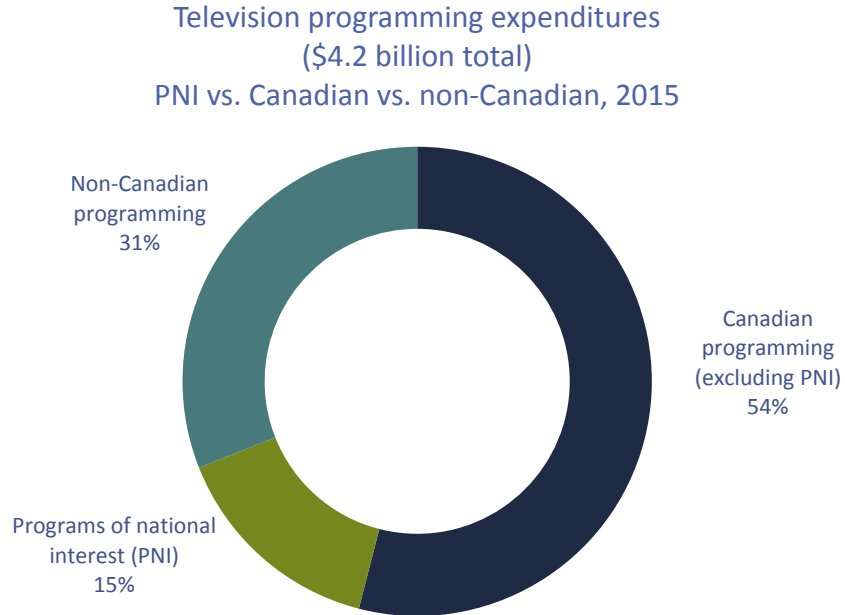
Source: CRTC data collection

This chart shows the amount that broadcasters spent on Canadian programming, by type of service, as well as the percentage of total CPE in each case. Approximately half of the spending went to specialty and pay services.

CPE amounts include spending on Canadian programs broadcast; write-downs of Canadian inventory; script and concept development; and loss on equity for Canadian programs. They also include spending relating to tangible benefits paid as part of change in ownership transactions and commitments made at the time of licensing. However, they exclude CMF "top-ups" reported by private conventional, specialty, pay, PPV, and VOD television services. CBC conventional television exclude indirect and facility cost allocations.

In 2015, discretionary and on demand services (specialty, pay, PPV and VoD) spent \$1,637 million in CPE, an increase of \$147.1 million (9%) over 2014. Historically, specialty services has accounted for at least half of CPE spending.

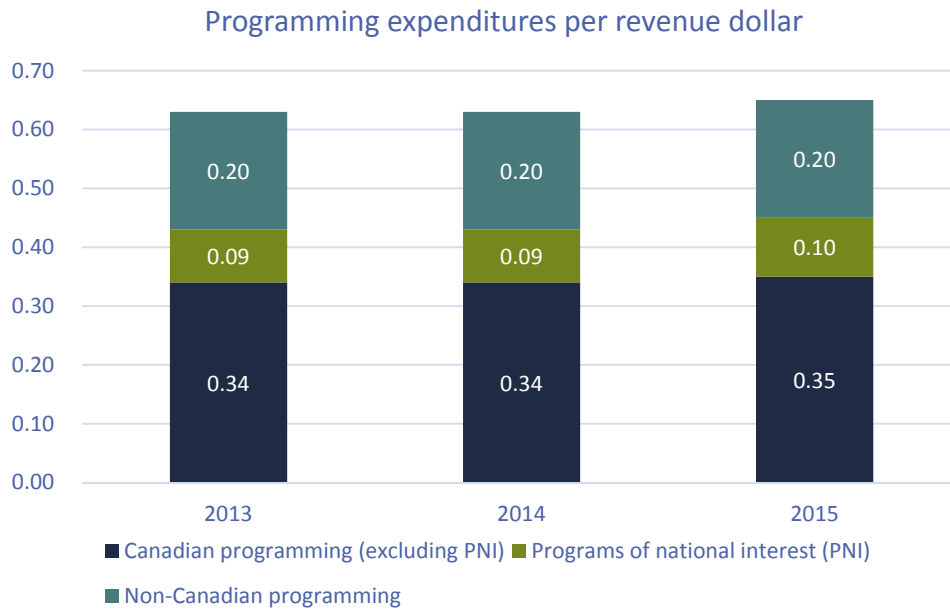
Figure 4.2.17 Television programming expenditures (\$4.2 billion total), PNI vs. Canadian vs. non-Canadian, 2015



Source: CRTC data collection

This chart shows the percentages of expenditures that broadcasters spent on Canadian programming (excluding PNI), PNI, and non-Canadian programming. Approximately 70% of the spending went to Canadian programming (PNI included). Programming of VOD and PPV services, as well as other public and not-for-profit conventional television services, is excluded.

Figure 4.2.18 Programming expenditures per revenue dollar



Source: CRTC data collection

This figure shows broadcaster spending per dollar of revenue on Canadian programming (excluding PNI), PNI, and non-Canadian programming. For example, it shows that for every dollar of revenue the broadcasters received in 2015, \$0.35 was spent on Canadian programming (excluding PNI), \$0.10 on PNI, and \$0.20 on non-Canadian programming. This chart excludes VOD and PPV services as well as other public and not-for-profit conventional television.

Table 4.2.17 PNI expenditures by type of service and program category (\$ millions)

Service	Program category	PNI expenditures (\$ millions)			Growth (%) 2014-2015	2015 PNI expenditures as percentage of total (%)
		2013	2014	2015		
Private conventional television	Long-form documentary	7.9	6.3	7.3	15.9	1.2
	Drama	66.0	65.8	55.3	-16.0	8.9
	Music, dance, and variety (French programming only)	21.0	17.5	12.6	-28.0	2.0
	Award shows (English programming only)	2.6	2.3	1.1	-52.2	0.2
	Total PNI	97.5	91.9	76.3	-17.0	12.3
CBC conventional television	Long-form documentary	30.9	22.3	38.2	71.3	6.2
	Drama	153.5	136.9	157.1	14.8	25.3
	Music, dance, and variety (French programming only)	15.3	20.4	21.3	4.4	3.4
	Award shows (English programming only)	3.1	3.1	3.6	16.1	0.6
	Total PNI	202.8	182.7	220.2	20.5	35.5
Discretionary services	Long-form documentary	112.3	107.4	113.3	5.5	18.2
	Drama	200.5	224.1	194.3	-13.3	31.3
	Music, dance, and variety (French programming only)	12.0	11.3	10.1	-10.6	1.6
	Award shows (English programming only)	4.9	6.3	6.9	9.5	1.1
	Total PNI	329.7	349.1	324.6	-7.0	52.6
Total	Long-form documentary	151.1	136	158.8	16.8	25.6
	Drama	420	424	406.7	-4.1	65.5
	Music, dance, and variety (French programming only)	49.3	49.3	44	-10.8	7.1
	Award shows (English programming only)	10.6	11.7	11.3	-3.4	1.8
	Total PNI	630	623.7	621.1	-0.4	100

Source: Public disclosure of aggregate annual returns for large ownership groups and CRTC data collection

This table summarizes the PNI expenditures made by the CBC, private conventional television, and discretionary services. The CBC section now includes discretionary services operated by the CBC.

Table 4.2.18 PNI expenditures by CBC and large private ownership groups, by program category (\$ millions)

Ownership group	Program category	PNI expenditures (\$ millions)			Growth (%) 2014-2015	2015 PNI expenditures as percentage of total (%)
		2013	2014	2015		
CBC conventional television	Long-form documentary	30.9	22.3	38.2	71.3	6.2
	Drama	153.5	136.9	157.1	14.8	25.3
	Music, dance, and variety (French programming only)	15.3	20.4	21.3	4.4	3.4
	Award shows (English programming only)	3.1	3.1	3.6	16.1	0.6
	Total PNI	202.8	182.7	220.2	20.5	35.5
BCE	Long-form documentary	43.2	47.0	54.9	16.8	8.8
	Drama	99.1	96.2	77.3	-19.6	12.4
	Music, dance, and variety (French programming only)	0	0	0.7	0.0	0.1
	Award shows (English programming only)	7.3	8.3	7.1	-14.5	1.1
	Total PNI	149.7	151.5	140	-7.6	22.5
Shaw	Long-form documentary	34.5	27.3	23.4	-14.3	3.8
	Drama	33.7	25.9	26.3	1.5	4.2
	Music, dance, and variety (French programming only)	0	0	0	0.0	0.0
	Award shows (English programming only)	0	0	0	0.0	0.0
	Total PNI	68.3	53.3	49.7	-6.8	8.0
Corus	Long-form documentary	5.0	5.8	6.4	10.3	1.0
	Drama	36.8	71.7	91.2	27.2	14.7
	Music, dance, and variety (French programming only)	0	0	0	0.0	0.0
	Award shows (English programming only)	0	0	0	0.0	0.0
	Total PNI	41.8	77.5	97.6	25.9	15.7
Rogers	Long-form documentary	4.6	2.8	4.1	46.4	0.7
	Drama	5.8	7.2	9.5	31.9	1.5
	Music, dance, and variety (French programming only)	0	0	0	0.0	0.0
	Award shows (English programming only)	0	0	0	0.0	0.0
	Total PNI	10.4	10.0	13.6	36.0	2.2
Total	Long-form documentary	151.1	136	158.8	16.8	25.6
	Drama	420	424	406.7	-4.1	65.5
	Music, dance, and variety (French programming only)	49.3	49.3	44	-10.8	7.1
	Award shows (English programming only)	10.6	11.7	11.3	-3.4	1.8
	Total PNI	630	623.7	621.1	-0.4	100

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

Table 4.2.19 CPE for CBC English and French-language conventional television, by program category (\$ thousands)

Program category	2011	2012	2013	2014	2015	Growth (%) 2014-2015
News (category 1)	191,924	196,688	212,876	207,331	190,937	-7.9
Long-form documentary (category 2(b))	39,242	36,042	30,867	22,337	28,471	27.5
Other informational (categories 2 through 5, excluding category 2(b))	59,292	67,446	63,744	62,792	50,651	-19.3
Sports (category 6)	157,190	158,698	127,730	258,029	35,940	-86.1
Drama and comedy (category 7)	141,049	158,420	153,529	136,895	158,544	15.8
Music, dance, and variety (categories 8 and 9)	12,912	26,120	27,635	27,278	29,347	7.6
Game show (category 10)	11,900	16,217	12,933	9,300	5,449	-41.4
Human interest/Award shows/Reality (category 11)	94,059	73,063	70,337	64,807	56,742	-12.4
Human interest	n/a	n/a	58,411	49,545	44,785	-9.6
Award shows	n/a	n/a	7,467	7,725	8,008	3.7
Reality television	n/a	n/a	4,460	7,537	3,949	-47.6
Other (categories 12 through 15)	2,203	941	1,139	1,011	1,102	9.0
Total (categories 1 through 15)	709,769	733,635	700,793	789,782	557,183	-29.5

Source: CRTC data collection

Canadian programming expenditures (CPE) include spending on Canadian programs broadcast; write-downs of Canadian inventory; script and concept development; and loss on equity for Canadian programs. They also include spending relating to tangible benefits paid as part of change in ownership transactions and commitments made at the time of licensing. CBC conventional television CPE exclude indirect and facility cost allocations. The breakdown for "Human interest/Award Shows/Reality" (category 11) is only available as of 2013.

Table 4.2.20 CPE for private conventional television, by program category (\$ thousands)

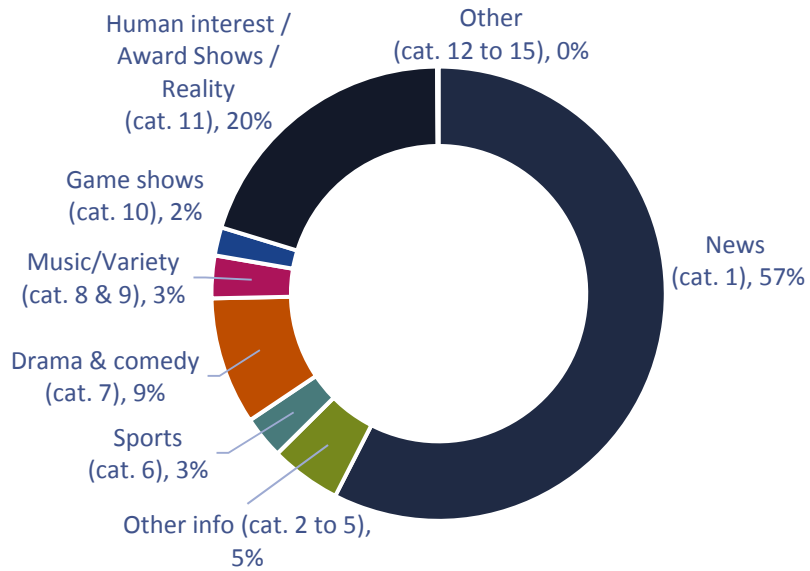
Program category	2011	2012	2013	2014	2015	Growth (%) 2014-2015
News (category 1)	316,922	353,646	355,287	361,050	369,570	2.4
Long-form documentary (category 2(b))	n/a	16,600	7,894	6,261	7,288	16.4
Other informational (categories 2 through 5, excluding category 2(b))	55,033	32,150	30,923	29,339	30,026	2.3
Sports (category 6)	848	68,485	6,490	1,123	21,450	1,810.1
Drama and comedy (category 7)	58,322	59,169	66,164	65,759	55,289	-15.9
Music, dance, and variety (categories 8 and 9)	33,006	30,241	24,476	22,317	17,097	-23.4
Game show (category 10)	22,033	17,546	19,394	19,042	17,258	-9.4
Human interest/ Award shows/Reality (category 11)	75,577	83,842	92,345	113,897	134,422	18.0
Human interest	n/a	n/a	72,953	84,669	86,737	2.4
Award shows	n/a	n/a	4,071	3,695	2,671	-27.8
Reality television	n/a	n/a	15,321	25,533	45,014	76.3
Other (categories 12 through 15)	1,173	905	2,444	516	361	-30.0
Total (categories 1 through 15)	562,914	661,759	605,415	619,305	652,762	5.4

Source: CRTC data collection

Canadian programming expenditures (CPE) include spending on Canadian programs broadcast; write-downs of Canadian inventory; script and concept development; and loss on equity for Canadian programs. They also include spending relating to tangible benefits paid as part of change in ownership transactions and commitments made at the time of licensing. CBC conventional television CPE exclude indirect and facility cost allocations. The breakdown for "Human interest/Award Shows/Reality" (category 11) is only available as of 2013. 2015 private conventional television CPE is equivalent to 37.2% of this sector's revenues.

Figure 4.2.19 Distribution of CPE for private conventional television services, by program category, 2015

Distribution of CPE for private conventional television services, by program category, 2015



Source: CRTC data collection

This figure shows the distribution, broken down by program category, of CPE of private conventional television services in 2015.

More than half of the expenditures were made on news programming. Other significant investments were made in general entertainment (including human interest and awards shows), and drama and comedy programming.

Table 4.2.21 Expenditures on non-Canadian programming by private conventional television services, by program category (\$ thousands)

Program category	2011	2012	2013	2014	2015	Growth (%) 2014-2015
News (category 1)	90	57	4,631	594	703	18.4
Long-form documentary (category 2(b))	n/a	298	454	603	218	-63.8
Other informational (categories 2 through 5, excluding category 2(b))	16,522	15,034	9,750	10,975	20,039	82.6
Sports (category 6)	17,916	17,877	20,269	19,953	28,747	44.1
Drama and comedy (category 7)	480,114	488,652	483,024	516,267	473,296	-8.3
Music, dance, and variety (categories 8 and 9)	31,878	47,333	57,128	28,736	10,499	-63.5
Game show (category 10)	11,460	5,278	5,625	8,360	8,287	-0.9
Human interest/ Award shows/Reality (category 11)	169,059	151,234	151,044	131,529	114,346	-13.1
Human interest	n/a	n/a	90,375	72,813	66,417	-8.8
Award shows	n/a	n/a	14,173	16,152	14,493	-10.3
Reality television	n/a	n/a	46,496	42,564	33,436	-21.4
Other (categories 12 through 15)	1,994	51	52	2	2	0
Total (categories 1 through 15)	729,033	725,813	731,978	717,018	656,137	-8.5

Source: CRTC data collection

For 2012-2015, the numbers shown for “Other informational (categories 2 through 5)” do not include expenditures on category 2(b) programming. In addition, the breakdown for “Human interest/Award shows/Reality” (category 11) is only available as of 2013. 2015 private conventional television non-Canadian programming expenditures are equivalent to 37.3% of this sector’s revenues.

From 2014 to 2015, the decrease in Non-Canadian programming was most prominent in the “Drama” programming category, which reported a year over year decrease of \$43M (-8.3%).

Table 4.2.22 Expenditures on non-Canadian programming by private and CBC conventional television services, by program category and linguistic market (\$ thousands)

Program category	2014		2015		Growth (%)	
	English-language	French-language	English-language	French-language	English-language	French-language
News (category 1)	591	-	703	-	19.0	-
Long-form documentary (category 2(b))	725	44	798	241	10.1	447.7
Other informational (categories 2 through 5, excluding category 2(b))	10,974	13	20,039	222	82.6	1,607.7
Sports (category 6)	19,953	-	28,742	-	44.0	-
Drama and comedy (category 7)	495,007	30,584	440,173	29,798	-11.1	-2.6
Music, dance, and variety (categories 8 and 9)	28,700	36	10,624	-	-63.0	-
Game show (category 10)	8,360	-	8,275	-	-1.0	-
Human interest/Award shows/Reality (category 11)	121,678	1,785	111,429	1,484	-8.4	-14.7
Human interest	64,243	1,757	63,520	1,464	-1.1	-16.7
Award shows	16,152	-	14,493	-	-10.3	-
Reality television	41,283	29	33,416	20	-19.1	-31.0
Other (categories 12 through 15)	2	38	2	165	0.0	334.2
Total (categories 1 through 15)	685,989	32,520	620,786	31,909	-9.5	-1.9

Source: CRTC data collection

Revenues for English-language private conventional television stations include revenues for ethnic stations since a significant portion of these stations' revenues was derived from English-language programming.

Table 4.2.23 CPE and expenditures on non-Canadian programming reported by specialty services, by language of broadcast and program category (\$ thousands) (Part 1 of 2)

Language of broadcast	Program category	CPE			Expenditures on non-Canadian programming		
		2014	2015	Growth (%)	2014	2015	Growth (%)
English	Number of services reporting	127	127	0.0	127	127	0.0
	News (category 1)	152,516	157,626	3.4	829	768	-7.4
	Long-form documentary (category 2(b))	74,625	77,118	3.3	31,725	32,897	3.7
	Other informational (categories 2 through 5, excluding category 2(b))	102,077	87,927	-13.9	5,368	6,045	12.6
	Sports (category 6)	452,314	498,286	10.2	88,377	103,738	17.4
	Drama and comedy (category 7)	134,423	89,447	-33.5	129,624	142,783	10.2
	Music, dance, and variety (categories 8 and 9)	15,070	11,285	-25.1	1,414	637	-55.0
	Game show (category 10)	10,705	9,009	-15.8	1,154	1,056	-8.5
	Human interest/ Award shows/Reality (category 11)	109,227	89,435	-18.1	68,762	70,603	2.7
	Human interest	45,617	31,189	-31.6	43,666	44,417	1.7
	Award shows	6,291	6,592	4.8	174	811	366.1
	Reality television	57,319	51,653	-9.9	24,921	25,375	1.8
	Other (categories 12 through 15)	21,488	46,148	114.8	1,203	10,543	776.4
	Total (categories 1 through 15)	1,072,445	1,066,280	-0.6	328,457	369,071	12.4
	French	Number of services reporting	30	29	-3.3	30	29
News (category 1)		80,750	74,476	-7.8	0	0	n/a
Long-form documentary (category 2(b))		28,391	30,808	8.5	7,238	5,489	-24.2
Other informational (categories 2 through 5, excluding category 2(b))		44,822	49,547	10.5	2,858	1,718	-39.9
Sports (category 6)		90,508	190,428	110.4	10,631	13,033	22.6
Drama and comedy (category 7)		25,764	31,726	23.1	18,725	21,601	15.4
Music, dance, and variety (categories 8 and 9)		11,276	7,613	-32.5	897	514	-42.7
Game show (category 10)		3,540	4,100	15.8	0	0	0
Human interest/ Award shows/Reality (category 11)		13,767	20,889	51.7	5,728	4,631	-19.2
Human interest		11,227	15,204	35.4	1,176	1,145	-2.6
Award shows		494	0	-100.0	10	654	6,440.0
Reality television		2,046	5,685	177.9	4,542	2,832	-37.6
Other (categories 12 through 15)		6,287	6,892	9.6	469	1,171	149.7
Total (categories 1 through 15)		305,106	416,478	36.5	46,546	48,157	3.5

Source: CRTC data collection

Table 4.2.24 CPE and expenditures on non-Canadian programming reported by specialty services, by language of broadcast and program category (\$ thousands) (Part 2 of 2)

Language of broadcast	Program category	CPE			Expenditures on non-Canadian programming		
		2014	2015	Growth (%)	2014	2015	Growth (%)
Third-language	Number of services reporting	40	39	-2.5	40	39	-2.5
	News (category 1)	3,920	3,978	1.7	1,525	1,493	-2.1
	Long-form documentary (category 2(b))	1,518	2,138	40.8	0	74	n/a
	Other informational (categories 2 through 5, excluding category 2(b))	2,671	2,792	4.5	554	445	-19.7
	Sports (category 6)	1,249	749	-40.0	1,241	900	-27.5
	Drama and comedy (category 7)	3,256	3,021	-7.2	6,089	6,838	12.3
	Music, dance, and variety (categories 8 and 9)	6,559	5,244	-20.0	1,302	1,046	-19.7
	Game show (category 10)	705	499	-29.2	2,602	930	-64.3
	Human interest/ Award shows/Reality (category 11)	4,505	4,175	-7.3	2,057	4,265	107.3
	Human interest	4,241	3,902	-8.0	2,057	4,265	107.3
	Award shows	264	272	3.0	0	0	0.0
	Reality television	0	0	0.0	0	0	0.0
	Other (categories 12 through 15)	2,081	1,844	-11.4	1,048	1,003	-4.4
	Total (categories 1 through 15)	26,463	24,450	-7.6	16,418	16,994	3.5
	All languages	Number of services reporting	197	195	-1.0	197	195
News (category 1)		237,185	236,090	-0.5	2,355	2,261	-4.0
Long-form documentary (category 2(b))		104,534	110,065	5.3	38,963	38,459	-1.3
Other informational (categories 2 through 5, excluding category 2(b))		149,570	140,277	-6.2	8,779	8,208	-6.5
Sports (category 6)		544,071	689,462	26.7	100,248	117,672	17.4
Drama and comedy (category 7)		163,442	124,194	-24.0	154,438	171,222	10.9
Music, dance, and variety (categories 8 and 9)		32,905	24,142	-26.6	3,613	2,197	-39.2
Game show (category 10)		14,951	13,607	-9.0	3,757	1,986	-47.1
Human interest/ Award shows/Reality (category 11)		127,499	114,499	-10.2	76,547	79,499	3.9
Human interest		61,085	50,297	-17.7	46,899	49,827	6.2
Award shows		7,050	6,864	-2.6	185	1,465	691.9
Reality television		59,364	57,338	-3.4	29,463	28,207	-4.3
Other (categories 12 through 15)		29,856	54,885	83.8	2,721	12,717	367.4
Total (categories 1 through 15)		1,404,014	1,507,218	7.3	391,420	434,222	10.9

Source: CRTC data collection

This table (Parts 1 and 2) shows total CPE and expenditures on non-Canadian programming of English-, French-, and third-language television services, broken down by program category. It also shows annual growth rates between the two years and lists the number of services reporting in each linguistic category.

The data listed for English-language services include expenditures on bilingual programming and expenditures relating to tangible benefits and to commitments made at the time of licensing, but excludes CMF “top-up” funding reported by specialty services.

CPE rose by \$103.2 million (7.3%) to reach \$1.5 billion in 2015. Of that amount, \$254.0 million was spend on programs of national interest (PNI), down \$27.6 million (-9.8%) compared to 2014. Also of note is the \$689.4 million spent on sports programming (45.7% of total CPE), which was up by \$145.4 million (26.7%) in the past year, partly as a result of the acquisition of NHL programming rights by Rogers and Groupe TVA, notably.

Non-Canadian programming expenditures increased by \$43 million (10.9%) in 2015. Expenditures on non-Canadian sports programming increased by \$17.4 million (17.4%).

Table 4.2.25 CPE reported by PPV and VOD services (\$ thousands)

Metric	2011	2012	2013	2014	2015	CAGR (%) 2011- 2015
Total PPV and VOD services CPE	16,838	16,280	17,317	24,890	37,574	22.2
Number of services reporting	30	26	23	24	24	-5.4

Source: CRTC data collection

This table shows the total CPE reported by PPV and VOD services from 2011 to 2015, as well as the number of services reporting and the growth rate during that period.

Expenditures broken down by program category for PPV and VOD services are not available. The amounts shown exclude CMF “top-up” funding reported by PPV and VOD services, but include expenditures relating to ownership transfer benefits (tangible benefits) and to commitments made at the time of licensing.

Table 4.2.26 Statistical data reported by licensed VOD services

Category	Metric	2014	2015
Number of titles on servers	Canadian Titles (English)	29,893	36,185
	Canadian Titles (French)	16,667	18,918
	Canadian Titles (other language)	42	30
	Total Canadian Titles	46,602	55,133
	Percent of all titles	28%	28%
	Non-Canadian Titles (English)	94,855	120,988
	Non-Canadian Titles (French)	21,834	20,960
	Non-Canadian Titles (other language)	670	1,182
	Total Non-Canadian Titles	117,359	143,130
	Percent of all titles	72%	72%
	Total (all titles)	163,961	198,263
Number of feature films on servers	Canadian Titles (English)	4,934	3,989
	Canadian Titles (French)	1,645	1,788
	Total Canadian Titles (feature films)	6,579	5,777
	Percent of all feature films	10%	10%
	Non-Canadian Titles (English)	46,108	42,959
	Non-Canadian Titles (French)	13,623	11,254
	Total Non-Canadian Titles (feature films)	59,731	54,213
	Percent of all feature films	90%	90%
	Total (all feature films)	66,310	59,990
Number of orders (free and paid)	Canadian Titles (free)	84,440,016	107,052,469
	Canadian Titles (paid)	9,282,531	1,481,056
	Total Orders - Canadian Titles	93,722,547	108,533,525
	Percent of all orders	27%	31%
	Non-Canadian Titles (free)	164,669,690	200,866,982
	Non-Canadian Titles (paid)	86,545,739	37,188,170
	Total Orders - Non-Canadian Titles	251,215,429	238,055,152
	Percent of all orders	73%	69%
	Total (free orders) – Canadian and non-Canadian	249,109,706	307,919,451
	Total (paid orders) – Canadian and non-Canadian	95,828,270	38,669,226
	Total (orders)	344,937,976	346,588,677
Remitted revenue (\$ millions)	5.8	4.3	

Source: CRTC data collection

The 2014 data reflects data reported by 11 licensed VOD services and the 2015 data reflects data reported by 12 licensed VOD services. Titles and feature film data reflects availability on servers on 31 August of each year. Orders are based on entire broadcast years ending 31 August. Remitted revenue to Canadian feature film rights holders are based on an entire broadcast year ending 31 August.

vi Tangible benefits

No television transactions resulting in a change of ownership or effective control triggering tangible benefits were approved in 2015

Table 4.2.27 Value of television ownership transactions and corresponding tangible benefits for the period from 1 January 2011 to 31 December 2015

Language	Metric	2011	2012	2013	2014	2015	Total
English-language services	Transactions	5	4	4	2	-	15
	Value (\$M)	2,254.0	106.0	944.4	174.3	-	3,478.7
	Benefits (\$M)	224.2	18.6	94.4	17.4	-	260.2
French-language services	Transactions	-	-	3	1	-	4
	Value (\$M)	-	-	1,512.8	22.9	-	1,535.7
	Benefits (\$M)	-	-	151.3	2.3	-	153.6

- *Figures for 2011 includes the BCE/CTVglobemedia Inc. ownership transaction (see Broadcasting Decision CRTC 2011-163), which resulted in \$221.8 million in tangible benefits. For the purposes of this analysis, the entire value of the television assets and associated benefits was included in the English-language services category.*
- *Figures for 2013 includes the BCE/Astral ownership transaction (see Broadcasting Decisions CRTC 2013-310, 2014-62), which resulted in \$188.0 million in tangible benefits. Approximately \$130 million of this amount was committed to French-language initiatives and \$58.3 million to English-language initiatives.*
- *In Broadcasting Decision 2013-310, the Commission directed BCE to divest itself of 11 specialty television services. Divestiture of these services generated \$60.1 million in additional tangible benefit commitments from other purchasers. Approximately \$36.2 million of this amount was committed to English-language initiatives and \$23.9 million to French-language initiatives. The Commission further stipulated that BCE supplement any shortfall between the total amount of tangible benefits generated on the later sale of Astral's 11 specialty television services and the \$72.7 million of tangible benefits attributed to them under the BCE/Astral transaction. The 2013 figures have been restated, increasing tangible benefits resulting from the BCE/Astral ownership transaction from \$175.4 million to \$188 million.*
- *In Broadcasting Decisions CRTC 2013-737 and 2013-738, the Commission approved the divestiture of six of these services (Historia, Séries+, TÉLÉTOON Rétro, TELETOON/TÉLÉTOON, TELETOON Retro, and Cartoon Network) to Corus Entertainment Inc. Corus has committed \$40.5 million in tangible benefits: approximately \$21.6 million to French-language initiatives and \$18.9 million to English-language initiatives.*
- *In Broadcasting Decision 2014-388, the Commission approved the divestiture of three of the remaining five services (Disney Junior, Disney XD and Family Channel) to DHX Media Ltd. (DHX). DHX has committed approximately \$17.3 million in tangible benefits to English-language initiatives.*
- *In Broadcasting Decision 2014-465, the Commission approved the divestiture of remaining two services (MusiquePlus and MusiMax) to Groupe V Média inc. (Groupe V). Groupe V has committed approximately \$2.3 million in tangible benefits to French-language initiatives.*

vii Programming of high standards

The *Broadcasting Act* sets out that programming provided by broadcasting undertakings should be of high standard. In addition to the CRTC, two bodies deal with programming complaints relating to public and community broadcasters, as well as non-members of the CBSC. The CRTC also deals with issues that are outside the parameters of the codes administered by the CBSC.

The CBSC administers specific codes of broadcast conduct and provides a means of recourse for members of the public regarding the application of the standards set out in the following codes:

- CAB Code of Ethics;
- CAB Violence Code;
- CAB Equitable Portrayal Code; and
- Radio Television Digital News Association of Canada (RTDNA Canada) Code of Ethics.

The Canadian Broadcast Standards Council (CBSC) is an independent organization created by the Canadian Association of Broadcasters (CAB) to administer standards established by Canada's private broadcasters. The CBSC's membership includes more than 790 private-sector radio and television stations, specialty services, pay services, and networks across Canada. Membership includes broadcasters broadcasting in English, French, and third languages. For more information, visit www.cbsc.ca.

The Advertising Standards Canada (ASC) is a national, not-for-profit advertising self-regulatory body that responds to complaints by consumers and special interest groups regarding advertising with respect to all media subject to the Canadian Code of Advertising Standards, the principal instrument of advertising self-regulation.

The ASC responds to complaints by consumers and special interest groups regarding advertising with respect to all media subject to the Canadian Code of Advertising Standards, the principal instrument of advertising self-regulation. In addition, the ASC undertakes pre-clearance functions in five industry categories, which consist of reviewing advertisements based on applicable legislation, regulations, and/or industry codes and guidelines.

Additional information on the ASC can be found at: www.adstandards.com/en/

Table 4.2.28 Number of television-related contacts received by the CRTC, by type of issue

Year	CRTC – policies/ decisions	Billing	Quality of service/ delivery	Terms and conditions	Disability issues	Programming	Loudness	Other
2014-2015	1,182	0	132	4	132	2,437	595	337
2015-2016	1,356	105	390	19	271	1,357	592	54

Source: CRTC Correspondence Tracking System

This table summarizes the contacts received by the CRTC, which included questions, comments, complaints, and other communications, broken down by the type of issue raised.

In 2015-2016 the CRTC received 4,144 contacts, a 14% decrease from previous year's 4,819 contacts.

Table 4.2.29 Television programming complaints received by the Commission and referred to the Canadian Broadcast Standards Council, by sector and issue

Market sector	Type of complaint	2011-2012		2012-2013		2013-2014		2014-2015		2015-2016	
		Complaints received	Referrals to CBSC	Complaints received	Referrals to CBSC	Complaints received	Referrals to CBSC	Complaints received	Referrals to CBSC	Complaints received	Referrals to CBSC
Conventional television	Abusive comment	30	2	30	6	15	5	24	6	19	3
	Adult content	56	11	71	12	73	13	77	13	53	10
	Alcohol advertising	8	-	18	3	9	2	14	1	13	-
	Gender portrayal	9	-	5	1	6	-	3	-	1	-
	Offensive comment	217	43	233	62	164	63	171	25	113	23
	Offensive language	29	3	32	8	45	7	67	15	46	7
	Television violence	76	14	54	8	61	11	68	9	37	4
Specialty services	Abusive comment	1	-	5	2	2	-	10	6	14	4
	Adult content	23	12	16	9	19	10	19	7	15	3
	Alcohol advertising	-	-	2	1	3	1	-	-	2	-
	Gender portrayal	1	-	1	1	-	-	2	1	-	-
	Offensive comment	161	87	44	23	46	25	51	24	14	4
	Offensive language	7	5	11	7	15	8	8	4	10	6
	Television violence	18	10	13	3	12	6	19	6	7	2
Pay and PPV services	Abusive comment	-	-	-	-	-	-	-	-	-	-
	Adult content	3	-	2	1	1	-	6	1	2	1
	Alcohol advertising	-	-	-	-	-	-	-	-	-	-
	Gender portrayal	-	-	-	-	-	-	-	-	-	-
	Offensive comment	-	-	-	-	-	-	1	1	-	-
	Offensive language	-	-	-	-	-	-	1	-	-	-
	Television violence	-	-	-	-	1	-	1	-	-	-
Total	Total	639	187	537	147	472	151	542	119	346	67

Source: CRTC Correspondence Tracking System

Together, the CRTC and the CBSC receive and address a range of complaints regarding conventional television and discretionary services. This table shows the number of complaints received by the CRTC—and the number referred to the CBSC—regarding various issues for the 2011–2012 through 2015–2016 fiscal years (i.e., 1 April

to 31 March). Between April 2015 and March 2016, approximately 19% of the complaints relating to television received by the Commission were referred to the CBSC.

The CRTC's Correspondence Tracking System counts multiple contacts from the same client regarding the same complaint as separate units. Consequently, the actual number of complaints received should be slightly lower than the figures indicated. The category "Abusive comment" includes complaints alleging hatred or contempt incited on air against one of the groups identified in the Television Broadcasting Regulations, 1987 or the Specialty Services Regulations, 1990. The category "Offensive comment" includes complaints alleging offensive humour, or other comments that do not fall under the "abusive comment" provision in CRTC regulations. The category "Offensive language" includes complaints alleging offensive language in song lyrics or in spoken word programming.

Table 4.2.30 Television-related complaints handled by the CBSC, by language of broadcast and origin of the program (2014-2015)

Category	Subcategory	Conventional and specialty TV	Pay TV	Total
Language of broadcast	English-language	508	7	515
	French-language	104	4	108
	Third-language	7	0	7
	Other	1	0	1
	Total	620	11	631
Origin of the program	Canadian	477	4	481
	Foreign	110	2	112
	Other	33	5	38
	Total	620	11	631

Source: CBSC annual reports

The category "Other" in each case refers to complaints for which there was not enough information for the CBSC to determine either the language of broadcast or the national origin of the program.

Table 4.2.31 Complaints relating to digital advertising and advertising on television, handled by the ASC

Statistics	2011	2012	2013	2014	2015
Total number of complaints	1,809	1,310	1,310	1,274	1,774
Complaints about television advertisements	686	559	528	500	671
Complaints about television advertisements as percentage of total complaints received	38%	43%	40%	39%	38%
Complaints about digital advertisements	n/a	280	240	289	348
Complaints about digital advertisements as percentage of total complaints received	n/a	21%	18%	23%	20%

Source: ASC Ad complaints reports

viii Ownership groups

The following tables provide an overview of the different broadcasting ownership groups with a controlling interest in various types of discretionary services in 2015. The overview covers the type of services offered, as well as the language of the service, subscriber numbers, revenues, PBIT and PBIT margin for each service.

In regard to this section:

- In *Regulatory framework relating to vertical integration*, Broadcasting Regulatory Policy CRTC 2011-601, 21 September 2011, the Commission stated that it would publish complete financial information for specialty Category A services and for specialty Category B services owned or controlled by a vertically integrated entity. The Commission also stated that for all independent individual specialty Category B services, it would publish partial financial information, including total revenues, total programming expenses, and total Canadian programming expenses. It further stated that it would publish complete financial information for all independent specialty Category B services on an aggregate basis.
- Unpublished data points are marked as n/a.
- Shaw is affiliated with Corus Entertainment Inc. (Corus), as J.R. Shaw has voting control of both companies.
- Ownership is based on the percentage of direct and indirect voting interest held on 31 December 2013. Where a change in ownership has occurred, the information is based on the date of the approval decision, not the closing date of the transaction.
- The ownership percentages and the financial results presented in the tables are for individual speciality, pay, PPV, and VOD services. The percent ownership is not reflected in these results. For this reason, no totals per ownership group are provided.
- Only services launched as of 31 August 2015 are included in these tables.

The abbreviations used in the following tables are defined as follows:

- Sp. A = Specialty Category A service
- Sp. B = Specialty Category B service
- Sp. C = Specialty Category C service
- Pay A = Pay Category A service
- Pay B = Pay Category B service
- PPV** = Pay-per-view (**holds both a terrestrial licence and a DTH PPV licence)
- VOD = Video-on-demand service
- n/a = not applicable

Table 4.2.32 BCE – Controlling ownership interest in discretionary and on demand services, 2015

Language	Service	Type of service	Number of subscribers (000)	Revenues (\$) (000)	PBIT (\$) (000)	PBIT margin (%)
English	Animal Planet	Sp. B	2,384	9,880	4,230	42.8
	Bell TV On Demand (formerly General Interest)	VOD	n/a	5,946	1,287	21.6
	Bell TV On Demand and Vu! (formerly Bell)	PPV**	n/a	34,069	4,938	14.5
	Bell TV On Demand (formerly Vu! On Demand)	VOD	n/a	15,258	-5,792	-38.0
	Book Television	Sp. A	524	3,948	2,584	65.5
	Bravo!	Sp. A	6,361	51,363	26,354	51.3
	Business News Network	Sp. A	5,997	29,685	11,155	37.6
	CablePulse 24	Sp. A	3,536	30,543	6,635	21.7
	Comedy Gold	Sp. B	776	4,477	2,936	65.6
	CTV News Channel	Sp. C	7,942	26,570	10,150	38.2
	Discovery Channel	Sp. A	7,202	97,372	23,402	24.0
	Discovery Science	Sp. B	1,648	5,857	1,509	25.8
	Discovery Velocity (formerly Discovery World)	Sp. B	1,142	24,109	13,032	54.1
	E!	Sp. A	7,069	29,596	9,282	31.4
	ESPN Classic Canada	Sp. B	557	2,131	346	16.2
	Fashion Television Channel	Sp. A	681	4,423	2,673	60.4
	Investigation Discovery	Sp. B	1,426	11,066	6,838	61.8
	Juicebox	Sp. B	114	310	240	77.4
	M3	Sp. A	5,831	19,228	2,859	14.9
	MTV Canada	Sp. A	5,800	18,704	-660	-3.5
	MTV2 Canada	Sp. A	1,029	5,531	2,611	47.2
	MuchLoud	Sp. B	111	260	163	62.7
	Much (formerly MuchMusic)	Sp. A	9,049	34,907	4,034	11.6
	MuchRetro (Formerly MuchMoreRetro)	Sp. B	247	635	466	73.4
	MuchVibe	Sp. B	126	320	204	63.8
	Northwestel VOD	VOD	n/a	867	-353	-40.7
	Space	Sp. A	6,097	54,940	28,472	51.8
	The Comedy Network	Sp. A	5,418	56,594	30,010	53.0
	The Movie Network	Pay A	1,133	120,564	4,105	3.4
	The Movie Network Encore	Pay A	1,225	20,374	11,742	57.6
	The Sports Network (TSN)	Sp. C	8,798	442,840	116,227	26.2
	Viewer's Choice Canada	PPV**	0	332	46	13.9
French	Câblevision du Nord de Québec inc.	VOD	n/a	412	-3	-0.7
	Canal D	Sp. A	2,489	41,666	18,611	44.7
	Canal D Investigation	Sp. B	534	4,420	-641	-14.5
	Canal Vie	Sp. A	2,232	45,664	16,510	36.2
	CINÉPOP	Pay B	1,241	11,340	6,264	55.2
	Le Réseau des Sports (RDS)	Sp. C	3,149	162,477	19,298	11.9
	RDS Info	Sp. A	1,117	6,856	-4,831	-70.5
	Super Écran	Pay A	617	61,402	15,332	25.0
	VRAK.TV	Sp. A	2,108	26,127	6,206	23.8
	Ztélé	Sp. A	1,880	25,560	7,162	28.0

Sources: CRTC ownership records and CRTC data collection

Viewer's Choice Canada ceased operation on 30 September 2014

Table 4.2.33 CBC - Controlling ownership interest in discretionary and on demand services, 2015

Language	Service	Type of service	Number of subscribers (000)	Revenues (\$) (000)	PBIT (\$) (000)	PBIT margin (%)
English	CBC News Network	Sp. C	11,173	87,952	7,839	8.9
	Documentary	Sp. A	2,647	6,645	1,012	15.2
French	ARTV	Sp. A	1,792	13,601	-1,064	-7.8
	EXPLORA	Sp. B	n/a	5,020	n/a	n/a
	RDI	Sp. C	10,854	54,270	1,392	2.6

Sources: CRTC ownership records and CRTC data collection

Table 4.2.34 Cogeco - Controlling ownership interest in discretionary and on demand services, 2015

Service	Type of service	Number of subscribers (000)	Revenues (\$) (000)	PBIT (\$) (000)	PBIT margin (%)
Cogeco On Demand/Cogeco Sur Demande	VOD	n/a	15,074	2,779	18.4

Sources: CRTC ownership records and CRTC data collection

Table 4.2.35 Corus - Controlling ownership interest in discretionary and on demand services, 2015

Language	Service	Type of service	Number of subscribers (000)	Revenues (\$ 000)	PBIT (\$ 000)	PBIT margin (%)
English	ABC Spark	Sp. B	n/a	11,758	n/a	n/a
	Cartoon Network	Sp. B	n/a	3,438	n/a	n/a
	CMT Canada	Sp. A	9,949	19,896	3,458	17.4
	Cosmopolitan TV	Sp. B	n/a	8,606	n/a	n/a
	Encore Avenue	Pay A	1,997	18,389	10,885	59.2
	EuroWorld SPORT	Sp. B	n/a	21	n/a	n/a
	Movie Central	Pay A	886	81,734	-6,821	-8.3
	Nickelodeon	Sp. B	n/a	5,818	n/a	n/a
	OWN	Sp. A	6,067	28,601	4,087	14.3
	Sundance Channel	Sp. B	n/a	4,709	n/a	n/a
	TELETOON Network (formerly TELETOON Retro)	Sp. B	n/a	6,662	n/a	n/a
	TELETOON/TÉLÉTOON	Sp. A	8,340	69,453	20,949	30.2
	TreeHouse TV	Sp. A	8,169	13,841	1,681	12.1
	W Movies	Sp. B	n/a	7,012	n/a	n/a
	W Network	Sp. A	7,692	79,862	36,211	45.3
YTV	Sp. A	11,118	73,411	30,788	41.9	
French	Historia	Sp. A	1,435	20,351	12,706	62.4
	Séries+	Sp. A	1,435	29,838	17,958	60.2
	La chaîne Disney (formerly TÉLÉTOON Rétro)	Sp. B	n/a	1,621	n/a	n/a
Third-language	Mediaset Italia	Sp. B	n/a	1,778	n/a	n/a
	Sky TG24 Canada	Sp. B	n/a	233	n/a	n/a
	Telebimbi	Sp. B	n/a	1	n/a	n/a
	Teletatino	Sp. A	4,158	14,799	5,967	40.3
	Teleniños	Sp. B	n/a	32	n/a	n/a
	Univision Canada	Sp. B	n/a	1,424	n/a	n/a

Sources: CRTC ownership records and CRTC data collection

Movie Central and Encore Avenue ceased operation on 1 March 2016.

Table 4.2.36 Québecor - Controlling ownership interest in discretionary and on demand services, 2015

Language	Service	Type of service	Number of subscribers (000)	Revenues (\$ 000)	PBIT (\$ 000)	PBIT margin (%)
French	addikTV	Sp. A	1,358	12,132	1,877	15.5
	ARGENT	Sp. A	502	2,170	-475	-21.9
	Canal Indigo	PPV**	1,524	7,338	2,550	35.0
	Casa	Sp. B	1,163	9,729	985	10.1
	Illico sur demande	VOD	n/a	50,012	-5,483	-11.0
	Le Canal Nouvelles (LCN)	Sp. C	2,562	29,404	6,456	22.0
	Moi&cie	Sp. B	853	5,840	-1,192	-20.4
	Prise 2	Sp. B	1,134	9,053	2,537	28.0
	TVA Sports	Sp. C	1,996	81,786	-38,934	-47.6
	YOOPA	Sp. B	667	4,035	-97	-2.4
English	Sun News Network	Sp. C	-	5,845	-5,401	-92.4

Sources: CRTC ownership records and CRTC data collection

Sun News Network ceased operation on 13 February 2015.

Table 4.2.37 Rogers - Controlling ownership interest in discretionary and on demand services, 2015

Service (English-language)	Type of service	Number of subscribers (000)	Revenues (\$ 000)	PBIT (\$ 000)	PBIT margin (%)
FX Canada	Sp. B	4,671	14,363	1,584	11.0
FXX	Sp. B	1,641	4,525	-1,733	-38.3
G4	Sp. A	1,458	4,527	1,966	43.4
OLN	Sp. A	4,960	20,059	8,179	40.8
Rogers on Demand	VOD	n/a	47,289	1,068	2.3
Sportsnet	Sp. C	7,972	360,368	53,757	14.9
Sportsnet 360	Sp. A	5,694	35,101	-4,948	-14.1
Sportsnet One	Sp. C	6,731	86,907	35,954	41.4
Sportsnet PPV	PPV**	1,708	19,896	-17,589	-88.4
Sportsnet World	Sp. B	82	11,167	335	3.0
The Biography Channel	Sp. A	1,632	6,360	237	3.7

Sources: CRTC ownership records and CRTC data collection

Table 4.2.38 Shaw - Controlling ownership interest in discretionary services, 2015

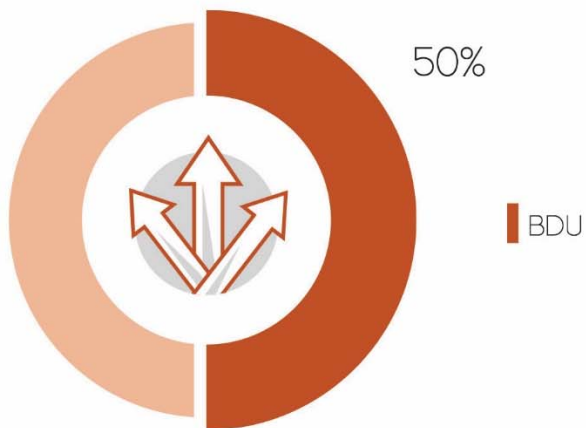
Service (English-language)	Type of service	Number of subscribers (000)	Revenues (\$ 000)	PBIT (\$ 000)	PBIT margin (%)
Action	Sp. B	4,333	20,535	12,555	61.1
BBC Canada	Sp. B	2,657	10,641	6,075	57.1
BC News 1	Sp. B	882	1,518	-4,781	-315.0
Crime + Investigation (formerly Mystery)	Sp. A	3,193	19,159	10,833	56.5
D.I.Y. Network	Sp. B	3,249	11,496	7,242	63.0
DéjàView	Sp. B	1,506	7,992	4,606	57.6
DTOUR	Sp. A	4,997	25,740	15,312	59.5
Food Network Canada	Sp. A	6,033	67,131	29,923	44.6
FYI, (formerly Twist TV)	Sp. A	2,063	8,176	3,300	40.4
H2	Sp. A	2,816	9,358	4,196	44.8
HGTV Canada	Sp. A	7,128	72,121	30,753	42.6
History Television	Sp. A	6,950	75,912	49,324	65.0
Independent Film Channel Canada	Sp. A	1,302	9,449	3,938	41.7
Lifetime	Sp. B	3,777	20,874	7,208	34.5
MovieTime	Sp. B	4,247	16,004	10,193	63.7
NatGeo Wild	Sp. B	2,748	5,824	-14	-0.2
National Geographic Channel Canada	Sp. B	5,053	26,942	17,340	64.4
Shaw on Demand	VOD	n/a	62,056	161	0.3
Shaw Pay-Per-View (formerly Allarcom)	PPV**	n/a	14,247	-2,896	-20.3
Shaw Pay-Per-View (formerly Home Theatre)	PPV**	n/a	6,294	383	6.1
Showcase	Sp. A	6,490	72,927	40,715	55.8
Slice	Sp. A	4,977	38,885	14,252	36.7

Sources: CRTC ownership records and CRTC data collection

4.3 Broadcasting distribution sector

Broadcasting revenues in 2015

\$17.9 billion ▶



Revenues

\$8.9 B

Decrease of 0.1%
over 2014

Subscribers

11.2 M

Decrease of 1.4%
over 2014

Affiliation
Payments

88%

Are to Canadian
services

IPTV Subscriber
Share

19%

Up from 16% in 2014

Broadcasting distribution undertakings (BDUs) provide subscription television services to Canadians. They distribute conventional television, discretionary services and on-demand services. The BDU section of this report focuses on three types of BDUs: cable, Internet protocol television (IPTV), and national direct-to-home (DTH) satellite service providers.

In 2015, BDUs reported \$8.9 billion in revenues, a decrease of 0.1% over 2014. Combined, the five largest BDUs reported 87% of programming distribution revenues.

The Canadian distribution landscape has been dominated by cable and DTH satellite BDUs. While cable is in decline, it is still the largest type of BDU with over 60% of the subscriber market share. However, IPTV service providers are rapidly growing due to expanded distribution networks and reach. In 2015, IPTV providers reported, for the first time, over 2 million subscribers.

Over 78% of Canadian households still subscribe to BDU services. Canadians living in urban centres generally have a choice of three to four service providers and/or types of service, while those living in the North and in rural communities usually have access to fewer than three providers.

Canadians have been increasingly cancelling their current television service subscriptions. From 2013 to 2014 BDU subscribers decreased by 112,759 or 0.98% and from 2014 to 2015, the decrease reached 157,922 or 1.38%. Popular online video services are providing Canadians with more choice of where, when and how to access these programs. These services include both free and paid independent, non-affiliated services such as Netflix and YouTube.

i Revenues

In 2015, Canadian cable, IPTV and satellite companies' revenues stood at \$8,918 million, with a marginal decline in revenues of 0.1% since 2014, the first decline in the last five years. These companies have generated an average annual growth in revenues of 1.3% since 2011.

Revenues for IPTV companies continued on their upward trend and totalled \$1,557 million in 2015. This represented an increase of \$273 million (21.3%) since 2014 and of \$1,235 million since 2011. By contrast, the revenues of satellite companies have been on a downward trend since 2011, recording the largest losses over the past two years. They generated revenues of \$2,289 million in 2015, down 5.2% from 2014.

Table 4.3.1 Revenues (\$ millions) of broadcasting distribution undertakings (BDU) – Basic and non-basic services

Type of service	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Cable	5,605	5,483	5,397	5,232	5,072	-3.1	-2.5
IPTV	322	585	925	1,284	1,557	21.3	48.3
DTH and MDS	2,532	2,492	2,472	2,414	2,289	-5.2	-2.5
Total revenues	8,459	8,561	8,794	8,930	8,918	-0.1	1.3

Source: CRTC data collection

Table 4.3.1 shows the annual revenues of cable BDUs, IPTV services and DTH satellite services collected by BDUs for cable, IPTV, and DTH services from 2011 to 2015, as well as the annual and compounded annual growth rates (CAGR) for all years combined. The data are for the 12-month period ending 31 August of each year. The growth of revenue from IPTV services is noteworthy relative to the other distribution services.

Table 4.3.2 Percentage of broadcasting distribution undertaking revenues (%) - Basic and non-basic services

Type of service	2011	2012	2013	2014	2015
Cable	66.3	64.0	61.4	58.6	56.9
IPTV	3.8	6.8	10.5	14.4	17.5
DTH and MDS	29.9	29.1	28.1	27.0	25.7

Source: CRTC data collection

Basic and non-basic services: Basic service is the service distributed in a licensed area by a broadcasting distribution undertaking as a package consisting of programming services whose distribution is required by the Commission. Non basic service is the service distributed in a licensed area by a broadcasting distribution undertaking consisting of programming services whose distribution is not required by the Commission.

Multipoint distribution service (MDS): As of 1 September 2011, the Commission no longer issues MDS broadcasting licences. As part of the spectrum auction of the 2596 to 2686 MHz frequency band, which was the band used by MDS licensees, Innovation, Science and Economic Development Canada (ISED) converted various broadcasting certificates issued to MDS undertakings to Broadband Radio Service (BRS) licences. As of 1 September 2013, there are no MDS undertakings in operation.

ii Subscriber Data

Cable, IPTV and satellite companies garnered 11.2 million subscribers in 2015, a 1.4% (157,922 subscribers) decline from 2014. This negative trend has been accelerating since its start in 2013. Of note, subscription to IPTV services recorded a double-digit growth rate in 2015, however, these gains were insufficient to offset the combined declines in cable and satellite services.

Since 2011, IPTV companies increased their share of the subscriber market from 5.8% to 19.2%, and counted 2.2 million subscribers in 2015. Conversely, satellite companies have decreased their share of the subscriber market to 21.1% (2.4 million subscribers), but nonetheless garnered 25.7% of all cable, IPTV and satellite companies revenues.

Table 4.3.3 Broadcasting distribution undertakings subscriber (thousands) numbers – Basic and non-basic services

Type of service	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Cable	7,862	7,701	7,445	7,062	6,707	-5.0	-3.9
IPTV	657	1,003	1,382	1,784	2,165	21.4	34.7
DTH and MDS	2,877	2,826	2,691	2,559	2,375	-7.2	-4.7
Total subscribers	11,397	11,529	11,517	11,405	11,247	-1.4	-0.3

Source: CRTC data collection

Table 4.3.4 Percentage of broadcasting distribution undertakings subscriber (%) – Basic and non-basic services

Type of service	2011	2012	2013	2014	2015
Cable	69.0	66.8	64.6	61.9	59.6
IPTV	5.8	8.7	12.0	15.6	19.2
DTH and MDS	25.2	24.5	23.4	22.4	21.1

Source: CRTC data collection

Tables 4.3.3 and 4.3.4 show the number of subscribers of cable BDUs, IPTV services, and DTH satellite services from 2011 to 2015, as well as the annual growth rates and the compound annual growth rate (CAGR) for years combined. The number of subscribers is as of 31 August of each year.

Table 4.3.5 Number of subscribers for the largest Canadian BDUs (thousands)

Largest Canadian BDUs	2012	2013	2014	2015	2016	Growth (%) 2014-2015	CAGR (%) 2012-2016
BCE	2,112	2,170	2,307	2,658	2,749	3.4	6.8
Shaw	3,168	3,044	2,883	2,760	2,513	-8.9	-5.6
Rogers	2,276	2,189	2,107	1,983	1,870	-5.7	-4.8
Videotron	1,854	1,849	1,811	1,771	1,722	-2.8	-1.8
Telus	550	712	842	937	1,016	8.4	16.6
Cogeco	873	853	816	780	755	-3.2	-3.6
Total	10,833	10,817	10,766	10,889	10,625	-2.4	-0.5
% of all subscribers	94.5	93.9	93.9	96.1	-	-	-

Source: Corporate quarterly reports

This table shows the number of subscribers for each of the top five Canadian BDUs (based on revenues) within their exclusive market sectors.

The data are as of 31 March of each year with the exception of those for Shaw and Cogeco, which are as of 28 February of each year. The data are for cable BDUs, IPTV services, and DTH satellite services. The data for Shaw include Shaw Direct, and the data for BCE include broadcasting distribution activities by Bell Canada and Northwestel (Northwestel data have been included since 2011). Due to the acquisition of Bell Aliant by BCE, Bell Aliant's television subscribers are included with BCE as of 2015.

Table 4.3.6 Percentage of households subscribing to BDUs

Year	Household subscription rate (%)
2011	82.6
2012	82.8
2013	82.0
2014	80.3
2015	78.5

Source: CRTC data collection

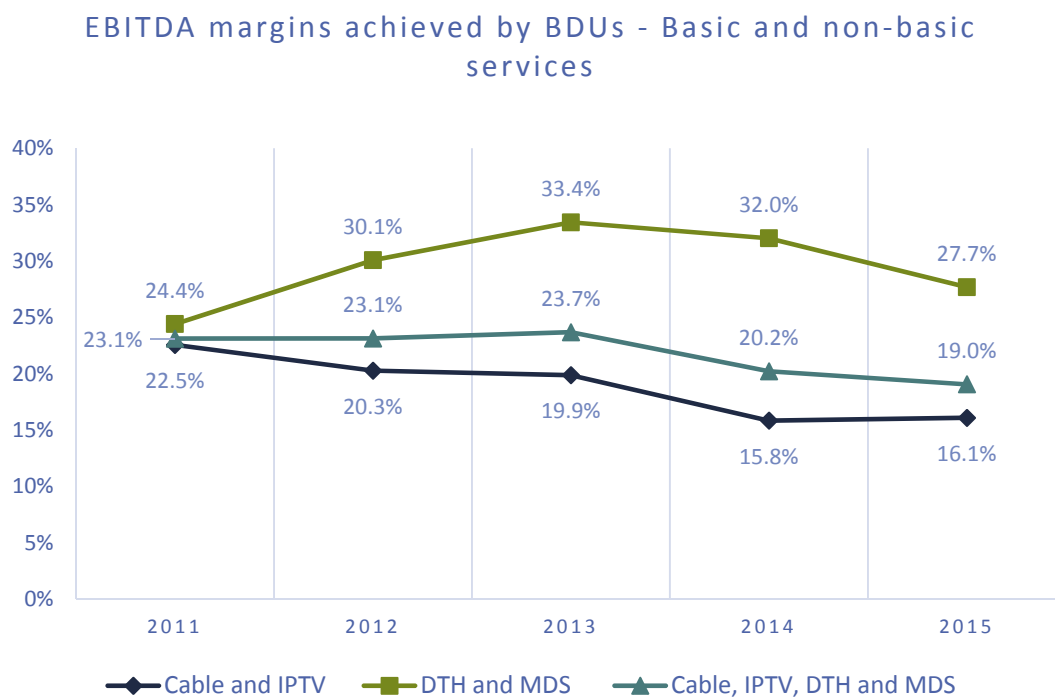
To calculate the household subscription rates, the number of BDU subscriptions at the end of the annual period is divided by the total number of households in Canada.

iii Financial performance

The EBITDA margin is a metric used to measure financial performance, it represents earnings before interest, taxes, depreciation, and amortization and is expressed as a percentage of total revenues.

In 2015, cable, IPTV and satellite companies reported their lowest EBITDA margin in five years, but it remains healthy at 19.0%. The EBITDA margin for cable and IPTV companies followed a relatively steady decline, going from 22.5% in 2011 to 16.1% in 2015, with their expenditures growing almost twice as fast as their revenues (with average annual growth rates of 4.9% and 2.8% respectively). Satellite companies performed better as their EBITDA margin generally grew over the period, starting at 24.4% in 2011, reaching a peak of 33.4% in 2013, before declining to 27.7% in 2015.

Figure 4.3.1 EBITDA margins achieved by BDUs - Basic and non-basic services



Source: CRTC data collection

This figure compares the EBITDA margins for cable BDUs and IPTV service providers with those of DTH satellite services and MDS providers, from 2011 to 2015. While these margins declined for cable BDUs and IPTV services, it increased for DTH satellite services and MDS'. The data are for the 12-month period ending 31 August of each year.

iv Performance indicators

Table 4.3.7 Monthly revenues per subscriber, by type of BDUs

Type of BDUs	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Cable	59.36	58.72	59.39	60.11	61.40	2.1	0.8
IPTV	49.88	58.78	64.65	67.61	65.72	-2.8	7.1
DTH and MDS	73.53	72.84	74.69	76.63	77.30	0.9	1.3
All Reporting BDUs	62.51	62.24	63.60	64.93	65.62	1.1	1.2

Source: CRTC data collection

Monthly revenues per subscriber: Monthly revenues per subscriber are calculated by dividing BDUs' annual revenues from basic and non-basic services by the average number of subscriptions in the year. The result is then divided by 12 to obtain the monthly amount. The average number of subscribers is determined by dividing the sum of the number of subscribers at the beginning and at the end of the year by two.

v Price

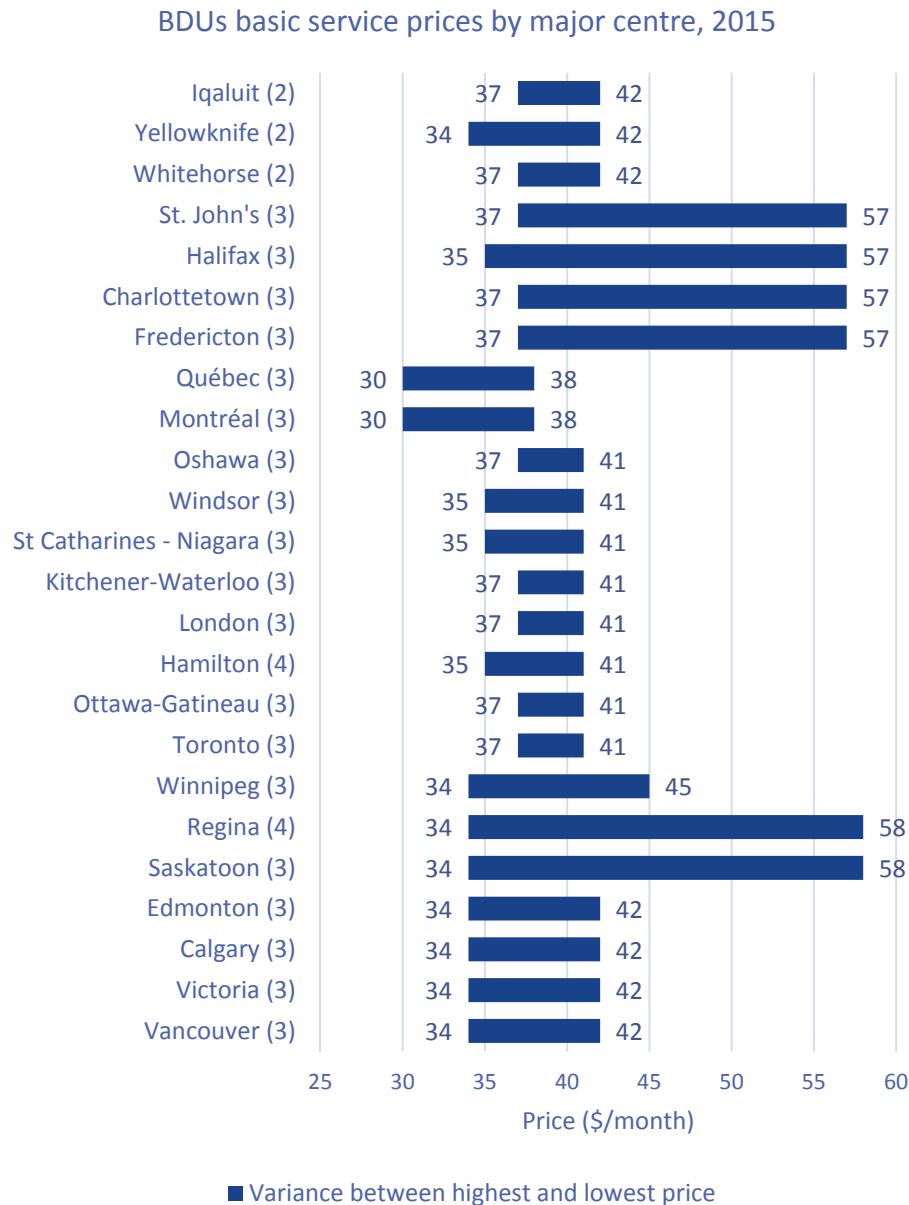
Each year, the Commission surveys the prices of basic television service in a number of urban centres and rural communities. The communities chosen for 2015 are set out in Appendix 9. In 2015, data from 24 major urban centres and a select number of rural communities shows that the prices of basic service and the number of channels included in the basic service varied significantly among service providers and across the communities served, for both types of communities.

In its Regulatory Policy (2015-96), following the [Let's Talk TV](#) proceeding, the Commission required distributors to offer a \$25 entry-level service offering as of March 1st 2016. The data in this section presents 2015 information, as such the impact of this requirement will be reflected in next year's report.

Urban centres

Figure 4.3.2 shows the 2015 prices for BDUs' basic services for Canadians living in 24 major urban centres. For the most part, those Canadians could choose from among three types of service providers: cable, IPTV or DTH satellite. The price of the basic television services varied, from lows of \$30 to \$37 per month to highs of \$38 to \$58 per month.

Figure 4.3.2 BDU basic service prices by major centre, 2015



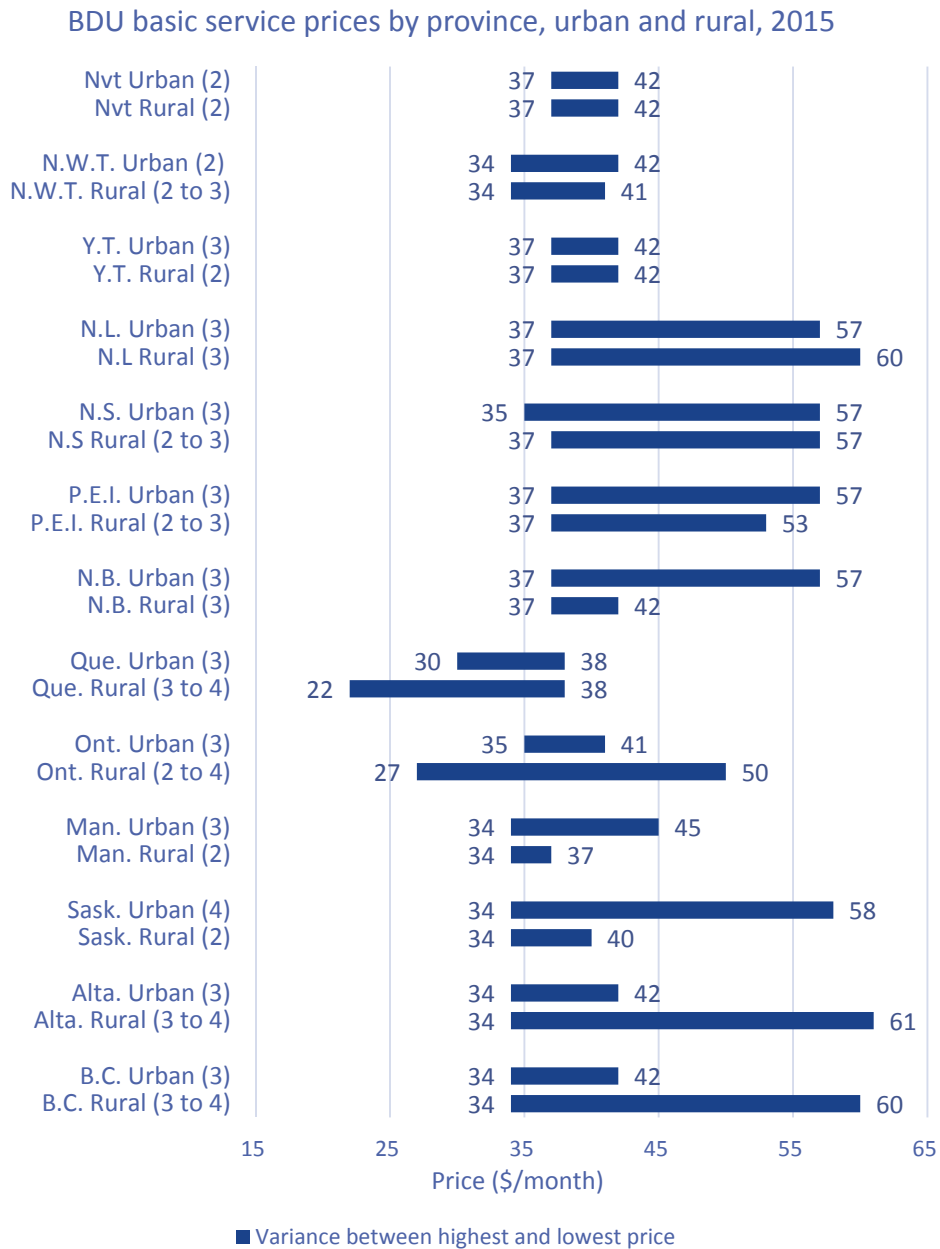
Source: CRTC data collection

The number of service providers in each urban centre is indicated in parentheses. As an example, there are three BDU service providers in Vancouver, where the lowest price is \$34 and the highest price is \$42.

The composition of a basic package of television services varied between 27 and 170 channels, depending on location and service provider. The services were generally available in digital and high definition formats, and the programming generally included television, radio, and music channels.

Rural centres

Figure 4.3.3 BDU basic service prices by province, urban and rural, 2015



Source: CRTC data collection

The number of service providers in each province (urban and rural areas surveyed) is indicated in parentheses, as an example, in British Columbia, there are three to four service providers in the rural communities surveyed and three in the urban centres surveyed. The lowest prices offered by these providers for basic BDU service is from \$22 to \$37 per month in the rural communities, and from \$30 to \$37 in urban centres.

Which communities were included? Fifty-four rural communities were selected to assess the price of BDU basic services (see Appendix 9). These communities met the following criteria:

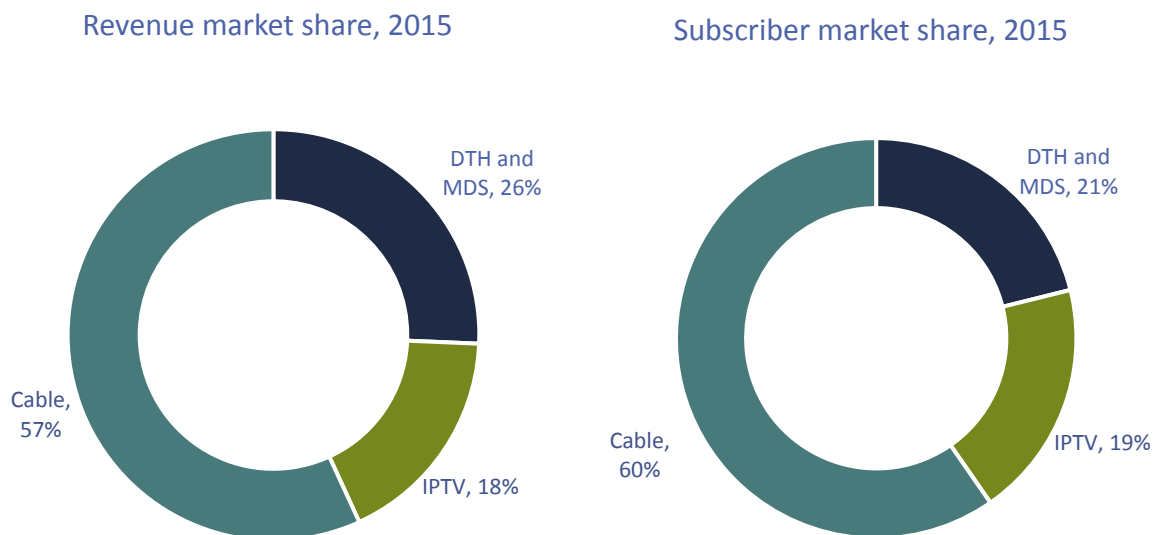
- The community was not part of one of the CMAs of the 24 major centres;
- It had a population density of fewer than 400 people per square kilometre, or its population centres had fewer than 1,000 people;
- The number of communities in each province was proportional to the population of the province; and
- The communities were not clustered together.

vi Competitive landscape

Cable companies were the first providers of BDU services in Canada. By the mid-1990s, DTH satellite services had entered the Canadian market. More recently, IPTV services have become available.

In 2015, Canadians living in urban centres were able to choose between three types of BDU service providers: cable, IPTV and DTH satellite. In rural areas, just over half of Canadians households were dependent on a DTH satellite service provider. Just less than half of rural Canadian households had access to both cable and DTH satellite service providers.

Figure 4.3.4 Percentage of revenues and subscribers by type of distribution platform, 2015



Source: CRTC data collection

In 2015, DTH and MDS services generated 26% of the TV distribution revenues with 21% of the subscribers in the sector, while Cable services had 60% of the subscribers but reported 57% of the revenues of the sector.

vii Consumer voices

Table 4.3.8 Number of BDU-related contacts received by the CRTC

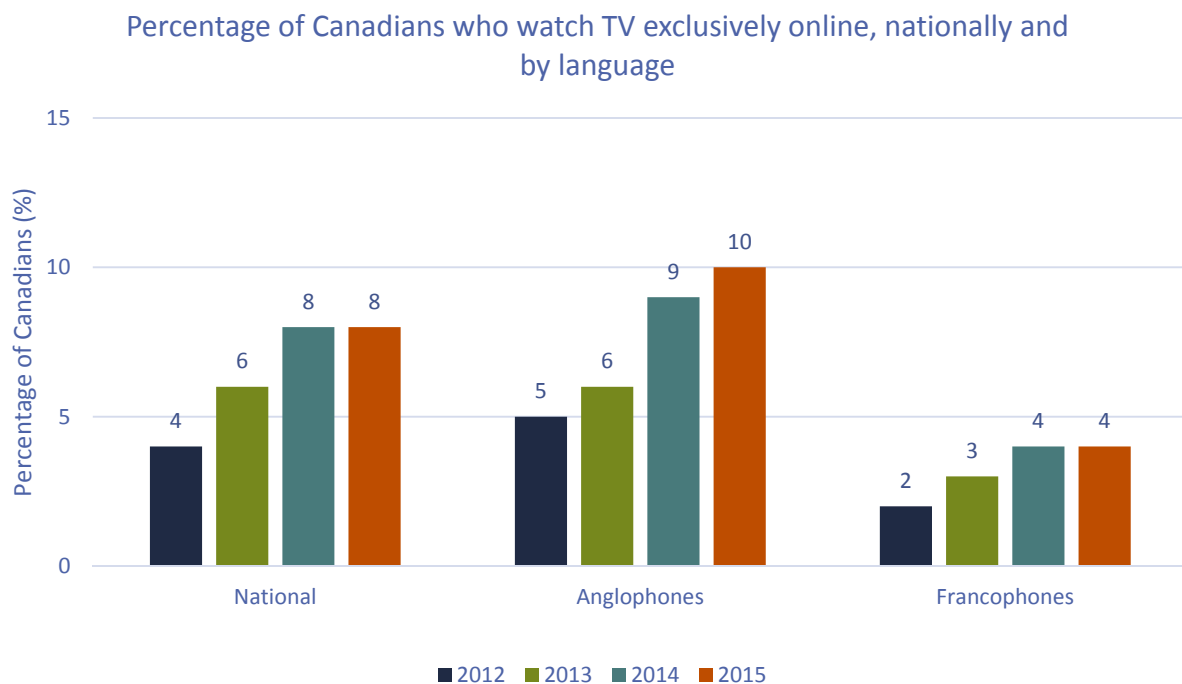
Year	CRTC policies/decisions	Billing	Prices/Rates	Terms and conditions	Disability issues	Quality of service/Delivery	Competition	Other	Total
2014-2015	755	1,298	223	313	62	480	110	2,300	5,541
2015-2016	1,456	652	154	180	58	352	60	279	3,191

Source: CRTC Correspondence Tracking System

This table summarizes the contacts received by the CRTC, which included questions, comments, complaints, and other communications, broken down by the type of issue raised.

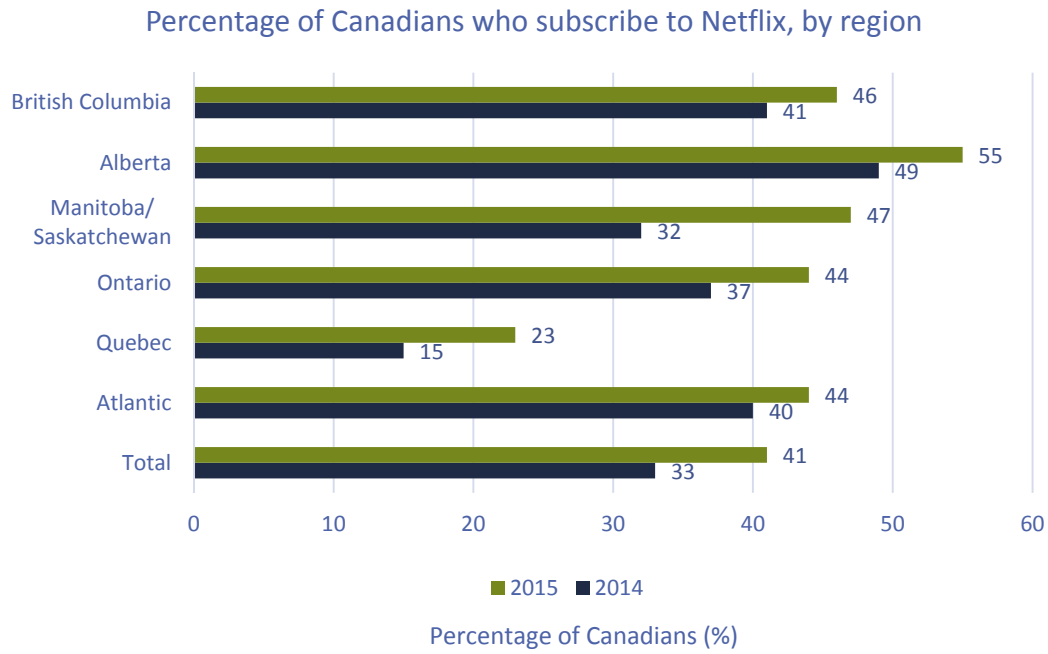
viii Online television services

Figure 4.3.5 Percentage of Canadians who watch TV exclusively online, nationally and by language



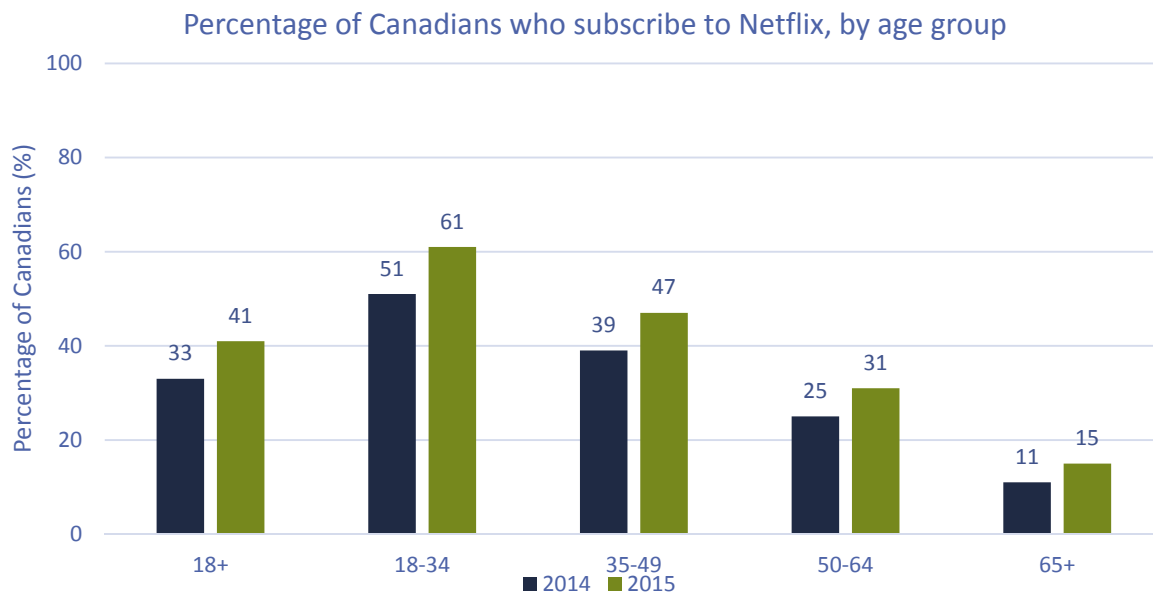
Source: MTM, 2012-2015 (Respondents: Canadians 18+)

Figure 4.3.6 Percentage of Canadians who subscribe to Netflix, by region



Source: MTM, 2014-2015 (Respondents: Canadians 18+)

Figure 4.3.7 Percentage of Canadians who subscribe to Netflix, by age group

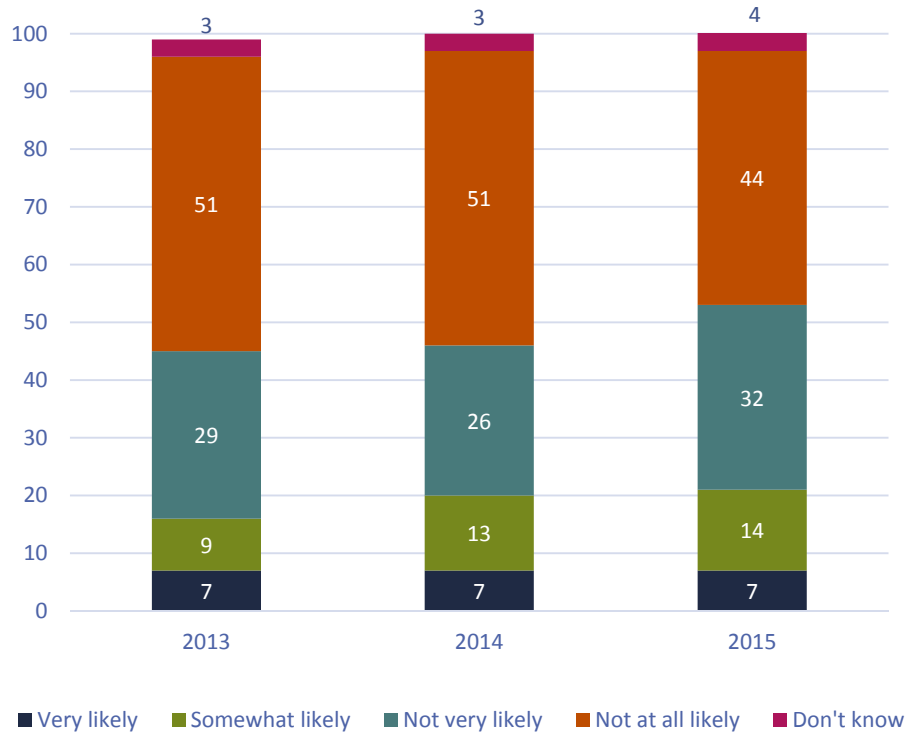


Source: MTM, 2014-2015 (Respondents: Canadians 18+)

Younger Canadians are more likely to subscribe to Netflix than older Canadians.

Figure 4.3.8 Likelihood of Canadians “cutting the cord” on their current traditional TV subscription in the next 12 months (percentage)

Likelihood of Canadians “cutting the cord” on their current traditional TV subscription in the next 12 months (percentage)



Source: MTM, 2013-2015 (Respondents: Canadians 18+)

Table 4.3.9 Adoption rates (%) of various video technologies in Canada by language market

Video technology	Language market	2011	2012	2013	2014	2015
PVR	Anglophone	35	43	46	50	49
	Francophone	23	39	42	52	56
Internet TV	Anglophone	34	38	44	51	57
	Francophone	38	39	44	42	49
Netflix	Anglophone	12	21	29	39	47
	Francophone	3	5	7	12	19

Source: MTM, 2011-2015 (Respondents: Canadians 18+, viewed or used in the past month)

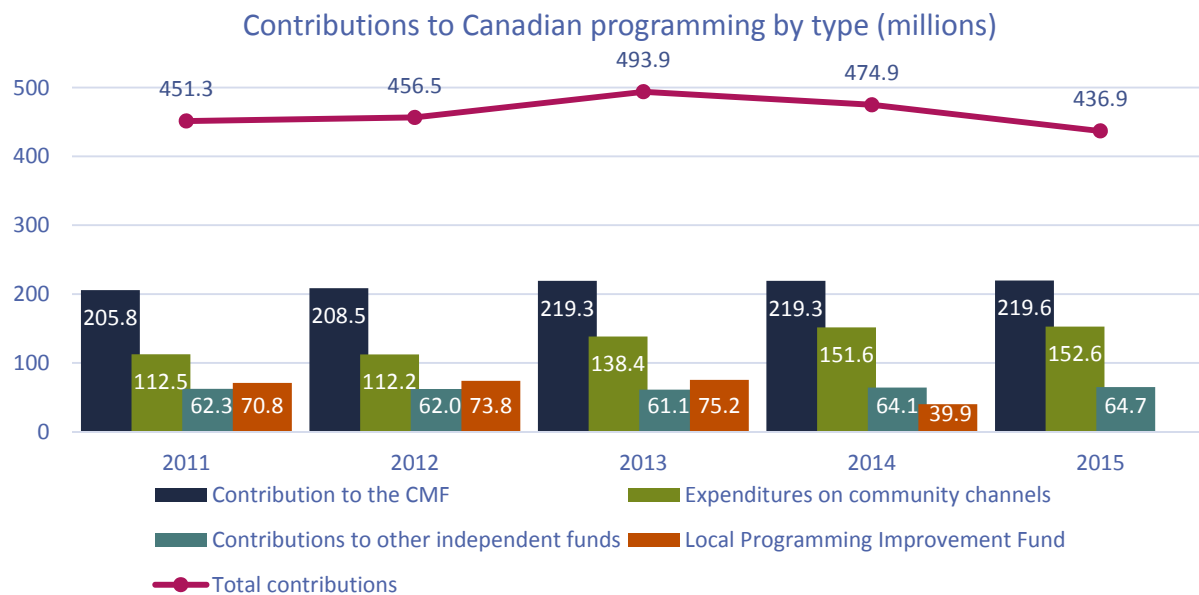
This table shows the percentages of Canadians 18 years of age and older who had adopted various video technologies and services each year from 2011 through 2015. MTM describes “Internet TV” as watching or streaming television programs or clips available over the Internet.

ix Contribution to Canadian programming

Cable, IPTV and satellite companies are required to spend the equivalent of 5% of their annual broadcast-related revenues to the creation and production of Canadian programming. This can take the form of contributions to various Certified Independent Production Funds (CIPF), to the Canada Media Fund (CMF) or contributions towards local expression, which are intended to the creation and distribution of community programming. Furthermore, in 2009, the Commission established an additional fund, the Local Programming Improvement Fund (LPIF), in an effort to support local programming by conventional television stations during a difficult financial period. The LPIF was discontinued on 1 September 2014.

Excluding LPIF, contributions to the creation and production of Canadian programming by cable, IPTV and satellite companies totalled \$437 million in 2015, almost unchanged from 2014. Contribution levels to each contribution category, namely Local Expression, CIPFs and the CMF were essentially unchanged from 2014, reflecting the trend in revenues which have remained relatively constant from 2014 to 2015.

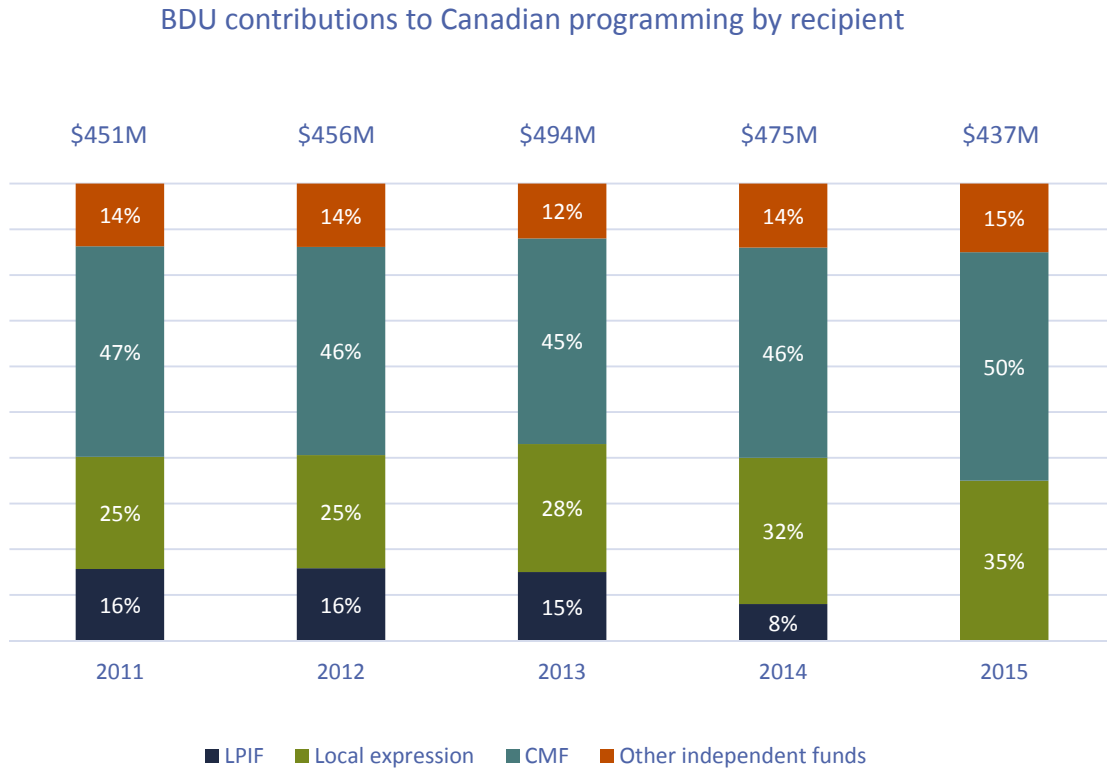
Figure 4.3.9 Contributions to Canadian programming by type (millions)



Source: CRTC data collection

This figures shows the contributions made by BDUs to the CMF, the LPIF and other independent production funds, as well as spending on local expression (community channels), during the 12-month period ending 31 August of each year. BDU contributions include contributions reported by cable BDUs, DTH satellite services, MDS's and satellite relay distribution undertakings (SRDUs).

Figure 4.3.10 BDU contributions to Canadian programming by recipient



Source: CRTC data collection

LPIF was terminated on August 31, 2014.

x Affiliation payments

The providers of discretionary programming services (both Canadian and non-Canadian) receive remuneration from the BDUs that distribute their services. This remuneration is referred to as an affiliation payment, and is based on the number of BDU subscribers who receive the programming service.

Payments to Canadian affiliates have increased annually by 4.3% since 2011, whereas payments to non-Canadian affiliates have increased by 4.9%. The data are based on the 12-month period ending 31 August of each year.

Table 4.3.10 Affiliation payments made to Canadian and non-Canadian discretionary services reported by BDUs (\$ millions)

Category	Type of service	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Canadian affiliates	Cable and IPTV	1,809	1,930	2,024	2,193	2,322	5.9	6.4
	DTH and MDS	735	726	700	716	685	-4.3	-1.7
	Total	2,544	2,656	2,724	2,909	3,007	3.4	4.3
Non-Canadian affiliates	Cable and IPTV	263	265	285	298	316	6.0	4.7
	DTH and MDS	81	86	94	93	101	8.6	5.7
	Total	344	351	379	391	417	6.6	4.9
All affiliates	All services	2,888	3,007	3,103	3,300	3,424	3.8	4.3

Source: CRTC data collection

This table provides a detailed breakdown of the amounts of affiliation payments made by BDUs (cable/IPTV vs DTH satellite/MDS) to discretionary services, broken down by Canadian and non-Canadian affiliates, for the years 2011 through 2015.

Table 4.3.11 Affiliation payments received by Canadian and non-Canadian discretionary services reported by BDUs (\$ millions)

Category	Type of service	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Canadian affiliates	Pay, PPV and VOD	682	671	670	669	660	-1.3	-0.8
	Specialty	1,862	1,986	2,054	2,240	2,347	4.8	6.0
	Total	2,544	2,656	2,724	2,909	3,007	3.4	4.3
Non-Canadian affiliates	Pay, PPV and VOD	48	34	37	38	54	42.1	3.0
	Specialty	296	317	342	353	363	2.8	5.2
	Total	344	351	379	391	417	6.6	4.9
All affiliates	All services	2,888	3,007	3,103	3,300	3,424	3.8	4.3

Source: CRTC data collection

This table provides a detailed breakdown of the amounts of affiliation payments received from discretionary services (pay/PPV/VOD vs specialty), broken down by Canadian and non-Canadian affiliates, for the years 2011 through 2015.

xi Broadcasting dispute resolution

Dispute resolution is designed to effectively process and resolve disputes in an increasingly competitive broadcasting industry. The process and procedures used for resolving disputes that come under the Commission's regulatory purview are set out in *Practices and procedures for staff-assisted mediation, final offer arbitration and expedited hearings*, Broadcasting and Telecom Information Bulletin CRTC 2013-637.

Disputes can be generally classified as follows: (1) dispute between broadcasting distributors and programming services concerning the terms of distribution; (2) disputes between competing broadcasting distributors over access to buildings and to the end-user; and (3) disputes between programmers regarding programming rights and markets served.

Table 4.3.12 Number of dispute resolution cases in 2015-2016

Type	Type of intervention	Number of cases
Formal	Staff-assisted mediation	15
	Final offer arbitration	2
Informal	Informal intervention	133

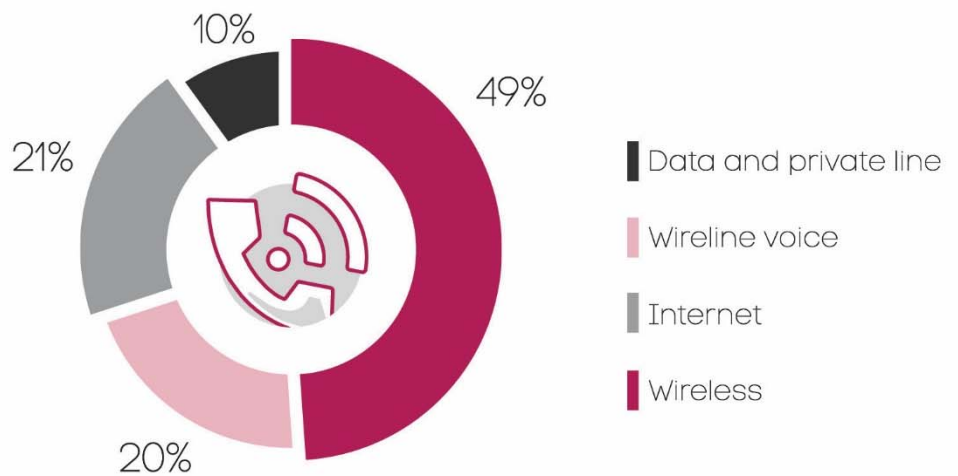
Source: CRTC data collection

For the 12-month period of 1 April 2015 to 31 March 2016.

5.0 Telecommunications sector overview

Telecommunications revenues in 2015

\$47.8 billion ▶



Revenues

\$47.8 B

Increase of 4.1%
over 2014

Capital
Expenditures

\$13.3 B

Decrease of 8.9%
over 2014

Revenue Share

84%

Of the top 5 companies

EBITDA
Margin

39.8%

Canada's telecommunications industry consists of six sectors: local, long distance, Internet, wireless, data, and private line. The two largest sectors combined, Internet and wireless, have grown by more than \$7.1 billion or 27.0% since 2011 and accounted for more than 61.6% of total telecommunications revenues in 2011 and 70.0% in 2015. Over the same five year period, wireline voice service revenues have shown steady declines, representing 20.3% of total telecommunications revenues in 2015 compared to 28% in 2011.

In 2015, Canadian telecommunications revenues reached \$47.8 billion, with the vast majority (92%) derived from retail services and the balance (8%) from the wholesale sector. Service providers supplied retail services to over 12 million households, one million businesses, and, through the wholesale market, 800 other telecommunications entities.

Large incumbent TSPs captured over 61% of industry revenues. Their main group of competitors, cable-based carriers, reported 31% of revenues and 8% of the total number of companies. Resellers comprised nearly 68% of service providers but only 4% of revenues. These enterprises generally acquire wholesale services from incumbent TSPs and/or cable-based carriers to provide telecommunications services to their own customers.

i Revenues

Table 5.0.1 Telecommunications revenues (retail and wholesale) (\$ billions)

Sector	Category	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Wireline	Retail	20.6	20.6	20.9	21.2	21.4	0.7	0.9
	Wholesale	3.0	2.9	2.8	2.7	2.8	2.1	-1.8
	Wireline total	23.6	23.5	23.7	24.0	24.2	0.8	-0.5
Wireless	Retail	18.4	19.5	20.2	20.9	22.5	7.5	5.2
	Wholesale	0.7	0.8	1.0	1.0	1.1	8.1	11.8
	Wireless total	19.1	20.4	21.2	22.0	23.6	7.6	5.4
Total	Retail	39.0	40.2	41.1	42.2	43.9	4.1	3.0
	Wholesale	3.7	3.7	3.7	3.8	3.9	3.8	1.3
	Total	42.8	43.9	44.8	45.9	47.8	4.1	2.8

Source: CRTC data collection

Revenues from telecommunications services are derived from sales to residential and business consumers (retail revenues) and to other carriers (wholesale revenues). The table displays retail and wholesale revenues for wireline and wireless services for the years 2011 to 2015.

Estimates were made to capture revenues of service providers that did not provide data. In 2015, these estimates were less than 1% of total telecommunications revenues. Revenues derived from the sale and rental of local and access terminal equipment and other non-telecommunications revenues were excluded from wireline retail service revenues.

Table 5.0.2 Telecommunications revenue distribution by region (\$ billions)

Region	2014	2015	Percentage of total (%)	Growth (%) 2014-2015
Atlantic	3.1	3.2	6.8	5.0
BC and Territories	6.3	6.6	13.9	5.6
Ontario	18.2	18.7	39.0	2.5
Prairies	9.5	10.0	20.9	5.8
Québec	8.9	9.3	19.4	4.0

Source: CRTC data collection

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

ii Forbearance

In 2015, approximately 95% of telecommunications revenues were from services that the Commission has determined are sufficiently competitive that tariff filings are no longer required.

Forbearance: The Commission refrains from regulation when it finds that a service is subject to sufficient competition or where refraining is consistent with the Canadian telecommunications policy objectives. This is referred to as forbearance. Where a service is forborne it is generally relieved of the obligation of a Commission-approved tariff. Other aspects of the service may still be regulated.

Table 5.0.3 Percentage (%) of telecommunications revenues generated by forborne services

Category	2011	2012	2013	2014	2015
Local and access	76	77	78	79	80
Long distance	95	99	99	98	98
Internet	98	98	97	96	96
Data and private line	83	84	84	89	89
Wireless	100	100	100	100	100
Overall	93	93	94	94	95

Source: CRTC data collection

This table shows the percentage of telecommunications revenues by market sector that are not regulated by the CRTC from 2011 to 2015. With respect to the local and access market sector, 'access' refers to wireline services that provide telecommunications services access to the subscriber or the telecommunications network.

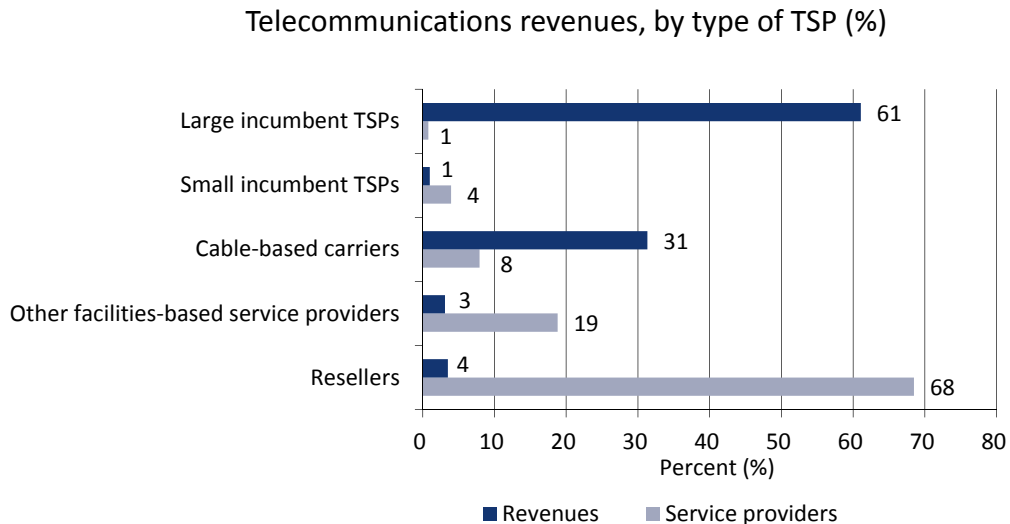
iii Canadian Ownership

Section 16 of the *Telecommunications Act* addresses the eligibility of Canadian carriers to operate as telecommunications common carriers. For the purposes of applying the provisions of section 16, the Commission has determined that, for the period between the date of release of the 2015 *Communications Monitoring Report* and the date of release of the 2016 edition, the total annual revenues from the provision of telecommunications services in Canada is \$47.8 billion.

What does section 16 of the *Telecommunications Act* require? Subject to certain exceptions, section 16 requires that telecommunications companies that own or operate telecommunication transmission equipment and have Canadian telecommunications revenues greater than \$4.8 billion (i.e. 10% of total Canadian telecommunications revenues) be Canadian owned and controlled.

iv Number, size, and type of companies

Figure 5.0.1 Percentage of telecommunications revenues, by type of TSP, 2015



Source: CRTC data collection

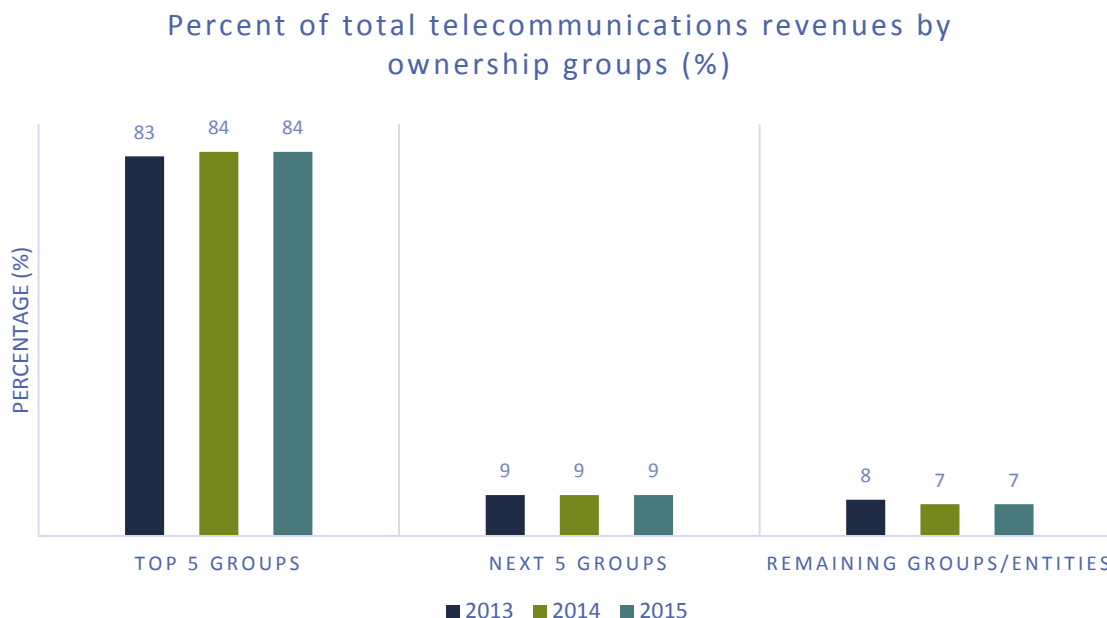
This graph displays the percentage of total revenues captured by type of provider of telecommunications services and the percentage of providers offering service.

The incumbent TSP data displayed above includes revenues from all of their Canadian telecommunications operations, both inside and outside of their traditional operating territory.

Providers of telecommunications services provide diverse information and communications technology (ICT) services, ranging from voice and data telecommunications services to data storage and cloud computing, and other services encompassing both Canadian and non-Canadian activities. In 2015, 59% of revenues were from telecommunications services provided to Canadians. The remaining 41% were from other ICT services, broadcasting distribution services, and non-telecommunications services such as floor space rental services and fleet operations.

The industry is dominated by 10 large companies that collectively, with their affiliates, accounted for 93% of Canadian telecommunications revenues in 2015. The remaining companies accounted for less than \$3.3 billion of these revenues.

Figure 5.0.2 Percent of total telecommunications revenues by ownership groups (%)



Source: CRTC data collection

Group Bell, Group Québecor, Group Rogers, Group Shaw, and Group TELUS are Canada's five largest providers of telecommunications services. Combined, including their affiliates, they accounted for 84% of total market revenues. The next five largest groups/entities accounted for 9% of total market revenues. The remaining groups/entities captured 7%.

The top 10 groups/entities are facilities-based service providers, meaning that they own and operate the transmission equipment required to provide telecommunications services. Of the remaining groups/entities, the vast majority are resellers.

Providers of telecommunication service are classified as either incumbent TSPs or alternative service providers. The alternative providers consist of resellers and other facilities-based service providers, which include cable-based carriers.

Incumbent TSPs are the traditional telephone companies. For monitoring purposes, this group of TSPs is further subdivided in to large and small incumbent TSPs. Additional details on the classifications of providers of telecommunications services can be found in Appendix 8.

The incumbent TSPs' revenues have increased at an average annual rate of 1.8% over the 2011 to 2015 period. Over the same period, revenues for alternative providers of telecommunications service, including resellers, grew 4.7% annually. Overall, the facilities-based alternative service providers have experienced the strongest growth in telecommunications revenues, which increased 21%, from \$13.6 billion in 2011 to \$16.4 billion in 2015.

Table 5.0.4 Total telecommunications revenues, by type of service provider (\$ millions)

Type	Subtype	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Incumbent TSPs	Large incumbent TSPs	27,205.0	27,478.5	27,818.4	28,432.3	29,193.2	2.7	1.8
	Small incumbent TSPs	469.9	474.4	450.4	448.1	471.2	5.2	0.1
	Subtotal	27,674.9	27,953.0	28,268.8	28,880.4	29,664.4	2.7	1.8
	Percent of total (%)	65	64	63	63	62	-	-
Alternative service providers	Cable-based carriers	12,722.1	13,260.2	13,785.5	14,204.1	14,976.7	5.4	4.2
	Other carriers	866.8	1,161.5	1,226.0	1,247.3	1,486.2	19.2	14.4
	Facilities-based subtotal	13,589	14,421.7	15,011.6	15,451.4	16,462.9	6.5	4.9
	Resellers	1,493.4	1,527.7	1,542.0	1,585.5	1,647.8	3.9	2.9
	Subtotal	15,082.3	15,949.3	16,553.5	17,036.9	18,137.1	6.5	4.7
	Percent of total (%)	35	36	37	37	38	-	-
Total	All	42,757.2	43,902.3	44,822.3	45,917.3	47,801.5	4.1	2.8

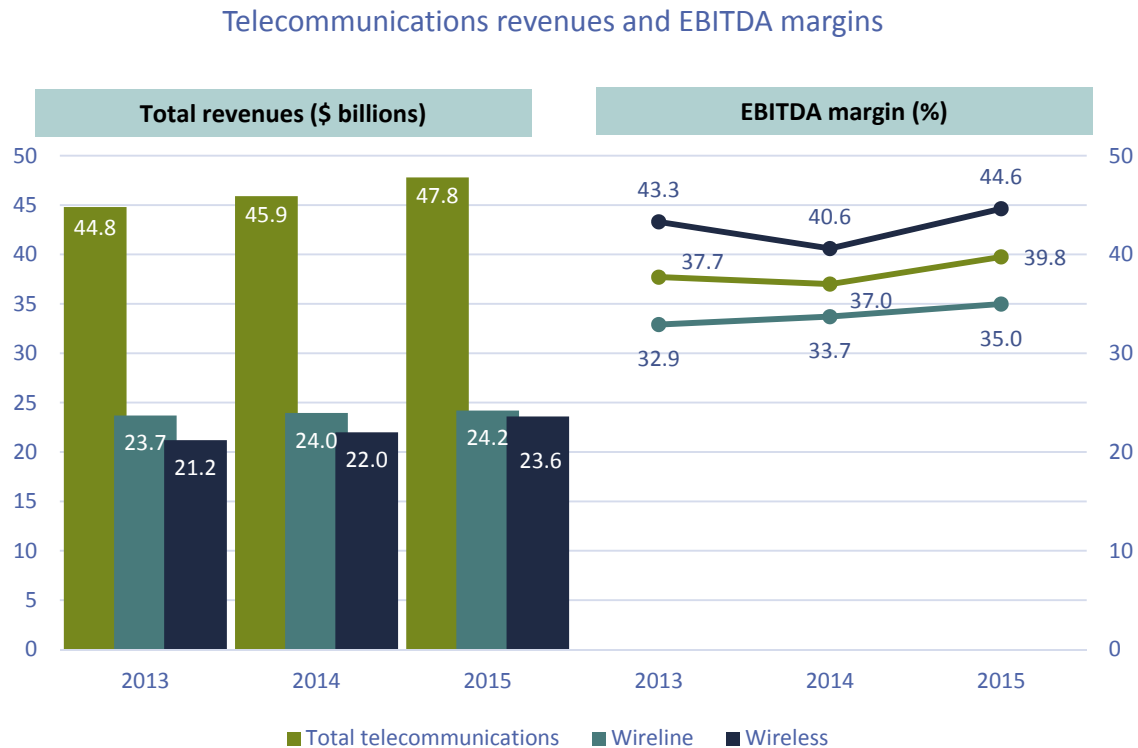
Source: CRTC data collection

This table displays telecommunications revenues by type of TSP for the years 2011 to 2015. The out-of-territory revenues generated by large incumbent TSPs are no longer reported separately in this table, instead, these revenues are included in the incumbent TSPs total revenues.

v Financial performance

There are a number of elements to consider in assessing a company's financial performance or profitability. One of these is EBITDA (earnings before interest, taxes, depreciation and amortization) as a percentage of total revenue (margins).

Figure 5.0.3 Telecommunications revenues and EBITDA margins



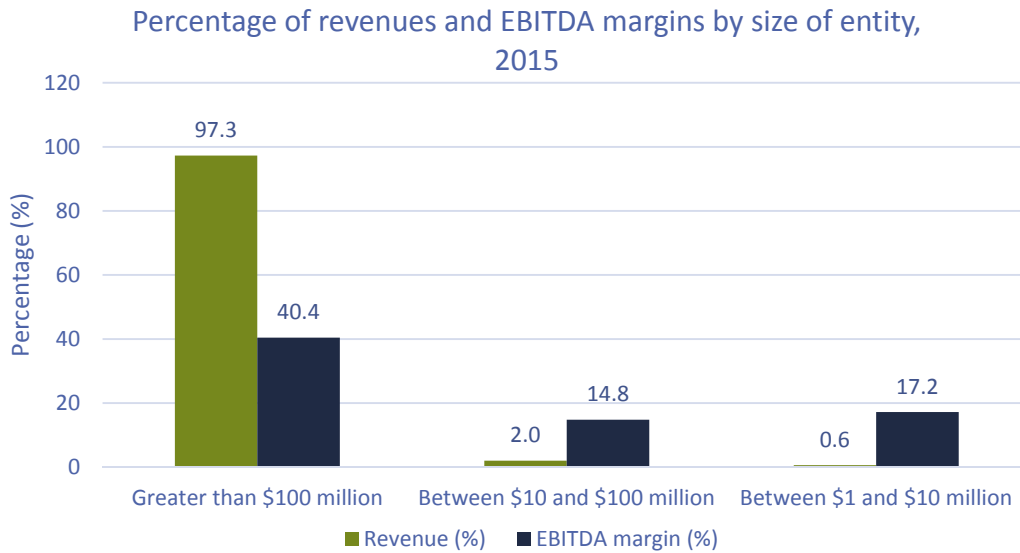
Source: CRTC data collection

The EBITDA margins are calculated for TSPs that had telecommunications revenues greater than 80% of their total revenues.

This figure shows the total growth in telecommunications revenues from wireless and wireline services between 2013 and 2015. It also shows the EBITDA margins in percentages for wireless, wireline, and total telecommunications.

Non facilities-based alternative service providers (i.e., resellers) generally had a lower EBITDA margin. In 2015, contrary to previous years, the EBITDA margin for other service providers, those that were neither cable-based or traditional telephone companies, was similar to that of facilities-based service provider's margin. This was due to some companies reporting extraordinary accounting items in their income statement. Excluding extraordinary items used to calculate EBITDA margins, on average, non facilities-based alternative service provider's EBITDA margins were approximately one quarter that of facilities-based service providers. The overall EBITDA margins have increased for both wireline and wireless by 1.3% and 4.0%, respectively. Total revenues have also increased overall; a difference of \$1.9 billion in total telecommunications is apparent in the figure above.

Figure 5.0.4 Percentage of total revenues by size of entity and their respective EBITDA margins, 2015



Source: CRTC data collection

The percentage of revenues and profitability are calculated for TSPs that had telecommunications revenues greater than 80% of their total revenues to ensure proper representation of the telecommunications sector.

These companies were subdivided into three telecommunications revenue ranges: \$1-\$10 million, \$10-\$100 million, and greater than \$100 million.

The collective EBITDA margin of companies with Canadian telecommunications revenues greater than 80% of their total revenues was 39.8%. As displayed above, companies with revenues in excess of \$100 million displayed the highest EBITDA margin, 40.4%. Companies with telecommunications revenues between \$10 million and \$100 million collectively had a 14.8% EBITDA margin and those between \$1 and \$10 million had a 17.2% margin. Note, those companies with telecommunications revenues between \$1 and \$10 million had the largest drop in revenues of \$4.6 million.

vi Annual investment in plant and equipment

“Annual investment in plant and equipment” refers to the capital expenditures made to ‘replenish’ or upgrade the network of a provider of telecommunications services. In 2015, TSPs (with over \$100 million in revenues) spent \$13.3 billion on capital expenditures of which 38% were for access services and 15% were network related. The remaining 47% related to spectrum and non-network activities such as billing and fleet operations.

Table 5.0.5 Telecommunications investments made in plant and equipment, by type of provider of telecommunications service (\$ billions)

Sector	Category	Subcategory	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Wireline	Incumbent TSPs	All	4.6	4.7	4.9	4.8	5.2	7.3	2.8
	Alternative service providers	Other facilities-based service providers (including cable-based carriers)	2.4	2.3	1.9	2.3	3.1	33.6	5.9
		Resellers	0.03	0.04	0.04	0.03	0.02	-14.2	-4.3
		Subtotal	2.5	2.4	2.0	2.3	3.1	33.1	5.8
	Total	All	7.1	7.1	6.9	7.1	8.2	15.7	3.8
Wireless	Total	All	2.5	2.6	2.3	7.5	5.1	-32.2	20.0
Total	Total	All	9.6	9.7	9.2	14.7	13.3	-8.9	8.7

Source: CRTC data collection

This table shows the investments made by type of TSP for the period between 2011 and 2015.

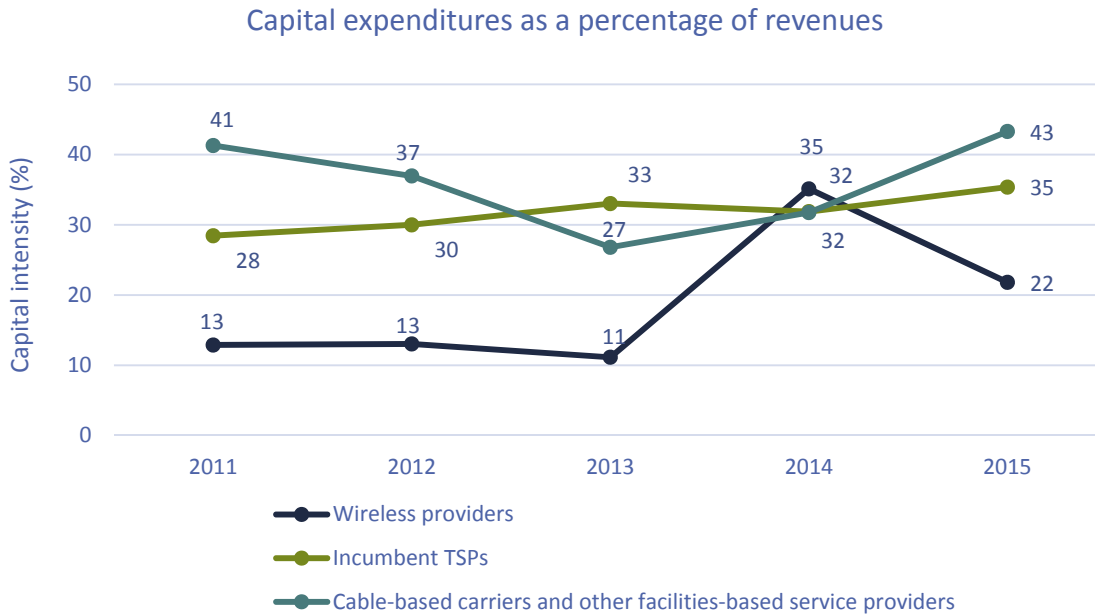
The data for the incumbent TSPs includes their out-of-territory operations. The table also excludes TSPs with revenues less than \$100 million, who are not required to provide this data.

The data above include expenditures made to acquire spectrum. In 2014, wireless expenditures increased significantly due to the sale of the 700 MHz spectrum held by Innovation, Science and Economic Development Canada (ISED). In 2015, the sale of the 2500 MHz and AWS-3 spectrum helped boost wireless expenditures.

Since 2011, incumbent TSPs reported on average 43% of the capital expenditures. Resellers had the least amount of capital expenditures since they use the transmission facilities of others.

A useful measure to compare annual capital expenditures is “capital intensity.” Under this measure, cable-based carriers and other facilities-based service providers spent on average 34 cents from every revenue dollar over the past three years on wireline facilities compared to 33 cents by the incumbent TSPs.

Figure 5.0.5 Telecommunications capital expenditures as a percentage of revenues, by type of TSP



Source: CRTC data collection

This figure shows the capital intensity of TSPs for the period between 2011 and 2015.

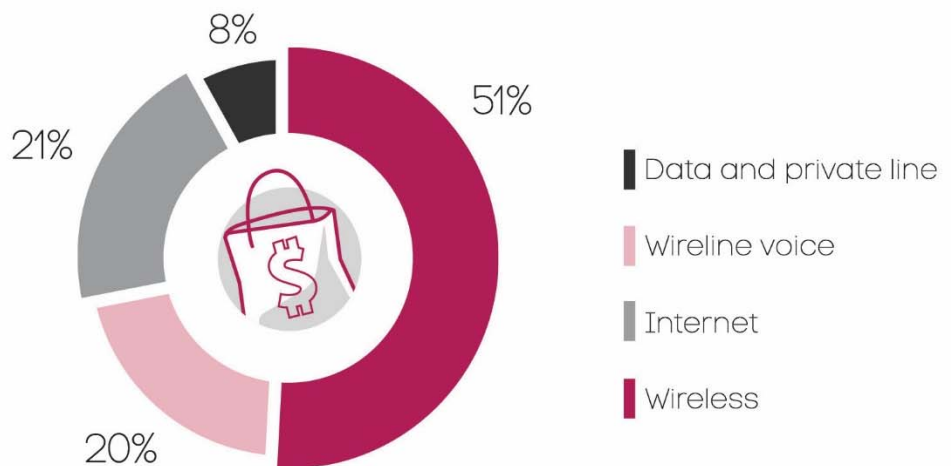
In 2014, wireless expenditures increased significantly due to the sale of the 700 MHz spectrum held by Innovation, Science and Economic Development Canada (ISED). In 2015, the sale of the 2500 MHz and AWS-3 spectrum helped boost wireless expenditures. TSPs with revenues less than \$100 million are not included as these companies were not required to provide this data.

Capital intensity is a measure of the degree or level a company spends on its plant and equipment. It is derived by dividing annual capital expenditures by annual revenues, expressed as a percentage.

5.1 Telecommunications retail sectors

Retail telecommunications revenues in 2015

\$43.9 billion ▶



Revenues

\$43.9 B

Increase of 4.1%
over 2014

Vertical
Integration

82%

Percentage of retail
revenues captured by
7 companies operating
in all sectors

Internet
Growth Rate

9.9%

Fastest growth sector

Facilities-Based Service
Providers Revenue Market Share

97%

Percentage of total retail revenues

As noted in the previous section, Canada's telecommunications industry consists of six sectors: local, long distance, Internet, wireless, data, and private line.

In 2015, Canadian retail telecommunications revenues were \$43.9 billion, of which 49% were from wireline services. Of the wireline revenues, 58% were from residential services and 42% from business services. The top 5 incumbent TSPs and top 5 cable-based carriers reported 60% and 33% of retail telecommunications revenues, respectively. Collectively, these 10 companies captured 93% of all retail revenues. The remaining 7% of the revenues were garnered by a large number of resellers and other facilities-based service providers. The data suggests that companies which operated in multiple sectors continue to have clear competitive advantages relative to those who are less integrated.

In 2011, revenues from wireless services were \$18.4 billion or 47% of total retail revenues. By 2015, mobile wireless service revenues increased to \$22.5 billion or 51% of total retail revenues. For the first time ever, more than 50% of all retail revenues in 2015 were from wireless services. This growth was driven in large part by increased subscriptions and heightened demand for wireless data services. Data revenues, excluding roaming and other services (e.g. interconnection), have experienced an average annual growth rate of 18.8% between 2011 and 2015.

Wireline revenues have increased at a much slower pace since 2011. Wireline service revenues increased from \$20.6 billion in 2011, or 53% of retail telecommunications revenues, to \$21.4 billion, or 49%, in 2015. This small expansion masks the fact that wireline voice services' revenues have fallen by nearly \$1.9 billion or 18%, since 2011. The number of local lines has also declined from 18.3 million lines in 2011 to 15.6 million lines in 2015. In contrast, Internet was the only wireline service that experienced positive revenue growth in 2015. In fact, Internet was the fastest growth sector, across all sectors, with revenue growth of more than \$835 million or 9.9% in 2015.

Telecommunications service revenues exclude revenues from the sale and rental of wireline telephone sets. Annual investment in plant and equipment only includes investments made by companies with annual revenues greater than \$100 million.

i Revenues

Telecommunications revenues come from a variety of sources. Revenues from wireline voice services come from local telephone and long distance services, while revenues from non-voice services come from Internet services, newer data protocols services (such as Ethernet and IP-VPN), legacy data protocols services (such as X.25 and frame relay) and private line. Revenues for mobile wireless come from mobile voice and data services, and from the sale and rental of mobiles devices.

Table 5.1.1 Telecommunications retail revenues, by market sector (\$ billions)

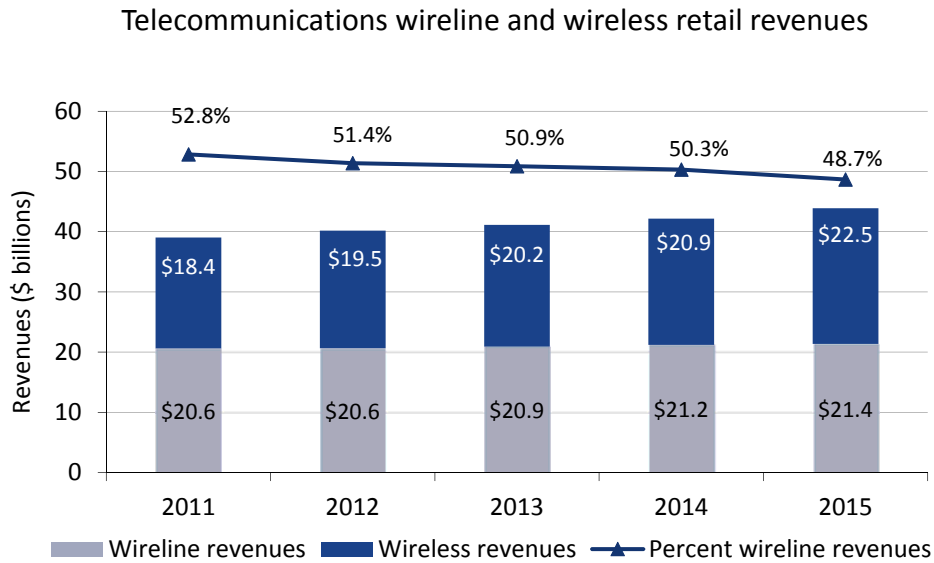
Sector	Category	Subcategory	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Wireline	Wireline voice	Local	8.1	7.8	7.7	7.4	7.1	-4.0	-3.1
		Long distance	2.4	2.1	1.9	1.8	1.5	-14.2	-11.1
		Subtotal	10.5	10.0	9.6	9.2	8.7	-6.0	-4.8
	Non-voice	Internet	6.8	7.2	7.7	8.4	9.2	9.9	8.0
		Newer data protocols	1.7	1.8	1.9	1.9	1.9	-1.1	2.4
		Legacy data protocols, private line, and other	1.6	1.7	1.7	1.7	1.6	-7.2	-0.5
		Data protocols, private line and other subtotal	3.3	3.5	3.6	3.6	3.5	-3.9	1.0
		Non-voice subtotal	10.1	10.7	11.3	12.0	12.7	5.8	5.9
		Total	Total wireline	20.6	20.6	20.9	21.2	21.4	0.7
	Wireless	Total	Total wireless	18.4	19.5	20.2	20.9	22.5	7.5
Total	Total	Grand total	39.0	40.2	41.1	42.2	43.9	4.1	3.0

Source: CRTC data collection

This table presents a detailed breakdown of the retail revenues, annual growth rates and the CAGR for wireline and wireless services by market sector for the years 2011 to 2015.

Wireline services are generally a household or a business service, whereas mobile wireless services are an individual or personal type of service. In 2014, the most recent period for which telephone penetration data is available from Statistics Canada's Survey of Household Spending, 75.5% of households had wireline service, 85.6% had wireless service, 13.6% had only wireline service and 23.7% had only wireless service.

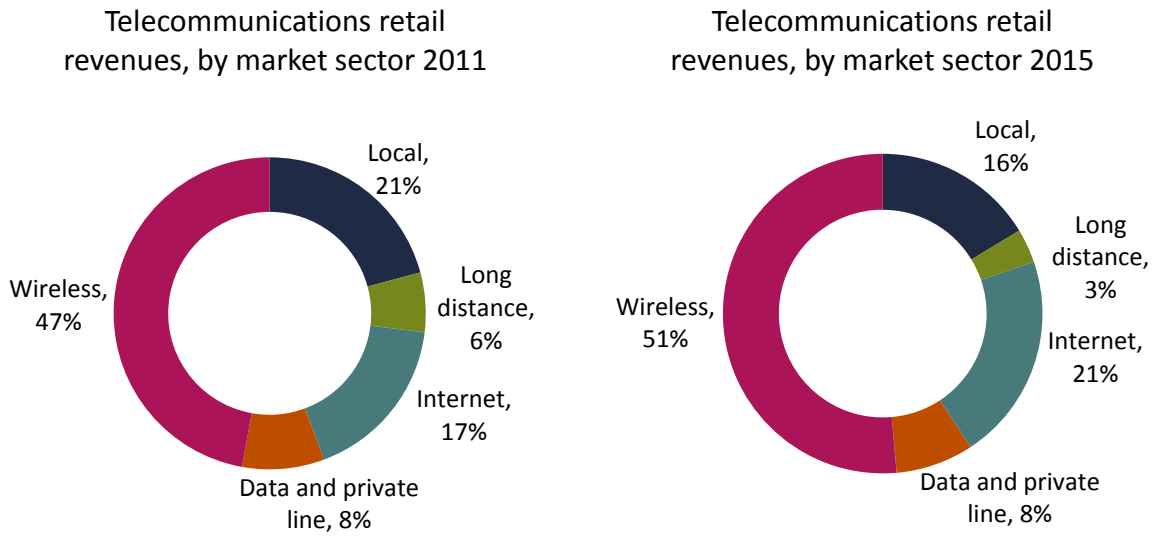
Figure 5.1.1 Telecommunications wireline and wireless retail revenues



Source: CRTC data collection

This graph presents the retail wireline and mobile wireless revenues for the years 2011 to 2015. Over this period, aggregate revenues from wireline and wireless services have increased steadily. The line on the graph represents retail wireline revenues as a percentage of total retail telecommunications revenues.

Figure 5.1.2 Distribution of telecommunications retail revenues, by market sector



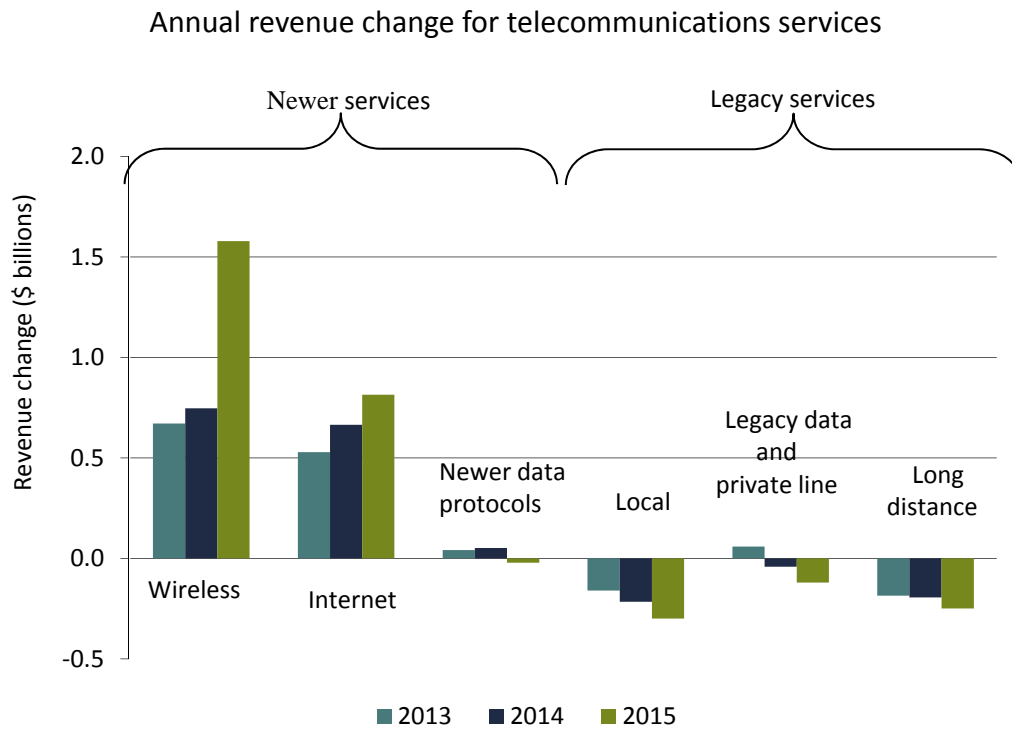
Source: CRTC data collection

These two figures show the distribution of retail telecommunications revenues by market sector for two periods, 2011 and 2015. Wireless data services are captured within the wireless market sector. Wireless services are capturing increasingly larger shares of the market, while the market share of long distance and local telephone services has declined.

ii Technology indicators

Technology has been a key driver of growth in the telecommunications industry. It has promoted network efficiencies, and service and product innovation, and facilitated competition. Revenues from legacy services have generally been declining as consumers switch to other services that provide greater functionality and flexibility.

Figure 5.1.3 Annual revenue change for newer and legacy telecommunications services, by technology

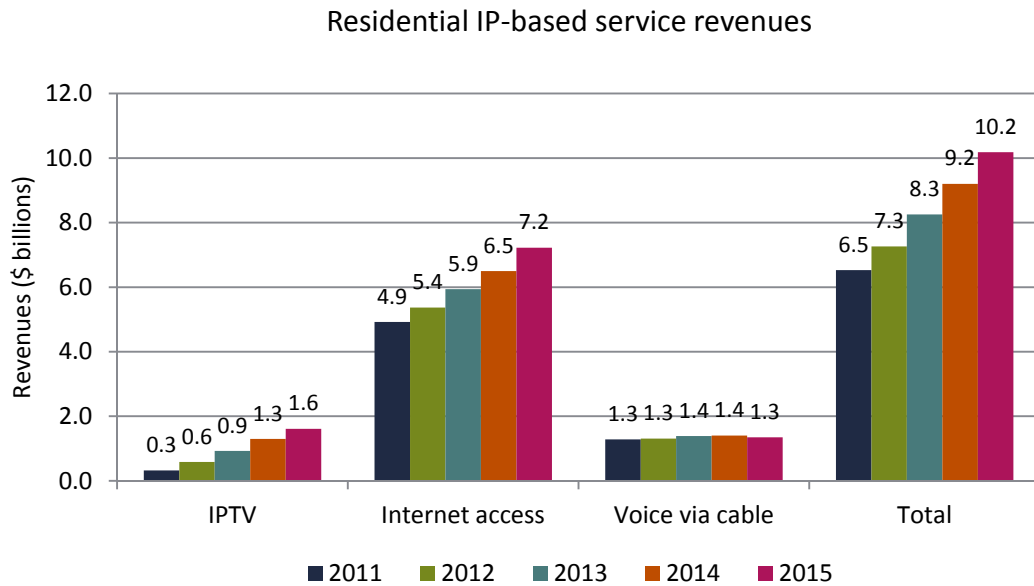


Source: CRTC data collection

Newer technologies are changing the way Canadians access telecommunications services. This graph shows the annual change in revenues for newer technologies such as wireless, Internet, and other services based on data protocols in each of the past three years. The graph also compares the annual revenue change for newer services and for legacy services such as local, legacy data and private line, and long distance services.

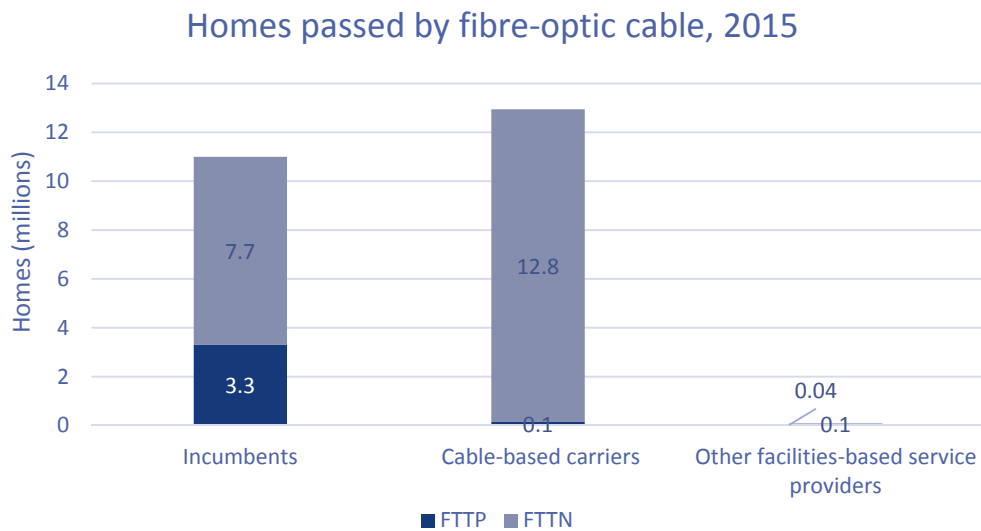
Newer data protocols refer to services using protocols such as Ethernet and IP. Legacy data refers to services using protocols such as X.25 and frame relay.

Figure 5.1.4 Residential IP-based service revenues



Source: CRTC data collection

Figure 5.1.5 Homes passed by fibre-optic cable (millions), 2015

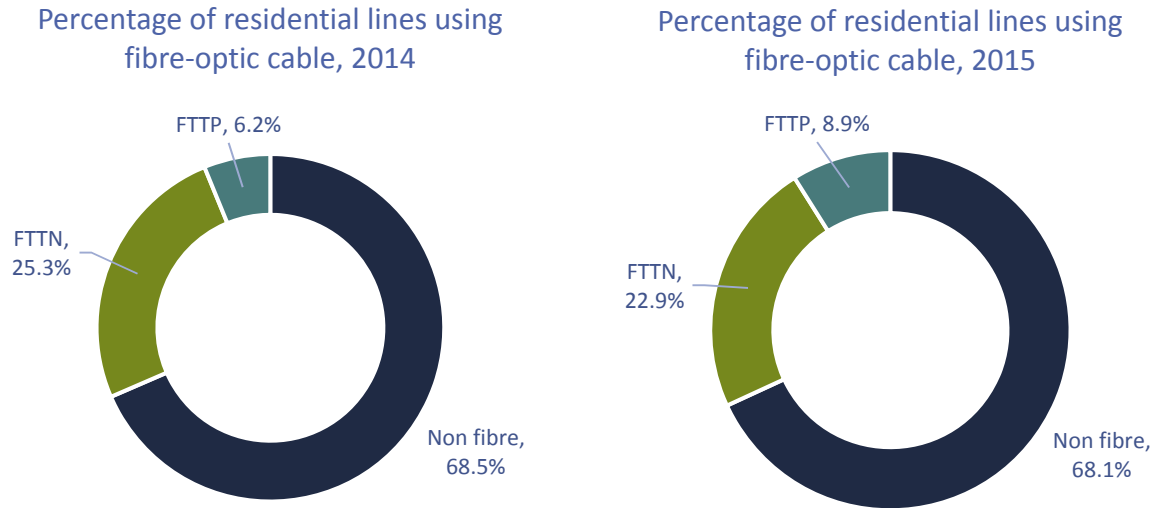


Source: CRTC data collection

Providers of telecommunications service are adopting fibre-optic-based systems. This graph shows the number of premises that were either passed by fibre-based lines (FTTP) or that were passed by copper lines connected to a node that was served by a fibre-optic cable (FTTN). The node connected by fibre-optic cable is the closet node to the premises. A node is a pedestal where connections are made. The number of homes passed refers to the number of homes that can have the telecommunications service using this technology.

A **fibre-optic cable** is a cable containing one or more strands that carry light. The light is used as a medium to transmit data. A fibre-optic cable is excellent for transmission over longer distances and at higher bandwidths or capacity than wire cables.

Figure 5.1.6 Percentage of residential lines using fibre-optic cable, 2015



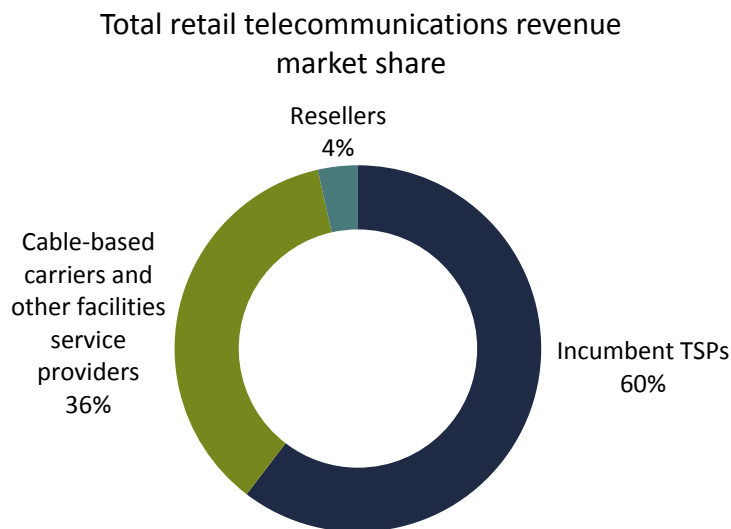
Source: CRTC data collection

These figures show the percentage of fibre-based lines as a percentage of total residential lines in 2014 and 2015.

iii Competitive landscape

Facilities-based providers of telecommunications services accounted for 96% of the retail telecommunication revenues in 2015. Cable-based carriers and other facilities-based alternative providers of telecommunications services are the largest source of competition to the incumbent TSPs.

Figure 5.1.7 Total retail telecommunications revenue market share, by type of service provider, 2015



Source: CRTC data collection

Total retail telecommunications revenues in 2015 were \$43.9 billion. This chart shows the percentage share of the revenues captured by separate groups of providers of telecommunications services. The Incumbent TSPs captured the largest share of the market. Cable-based carriers and other facilities-based alternative TSPs captured the next largest share, followed by resellers.

Table 5.1.2 Number and percentage of retail telecommunications revenues generated by companies operating in multiple markets

Number of market sectors	Number of reporting groups or entities operating in these markets			Percentage of telecom revenues generated in these markets (%)		
	2013	2014	2015	2013	2014	2015
6	9	8	7	84	84	82
5	12	11	14	10	10	10
4	29	25	23	3	2	1
3	33	42	36	1	1	2
2	26	22	37	1	1	2
1	44	43	57	1	2	3

Source: CRTC data collection

This table shows the dominance of larger companies in the telecommunications market sectors. For example, although few companies operate in all six telecommunications market sectors (local, long distance, Internet, wireless, data, and private line), these companies captured almost 82% of total market revenues. Reporting groups include affiliated companies.

Entities with services in five or more market sectors are generally large facilities-based companies with revenues greater than \$100 million. Companies with services in two or fewer market sectors are generally resellers with revenues less than \$10 million.

Table 5.1.3 Wireline telecommunications revenue market share (%), by type of service provider, 2015

Type	Subtype	Residential	Business	Total
Incumbent TSPs	Incumbent TSPs	47.6	74.7	59.0
Alternative service providers	Cable-based carriers and other facilities-based service providers	46.5	17.0	34.1
	Resellers	6.0	8.8	7.2
	Subtotal	52.4	25.8	41.0

Source: CRTC data collection

In this table, revenue market shares for wireline telecommunications services are split into residential and business sources for incumbent TSPs, as well as alternative providers of telecommunications services, such as resellers, cable-based carriers and other facilities-based service providers.

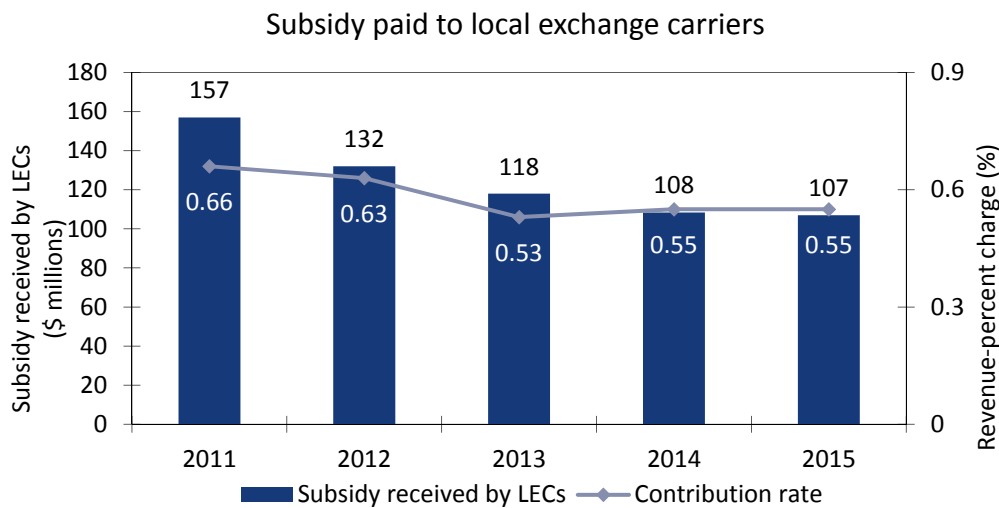
In the wireline telecommunications market sectors, alternative service providers made greater revenue gains in the residential market than in the business market. Contributing to this increase are the cable companies that upgraded their cable networks to provide telephony services to their residential television subscribers.

Wireline market sectors include local telephone market sector, long distance market sector, Internet market sector and data and private line market sector.

iv Contribution

In 2015, approximately 10% of residential telephone lines were in high-cost serving areas. As part of a commitment towards the social and economic objectives of the Telecommunications Act, TSPs, or groups of related TSPs, with at least \$10 million in Canadian telecommunications service revenues, contributed \$107 million towards the provision of residential telephone service in high-cost serving areas that met the basic service objective.

Figure 5.1.8 Subsidy paid to local exchange carriers and the revenue-percent charge



Sources: CRTC data collection and decisions

What is the basic service objective? The Commission established the basic service objective in 1999, which reflected the level of service available at that time to most Canadians. The basic service objective ensures that Canadians in all regions have access to affordable, high-quality telecommunications services. Currently, the basic service objective consists of the following:

- Individual line local touch-tone service;
- Capability to connect to the Internet via low-speed data transmission at local rates;
- Access to the long distance network, operator/directory assistance services, enhanced calling features and privacy protection features, emergency services, as well as voice message relay service; and
- A printed copy of the current local telephone directory upon request.

v Consumer voices

In 2015, the CRTC and the Commissioner for Complaints for Telecommunications Services Inc. (CCTS) had over 40,000 communications with Canadians regarding telecommunications services. Of these, 53% were with the CRTC and 47% were with the CCTS. Wireless service issues were the most common (38%), followed by Internet issues (21%) and telemarketing issues (16%).

The underlying issues of these complaints were billing errors (34%), contract disputes/terms of service (18%), and service delivery/provision of service (14%).

What is the CCTS? The CCTS is an independent organization dedicated to working with consumers and service providers to resolve complaints about telephone and Internet services. Its structure and mandate were approved by the CRTC. The CCTS handles complaints about most telecommunications services provided to individuals and small businesses, including home phone, wireless, Internet, and VoIP services. CCTS is also responsible for administering the Wireless Code. Additional information on the CCTS can be found at: <https://www.ccts-cprst.ca/>

Table 5.1.4 Number of telecommunications-related contacts received by the CRTC, by type of issue and service, 2015

Service	CRTC policies/decisions	Billing /rates	Quality of service	Provision of service	Terms of service	Other	Total	Contacts per 10,000 residential lines, subscribers or payphones
Telemarketing	6,714	-	-	-	-	-	6,714	6.5
Incumbent telephone companies	491	1,586	615	410	225	43	3,370	6.1
Wireless services	1,021	2,490	473	361	902	118	5,365	1.8
Internet services	1,368	806	710	529	184	97	3,694	3.1
Telecommunication services	765	297	71	126	64	82	1,405	1.4
Competitive local exchange carriers	95	184	58	82	36	3	458	0.9
Alternative providers of long distance service	31	142	24	14	27	2	240	0.2
VoIP services	72	68	43	47	20	-	250	0.2
Pay telephone services	21	33	11	6	1	5	77	10.4
Total	10,578	5,606	2,005	1,575	1,459	350	21,573	-

Source: CRTC data collection

Table 5.1.5 Summary of issues raised in telecommunications complaints handled by the CCTS (2014-2015)

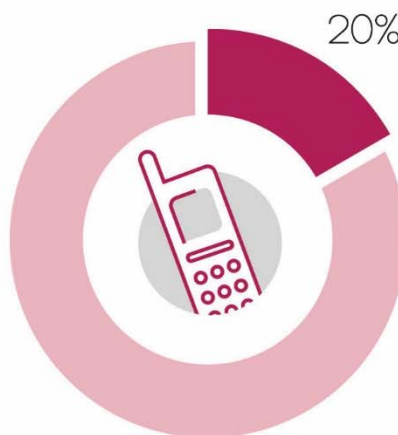
Service	Billing error	Contract dispute	Service delivery	Credit management	Total
Wireless services	4,345	3,557	1,756	556	10,214
Internet access	2,203	1,385	1,323	134	5,045
Local telephone	1,510	947	938	126	3,521
Long distance	311	97	107	19	534
Directory assistance	6	-	-	-	6
White page directories	3	2	-	-	5
Operator services	1	-	-	-	1
Total	8,379	5,988	4,124	835	19,326

Source: CCTS annual report

5.2 Wireline voice retail sector

Retail telecommunications revenues in 2015

\$43.9 billion ▶



Wireline voice

Revenues

\$8.5 B

Decrease of 6.0%
over 2014

Local Telephone
Service
Revenues

\$7.0 B

Decrease of 4.0%
over 2014

VoIP Access-
Independent
Connections

0.6 M

4% of local
telephone lines

Long Distance
Service Revenues

\$1.5 B

Decrease of 14.2%
over 2014

Over 150 companies provide local and long distance services across Canada. In 2015, the retail wireline voice sector reported \$8.5 billion in revenues, 82% of which was from local telephone services and 18% from long distance services. Revenues from wireline voice services decreased \$543 million, or -6.0%, from the previous year. This decline is almost equally shared between local (54%) and long distance (46%) revenues.

Cable-based carriers account for over 30% of all local and long distance residential revenues. Cable-based carriers are gaining ground on the business services front with revenues increasing from \$310 million to \$317 million in the last year.

The Canadian wireline sector continues to face pressure from technological substitution and a growing demand for wireless services. Steady losses in the wireline voice retail sector continued in 2015 as providers reported nearly 800,000 in line reductions. Conversely, the wireless retail sector gained approximately 1 million new subscribers for the same year.

The arrival of Voice over Internet Protocol (VoIP) services opened the wireline voice market sector to new non-traditional providers. Access-independent VoIP providers use broadband Internet to provide local telephone service that is similar to traditional telephone service at a fraction of the cost to subscribers. The number of Canadians subscribing to access-independent VoIP now represents over 625,000 subscribers or approximately 4% of all retail local telephone line.

Monthly subscription to local telephone service typically includes unlimited local calling within a specific geographic area, emergency calling (9-1-1), message relay services, access to long distance and dial-up Internet services. Optional add-on services or features include call display, call forwarding, and conference calling. Long distance service provides voice communication between two different local calling areas and is generally billed on a per-minute usage basis.

i Revenues

Table 5.2.1 Local and long distance retail revenues (\$ millions)

Category	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Total retail local revenues	8,106	7,821	7,661	7,441	7,146	-4.0	-3.1
Less: Subsidy received	157	132	118	108	107	-0.8	-9.1
Net local service revenues	7,949	7,690	7,544	7,333	7,039	-4.0	-3.0
Long distance retail revenues	2,408	2,134	1,949	1,755	1,506	-14.2	-11.1
Local and long distance retail revenues	10,357	9,824	9,493	9,088	8,545	-6.0	-4.7

Source: CRTC data collection

Total retail local revenues include revenues from local telephone service provided to residential and business customers. It includes revenues from calling features such as call display, and call forwarding, as well as installation and repair, and excludes revenues from the sale and rental of telephone sets.

Basic local telephone service with access to long distance service is part of the basic service objective. The obligation to serve and the basic service objective are regulatory measures imposed on incumbent local telephone companies. To this end, these companies receive a subsidy from a national contribution fund in which all telephone service providers are required to participate. These subsidies are excluded in the remaining tables and figures of this section.

Local retail revenues represent approximately 80% of all local and long distance retail revenues.

Table 5.2.2 Residential local telephone and long distance service retail revenues, by type of TSP (\$ millions)

Type of TSP	Type of revenue	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Incumbent TSPs	Local	3,141	2,922	2,696	2,559	2,402	-6.1	-6.5
	Long distance	1,052	932	802	687	586	-14.6	-13.6
	Total	4,193	3,854	3,498	3,246	2,989	-7.9	-8.1
Alternative service providers (excluding cable-based carriers)	Local	174	188	164	216	166	-23.2	-1.2
	Long distance	330	281	211	178	159	-10.8	-16.7
	Total	505	469	375	393	325	-17.4	-10.5
Cable-based carriers	Local	1,285	1,307	1,388	1,399	1,347	-3.7	1.2
	Long distance	223	210	201	180	148	-17.9	-9.8
	Total	1,508	1,517	1,589	1,580	1,495	-5.4	0.2
All TSPs	Local	4,600	4,417	4,248	4,174	3,916	-6.2	-3.9
	Long distance	1,606	1,424	1,213	1,045	893	-14.5	-13.6
	Total	6,206	5,840	5,462	5,219	4,809	-7.9	-6.2

Source: CRTC data collection

This table displays revenues and annual revenue growth rates from residential local and long distance services, by type of provider, for the years 2011 to 2015. The annual growth rates indicate that residential revenues from both local and long distance services are in decline for all types of service providers except cable-based carriers and to a lesser extent the other alternative service providers. These carriers have increased their revenues from local telephone service and have the lowest decline in revenues from long distance services.

Note that revenues from local telephone services are increasingly exceeding those from long distance service.

Table 5.2.3 Business local telephone and long distance retail revenues, by type of TSP (\$ millions)

Type of TSP	Type of revenue	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Incumbent TSPs	Local	3,072	2,970	2,909	2,781	2,672	-3.9	-3.4
	Long distance	610	538	533	550	458	-16.7	-6.9
	Total	3,682	3,508	3,442	3,331	3,130	-6.0	-4.0
Alternative service providers (excluding cable-based carriers)	Local	90	93	141	119	180	51.4	19.0
	Long distance	117	108	142	109	109	0.0	-1.8
	Total	207	200	283	228	289	26.9	8.7
Cable-based carriers	Local	187	210	247	258	272	5.2	9.8
	Long distance	76	66	60	52	46	-12.2	-12.0
	Total	263	276	307	310	317	2.3	4.8
All TSPs	Local	3,350	3,273	3,295	3,159	3,123	-1.1	-1.7
	Long distance	802	711	736	710	613	-13.7	-6.5
	Total	4,151	3,984	4,031	3,869	3,736	-3.4	-2.6

Source: CRTC data collection

This table displays revenues and annual revenue growth rates from business local and long distance services, by type of provider, for the years 2011 to 2015. Similar to the residential market, the business market is in decline, but at a slower rate. Canadian businesses appear to be moving to alternative and cable-based service providers as both of these types of providers are experiencing growth in the local market.

Table 5.2.4 Long distance retail revenues by type of provider and size (\$ millions)

Size	Type of provider	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Telecom revenues over \$100 million	Incumbent TSPs	1,598	1,444	1,311	1,216	1,017	-16.4	-10.7
	Alternative TSPs	78	68	56	45	34	-24.4	-18.7
	Cable-based TSPs	345	272	257	228	188	-17.5	-14.1
	Subtotal	2,021	1,783	1,624	1,488	1,239	-16.7	-11.5
Telecom revenues between \$100 million and 10 million	All providers	292	268	251	196	191	-2.7	-10.1
Telecom revenues below \$10 million	All providers	95	83	74	70	77	9.6	-5.2
Total	All providers	2,408	2,134	1,949	1,755	1,506	-14.2	-11.1

Source: CRTC data collection

This table displays long distance revenues and annual revenue growth, by type of service provider and size, as measured by their total Canadian telecommunications revenues. As a group, TSPs with telecommunications revenues over \$100 million captured nearly 80% of the revenues from long distance services, while TSPs with telecommunications revenues less than \$100 million captured 20% of the revenues from long distance services. These smaller service providers generally operate in relatively small niche markets catering to the needs of specific consumers, such as prepaid phone card users.

ii Subscriber data

Local telephone service subscriber data is represented by the number of telephone lines, while minutes are used for long distance.

This section categorizes local telephone lines into two types: managed and non-managed. A managed line refers to telephone service which uses a local service provider's network, and the provider has control over call quality. A non-managed line refers to telephone service that is provided using the public Internet, with the local service provider having less control over the quality of service. This type of local service is referred to as access-independent VoIP.

Table 5.2.5 Number of retail managed and non-managed local telephone lines (thousands)

Type of line	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Managed local telephone lines	17,869	16,866	16,251	15,710	14,986	-4.6	-4.3
Non-managed local telephone lines - Access independent lines	404	861	670	694	626	-9.8	11.6
Total - Managed and non-managed local telephone lines	18,274	17,726	16,921	16,403	15,612	-4.8	-3.9

Source: CRTC data collection

The number of managed local telephone lines has decreased from 17.9 million lines in 2011 to 15 million lines in 2015; whereas the number of non-managed local lines has increased from 404 thousand in 2011 to 626 thousand in 2015. Managed local telephone lines count for 96% of total telephone lines. The total number of telephone lines remained in a state of decline.

Table 5.2.6 Residential and business local telephone lines by type of TSP (thousands)

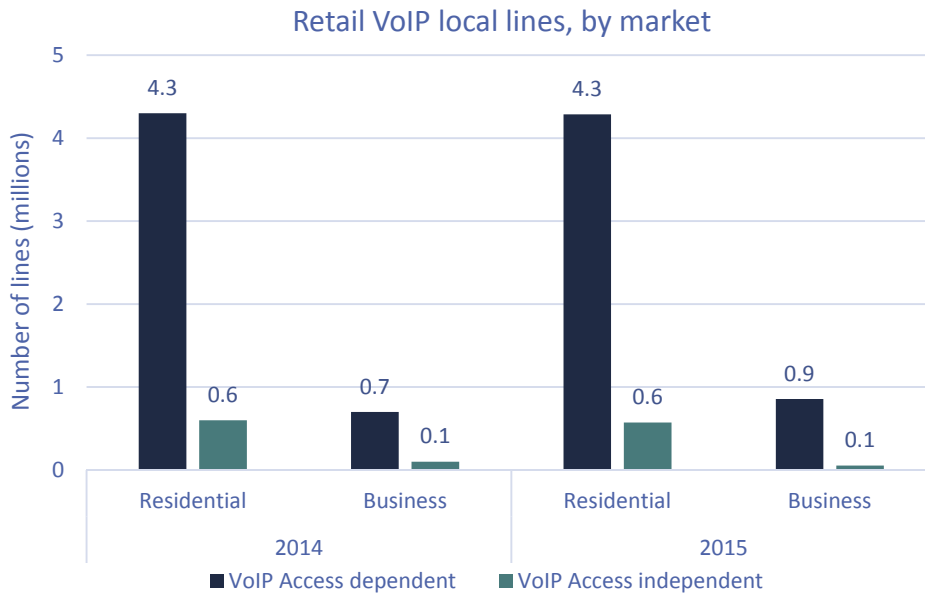
Type of TSP	Type of line	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Incumbent TSPs	Residential	7,577	6,975	6,442	5,981	5,566	-6.9	-7.4
	Business	5,350	5,084	4,890	4,670	4,335	-7.2	-5.1
	Total	12,927	12,059	11,332	10,650	9,901	-7.0	-6.4
Alternative TSPs (excluding cable-based carriers)	Residential	646	723	482	711	798	12.2	5.4
	Business	225	264	261	224	233	4.0	0.9
	Total	871	987	743	935	1,031	29.4	8.6
Cable-based carriers	Residential	4,061	4,258	4,314	4,247	4,031	-5.1	-0.2
	Business	414	422	531	571	649	13.7	11.9
	Total	4,476	4,681	4,846	4,818	4,681	-2.9	1.1
All TSPs	Residential	12,284	11,956	11,238	10,939	10,395	-5.0	-4.1
	Business	5,989	5,770	5,683	5,465	5,217	-4.5	-3.4
	Total	18,274	17,726	16,921	16,403	15,612	-4.8	-3.9

Source: CRTC data collection

This table presents the number of residential and business telephone lines, by type of service provider, and their respective annual growth rates. The total number of telephone lines has declined in both the residential and business markets. However, the number of residential telephone lines have declined more quickly than those of business.

The use of VoIP services in the residential and business markets varies significantly. On the one hand, cable-based carriers provide local telephone service – mostly to residential customers – over their managed network using access-dependent VoIP technology. They leverage existing cable infrastructure to provide local telephone service via their cable networks to their consumers. As a result, these carriers are the largest competitor to the traditional telephone companies in the residential market. Over 38% of households subscribe to local telephone service from a cable-based carrier.

Figure 5.2.1 Retail VoIP local lines, access-dependent and access-independent, by market



Source: CRTC data collection

In 2015, there were 5.2 million access-dependent lines, compared to 0.6 million access-independent VoIP connections.

iii Performance indicators

Table 5.2.7 Local and long distance retail monthly revenues (\$), per line

Type of line	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Residential	41.52	40.16	39.25	39.22	37.25	-5.0	-2.7
Business	58.49	56.46	58.66	57.84	58.29	0.8	-0.1

Source: CRTC data collection

Table 5.2.8 Long distance retail monthly revenues (\$), per line

Type of line	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Residential	10.74	9.79	8.72	7.85	6.92	-11.9	-10.4
Business	11.30	10.08	10.71	10.63	9.56	-10.1	-4.1

Source: CRTC data collection

Monthly revenue per line is calculated by (i) dividing the annual service revenues by the average number of local lines in the year, and then (ii) dividing the result by 12. The average number of lines is determined by dividing the sum of the number of lines at the beginning of the year and at the end of the year by two.

Table 5.2.9 Local telephone retail service monthly revenues (\$) per line, by type of TSP

Type of line	Type of TSP	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Residential local service	Incumbent TSPs	33.25	33.47	33.49	34.33	34.68	1.0	1.1
	Alternative TSPs (excluding cable-based carriers)	25.14	22.90	22.72	30.12	18.33	-39.1	-7.6
	Cable-based carriers	26.74	26.18	26.99	27.24	27.12	-0.4	0.4
	Total residential	30.78	30.37	30.53	31.37	30.59	-2.5	-0.2
Business local service	Incumbent TSPs	47.81	47.44	48.61	48.48	49.45	2.0	0.8
	Alternative TSPs (excluding cable-based carriers)	37.13	31.54	44.86	41.02	65.71	60.2	15.3
	Cable-based carriers	43.48	41.86	43.16	39.04	37.08	-5.0	-3.9
	Total business	47.20	46.39	47.95	47.23	48.73	3.2	0.8

Source: CRTC data collection

Average monthly revenues per line have been essentially constant from 2011 to 2015 for both the residential and business markets, except for Alternative TSPs which have experienced some fluctuations between 2013 and 2015.

Table 5.2.10 Long distance retail revenues (\$) per minute, by type of TSP

Type of line	Type of TSP	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Residential local service	Incumbent TSPs	0.089	0.088	0.087	0.085	0.083	-1.9	-1.6
	Alternative TSPs (excluding cable- based carriers)	0.049	0.051	0.047	0.043	0.040	-5.9	-4.7
	Cable-based carriers	0.043	0.042	0.043	0.043	0.043	-0.4	-0.1
	Total residential	0.068	0.067	0.066	0.067	0.062	-7.5	-2.3
Business local service	Incumbent TSPs	0.061	0.045	0.044	0.044	0.038	-14.0	-11.3
	Alternative TSPs (excluding cable- based carriers)	0.036	0.038	0.044	0.040	0.069	72.8	17.7
	Cable-based carriers	0.027	0.025	0.024	0.025	0.025	-2.0	-2.4
	Total business	0.044	0.040	0.043	0.041	0.039	-3.9	-2.7

Source: CRTC data collection

This table shows the average long distance revenues per minute for the residential and business markets by type of service provider. On average, residential consumers pay more for long distance service than business customers. In both cases, long distance prices have been trending downward. In 2015, Canadians paid 6.2 cents per minute compared to 3.9 cents by business customers.

Cable-based carriers generally had the lowest price per minute in both the residential and business markets.

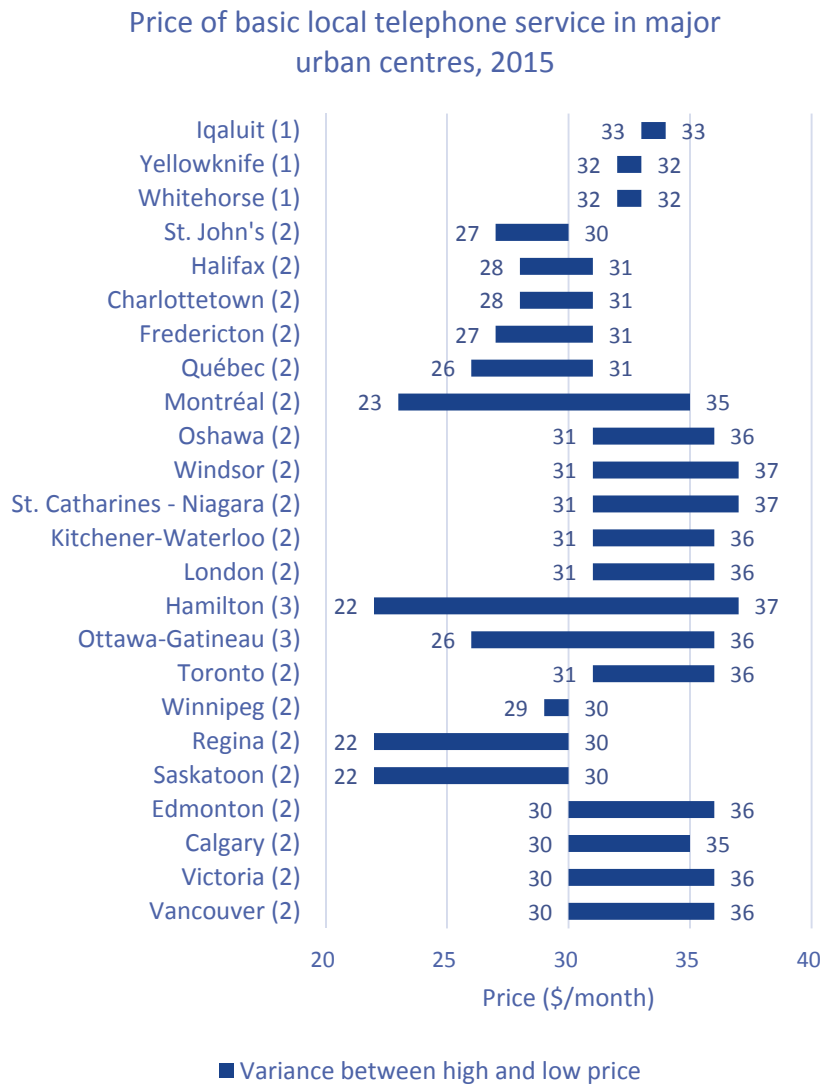
iv Price

Basic local telephone service includes unlimited calling within a geographic area, 9-1-1 services, and message relay services, as well as access to long distance services. Approximately 11% of households subscribing to wireline local service subscribe to basic service, while the remaining 89% subscribe to additional local features, which may be bundled with such other services as Internet, television, or wireless. The figures below display the price of basic local telephone service on a stand-alone basis in a number of urban and rural centres.

Urban centres

The bar charts below display the range of monthly prices of basic local service in 24 major urban centres in Canada. The blue bar displays the difference between the lowest and the highest price. The number in brackets along the horizontal represents the number of providers within the urban centre.

Figure 5.2.2 Price of basic local telephone service (\$/month) and number of companies providing this service in major urban centres, 2015

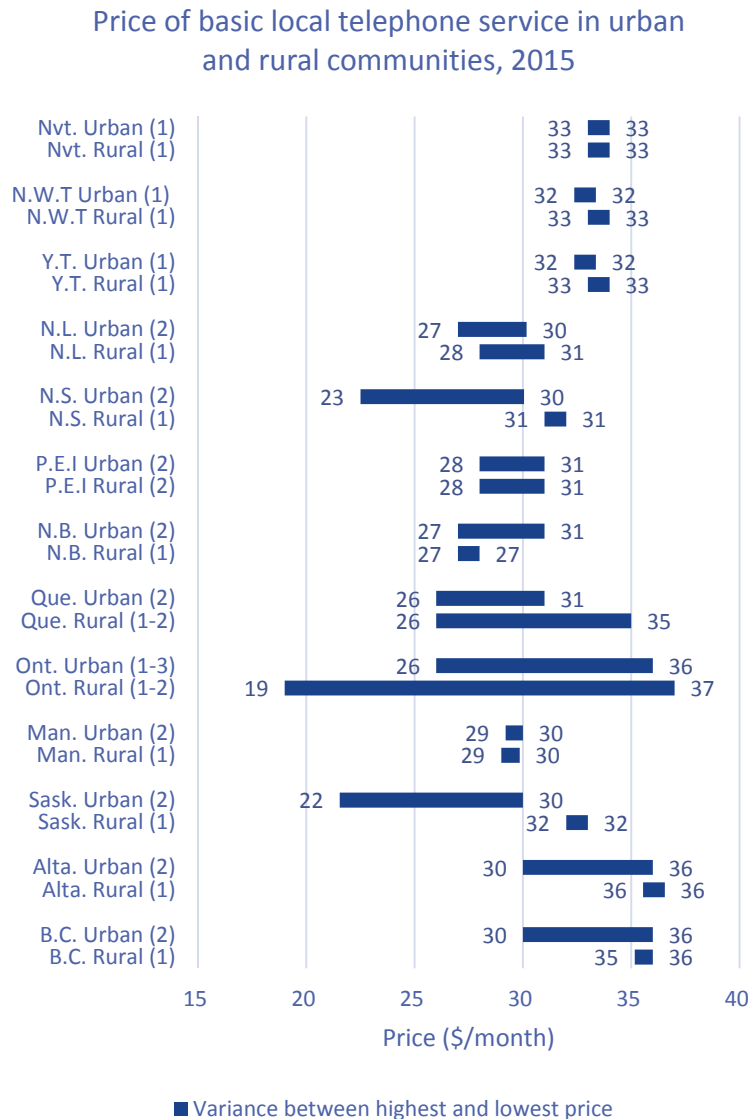


Source: CRTC data collection

The price of basic local service varied across the major urban centres from \$22 per month in Saskatoon, Regina and Hamilton to \$37 in Hamilton, Windsor and St. Catharines - Niagara. In some cases, service providers did not provide the price of basic local telephone service. These companies provided the price for the service that came closest to the definition. Access-independent VoIP, not included above, is available in many major urban centres.

Rural communities

Figure 5.2.3 Price of basic local telephone service (\$/month) and number of companies providing this service in urban and rural communities, by province and territory, 2015



Source: CRTC data collection

This bar chart displays the range of monthly price of basic local telephone service in fifty-four rural communities in Canada. The number appearing in parentheses along the vertical axis after the name of each province and territory indicates the range in the number of basic local telephone service providers in each rural centre or community responding to the survey. The price of basic local telephone service in rural communities varied, from lows of between \$19 to \$35 per month to highs of between \$27 and \$37 per month. In some cases, service providers did not provide basic local telephone service. These companies provided the price for the service that came closest to the definition of basic local telephone service as defined in the survey.

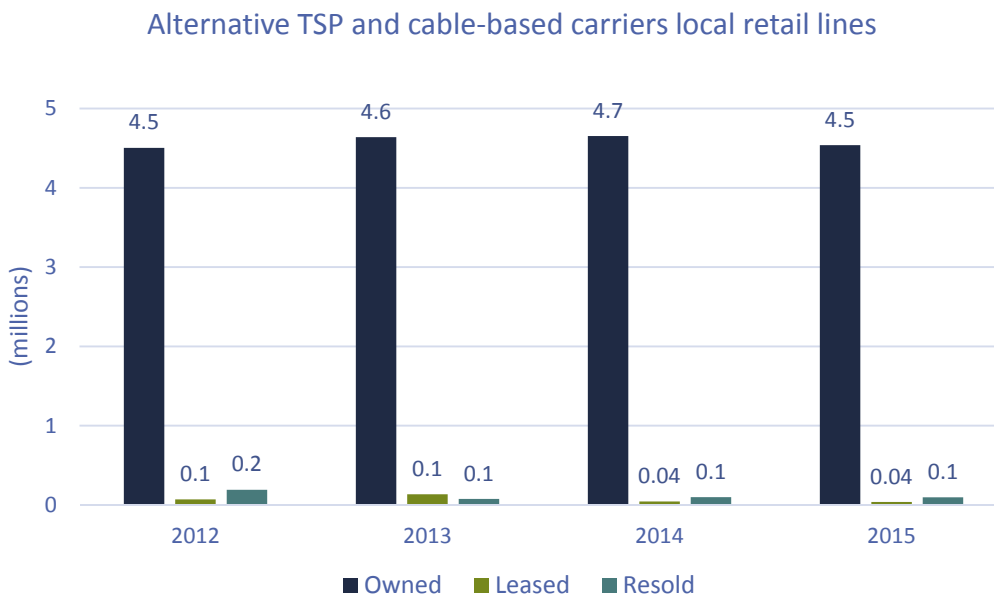
Which rural communities were included? Fifty-four rural communities were selected to assess the price of local telephone services (see Appendix 9). These communities met the following criteria:

- the community was not part of one of the census metropolitan areas of the 24 urban centres;
- the community had a population density of fewer than 400 people per square kilometre, or its population centre had fewer than 1,000 people;
- the number of communities selected in each province/territory was proportional to the population of the province/territory; and
- the communities were not clustered together.

v Type of local facilities

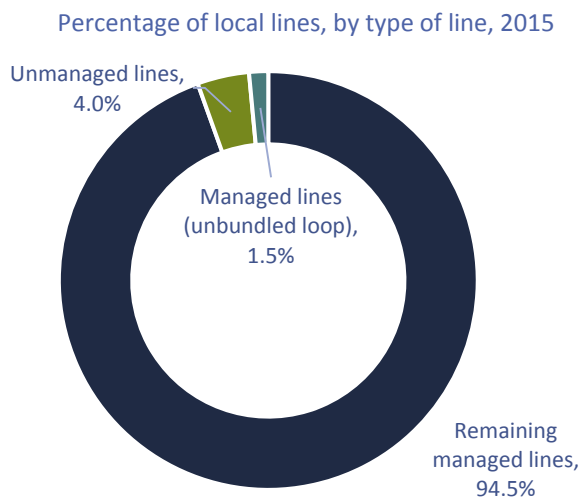
Leased lines are lines acquired from facilities-based carriers. Resold lines connect directly from the underlying facilities-based carrier's network to a customer.

Figure 5.2.4 Alternative TSP and cable-based carriers local retail lines, by type of facility



Source: CRTC data collection

Figure 5.2.5 Percentage of local lines by type of line, 2015



Source: CRTC data collection

Not all unbundled loops are used for voice communication, but for purposes of this figure, they are included. The predominant means of competition is via cable facilities or VoIP.

vi Competitive landscape

Traditionally, large incumbent TSPs were the sole providers of long distance services in Canada. With the introduction of long distance competition in 1992, other service providers entered the market.

Table 5.2.11 Large incumbent TSPs' retail long distance revenue market share (%), by region

Region	2011	2012	2013	2014	2015
B.C., Alberta	74	75	74	81	78
Saskatchewan	92	92	92	94	94
Manitoba	84	83	81	83	83
Ontario, Quebec	71	70	69	80	80
Atlantic	83	83	86	88	89
The North	97	97	98	99	99

Source: CRTC data collection

This table shows the percentage of retail long distance revenues captured by the large incumbent TSPs. "The North" includes Yukon, the Northwest Territories, and Nunavut.

vii Pay telephone service

Large incumbent TSPs continue to be the primary providers of payphone service across Canada.

Table 5.2.12 Large incumbent TSPs' payphone revenues (\$)

Metric	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2012-2015
Annual revenue per payphone	682	559	462	413	-10.6	-15.4

Source: CRTC data collection

Table 5.2.13 Large incumbent TSPs' payphone quantities

Metric	2012	2013	2014	2015
Number of payphones	93,771	84,870	73,883	66,997
Number of payphones per 1,000 households	6.8	6.1	5.6	4.8
Coin-operated payphones as a percentage of total payphones	92.7%	91.5%	91.8%	91.3%
Percentage of payphones equipped with Teletype capability	9.3%	12.6%	12.4%	12.6%

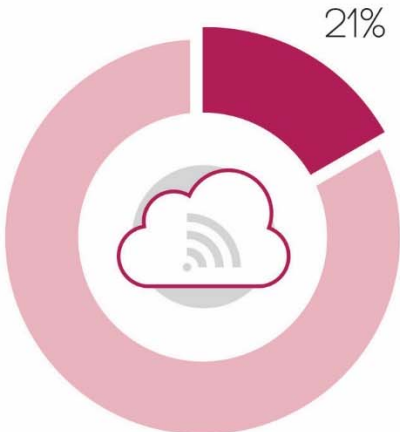
Source: CRTC data collection

As of 2015, no payphones were reported to be equipped with Internet capability.

5.3 Retail Internet sector and broadband availability

Retail telecommunications revenues in 2015

\$43.9 billion ▶



Internet

Revenues

\$9.2 B

Increase of 9.9% since 2014

Take-up

84%

Of Canadian households

Monthly Data Usage

38%

Increase by Canadian high-speed household subscribers

Broadband Availability

99%

Of Canadian households

Approximately 98% of Canadian households can access a download speed of at least 5 Mbps, which is sufficient for streaming high quality audio and video content. The vast majority of Canadians (96%) can access this speed using either landline or fixed wireless facilities, and an additional 1.5% may get access via satellite facilities. Eighty percent of Canadian households subscribe to services with download speeds of 5 Mbps or higher. When taking into account an upload speed of 1 Mbps, availability of 5 Mbps or higher internet services declines to 95%⁸ (93% excluding satellite), with 70% of Canadian households subscribing.

At the same time, Canadians are demanding more bandwidth from broadband service providers. The average monthly amount of data downloaded by residential subscribers increased 40% between 2014 and 2015 to 93.0 GB per month, and an average of 50.4% annually over the last 5 years, indicating that Canadians are likely using more video content and other high-bandwidth-consuming services. Average upload amounts also increased 26.8% in 2015, reaching an average of 10.9 GB per month.

The advertised service speeds of the plans that are being used by Canadians have also increased, with subscriptions to plans including service speeds of 50 Mbps and higher going from just 0.3% of residential high-speed subscriptions in 2011 to 19.2% in 2015. Plans including service speeds of 5 to 9 Mbps declined from 45.6% in 2011 to 23.4% in 2015.

Fixed wireless services are a major source of broadband Internet connectivity in rural areas, since 33% of rural households have access to broadband Internet via fixed wireless services, but not fibre, cable, or DSL. While satellite coverage is nationwide, capacity limitations restrict practical broadband Internet service availability to approximately 1.5% of all Canadian households. Additional coverage is available via LTE and HSPA+ networks, although data allowances may differ from satellite and wireline broadband. For more information on the wireless sector, see section 5.5.

In 2015, Internet service revenues increased 9.9% from \$8.4 billion in 2014 to \$9.2 billion; 80% of these revenues (\$7.4 billion) came from residential sources and 20% (\$1.8 billion) came from business sources.

Internet services were provided by over 500 ISPs, consisting of traditional telephone and cable companies, fixed wireless service providers, and resellers. The revenue market share for Internet access for the top 5 companies (Bell, Shaw, Rogers, TELUS, and Videotron) declined from 74% in 2014 to 73% in 2015. The cable-based carriers' revenue market share declined to 47% in 2015 from 49% in 2014, while the incumbent TSPs' revenue market share slightly increased from 37.6% to 38.1%. Residential high-speed Internet service subscriptions provided through wholesale DSL and cable have more than doubled since 2011. There are over 300 facilities-based service providers, and over 200 companies offering residential high-speed Internet services solely through the use of resale facilities provided by the incumbent TSPs and the cable-based carriers.

⁸ Taking into account mobile LTE technology, 99.5% of households have access to 5 Mbps download and 1 Mbps upload.

Industry churn rates⁹ varied in 2015. For residential high-speed Internet access service subscriptions, the rate went up slightly over last year, from 1.79% to 1.80%, while for business subscriptions, the rate went up more, from 1.36% to 1.47%.

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

Broadband speed targets: In Telecom Regulatory Policy 2011-291, the Commission set a target that all Canadians should have access to broadband service speeds of at least 5 Mbps downstream and 1 Mbps upstream, through a variety of technologies, by the end of 2015. As of 31 December 2015, it is estimated that this service was available to 99.5% of Canadian households using a variety of technologies, including LTE and satellite. This number is 93% when excluding mobile and satellite technologies.

⁹ Churn rates are based on information reported by larger ISPs, which make up approximately 88% of the total residential high-speed subscriptions and 80% of the business high-speed subscriptions as of 2015.

i Revenues

Table 5.3.1 Retail Internet service revenues (\$ millions)

Type	Subtype	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Residential	Access	4,923	5,369	5,938	6,554	7,224	10.2	10.1
	Applications, equipment, and other Internet-related services	267	209	160	162	210	29.8	-5.9
	Total	5,190	5,577	6,098	6,716	7,434	10.7	9.4
Business	Access and Transport	1,194	1,202	1,243	1,320	1,435	8.7	4.7
	Applications, equipment, and other Internet-related services	407	416	384	378	380	0.7	-1.7
	Total	1,601	1,619	1,626	1,698	1,815	6.9	3.2
All	Total	6,791	7,196	7,725	8,414	9,249	9.9	8.0

Source: CRTC data collection

This table presents an overview of revenues from residential and business Internet access services, as well as other related services. Residential Internet service revenues have increased faster than business service revenues, 9.4% vs. 3.2%, respectively, over the 2011 to 2015 period.

The types of Internet services available vary according to the download speed of the Internet connection. The lowest download speed comes with dial-up service, at 64 Kbps. High-speed services refer to services provided including download speeds greater than 256 Kbps. Broadband service is defined as any service including a 1.5 Mbps or greater download speed. “**Business transport**” refers to the transfer of Internet traffic between networks. This is generally used by large business customers.

Table 5.3.2 Residential Internet access service revenues, by type of service (\$ millions)

Type	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Incumbent TSPs	1,779	1,891	2,156	2,442	2,760	13.0	11.6
Cable-based carriers	2,811	3,065	3,293	3,477	3,651	5.0	6.7
Other service providers	332	412	489	636	814	28.0	25.1
Total	4,923	5,369	5,938	6,554	7,224	10.2	10.1
Dial-up (as a percentage of revenues)	1.4%	0.8%	0.5%	0.3%	0.2%		

Source: CRTC data collection

Table 5.3.3 Business Internet access and transport service revenues, by type of service (\$ millions)

Type	Subtype	2011	2012	2013	2014	2015	CAGR (%) 2011-2015
Internet access	Incumbent TSPs	562	579	581	591	659	4.1
	Cable-based carriers	309	273	306	350	421	8.1
	Resellers, utility telcos, and other carriers	272	285	285	307	316	3.8
	Total	1,142	1,138	1,171	1,248	1,396	5.1
Transport	Total	52	65	71	72	39	-7.1
Total business Internet service revenues	Total	1,194	1,202	1,243	1,320	1,435	4.7

Source: CRTC data collection

Over the 2011 to 2015 period, revenues from the business Internet access service market increased 5.1% annually.

Due to a change in company reporting, transport revenues in 2015 are not comparable to those in previous years.

Part of the increase in cable-based carriers' revenues is due to a reclassification of revenues.

ii Subscriber data

Residential Internet service subscribers receive Internet service from a variety of service providers. In 2015, residential subscribers reached 12 million, a 3.3% increase from 2014.

Table 5.3.4 Residential Internet service subscribers, by type of service provider (thousands)

Type of service	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Incumbent TSPs	4,014	4,114	4,244	4,429	4,586	3.6	3.4
Cable-based carriers	5,846	5,930	5,933	5,954	5,986	0.5	0.6
Other service providers	811	947	1,074	1,247	1,447	16.0	15.6
Total	10,671	10,991	11,251	11,630	12,019	3.3	3.0
Dial-up (as a percentage of subscribers)	2.3%	1.7%	1.1%	0.8%	0.7%		

Source: CRTC data collection

Internet subscription had 3% average annual growth since 2011. When compared to Statistics Canada's annual population growth rates, the rate of Internet service subscriber growth was approximately three times that of population growth.

Figure 5.3.1 Residential Internet service subscriber market share, by type of service provider (%)

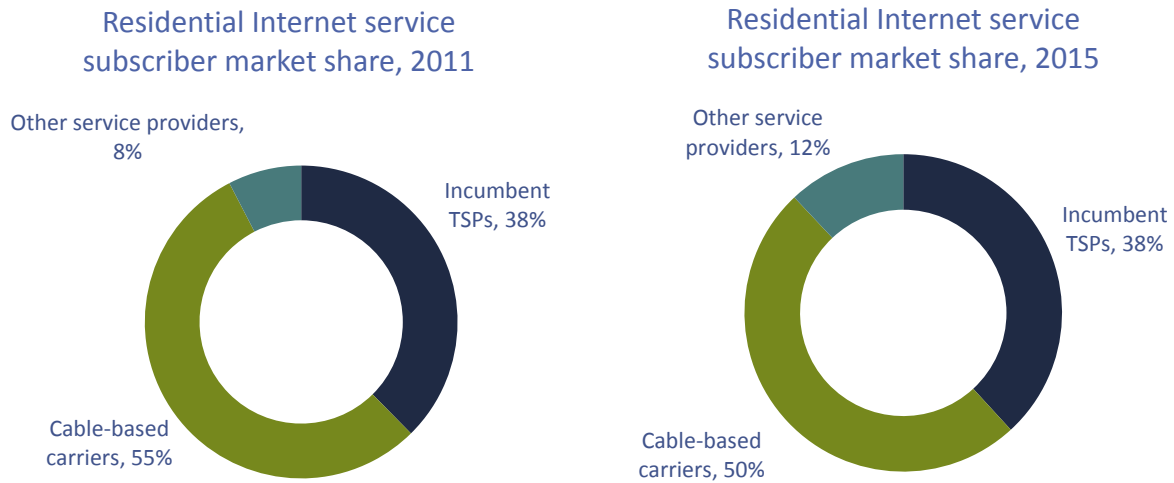
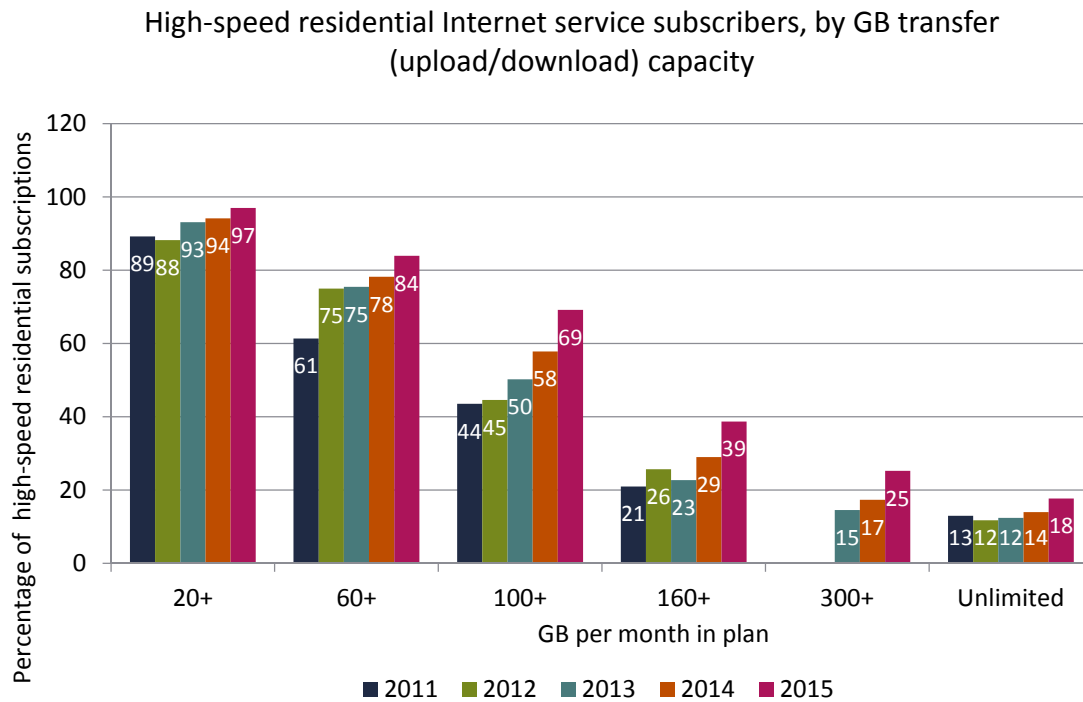


Table 5.3.5 Number of business Internet access subscriptions, by type of service provider (thousands)

Type	Subtype	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Dial-up	Total	72	61	54	47	43	-7.8	-12.2
	Incumbent TSPs	471	463	487	504	538	6.6	3.4
	Cable BDUs	232	268	310	347	375	8.0	12.7
High-Speed	Resellers, utility telcos and other carriers	152	150	170	179	185	3.5	5.0
	Total	855	881	966	1,030	1,098	6.5	6.4

Source: CRTC data collection

Figure 5.3.2 High-speed residential Internet service subscribers, by GB data transfer (upload/download) capacity included in subscriptions



Source: CRTC data collection

Data for the 300 GB and higher category is not shown for 2011 and 2012. Plans with unlimited upload were counted by their download limit.

Data for tables 5.3.6, 5.3.8, 5.3.9, 5.3.10, 5.3.11, 5.3.12 and figure 5.3.2 are from the larger ISPs, which make up approximately 88% of the total residential high-speed subscriptions in 2015.

Table 5.3.6 Weighted-average upload and download usage (GBs) of residential high-speed Internet subscribers

Usage	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Download	18.2	28.4	44.8	66.5	93.0	39.9	50.4
Upload	3.8	5.4	6.0	8.6	10.9	26.8	30.2
Total	22.0	33.8	50.8	75.1	104.0	38.4	47.4

Source: CRTC data collection

iii Performance indicators

In general, the average revenue per user for high-speed Internet services has been increasing¹⁰. While some packages have experienced price declines, these declines have been offset by movement towards larger, faster packages.

Not only are Canadians choosing to subscribe to faster internet services, they are also choosing packages with more capacity. From 2011 to 2015, the amount of gigabytes downloadable in the average package has been increasing every year except in 2013.

Table 5.3.7 Residential Internet access service average revenue per user per month (ARPU), (\$)

Type of TSP	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Incumbent TSPs	37.11	38.77	43.00	46.92	51.02	8.7	8.3
Cable-based carriers	40.75	43.39	46.27	48.75	50.96	4.5	5.7
Other service providers	35.52	39.09	40.32	45.64	50.35	10.3	9.1
Total	38.98	41.31	44.50	47.74	50.91	6.6	6.9

ARPU in the table above may vary from table 5.3.8 below which utilises data only from the larger providers, who comprise 88% of all high-speed subscriptions, and it is calculated based upon year-end, not throughout the year. This table also contains data from dial-up services.

Table 5.3.8 Residential Internet service one-month average revenue, by advertised download speed (\$)

Advertised download speed	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Lite and wideband up to 256 Kbps	33.86	35.97	35.36	36.00	27.06	-24.8	-5.5
Wideband 300 to 1400 Kbps	33.03	35.83	35.49	33.80	38.02	12.5	3.6
1.5 to 4 Mbps	32.87	41.87	31.45	48.05	52.11	8.4	12.2
5 to 9 Mbps	40.97	44.05	46.10	46.87	48.37	3.2	4.2
10 to 15 Mbps	42.11	40.62	48.17	48.52	53.59	10.4	6.2
16 to 49 Mbps	50.76	44.85	58.69	51.96	55.35	6.5	2.2
50 Mbps and higher	78.06	59.69	66.05	60.90	60.44	-0.8	-6.2
All tiers	39.80	43.80	49.64	50.06	54.00	7.9	7.9

Source: CRTC data collection

The one-month average revenue by downstream speed was calculated by dividing the service providers' total one-month revenue in each speed tier by the total number of subscribers to the service in each speed tier in that month. The month used was December or the closest available month.

¹⁰ Data excludes revenues from modem rentals.

Table 5.3.9 Weighted-average upload/download limits (GBs) of residential Internet service plans, by advertised download speed

Advertised download speed	2011	2012	2013	2014	2015
Lite and wideband up to 256 Kbps	-	-	-	-	-
Wideband 300 to 1400 Kbps	14.90	17.89	25.42	27.25	31.23
1.5 to 4 Mbps	69.06	94.93	68.22	52.20	63.24
5 to 9 Mbps	80.81	76.78	48.46	53.36	62.55
10 to 15 Mbps	74.22	106.74	99.84	101.79	110.68
16 to 49 Mbps	176.98	131.50	142.14	159.15	188.50
50 Mbps and higher	236.54	364.80	362.86	283.10	286.34
All tiers	81.11	103.48	99.24	118.27	141.94

Source: CRTC data collection

The weighted-average upload/download limit was calculated for each downstream speed tier based on the number of subscribers to plans with upload/download limits.

Due to additional and more precise data from the independent ISP industry, the data in 2015 may not be comparable to previous years. This new data accounts for approximately 5.5 GB in the “all tiers” category.

Table 5.3.10 Residential Internet service upload speed (Kbps) by advertised download speed and average advertised download speed

Advertised download speed	2011	2012	2013	2014	2015
Lite and wideband up to 256 Kbps	178	168	136	162	126
Wideband 300 to 1400 Kbps	314	313	291	283	279
1.5 to 4 Mbps	666	651	768	746	757
5 to 9 Mbps	855	1,118	809	937	969
10 to 15 Mbps	876	2,519	2,407	2,225	2,414
16 to 49 Mbps	2,662	2,912	4,133	4,676	6,159
50 Mbps and higher	3,667	13,199	19,890	13,701	15,015
Weighted average upload speed for all tiers	961	2,009	3,031	3,676	5,528
Weighted-average download speed for all tiers	8,238	12,610	15,465	21,242	29,150

Source: CRTC data collection

The weighted-average upload speed was calculated for each advertised download speed tier based on the number of subscribers to the plan. The weighted-average download speed was calculated based upon the number of subscribers to each plan.

iv Price

Approximately 80% of households subscribed to a 5 Mbps download or higher-speed broadband Internet service in 2015, up from 77% in 2014. Urban households generally paid lower Internet service prices and had a greater number of Internet service providers to choose from than rural households.

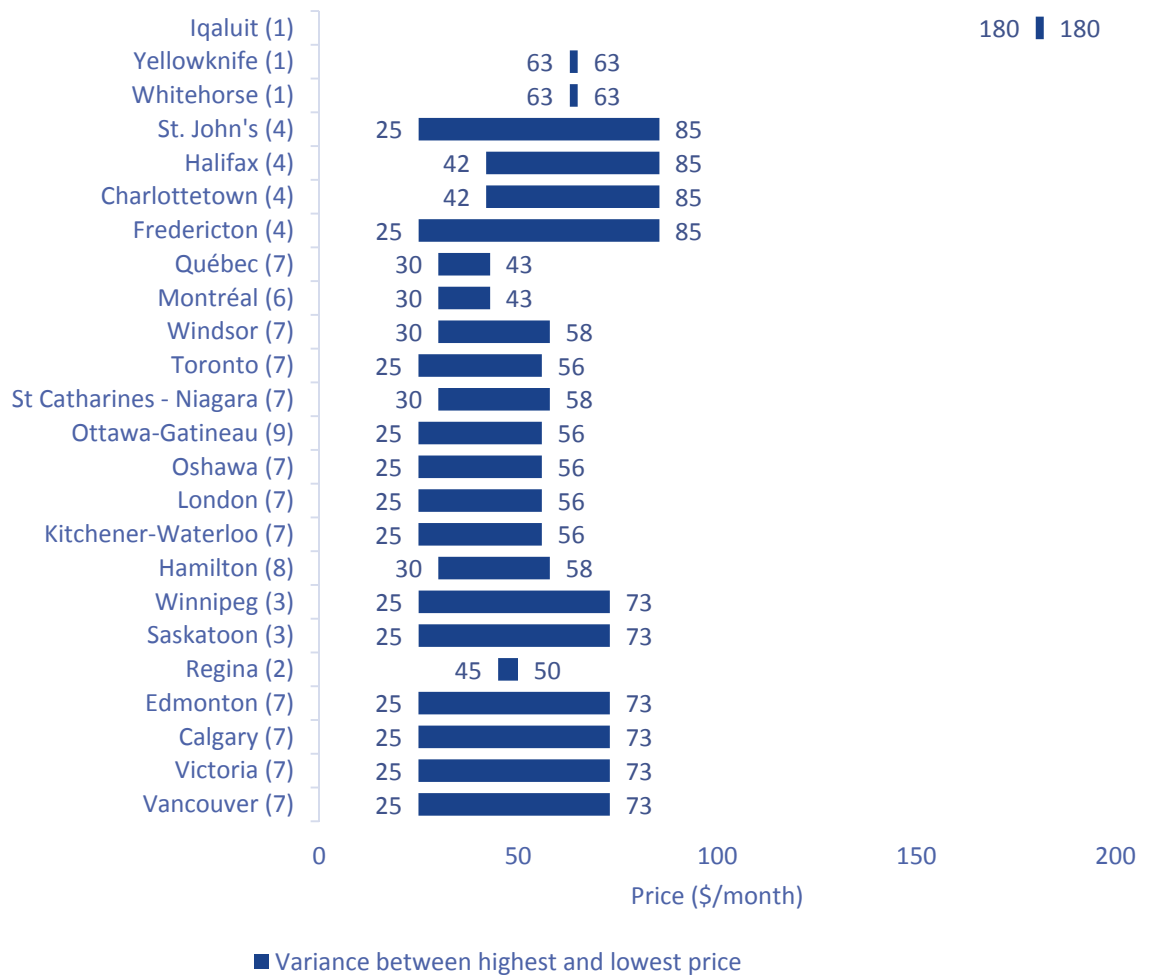
Service providers were asked to report the price of the least expensive service they offered that provides a download speed of at least 5 Mbps. The information below is based upon 23 service providers. Some service

providers offered only options with speeds greater than 5 Mbps, and these were included in the following figures.

Urban centres

Figure 5.3.3 Price of residential broadband (5 Mbps) Internet access service and number of companies providing this service in urban centres, 2015

Price of residential broadband (5 Mbps) Internet access services in urban centres, 2015



Source: CRTC data collection

This bar chart displays the range in the monthly price of 5 Mbps Internet service in 24 urban centres in Canada. The number at the end of each bar is the highest price. The number in parentheses along the vertical axis after the name of each urban centre represents the number of ISPs in that urban centre. Satellite service is excluded, but is available in all areas for \$70 per month.

The price of 5 Mbps Internet service varied from lows of between \$25 to \$63 per month, and highs of between \$43 and \$85 per month, except for services offered in Iqaluit. Subscribers in Iqaluit paid \$180 per month for non-satellite Internet service.

Subscribers living in provincial urban centres generally had a choice of between 3 and 9 ISPs, while those living in territorial urban centres had a more limited selection.

Data caps, which limit the amount of data that can be downloaded per month, were a differentiating feature among the service providers. Low data users would generally benefit from these caps, while heavy users would not. Of the 17 service providers that listed service in urban areas,

- 3 listed unlimited service;
- 10 had data caps, which ranged from 10 to 300 GB; and
- 4 listed data caps in some areas but not in others.

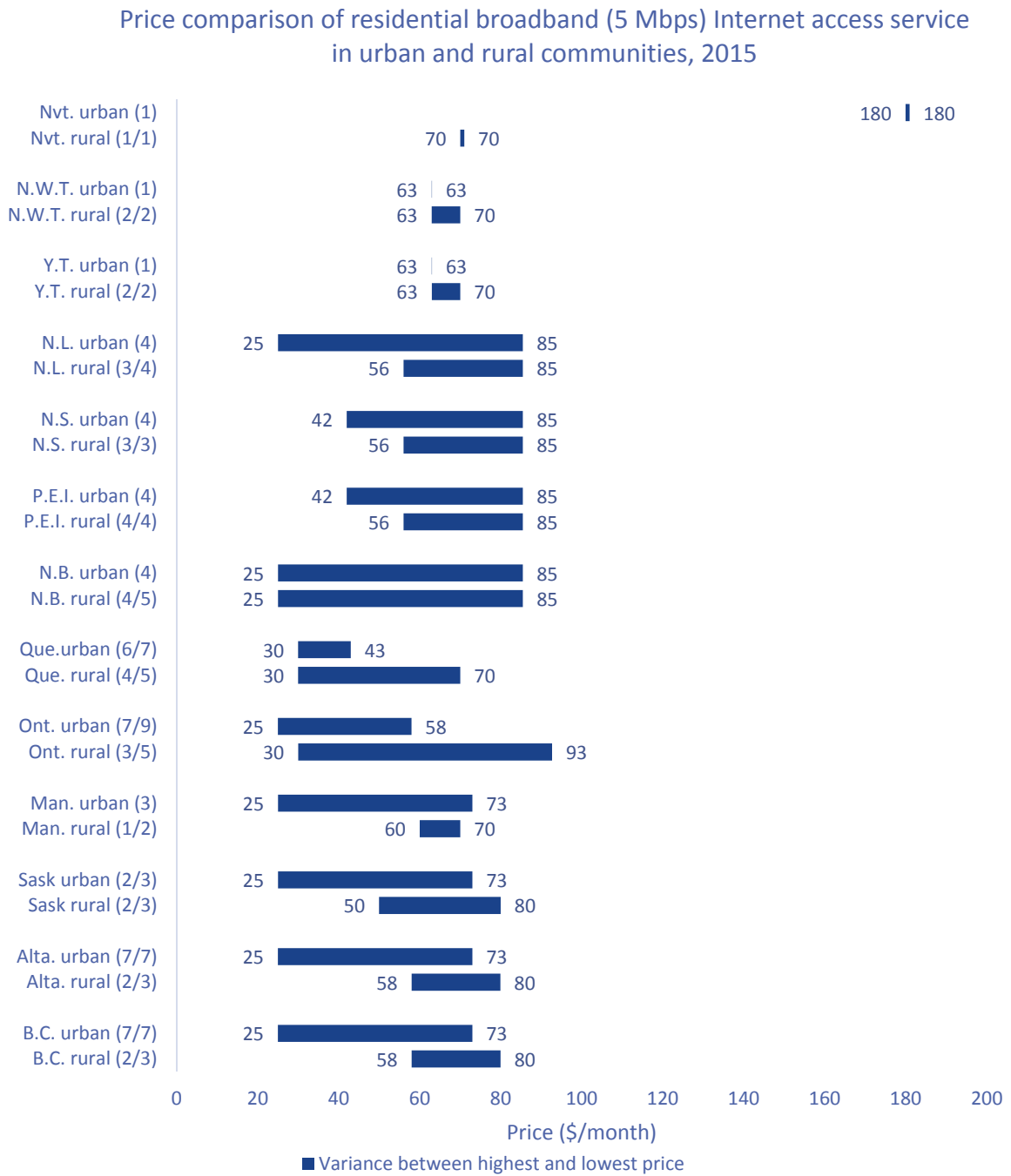
Rural communities

As displayed in Figure 5.3.4, the price of 5 Mbps Internet service was generally higher in rural communities than in urban centres, except in New Brunswick and Nunavut.

The price of 5 Mbps Internet service in rural communities varied from lows of between \$25 and \$70 per month, and highs of between \$70 and \$93 per month.

Internet service subscribers living in rural communities generally had fewer service providers to choose from than subscribers living in urban centres. Of all the rural areas examined, the median provider choice was 3, with an average of 3.1. The median for urban areas was 7, with an average of 5.3.

Figure 5.3.4 Price comparison of residential broadband (5 Mbps) Internet access service and number of companies providing this service in urban and rural communities, 2015



Source: CRTC data collection

This bar chart displays the range in the monthly price of broadband (5 Mbps) Internet access service in 54 rural communities in Canada. The number at the end of each bar is the highest price. The number in parentheses along the vertical axis after the name of each province and territory represents the range in the number of service providers among the rural communities or urban centres. For example, “BC rural (2/3)”

means that the number of service providers among the rural communities in British Columbia included in the survey varied between 2 and 3.

Satellite service is excluded in urban areas, but is available in all areas for \$70 per month.

Which rural communities were included? 54 rural communities were selected to assess the price of Internet access services (see Appendix 9). These communities met the following criteria:

- the community was not part of one of the census metropolitan areas of the 24 urban centres;
- the community had a population density of fewer than 400 people per square kilometre, or its population centre had fewer than 1,000 people;
- the number of communities selected in each province/territory was proportional to the population of the province/territory; and
- the communities were not clustered together.

v Consumer trends

In 2011, 47.0% of the ISPs' high-speed residential Internet access service revenues were from plans with download speeds of between 5 and 9 Mbps. Plans with lower speeds yielded 24.2% of their revenues, while plans with higher speeds generated 28.9%. Four years later, 5 to 9 Mbps plans no longer yield the highest percentage of revenues, the revenues from these plans having declined to 21.0%, while revenues from lower-speed plans declined to 3.5%, and revenues from higher-speed plans increased to 75.5%.

Table 5.3.11 Residential Internet service one-month revenue distribution (%), by advertised download speed

Advertised download speed	2011	2012	2013	2014	2015
Lite and wideband up to 256 Kbps	0.3	0.3	0.2	0.1	0.0
Wideband 300 to 1400 Kbps	3.6	2.4	2.1	1.3	0.7
1.5 to 4 Mbps	20.3	17.4	4.6	3.6	2.8
5 to 9 Mbps	47.0	41.6	30.5	25.2	21.0
10 to 15 Mbps	16.5	9.3	24.8	24.8	23.9
16 to 49 Mbps	11.8	24.1	31.1	33.1	30.2
50 Mbps and higher	0.6	5.0	6.7	11.9	21.5
Total revenues in sample	375.7	427.6	494.9	517.8	552.7

Source: CRTC data collection

All data exclude terminal rental revenues. Services are listed without regard to upload speeds. 84.8% of high-speed service revenues stem from services that meet the Commission's target speeds of 5 Mbps download and 1 Mbps upload, compared to 96.5% of revenues from services including at least 5 Mbps download and any upload speed.

In 2015, Canadians continued to subscribe to higher-speed Internet access services than in 2011. In 2011, the most common plans included download speeds of 5 to 9 Mbps, representing 45.6% of all subscriptions. Plans with lower speeds made up 29.3% of all subscriptions, and plans with higher speeds represented 25.1% of subscriptions. Four years later, the 5 to 9 Mbps plans are no longer the most popular plans. The percentage

of subscribers to these plans declined to 23.4%. In 2015, the percentage of subscribers to plans including speeds less than 5 Mbps declined to 3.9% while the percentage of subscribers to plans including speeds greater than 9 Mbps grew to 72.7%.

Table 5.3.12 Residential Internet service one-month subscriber distribution (%), by advertised download speed

Advertised download speed	2011	2012	2013	2014	2015
Lite and wideband up to 256 Kbps	0.4	0.3	0.3	0.2	0.0
Wideband 300 to 1400 Kbps	4.3	2.9	2.7	1.9	1.0
1.5 to 4 Mbps	24.6	18.2	7.3	3.7	2.9
5 to 9 Mbps	45.6	41.3	32.8	26.9	23.4
10 to 15 Mbps	15.6	10.1	25.6	25.6	24.1
16 to 49 Mbps	9.2	23.5	26.3	31.9	29.4
50 Mbps and higher	0.3	3.6	5.0	9.8	19.2
Total subscriptions in sample	9,440.3	9,761.1	9,970.1	10,345.1	10,558.7

Source: CRTC data collection

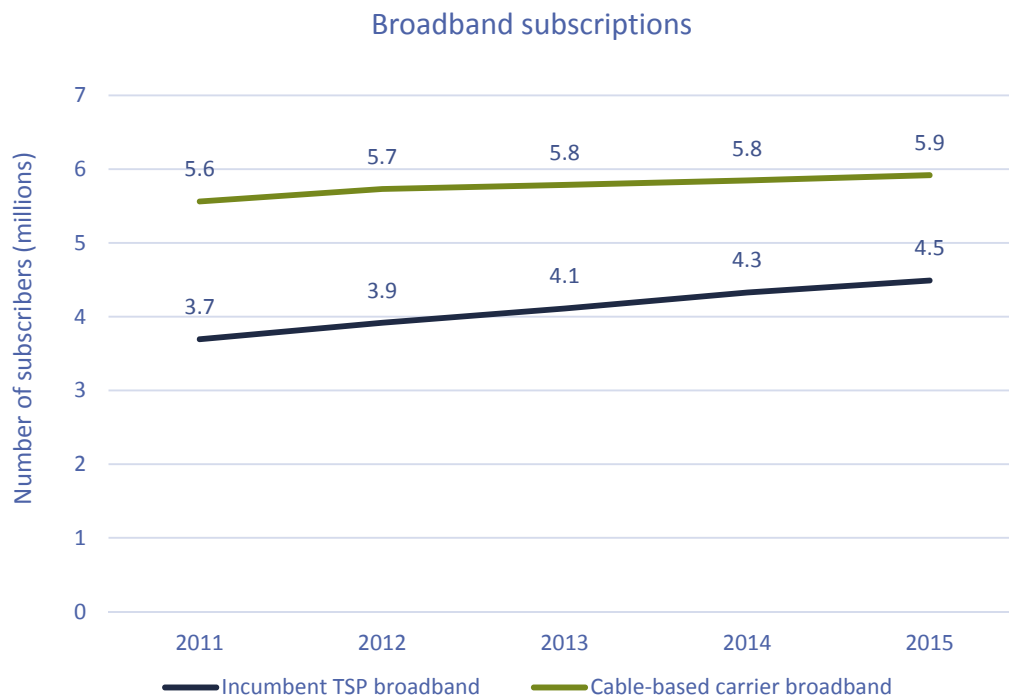
This table indicates that, over time, faster-speed services make up more subscriptions. 83.3% of Canadian households subscribe to some form of high-speed Internet service.

83.9% of high-speed Internet service subscribers subscribe to a service that meets the Commission's target speeds of 5 Mbps download and 1 Mbps upload, compared to 96.1% who subscribe to a service with at least 5 Mbps download and any upload speed.

vi Competitive landscape

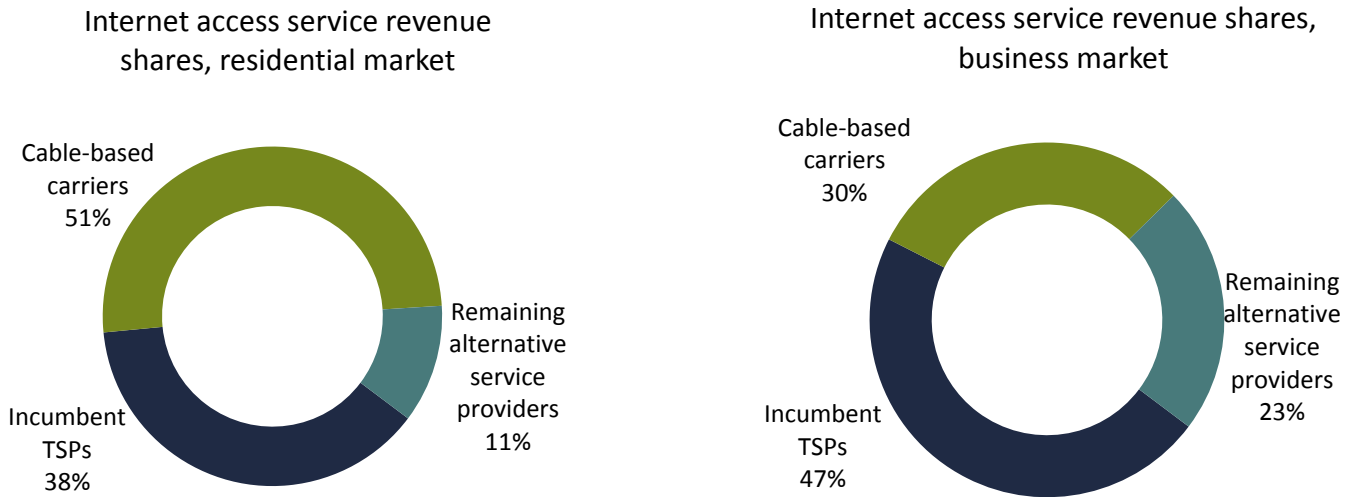
Canadians can access broadband Internet services using either wireline or wireless facilities. These facilities support evolving services, which make new experiences possible for Canadians, ranging from television and radio services, to new and highly interactive services and programs offering greater consumer control and choice. Consumers can engage with the digital world using their wireless devices at the time and place of their choice.

Figure 5.3.5 Broadband subscriptions – Incumbent TSPs vs. cable-based carriers (millions)



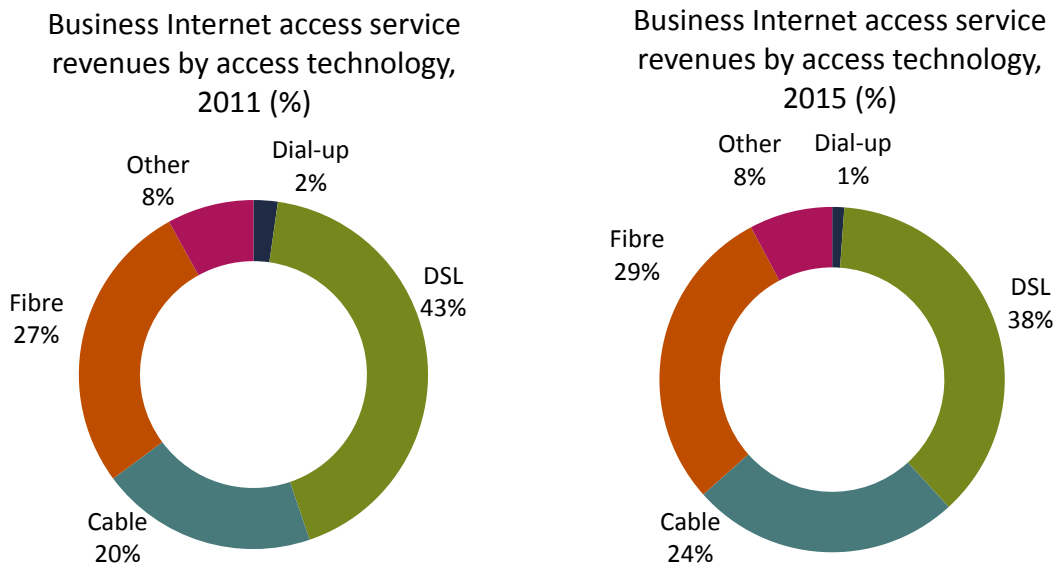
Source: CRTC data collection

Figure 5.3.6 Internet access service revenue shares, by market and by type of service provider, 2015 (%)



Source: CRTC data collection

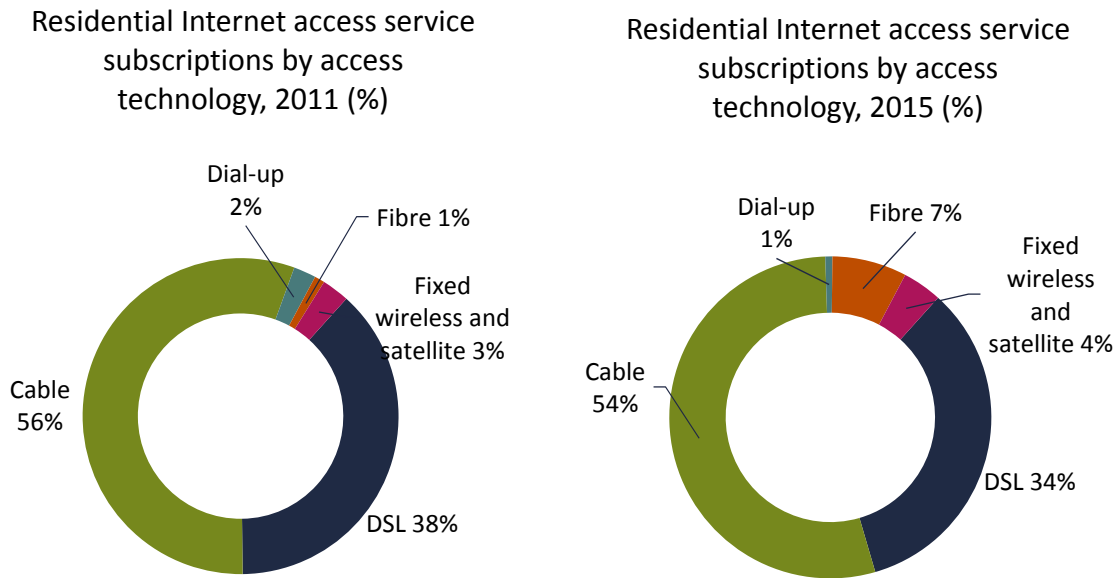
Figure 5.3.7 Business Internet access service revenues by access technology, 2011 vs. 2015 (%)



Source: CRTC data collection

Business Internet access service revenue is derived from services provided using a variety of access technologies. The “Other” segment refers to other technologies, such as fixed wireless and satellite technologies.

Figure 5.3.8 Residential Internet access service subscriptions by access technology, 2011 vs. 2015



Source: CRTC data collection

What are fixed wireless and satellite services? “Fixed wireless services” refer to the use of radio spectrum to provide communications services to subscribers. The connection to the subscriber’s premises is from a tower located in the area.

Satellites can provide Internet access service¹¹. Connections are established between an earth station on the ground (using equipment such as satellite dishes) and a satellite in space. Satellites can support various frequency bands (C-band, Ku-band, and Ka-band).

Satellite Internet services delivered using the C-band require a large satellite dish and are typically used to serve a community. Ka-band, and to a lesser degree Ku-band, satellite Internet services can be offered using a small satellite dish located at the customer’s premises.

¹¹ Only direct-to-home services are counted as satellite services in this section.

vii Capacity requirements

This section examines the extent to which Canadians have access to broadband Internet service and the associated capacity requirements.

Fixed and mobile broadband services [i.e. Evolved High-Speed Packet Access (HSPA+) and Long Term Evolution (LTE)] are available to over 99% of households in Canada. Canadians are accessing the growing volumes of content, whether audio, video, or data, that are being made available online. Spurring this development is the adoption by Canadians of advanced handheld devices (e.g. smartphones, tablets).

There is a variety of Internet service providers in operation across Canada providing broadband¹² access using a combination of DSL, cable modem, fibre-optic, satellite, and fixed-wireless facilities. These services are available to 98% of Canadian households not including satellite, and with satellite they are available to 99%.

Wireless service providers also provided broadband service. As displayed in the ‘Wireless retail market sector’ section of this report, 74% of wireless service subscribers in 2015 had data plans.

Bit Rate

The *bit rate* of a stream is, essentially, the number of bits transmitted in a particular time period. The standard measurement for bit rate of streaming services, like Internet access packages, is in a multiple of *bits per second*. Here, we use *megabits per second (Mb/s)*, which is one million bits (or 125,000 bytes) per second. The measurements presented in this section show sample average bit rates of various streaming services. The measurements were performed in the CRTC’s Technology Resource Centre using off-the-shelf consumer electronics. For more information on the testing environment and methodology, see Appendix 10.

Since many streaming services use similar bit rates, they have been split into seven ranges. Table 5.3.13 lists the ranges, their average bit rate, a description and examples of streaming services in each range. Some streaming services are in multiple ranges as their bit rate is automatically adjusted based on connection type (i.e. mobile or wireline) and speed. A stream’s bandwidth can be adjusted by changing its compression level or codec; this compression level affects the bandwidth, and thus the number of simultaneous streams that an Internet connection can handle. For more information on these topics, see Appendix 10.

Where services do offer multiple quality options, they have been itemized separately in the table. Some services use qualitative names for their settings (e.g. good, better, best), while others use the resolution and video frame rate. For example, *144p* means 144 lines of vertical resolution, progressive scan.¹³ *2160p60* means 2160 lines of vertical resolution (marketed as *4K*), at 60 frames per second.¹⁴ The term *Ultra-high-definition (UHD)* is used to encompass resolutions greater than 1440p, specifically 2160p and 4320p (also

¹² Broadband services provide a download speed of at least 1.5 Mbps.

¹³ Progressive scanning updates the entire image at once, as opposed to interlacing, which updates even and odd lines in an alternating pattern.

¹⁴ A typical frame rate for movies and television is 29.97 fps (frames per second), but more content is shifting to higher frame rates of 48 fps in cinema and television, and 60 fps for some web and streaming content.

known as 4K and 8K, respectively); this is in contrast with the current *High Definition (HD)* standard which includes 720p, 1080p, and 1440p.

Due to the limited number of samples and the diversity of network configuration and equipment, the reported values in this section should be viewed as average-case estimates, not worst-case limits. It is important for consumers with data-limited Internet plans to monitor their usage using tools provided by the service provider. Some operating systems also include – or offer for download – usage measurement utilities, which can be used to estimate the provider’s data usage calculation.

Table 5.3.13 List of ranges for data usage measurement calculations

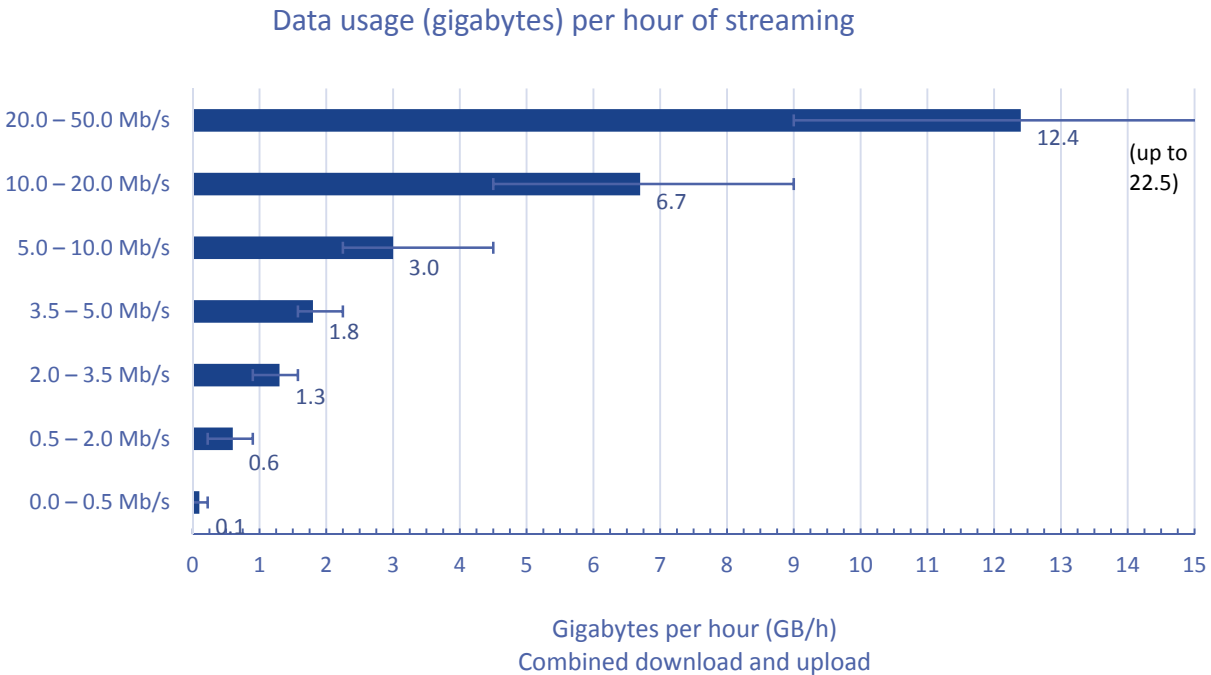
Average Download Bit Rate	Description	Examples of Services and Quality Settings	Average data usage (gigabytes) per hour of streaming
0.0 – 0.5 Mb/s	Streaming audio, mobile-quality streaming video, voice and SD video calling	Streaming radio, Twitch audio-only/mobile video, Skype audio and SD video calling, YouTube 144p/240p	0.1 GB/h
0.5 – 2.0 Mb/s	Standard-definition streaming video, HD video calling	Skype HD video calling, Netflix low/medium, Shomi Good, YouTube 360p	0.6 GB/h
2.0 – 3.5 Mb/s	Low bit rate HD streaming video	CTV/Global/TSN GO, Bell TV, Crave TV (mobile devices), Shomi Better, YouTube 480p/720p, Twitch high	1.3 GB/h
3.5 – 5.0 Mb/s	High bit rate HD streaming video	Netflix HD (mobile devices), Twitch source, YouTube 720p60/1080p	1.8 GB/h
5.0 – 10.0 Mb/s	Very high bit rate HD streaming video	Shomi Best, Crave TV, YouTube 1080p60, Netflix HD	3.0 GB/h
10.0 – 20.0 Mb/s	UHD streaming video	Netflix UHD, YouTube 1440p ¹⁵	6.7 GB/h
20.0 – 50.0 Mb/s	High frame rate UHD streaming video	Netflix UHD (some titles), YouTube 1440p60/2160p/2160p60 ¹⁵	12.4 GB/h

Figure 5.3.9 shows the approximate amount of data used per hour of streaming for each bit rate range listed in Table 5.3.13. These numbers measure the stream without any auxiliary content (e.g. previews, menus, trailers, advertisements), so the actual amount of data used may be greater than these estimates.

As an example, a 30 minute Skype HD video call would use on average approximately 0.3GB.

¹⁵ Although 1440p is not UHD, YouTube’s 1440p and higher videos use much more data than other streaming services; this is likely due to the codecs used to transmit the data. See Appendix 10 for more details.

Figure 5.3.9 Data usage (gigabytes) per hour of streaming, per bit rate range



Streaming on Mobile Devices

With the proliferation of LTE data networks, consumers are now able to reliably use streaming and real-time communication applications on their mobile devices. Not only do LTE networks have much higher bandwidth, but they have consistent latency¹⁶ regardless of signal strength.

While some streaming services allow the user to choose a quality setting, many automatically reduce the quality if they detect that the destination device is on a mobile network. This automatic adjustment ensures that users don't prematurely exhaust their data allowance by streaming high-bandwidth content. Many video streaming services also prompt the user for confirmation that they wish to use their mobile data, rather than connecting to a Wi-Fi network.

Many applications will reduce video quality on mobile devices regardless of the type of network they're connected to. Since mobile devices generally have smaller screens than televisions, bit rates above a certain threshold offer negligible quality increases for an often-significant increase in data usage. Therefore, a video streaming service's HD option may have a different bit rate on a mobile device than on a computer or a set-top streaming device.

¹⁶ *Latency* is a measurement of the time it takes data packets to travel from their source to their destination. High-latency connections make real-time communication difficult due to pauses in speech and video.

viii Key indicators

Broadband service availability is calculated using information provided by ISPs. Locations are considered to be serviced if their dissemination block representative point falls within broadband service coverage.

Broadband service availability data may not take into account capacity issues, or issues regarding line of sight.¹⁷

Table 5.3.14 Key telecommunications availability indicators (% of households)

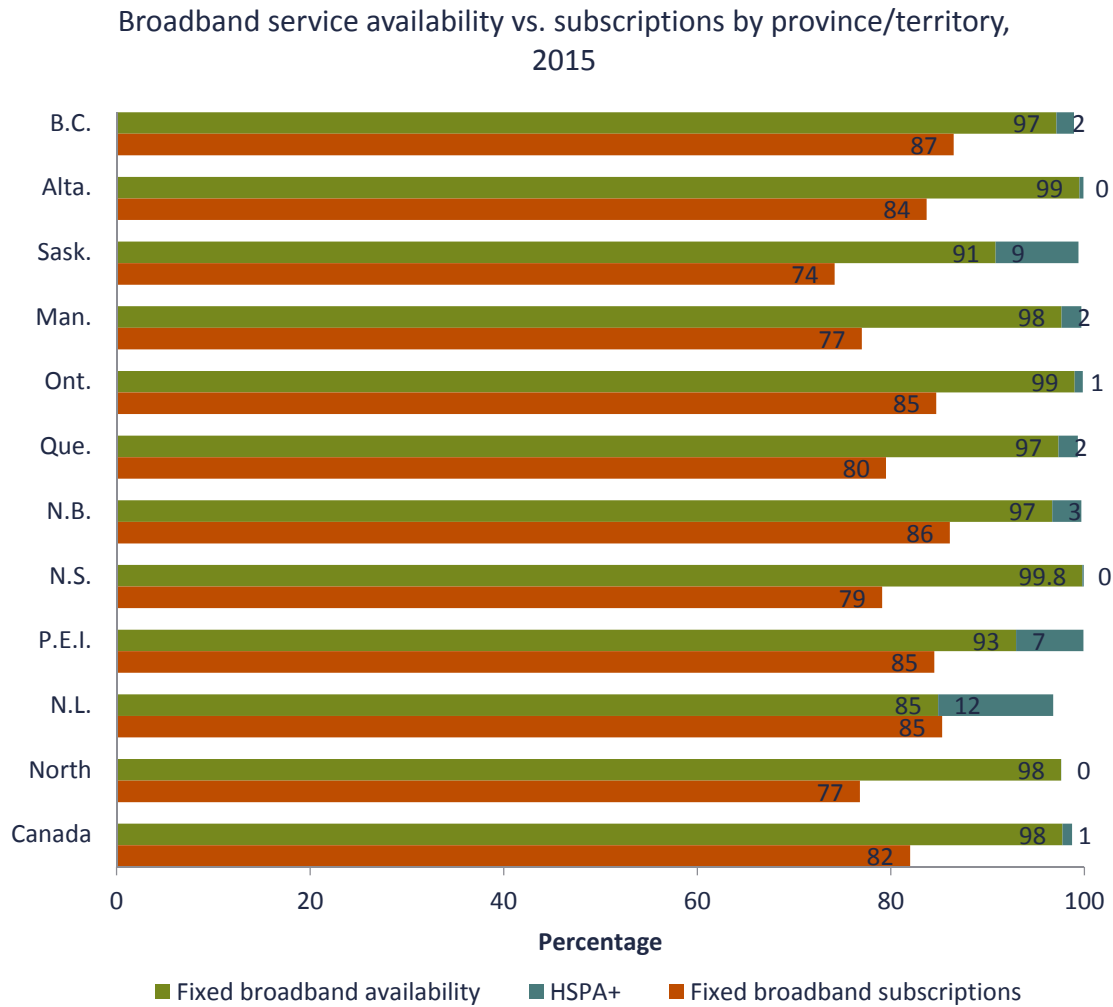
Type	Subtype	2011	2012	2013	2014	2015
Mobile broadband	3G/3G equivalent	99	99	99	99	99
	HSPA+	99	99	99	99	99
	LTE	45	72	81	93	97
Wireline broadband	DSL	86	87	82	82	82
	Cable modem	82	82	82	82	82
	Fibre	-	-	14	20	22
Wireline and fixed wireless	Total	97	97	97	97	98
BDU services	IPTV	34	45	56	65	70
	Digital satellite	National	National	National	National	National

Source: CRTC data collection

Not all broadband technologies are available in all parts of the country. This table lists the various types of mobile and wireline broadband technologies, as well as IPTV and digital satellite technologies, and shows the percentage of households nationally that were able to access such technologies for the years from 2011 to 2015. The declines in the availability of DSL in 2013 were due to the deployment of fibre technology.-Fibre availability is not reported for 2011 and 2012.

¹⁷ The information in this section does not take into account upload speeds.

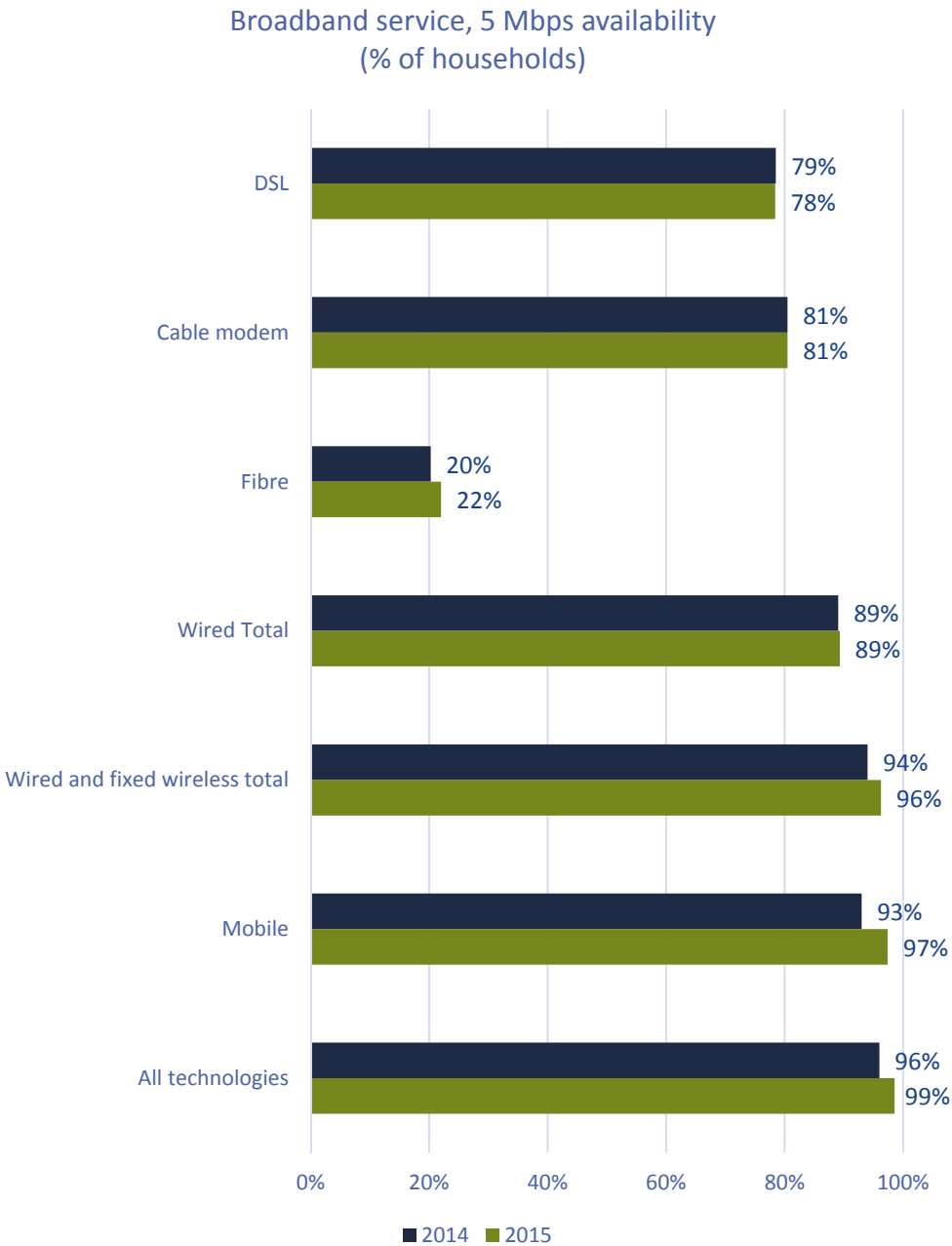
Figure 5.3.10 Broadband service availability vs. subscriptions by province/territory, 2015



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

The availability and take-up rates of broadband services vary from province to province. The provinces of New Brunswick and Saskatchewan have arrangements to provide broadband services via satellite under terms and conditions similar to those for wireline services. In the province of Prince Edward Island, HSPA+ is available to households without access to other means of broadband services under terms and conditions equivalent to those for wireline services. The fixed broadband availability data exclude satellite broadband services, but these services are included in the fixed broadband subscriptions data. The HSPA+ bar shows the effect that inclusion of HSPA+ technology would have on broadband availability.

Figure 5.3.11 Broadband service, 5 Mbps availability (% of households)



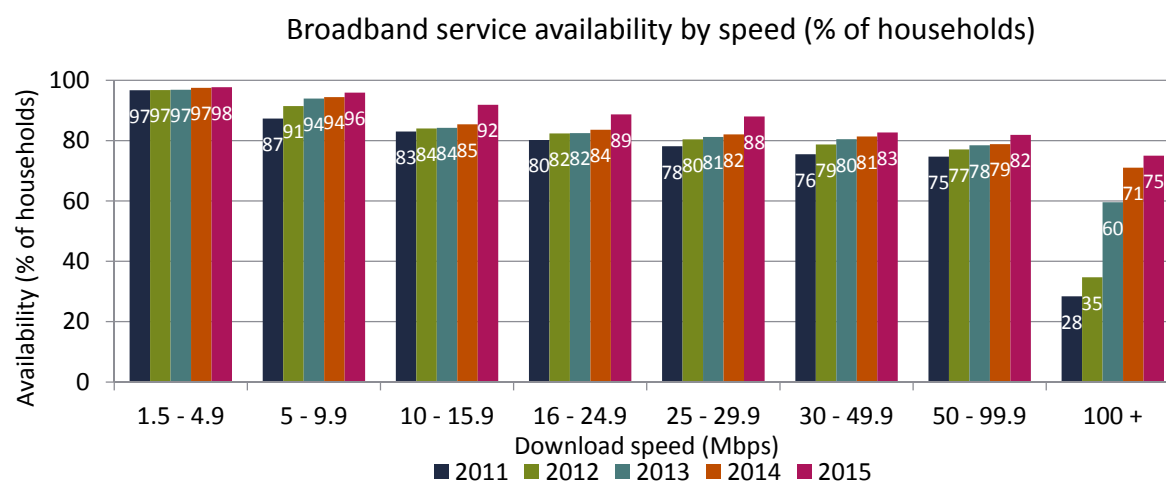
Source: CRTC data collection

A broadband download speed of at least 5 Mbps is available to 98.6% of Canadian households through a variety of platforms. This bar graph shows the availability rates of broadband service access through DSL, cable modem, fixed wireless, fibre, and mobile technologies, as well as the availability rate of all technologies at this speed. Satellite service is excluded.

ix Broadband service availability

Broadband service availability differs between Canada's urban and rural areas, particularly in terms of services that offer faster download speeds.

Figure 5.3.12 Broadband service availability by speed (% of households)



Sources: 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.

Increases in speed categories at and above 50 Mbps in 2015 are in part due to the consideration of the effects of line bonding (using more than one line to provide service) on DSL.

Table 5.3.15 Broadband service availability in rural areas, by download speed and number of platforms (% of households), 2015

Number of platforms	1.5 Mbps and higher	5.0 Mbps and higher	10.0 Mbps and higher	16.0 Mbps and higher	25.0 Mbps and higher	30.0 Mbps and higher	50.0 Mbps and higher	100 Mbps and higher
1	9	16	42	36	36	24	23	20
2	40	41	18	14	12	6	6	4
3	33	27	5	2	2	0	0	0
4	15	10	0	0	0	0	0	0
Total	98	93	64	52	50	31	29	24

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

This table shows the percentage of households in rural areas that have access to broadband services at varying speeds, and over four platforms: DSL/fibre, cable modem, fixed wireless, and mobile (HSPA+ and LTE). On one end of the availability spectrum, broadband service platforms at speeds of at least 5 Mbps are available to 93% of rural Canadian households. On the other end of the spectrum, two broadband service platforms at speeds of more than 100 Mbps are available to 6% of rural Canadian households.

The total at the bottom of each column indicates the percentage of rural Canadian households that can access the speeds noted for each column. This table excludes broadband services provided through satellite technologies.

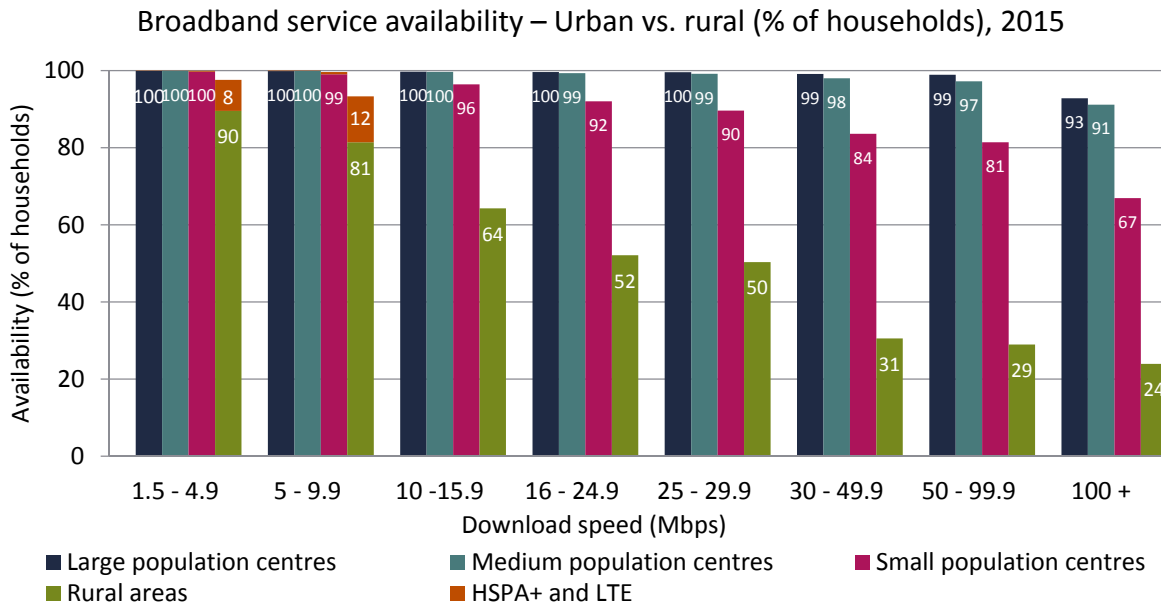
Table 5.3.16 Broadband service availability, by speed and province/territory (% of households), 2015

Province/territory	1.5-4.9 Mbps	1.5-4.9 Mbps with HSPA+	5-9.9 Mbps	5-9.9 Mbps with LTE	10-15.9 Mbps	16-24.9 Mbps	25 Mbps or higher
British Columbia	97	99	95	98	92	90	89
Alberta	99	99.9	99	99.8	95	94	93
Saskatchewan	91	99	85	91	76	61	59
Manitoba	98	99.7	95	96	85	74	74
Ontario	99	99.8	98	99.6	96	94	94
Quebec	97	99	96	98	91	86	86
New Brunswick	97	99.7	96	99	94	94	94
Nova Scotia	99.8	99.9	87	99	84	83	81
Prince Edward Island	93	99.9	77	99.9	61	61	55
Newfoundland and Labrador	85	97	81	93	69	69	60
Yukon	97	97	97	97	69	69	62
Northwest Territories	97	97	92	92	72	72	48
Nunavut	99.9	99.9	29	29	0	0	0

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

Not all provinces/territories have the same access to broadband services. This table shows the regional availability by broadband technology, by province and territory, in 2015. The availability of broadband services vary from province to province. The provinces of New Brunswick and Saskatchewan have arrangements to provide broadband services at 1.5 Mbps via satellite under terms and conditions similar to those for wireline services. In the province of Prince Edward Island, HSPA+ is available to households without access to other means of broadband services under terms and conditions equivalent to those for wireline services. Since satellite service has a national footprint, it is excluded from this table.

Figure 5.3.13 Broadband service availability – Urban vs. rural (% of households), 2015



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

This table shows the percentage of Canadian households in large, medium, and small population centres, as well as in rural areas, that can access various broadband services.

Small population centres are considered to have populations of between 1,000 and 29,000. 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 bars show the additional effect that inclusion of these technologies would have on the respective categories.

Satellite services are excluded as they have a national footprint.

Table 5.3.17 Adoption of various video technologies in Canada (% of households)

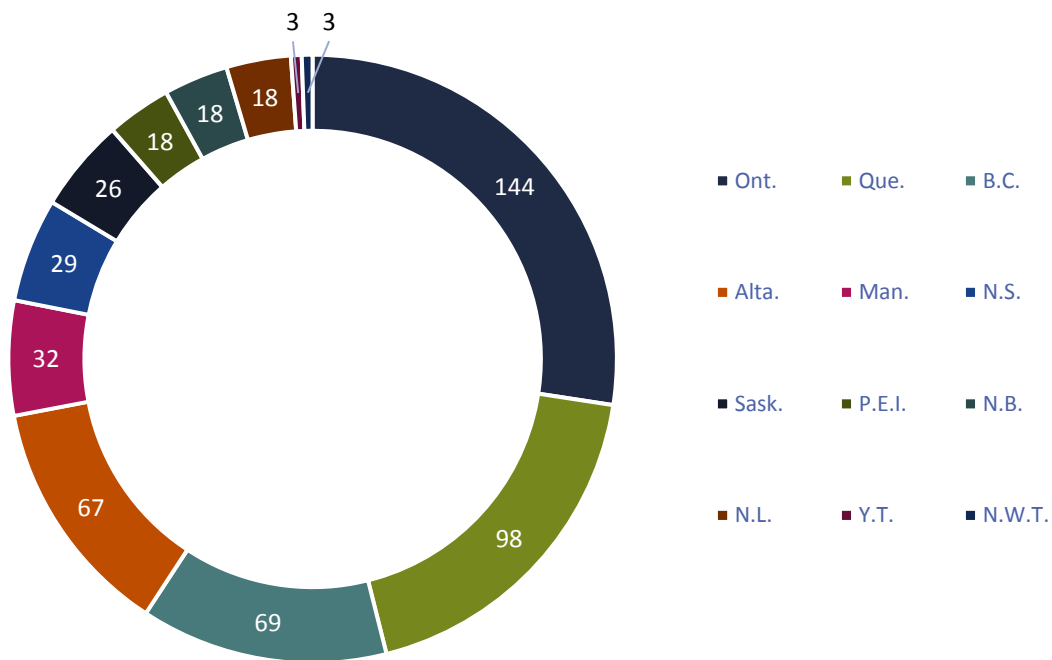
Technology	Language market	2011	2012	2013	2014	2015
Internet TV	Anglophones	34	38	44	51	57
	Francophones	38	39	44	42	49
Internet video on cell/smartphone	Anglophones	12	14	23	38	50
	Francophones	8	8	16	27	37
Internet use on tablet	Anglophones	n/a	29	37	44	45
	Francophones	n/a	15	28	37	43
Internet video on tablet	Anglophones	6	11	20	26	34
	Francophones	3	7	16	25	34

Source: MTM 2011-2015 (Respondents: Canadians 18+)

This table shows the rates of adoption and growth of various video technologies among Canadian consumers. Over the past 5 years, the popularity of video and television streaming to personal electronic devices has grown greatly.

Figure 5.3.14 ISPs found on the CRTC’s online search tool “You have choices” by province

ISPs found on the CRTC’s “You have choices” tool, by province



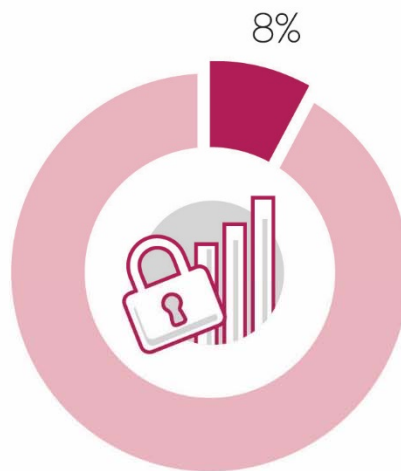
Source: You Have Choices

This figure shows the number of unique ISPs providing residential Internet service in each province’s CMA/CAs in the “You have choices” tool.

5.4 Data and private line retail sector

Retail telecommunications revenues in 2015

\$43.9 billion ▶



■ Data and private line

Revenues

\$3.4 B

Decrease of 3.9%
over 2014

Incumbent
Market Share

73%

Of total revenues

Forborne Data

98%

Of revenues

Forborne
Private line

84%

Of revenues

Forborne
Private line

6,081

Routes (up 0.4%
from 2014)

Data and private line services refer to those services sold by TSPs to business customers for the transmission of data, video, and/or voice traffic. These communications channels provide private, highly secure communications between locations.

Canadian businesses were served by approximately 191 entities offering data and private line services in 2015. Of these, incumbent telecommunications service providers (incumbent TSPs or incumbent providers) accounted for approximately 15%, and alternative service providers, such as cable-based carriers, utility telcos, and resellers, accounted for the remaining 85%.

Data services are packet-based services that intelligently switch data through carrier networks. They make use of (a) new data protocols such as Ethernet and IP, or (b) legacy protocols such as X.25, asynchronous transfer mode (ATM), and frame relay to transmit data.

These services are provided by both incumbent TSPs and their competition, with competitors having around 29% of the total market, including network management and equipment. Notable is the increase over time in the activity of cable-based carriers in the newer protocol space.

Private line services provide a non-switched dedicated communications connection between two or more points to transport data, video, and/or voice traffic. These services include high-capacity digital transmission services and digital data systems, as well as voice-grade and other analog systems. Transmission facilities include copper wire and fibre-optic cable. Private line services make use of transmission facilities such as OC-3 fibre optic lines, DS-1 copper facilities, etc.

In the private line space, the market is dominated by the incumbent TSPs. Of the alternative service providers, independent operators are the largest provider category.

i Revenues

Table 5.4.1 Data and private line retail revenues (\$ millions)

Category	Subcategory	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Data	Data protocols	1,832	1,893	1,917	1,952	1,919	-1.7	1.2
	Other	734	796	832	857	779	-9.2	1.5
	Total data protocols and other	2,566	2,689	2,749	2,809	2,698	-4.0	1.3
Private line	Total	751	793	834	784	754	-3.8	0.1
Total data and private line	Total	3,317	3,482	3,583	3,593	3,452	-3.9	1.0

Source: CRTC data collection

This table shows retail data and private line revenues for the years from 2011 to 2015. Data services were classified into one of two categories: (a) services making use of data protocols such as Ethernet and IP, X.25, ATM, and frame relay; or (b) other services such as network management and networking equipment.

Due to a change in company reporting, other data revenues may not be comparable to previous years. This creates a loss of approximately 6% of other revenues in 2015.

Table 5.4.2 Retail data service revenues, by classification of data protocol used (\$ millions)

Category	Subcategory	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
New Protocols	Ethernet	479	483	483	465	456	-1.9	-1.2
	IP	1,124	1,190	1,218	1,284	1,284	0.0	3.4
	Other	126	154	167	171	158	-7.7	5.8
	Total	1,729	1,826	1,868	1,920	1,898	-1.1	2.4
Legacy Protocols	Total	104	67	49	32	21	-34.8	-32.8
Total data protocols	Total	1,832	1,893	1,917	1,952	1,919	-1.7	1.2

Source: CRTC data collection

This table shows the retail data service revenues realized by service providers. The data services were classified as services making use of (a) new data protocols such as Ethernet and IP or (b) legacy protocols such as X.25, ATM, and frame relay. The table charts growth in these revenues over the period from 2011 to 2015.

Table 5.4.3 Private line retail revenues, by type of service provider (\$ millions)

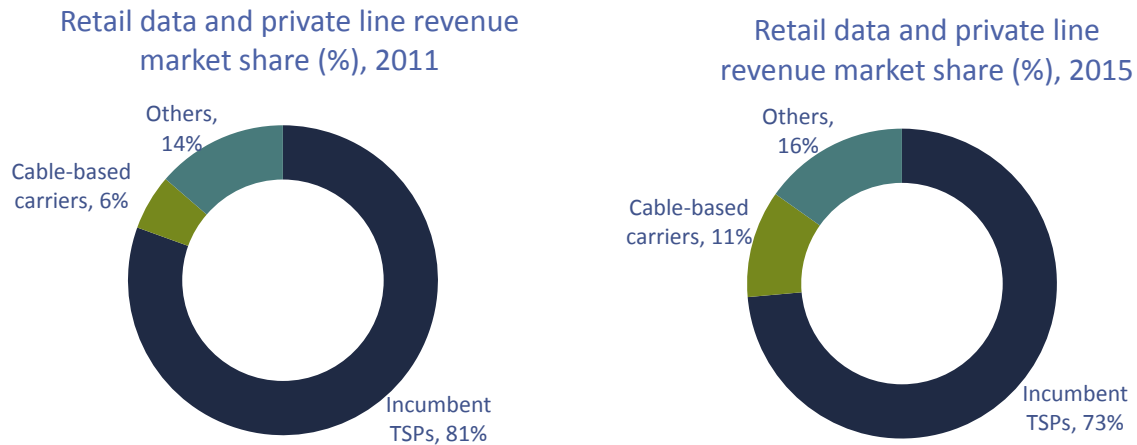
Type	Subtype	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Incumbent TSPs	Total	670	652	683	634	604	-4.6	-2.6
Alternative service providers	Cable-based carriers	48	49	54	61	62	2.6	6.8
	Others	33	92	97	90	87	-2.8	27.9
	Total	80	141	151	150	149	-0.6	16.7
Total private line	Total	751	793	834	784	754	-3.8	0.1

Source: CRTC data collection

ii Competitive landscape

Although incumbent TSPs accounted for only approximately 15% of the entities providing data and private line services, they captured 73% of retail revenues. The remaining 85% of entities providing these services, consisting of cable-based carriers, other carriers, and resellers, accounted for 27% of retail revenues.

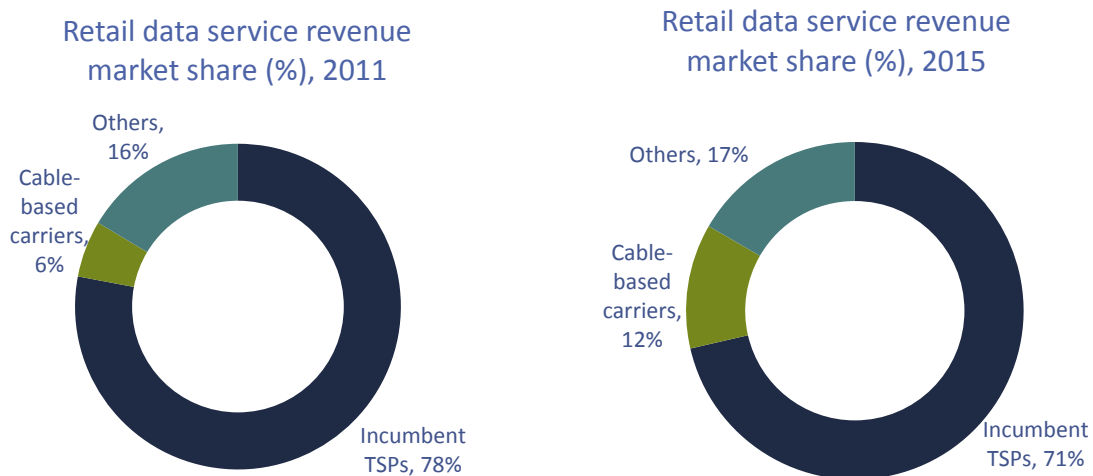
Figure 5.4.1 Retail data and private line revenue market share (%), by TSP



Source: CRTC data collection

Due to a change in company reporting, Incumbent TSPs were reduced by 1.5% market share in 2015.

Figure 5.4.2 Retail data service revenue market share (%), by TSP



Source: CRTC data collection

Due to a change in company reporting, Incumbent TSPs were reduced by 2% market share in 2015.

Table 5.4.4 Retail data service revenue market share (%), by service provider and by classification of data protocol used

Protocol	Type of service provider	Service provider subtype	2011	2012	2013	2014	2015
New data protocols	Incumbent TSPs	Total	72	67	66	66	66
	Alternative service providers	Cable-based carriers	7	10	12	12	13
		Others	21	23	22	22	21
		Total	28	33	34	34	34
Legacy data protocols	Incumbent TSPs	Total	68	62	61	63	67
	Alternative service providers	Total	32	38	39	37	33
All data protocols	Incumbent TSPs	Total	72	67	66	66	66
	Alternative service providers	Total	28	33	34	34	34

Source: CRTC data collection

This table shows the percentage of retail data revenues realized by service providers through the use of new and legacy data protocols.

Table 5.4.5 Retail private line revenue market share (%)

Service provider type	2011	2012	2013	2014	2015
Incumbent TSPs	89	82	82	81	82
Cable-based carriers	6	6	6	8	8
Others	4	12	12	11	10

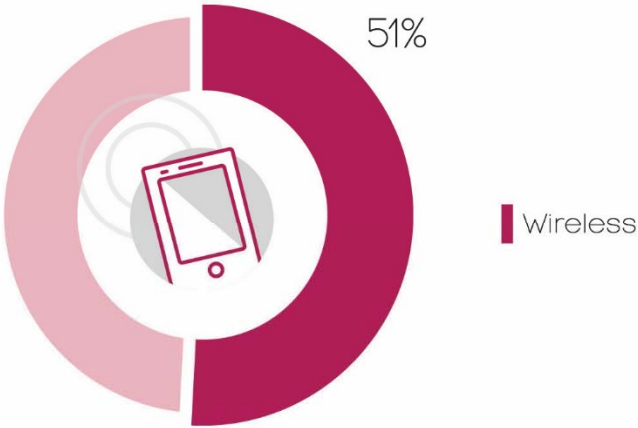
Source: CRTC data collection

This table shows the revenue shares for the incumbent TSPs when providing service to their business customers, both within and outside of their traditional geographic areas, and for alternative service providers (i.e. cable-based carriers, utility telcos, and resellers), for the years from 2011 to 2015. Incumbent TSPs continue to dominate in this service category.

5.5 Wireless retail sector

Retail telecommunications revenues in 2015

\$43.9 billion ▶



Revenues	Subscriber Market Share	Average Revenue per Subscriber per Month	Percent of Canadian Subscribers Subscribing to at least 1 GB Data Plan
\$22.5 B	90%	\$64	46%
Increase of 7.5% over 2014	Of top 3 wireless service providers	Increase of 5% over 2014	Increase from 44% in 2014

The wireless retail market remained the largest communications market sector with revenues of \$22.5 billion and a growth rate of 7.5% or \$1.6 billion in 2015.

Canada's wireless networks enable Canadians to access services that are comparable to wireline services. Wireless service providers (WSPs) provide voice, data, Internet, and video services. The differentiating factors for these services tend to be mobility and price. Based on MTM statistics, the three most popular activities by Canadian smartphone owners were text messages, Internet access, and email.

Wireless networks cover approximately 20% of Canada's geographic land mass and reach 99% of Canadians. The advanced wireless network that supports handsets, such as smartphones, tablets, and turbo sticks, is also available to 99.3% of Canadians. The long-term evolution (LTE) network, which delivers even higher speeds than previous generation networks, is available to approximately 97.4% of Canadians. Not only were these networks serving over 29.7 million Canadian subscribers, there were also over 3.0 million machine-to-machine connections reported in 2015, an increase of 19% from 2014.

In addition to advanced wireless networks such as LTE which provide broadband Internet access, wireless service providers have significantly increased the number of publicly available WiFi hotspot locations (free and for-pay) across the country from 14,000 at the end of 2014 to over 21,000 by the end of 2015. This provided Canadians an additional method of accessing voice and data communication services on their handheld and other wireless communication devices. WiFi hot spots also provide wireless subscribers a means to minimize potential roaming charges.

Over the past five years, the percentage of Canadian who subscribed to wireless services increased from 80% to 82%, however, the subscriber growth rate has declined from 5.9% to 3.4%. At the same time, Canadians have shifted the way in which they use their mobile devices, by placing an emphasis on data usage rather than voice services. Canadians' appetite to access mobile applications, multi-media services, social networking, Internet browsing, and other data intensive activities have driven smartphone adoption rates higher and wireless data revenue growth to over 15.7% in 2015, and, on average, 18.8% over the past five years.

In 2013, [the Wireless Code](#) came into effect, ensuring that consumers of wireless services could better understand their contracts, establishing consumer-friendly business practices, significantly limiting the early cancellation fees that were previously sought by retail wireless service providers; and enabling consumers to take advantage of competitive offers at least every two years. In 2015, approximately 86% of post-paid plans had contracts that were equal to or less than two years in length, compared to 67% in 2014 and 44% in 2013.

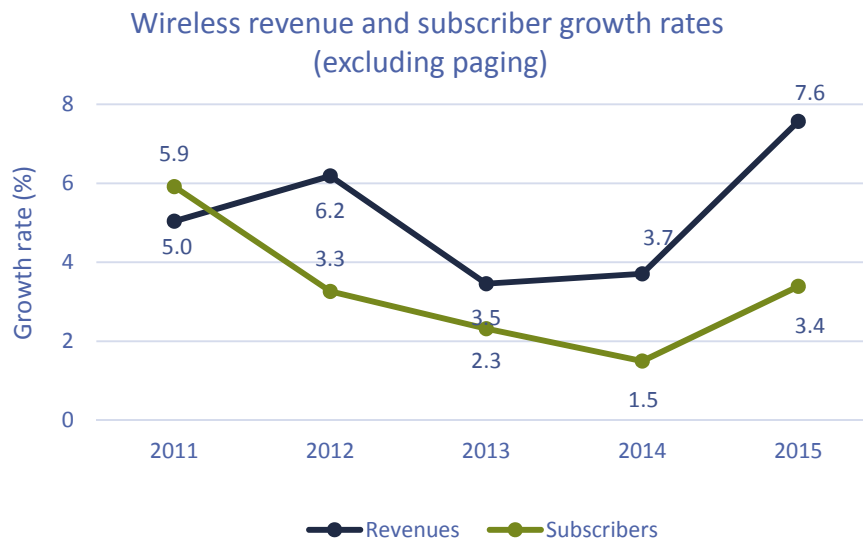
In terms of provider choice, Canadians were served by three large national WSPs, collectively accounting for 90% of wireless service subscribers. A number of smaller, regional, facilities-based WSPs and a small number of mobile virtual network operators and resellers accounted for the remaining 10%. In both urban centres and rural communities, Canadians generally had a choice of between two and six WSPs.

After the sale of the 700 MHz spectrum auction in 2014, the Government of Canada took additional measures in early 2015 to encourage greater competition in the wireless market by releasing 50 MHz of spectrum in an auction for advanced wireless services (AWS-3) in the bands of 1755-1780 MHz and 2155-2180 MHz. As a result, five companies invested \$2.1 billion in AWS-3 spectrum and 39 licences were issued in 2015. The amount of capital investment as a percentage of total wireless revenues, or capital intensity, dropped to 22% in 2015 compared to 35% in 2014 largely due to higher investment spending on spectrum in 2014.

In 2015, the Commission published *Telecom Regulatory Policy* [CRTC 2015-177](#) which determined that it is necessary to regulate rates that Bell Mobility, Rogers Communications and TELUS Communications Company charge other wireless carriers for domestic Global System for Mobile communications (GSM)-based wholesale roaming. These regulations will facilitate sustainable competition and provide benefits to Canadians, such as reasonable prices and innovative services, as well as continued innovation and investment in high-quality mobile wireless networks. In the decision, the Commission expressed its intent to monitor the competitive conditions in the mobile wireless market.

i Revenues

Figure 5.5.1 Wireless service revenue and subscriber growth rates (excluding paging)



Source: CRTC data collection

This table shows revenue and subscriber growth rates for WSPs from 2011 to 2015. In 2015, the wireless revenue growth rate climbed to its highest level in more than five years to 7.6% and subscriber growth rate rebounded to 3.4%.

Table 5.5.1 Retail wireless and paging service revenues (\$ millions)

Type	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Wireless	18,368.6	19,504.8	20,179.3	20,927.9	22,511.7	7.6	5.2
Paging	38.2	21.8	18.4	17.3	12.6	-26.9	-24.1
Total revenues	18,406.7	19,526.6	20,197.7	20,945.2	22,524.3	7.5	5.2

Source: CRTC data collection

This table shows the revenue for the wireless and paging service markets from 2011 to 2015. Annual growth rates for wireless services (excluding paging) can be found in the figure 5.5.1.

Table 5.5.2 Retail wireless and paging service revenue components (\$ millions)

Type	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Basic voice	9,816.5	9,486.8	8,818.7	8,665.5	8,689.0	0.3	-3.0
Long distance	1,286.2	1,255.6	1,160.3	880.4	656.1	-25.5	-15.5
Paging	38.2	21.8	18.4	17.3	12.6	-26.9	-24.1
Terminal equipment including handheld devices	1,401.9	1,532.8	1,501.5	1,673.7	2,129.8	27.3	11.0
Data	5,046.1	6,233.2	7,546.1	8,672.6	10,034.9	15.7	18.8
Roaming and other	817.8	996.3	1,152.8	1,035.7	1,001.9	-3.3	5.2
Data, roaming, and other	5,863.9	7,229.5	8,698.8	9,708.3	11,036.8	13.7	17.1
Total	18,406.7	19,526.6	20,197.7	20,945.2	22,524.3	7.5	5.2

Source: CRTC data collection

This table shows the service revenue components of the wireless market for the years 2011 to 2015. These components include voice, long distance, paging, hardware, data, roaming, and other. Mobile television revenues are included within data revenues.

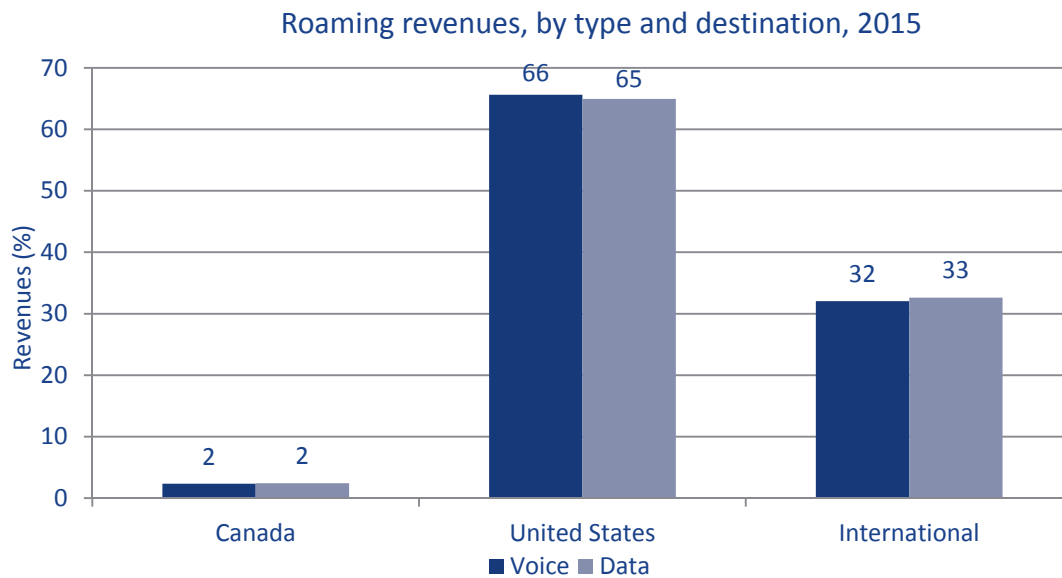
Table 5.5.3 Prepaid and postpaid retail wireless service revenues (basic voice, long distance, and data) (\$ millions)

Type	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Prepaid	978.2	877.3	790.4	871.6	879.8	0.9	-2.6
Postpaid	14,957.3	15,762.3	16,303.6	17,179.5	18,345.8	6.8	5.2
Total	15,935.5	16,639.6	17,094.0	18,051.1	19,225.6	6.5	4.8

Source: CRTC data collection

Canadians have a choice of either prepaid or post-paid wireless services. With prepaid services, a significant portion of services and usage is paid prior to consuming the services. With post-paid services, a significant portion of services and usage is paid subsequent to consuming the services.

Figure 5.5.2 Roaming revenues, by type and destination, 2015



Source: CRTC data collection

WSPs extend their coverage area to areas where they do not have facilities by making arrangements with other WSPs that do have facilities in those areas to offer service to their end-users. When a subscriber uses the facilities of another WSP, the subscriber is said to be “roaming.” This graph shows the percentage of roaming-out revenues that were derived within Canada, the United States, and internationally. SMS and MMS revenues were excluded from the data revenue component within this particular figure.

While 61% of voice roaming and 48% of data roaming happens within Canada (as shown in Figure 5.5.24), the revenues mainly come from roaming in the United States (65%).

ii Subscriber data

Table 5.5.4 Number of wireless and paging service subscriptions (thousands)

Type	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Wireless	26,844.3	27,720.6	28,363.8	28,788.9	29,765.4	3.4	2.6
Paging	219.0	186.3	161.5	146.7	161.5	10.1	-7.3

Source: CRTC data collection

This table shows the number of subscribers to wireless and paging services between 2011 and 2015. From 2011 to 2015, there have been a steady increase in wireless subscribers, while paging has generally declined.

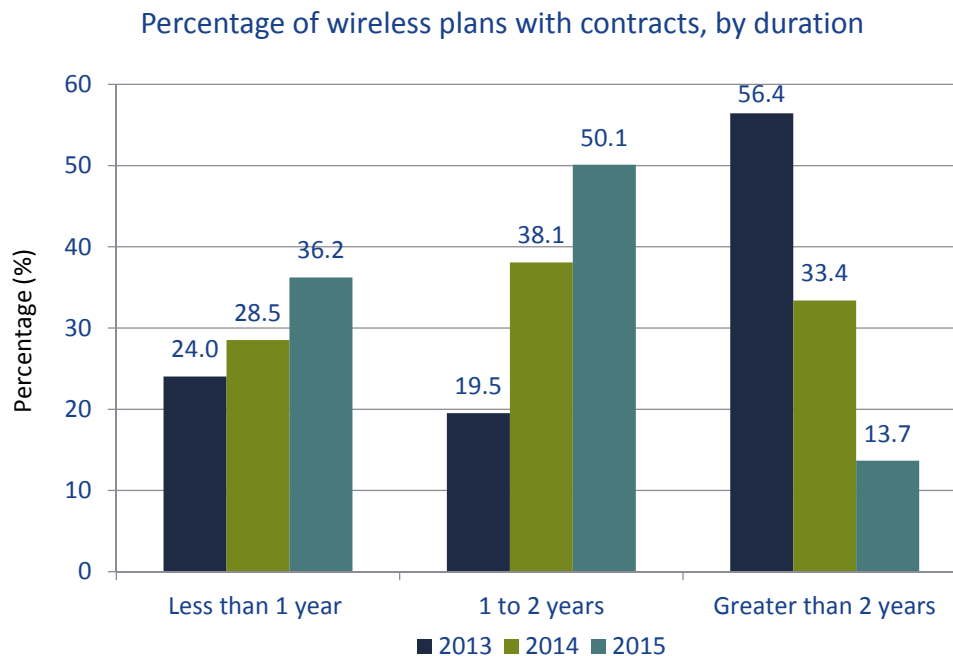
Table 5.5.5 Post-paid wireless service subscribers as a percentage of total wireless service subscribers (%)

Type	2011	2012	2013	2014	2015
Post-paid	78	81	83	86	86

Source: CRTC data collection

Canadians subscribing to wireless services favour postpaid services.

Figure 5.5.3 Percentage of wireless service contracts, by duration

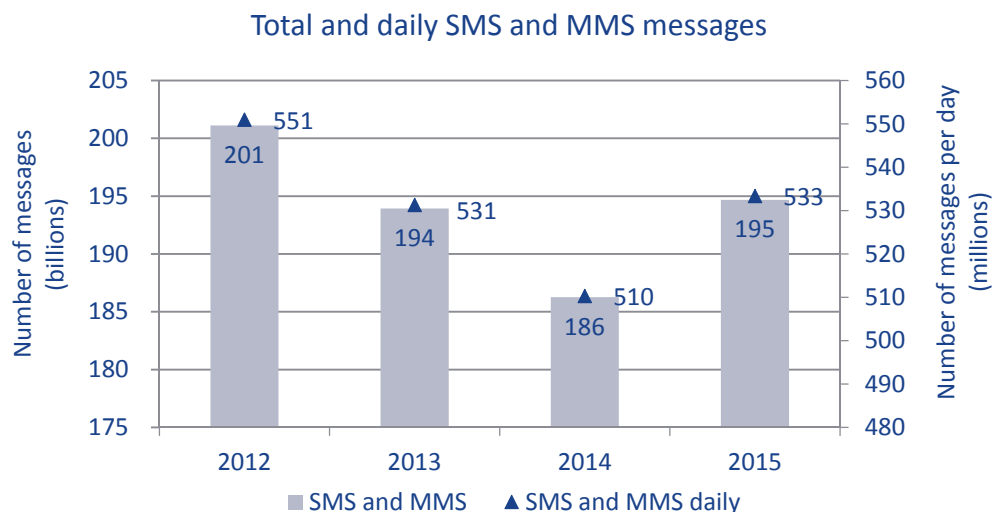


Source: CRTC data collection

This chart shows the percentage of post-paid plans that were under contract for less than 1 year, for 1 to 2 years, and for greater than 2 years.

With the implementation of the Wireless Code in 2013, the percentage of post-paid plans with contracts of more than 2-years has declined significantly.

Figure 5.5.4 Total and daily number of MMS and SMS messages



Source: CRTC data collection

This table shows the growth in the number of messages sent and received by Canadians via SMS and MMS per day and annually for the period 2011 to 2015. The total number of SMS and MMS messages was restated for 2012 to include estimates for a company that was overlooked.

Multi-media messaging service (MMS) is similar to SMS, but it enables the transmission of multimedia content, such as pictures and videos, between subscribers.

Short message service (SMS) enables the transmission of text messages of up to 160 characters in length between subscribers.

Table 5.5.6 Average monthly SMS/MMS (messages/month) and data (MB/month) usage

Metric	2014	2015
Average data usage per subscriber (MB/month)	641	921
Average data usage per subscriber with a data plan (MB/month)	988	1,320
Average number of SMS/MMS per subscriber (messages/month)	547	548

Source: CRTC data collection

This table shows the average mobile data usage across all retail subscribers and the average data usage among those subscribers who subscribed to a data plan.

The average wireless data usage per subscriber and subscriber who subscribed to a data plan were calculated by dividing total retail data usage (upload/download data) for the year by the average number of subscribers at the beginning and at the end of the year. Subscribers who subscribed to a data plan were classified as those who subscribed to voice and data and data-only plans.

Table 5.5.7 Average revenue per 1 GB data/month (\$)

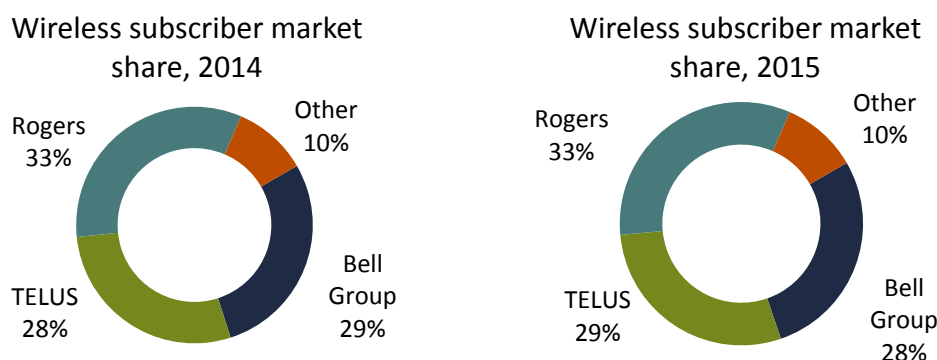
Metric	2015
1 GB of data usage	31.29

Source: CRTC data collection

This table shows the average revenues generated from 1 GB of data usage per month. To derive this number, only companies that provided both data traffic and revenues were included in the calculation.

iii Competitive landscape

Figure 5.5.5 TSPs' wireless subscriber market share



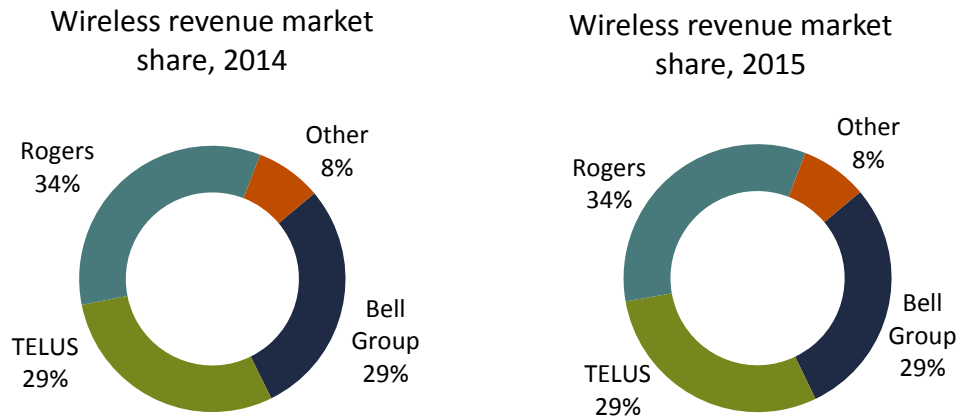
Source: CRTC data collection

These charts show the percentage of subscribers to wireless services in 2014 and 2015 for Canada's three major TSPs: the Bell Group of companies (Bell Group), Rogers Communications Partnership (Rogers), and TELUS. Collectively, Bell, Rogers, and TELUS had 90% of wireless subscribers in 2014 and 2015.

The "Other" category includes TSPs such as MTS Allstream, SaskTel, other small TSPs, as well as, the remaining new entrants that acquired spectrum in Innovation, Science and Economic Development Canada's 2008 AWS spectrum auction and were still operating as a competitor to Bell Group, Telus and/or Rogers in 2014.

The "Bell Group" category includes Bell Canada; Bell Mobility; Latitude Wireless; NorthernTel, Limited Partnership; Northwestel Mobility; Télébec, Limited Partnership; and KMTS. As of 2013, Public Mobile's figures were included with those of TELUS. In 2015, Data & Audio Visual Enterprises Wireless Inc.'s (Mobilicity) figures were included with those of Rogers.

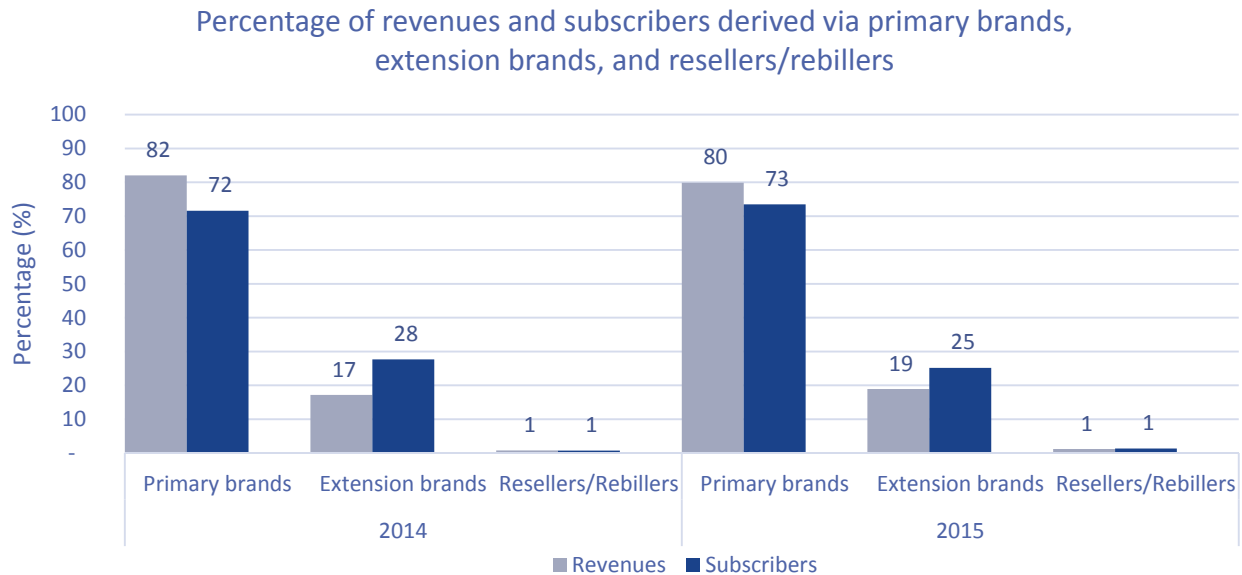
Figure 5.5.6 TSPs' wireless service revenue market share



Source: CRTC data collection

These charts show the percentage of revenues from wireless services in 2014 and 2015 for Canada's three major TSPs: the Bell Group, Rogers, and TELUS. Collectively, Rogers, Bell, and Telus had 92% of all wireless revenues in 2014 and 2015.

Figure 5.5.7 Percentage of revenues and subscribers derived via primary brands, extension brands, and resellers/rebillers



Source: CRTC data collection

Canadian WSPs market wireless services through primary and extension brands. By marketing their services through various market segments, WSPs are able to differentiate service offerings to potentially affect the competitive landscape in regional markets. This graph depicts the revenues and subscribers garnered through primary brands, extension brands, and reseller/rebiller arrangements.

Extension brands are brand names created by companies to serve specific customer needs. These names are in addition to the companies' established or main brand. Extension brands are sometimes referred to as "flanker brands." Some Canadian flanker brands include Fido, Solo, and Koodo.

Resellers/rebillers are companies that rely mainly on the large, facilities-based operators to package, market, bill, and deliver their mobile services, e.g., PC mobile, Petro-Canada Mobility, and SpeakOut 7-Eleven.

Table 5.5.8 Wireless service subscriber market share, by province and territory (2015) (%)

Province/territory	Bell Group	TELUS	Rogers	Other
British Columbia	20	42	37	0
Alberta	25	53	23	0
Saskatchewan	15	13	5	66
Manitoba	8	7	36	49
Ontario	30	22	47	1
Quebec	31	28	28	13
New Brunswick	57	26	17	0
Nova Scotia	54	33	12	0
Prince Edward Island	57	31	12	0
Newfoundland and Labrador	71	27	1	0
The North	99	0	0	1

Source: CRTC data collection

Canada's major WSPs have different shares of the provincial wireless markets. This table displays the market shares owned by the major WSPs, excluding Wind and Eastlink, in Canada's provinces and territories.

The three major WSPs have the largest market share across all provinces and territories except Saskatchewan and Manitoba.

"The North" includes Yukon, the Northwest Territories, and Nunavut.

Table 5.5.9 Average monthly churn rates (%)

Service provider	2011	2012	2013	2014	2015
Bell Mobility	2.0	1.7	1.6	1.5	1.5
Rogers Communications	1.8	1.8	1.7	1.6	1.6
TELUS	1.7	1.5	1.4	1.3	1.3

Sources: Companies' annual reports and CRTC data collection

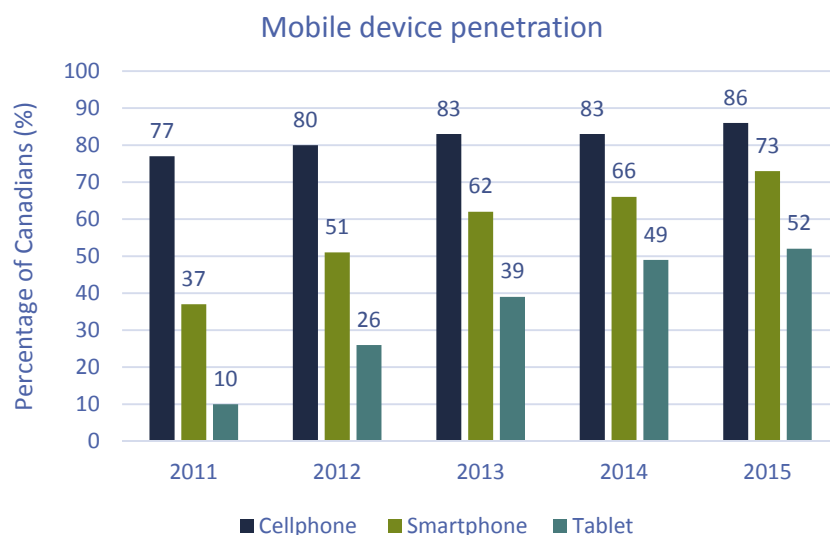
This table shows the average churn rate for three major WSPs from 2011 to 2015. Customers may leave their WSP for a number of reasons, including dissatisfaction with the service, taking advantage of competitive offers, and pricing issues.

The average churn rate is a measure of subscriber turnover. It is derived by dividing the number of subscribers that have left a wireless service by the total number of wireless service subscribers. The higher the number the more people are changing provider.

iv Technology indicators

The following tables and charts indicate the extent to which Canadians are adapting to a digital communication system. Smartphones, tablets, and other wireless devices that provide access to the Internet are continually increasing demand for wireless capacity.

Figure 5.5.8 Mobile device penetration



Source: MTM 2015 (Respondents: Canadians aged 18+)

This graph shows the percentage of Canadians, 18 years of age and older, who owned regular cell phones, smartphones, and tablets, from 2011 to 2015. The use of smartphones and tablets increases the volume of data traffic on the network.

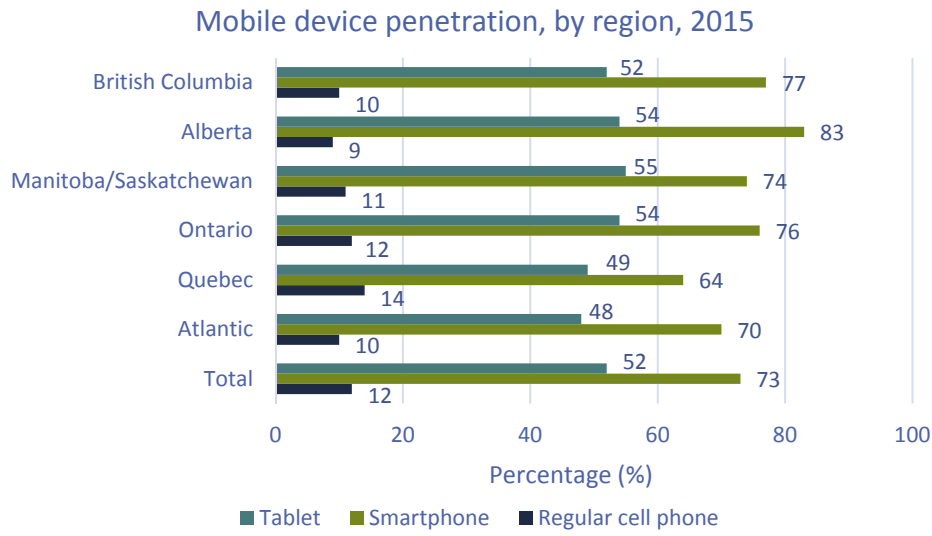
Table 5.5.10 Mobile device penetration, by linguistic group (%)

Mobile device	2011		2012		2013		2014		2015	
	Anglo	Franco	Anglo	Franco	Anglo	Franco	Anglo	Franco	Anglo	Franco
Cellphone	80	68	83	71	86	74	86	75	89	78
Smartphone	41	26	55	39	66	49	69	54	77	61
Tablet	12	6	28	17	42	30	51	41	53	48

Source: MTM 2015 (Respondents: Canadians aged 18+)

This table shows the percentage of Francophones and Anglophones in Canada who own cellphones, smartphones, and tablets, from 2011 to 2015. Cellphone owners include people who own either a cellphone or a smartphone.

Figure 5.5.9 Mobile device penetration, by region, 2015



Source: MTM 2015 (Respondents: Canadians aged 18+)

Canadians who reside in the western provinces are generally more likely to adopt smartphones and tablets than Canadians who reside in the eastern provinces.

Table 5.5.11 Number and percentage of subscribers with a data plan, by province and territory

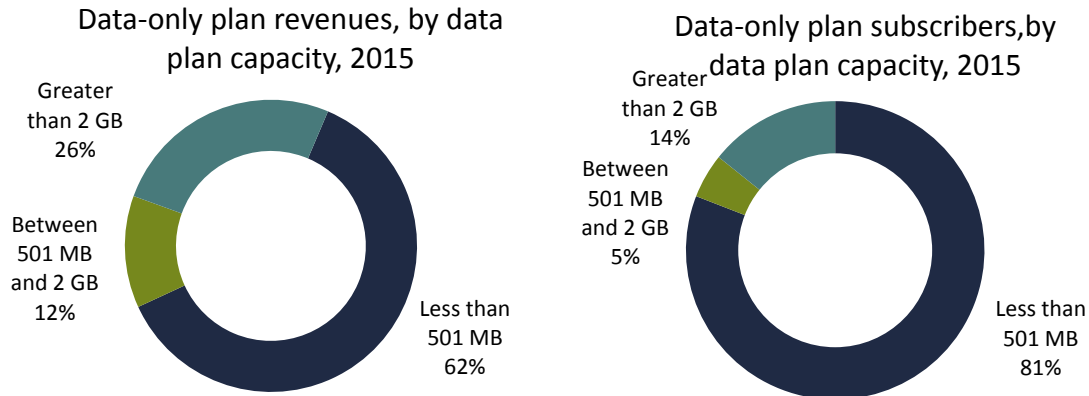
Province/territory	2014		2015		Growth (%) of number of subscribers with a data plan
	Number of subscribers with a data plan (000's)	Percentage of total subscribers with a data plan (%)	Number of subscribers with a data plan (000's)	Percentage of subscribers with a data plan (%)	
British Columbia	2,559	13	3,021	14	18.0
Alberta	2,657	14	3,069	14	15.5
Saskatchewan	653	3	720	3	10.2
Manitoba	864	4	900	4	4.2
Ontario	7,999	41	8,825	40	10.3
Quebec	3,450	18	4,099	19	18.8
New Brunswick	358	2	403	2	12.7
Nova Scotia	479	2	552	3	15.2
Prince Edward Island	70	0	80	0	14.5
Newfoundland and Labrador	289	1	327	1	13.3
The North	55	0	62	0	12.6

Source: CRTC data collection

The number of subscribers who subscribed to a data plan is a measure of the extent to which Canadians are participating in the digital economy, and provides an indication of the extent to which Canadians are adopting advanced handheld devices such as smartphones and tablets.

This table shows the number of subscribers who subscribed to a data plan in each region of the country in 2014 and 2015, as well as the number of subscribers with a data plan expressed as a percentage of all mobile subscribers.

Figure 5.5.10 Mobile data-only plan revenues and subscribers, by data plan capacity, 2015

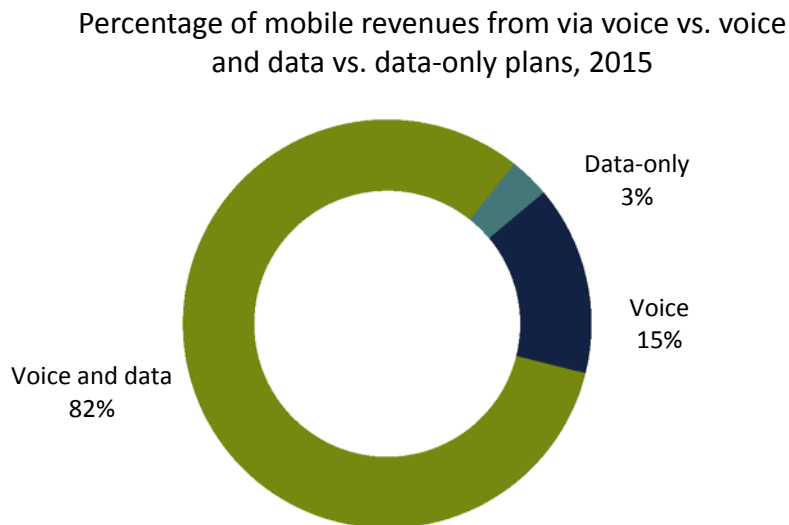


Source: CRTC data collection

These charts show the percentages of revenues and subscribers realized by WSPs by data plan capacity in 2015. Of the total number of subscribers, 6% were reported to be data-only subscribers.

Data-only plans include built-in and portable access devices, such as hubs, sticks, dongles, and laptops.

Figure 5.5.11 Percentage of mobile revenues from voice vs. voice and data vs. data-only plans, 2015



Source: CRTC data collection

This chart shows the percentage of revenues that WSPs derive from customers who subscribe to voice plans, voice and data plans, and data-only plans in 2015.

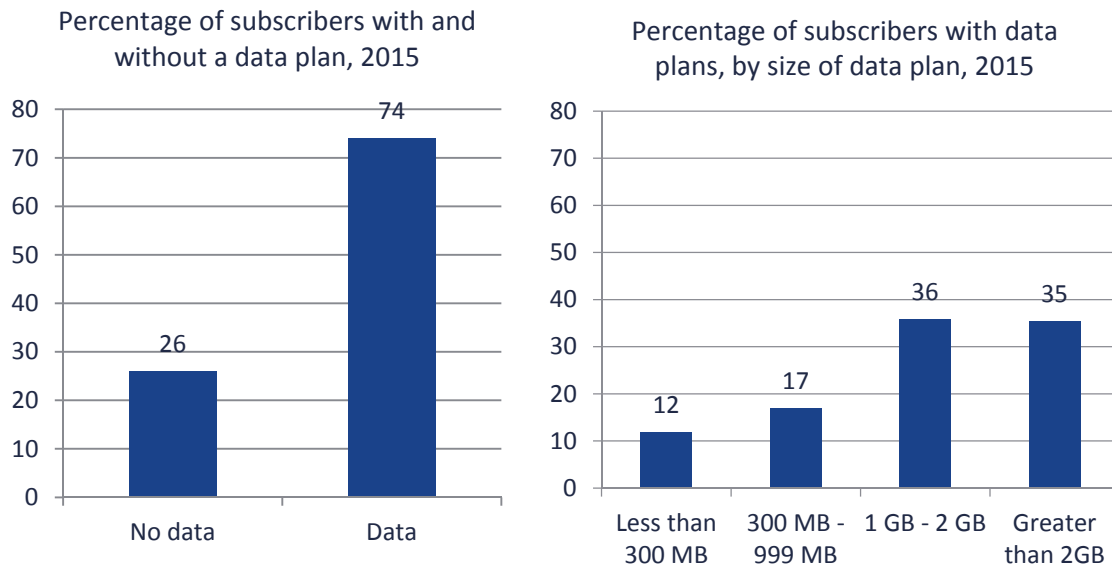
Table 5.5.12 Mobile broadband subscribers by type of plan

Type	Metric	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Voice and data	Number of subscribers (millions)	12.0	13.0	16.1	17.7	20.2	14.4	13.9
	Percentage of all subscribers (%)	44	47	57	61	68	10.7	11.6
Data-only	Number of subscribers (millions)	1.2	1.3	1.5	1.6	1.8	12.8	11.5
	Percentage of all subscribers (%)	4	5	5	6	6	9.1	9.2
Total	Number of subscribers (millions)	13.2	14.3	17.6	19.3	22.0	14.3	13.7
	Percentage of all subscribers (%)	48	51	62	67	74	10.5	11.3

Source: CRTC data collection

From 2011 to 2015, Canadians increasingly used broadband technology on mobile devices.

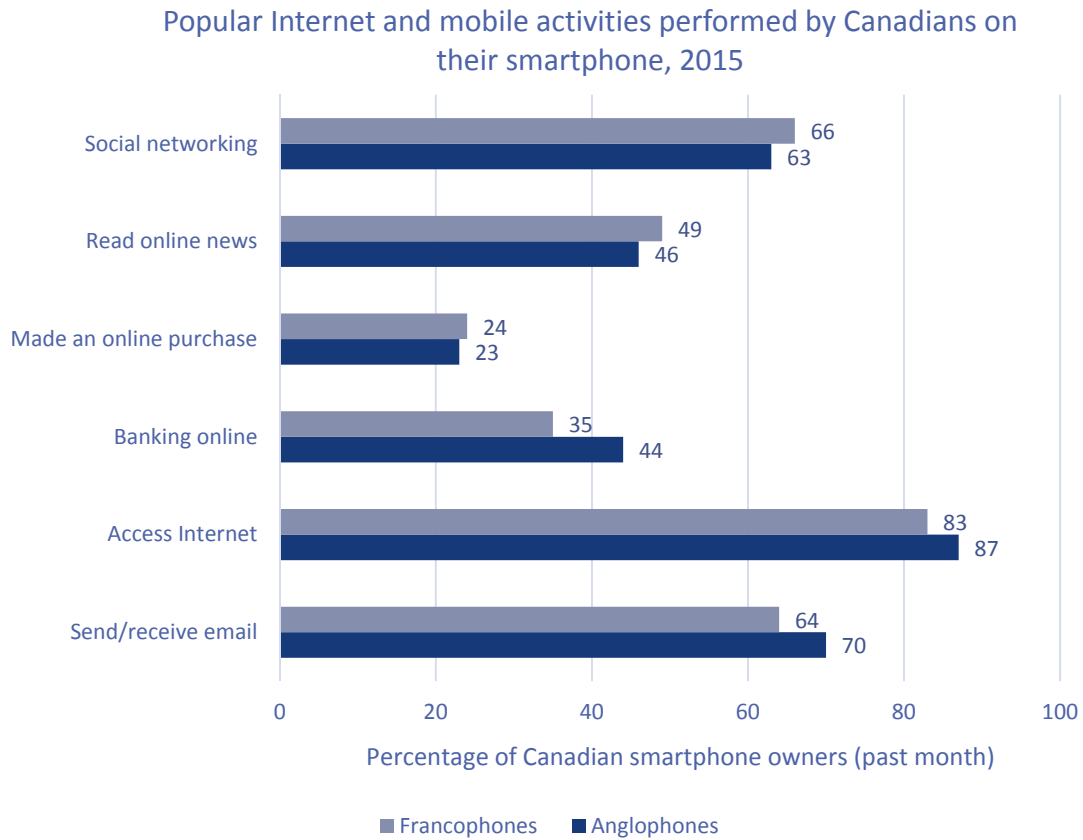
Figure 5.5.12 Percentage of mobile subscriber, by type of plans, 2015



Source: CRTC data collection

The data reported in this dual bar chart represents over 90% of total mobile subscribers. The chart on the left shows the percentage of subscribers with and without a data plan. The chart on the right shows the percent distribution of subscribers with a data plan, by size of the plan. Due to the difficulty of reporting corresponding voice and SMS services associated with each defined data plan, the assumption was made that all data plans included voice and text messaging services.

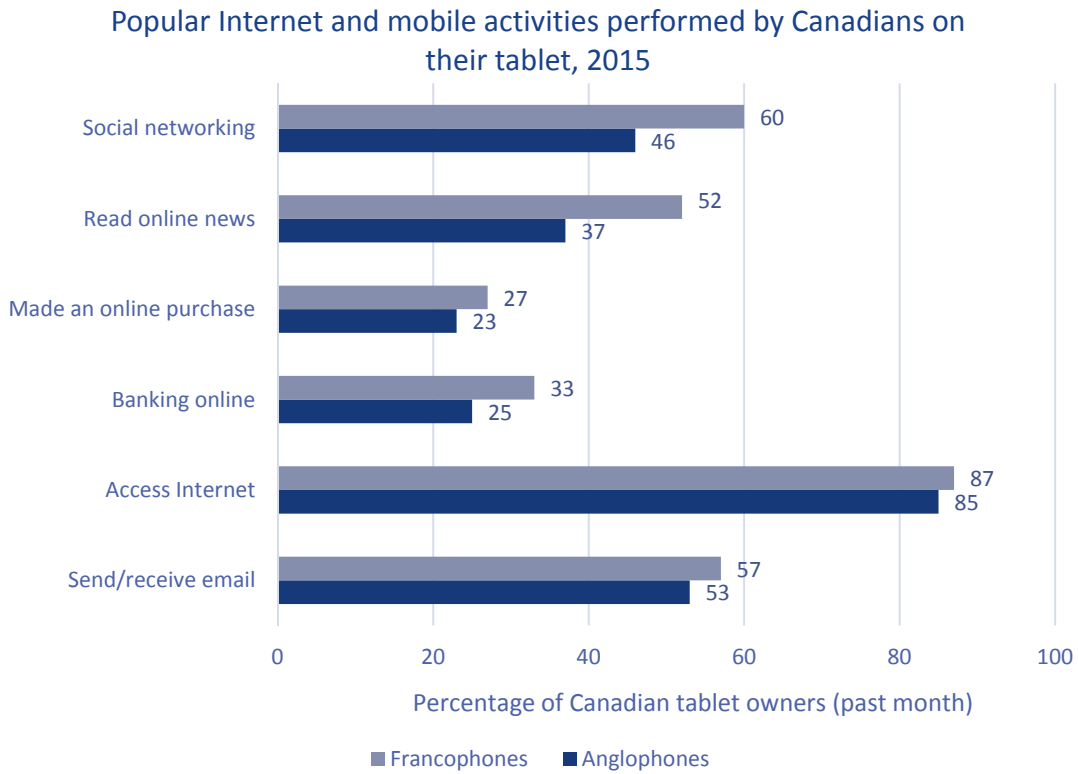
Figure 5.5.13 Popular Internet and mobile activities performed by Canadians on their smartphone, 2015



Source: MTM 2015, spring 2016 (Respondents: Canadians aged 18+)

This graph shows the activities that Francophones and Anglophones carry out using their smartphones.

Figure 5.5.14 Popular Internet and mobile activities performed by Canadians on their tablet, 2015



Source: MTM 2015, spring 2016 (Respondents: Canadians aged 18+)

v Performance indicators

Table 5.5.13 Average wireless service revenue per subscriber

Metric	2011	2012	2013	2014	2015	CAGR (%) 2011-2015
Average wireless service revenue per subscriber (\$/month)	58.7	59.6	60.0	61.0	64.1	2.2
Annual growth (%)	-1.7	1.6	0.7	1.8	5.0	2.2

Source: CRTC data collection

Average wireless service revenue per subscriber is a useful measure of the revenues WSPs receive per subscriber. Conversely, from a consumer perspective, it is a measure of consumers' expenditures on wireless services. This table shows the average revenue per user for wireless services for the years 2011 to 2015.

The average wireless service revenue per subscriber was calculated by dividing total annual wireless service revenues by the average number of subscribers during the year. The result was then divided by twelve to obtain a monthly result. The average number of subscribers was determined by dividing the sum of the number of subscribers at the beginning and at the end of the year by two.

Table 5.5.14 Average wireless service revenues per subscriber, by province and territory (excluding paging) (\$) (\$)

Province/territory	2011	2012	2013	2014	2015	CAGR (%) 2011-2015
British Columbia	63.84	62.55	63.42	62.48	67.32	1.3
Alberta	75.82	72.82	74.10	75.01	76.48	0.2
Saskatchewan	53.51	57.83	58.72	62.16	64.45	4.8
Manitoba	53.07	54.99	59.42	60.97	63.21	4.5
Ontario	58.18	60.60	58.93	59.50	61.56	1.4
Quebec	51.08	51.46	53.69	53.58	56.92	2.7
New Brunswick	53.15	54.62	55.65	55.56	58.95	2.6
Nova Scotia	55.26	57.22	58.15	56.98	63.02	3.3
Prince Edward Island	52.01	55.47	52.86	51.62	57.73	2.6
Newfoundland and Labrador	53.86	58.70	60.61	61.18	68.90	6.3
The North	105.43	94.31	135.44	81.09	92.37	-3.3

Source: CRTC data collection

This table shows the average revenue per user for WSPs in each region of the country for the years 2011 to 2015 based on provincial revenue and subscriber data reported, but excludes Wind and Eastlink's revenues and subscribers in the 2015 analysis. Estimates were made for companies that were not required to provide provincial and territorial data.

vi Price

The price structure of wireless services is based on usage. To assess the price of wireless services in urban centres and in rural communities, four baskets were used and both flanker and primary service brands were considered. These baskets were adopted from the report on *Price Comparisons of Wireline, Wireless and Internet Services in Canada and with Foreign Jurisdictions* (2014).

- **The Level 1** mobile service basket represents introductory or low-usage types of plans that offer 150 minutes of voice service, with no SMS or Internet data service per month.
- **The Level 2** mobile service basket encompasses low- to mid-tier types of plans that provide customers with at least 450 minutes of voice service, 300 SMS, and no Internet data services per month.
- **The Level 3** mobile service basket comprises plans representative of a typical smartphone user that offer at least 1200 minutes of voice service, 300 SMS, and 1 GB of Internet data per month.
- **The Level 4** mobile service basket is geared towards smartphone users who want access to unlimited voice and SMS, along with 2 GB of Internet data per month.

Most noticeable changes in 2015 compared to 2014 were the increased price variance between the lowest and highest price in the level 2 and 3 baskets and the shift in the number of WSPs in various service baskets and community centres. A decrease in the number of providers in a number of areas was mainly due to consolidation in the wireless market sector.

What is the report on Price Comparisons of Wireline, Wireless and Internet Services in Canada and with Foreign Jurisdictions?

This report provides a 2016 update to the previous annual telecommunications price comparison studies conducted over the period from 2008 to 2016 for the CRTC and Innovation, Science and Economic Development Canada (ISED).

The individual services covered by the study include wireline, mobile wireless, broadband Internet, and mobile Internet services.

For more information, please consult the following link:

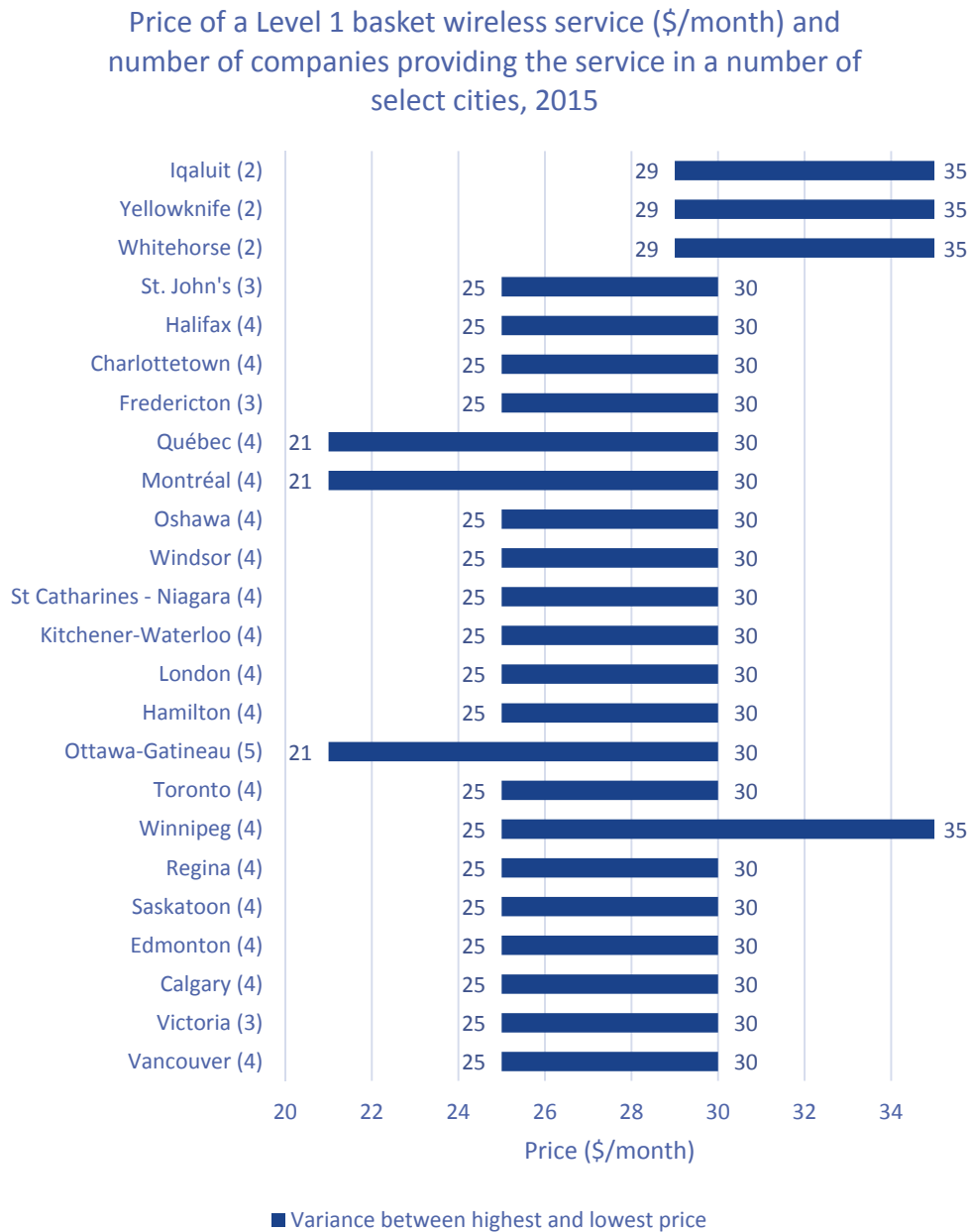
<http://www.crtc.gc.ca/eng/publications/reports/compar/compar2016.htm>

Urban centres

Urban centres having four or more WSPs generally had the largest price variance between the lowest and highest price reported, as well as the lowest prices in each of the four service baskets. The variance between lowest and highest prices across all service baskets in any given urban centre was wide, ranging from a low of \$3 to a high of \$33. The average price variances between lowest and highest prices for the Level 1, 2, 3, and 4 service baskets were \$6, \$13, \$22, and \$21, respectively.

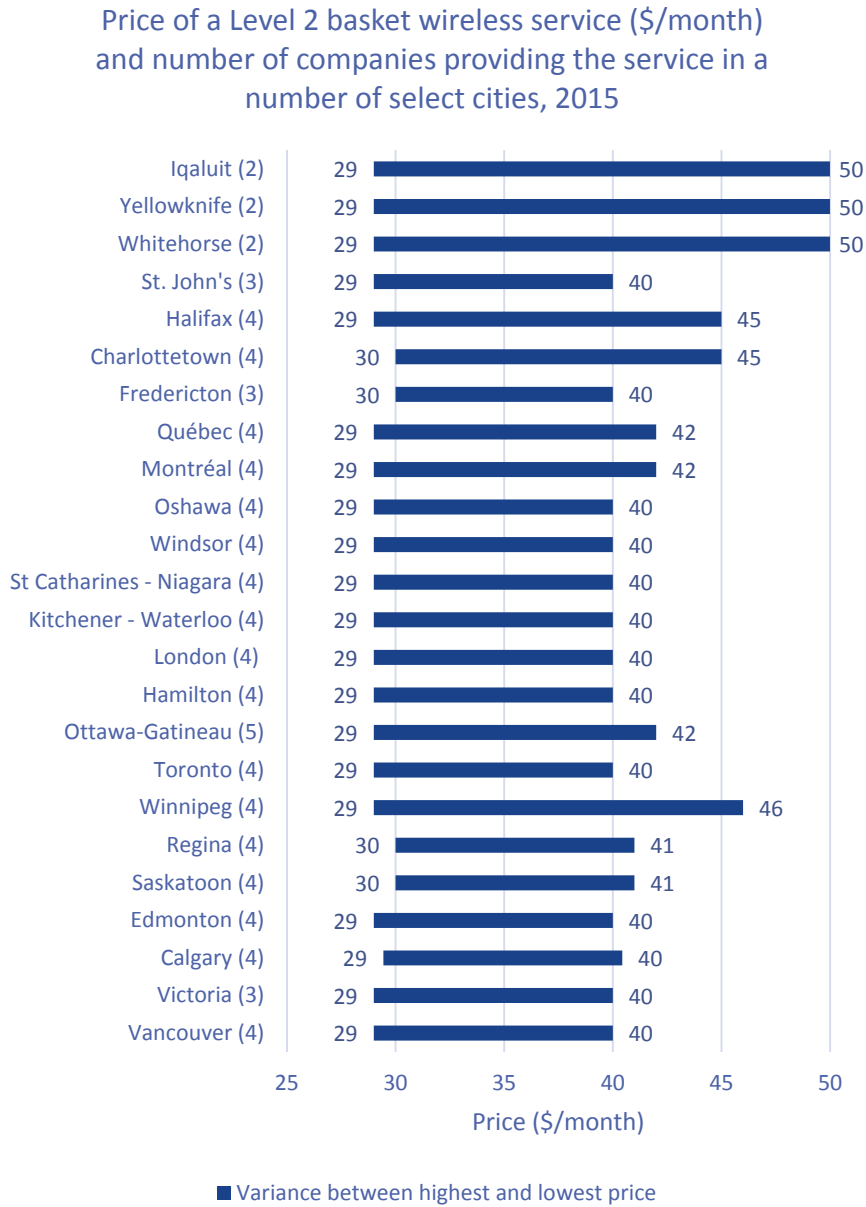
Figures 5.5.15 to 5.5.18 display the range in the monthly price of a Level 1, Level 2, Level 3, and Level 4 wireless service basket in 24 urban centres in Canada. The number at the end of each bar is the highest price. The number appearing in parentheses along the vertical axis after the name of each urban centre represents the number of local WSPs.

Figure 5.5.15 Price of a Level 1 basket wireless service (\$/month) and number of companies providing the service in a number of select cities, 2015



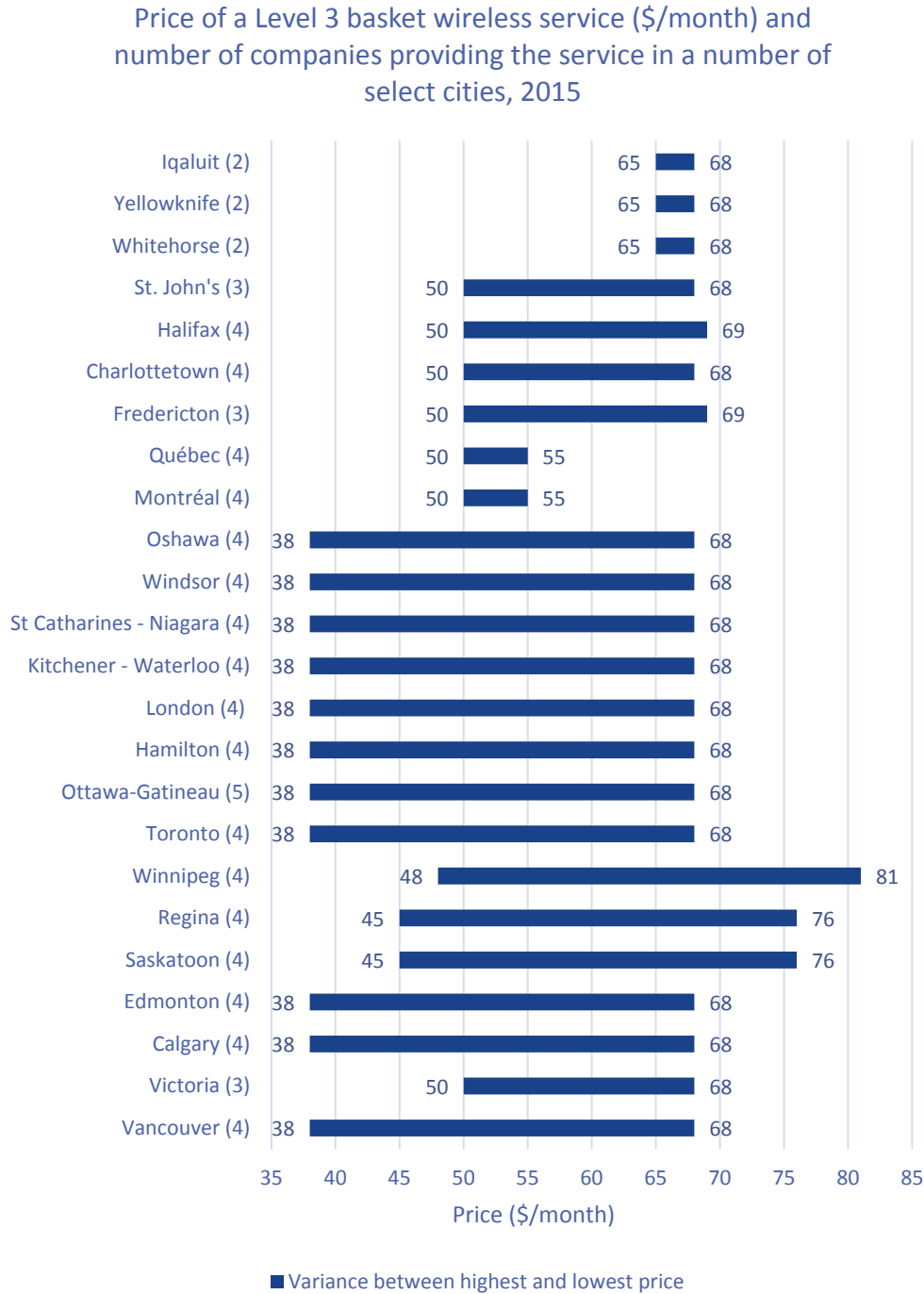
Source: CRTC data collection

Figure 5.5.16 Price of a Level 2 basket wireless service (\$/month) and number of companies providing the service in a number of select cities, 2015



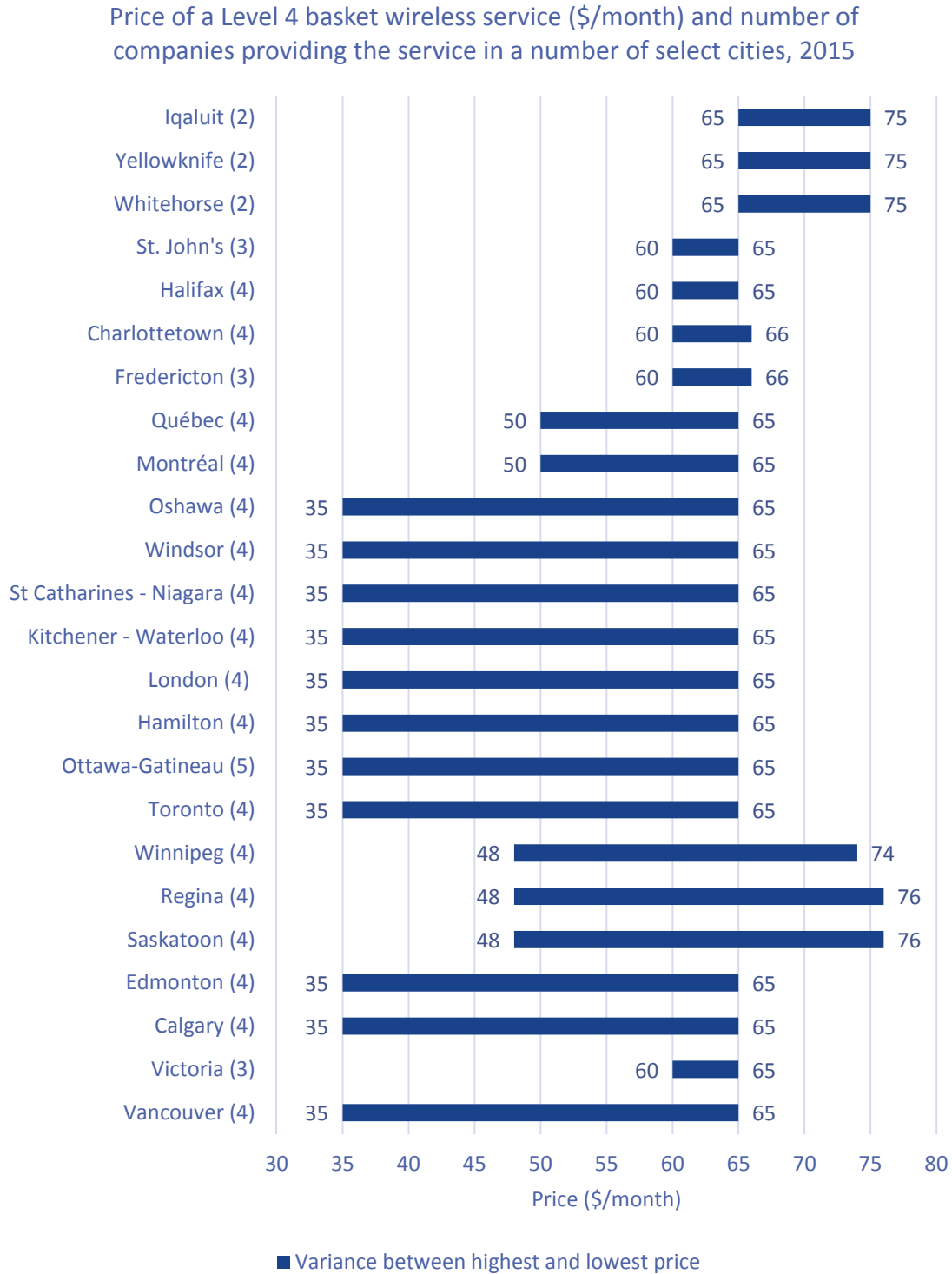
Source: CRTC data collection

Figure 5.5.17 Price of a Level 3 basket wireless service (\$/month) and number of companies providing the service in a number of select cities, 2015



Source: CRTC data collection

Figure 5.5.18 Price of a Level 4 basket wireless service (\$/month) and number of companies providing the service in a number of select cities, 2015



Source: CRTC data collection

Price comparison of urban and rural wireless services

To assess the price of wireless services in rural Canada, 54 rural communities were selected, and the price of wireless services in these communities was compared to that in urban centres.

The price of wireless services in rural communities, across all service baskets, was generally equal to or higher than that in urban centres. For level 1 and 2 service baskets were very consistent between urban and rural communities. Differences were more pronounced for level 3 and 4 baskets especially in Ontario and Alberta where the minimum price varied by 25\$ between rural and urban communities.

The variance between the lowest and highest price of wireless services across all service baskets in rural communities, by province and territory, was wide, ranging between \$3 and \$33. This variance was also wide in the urban centres.

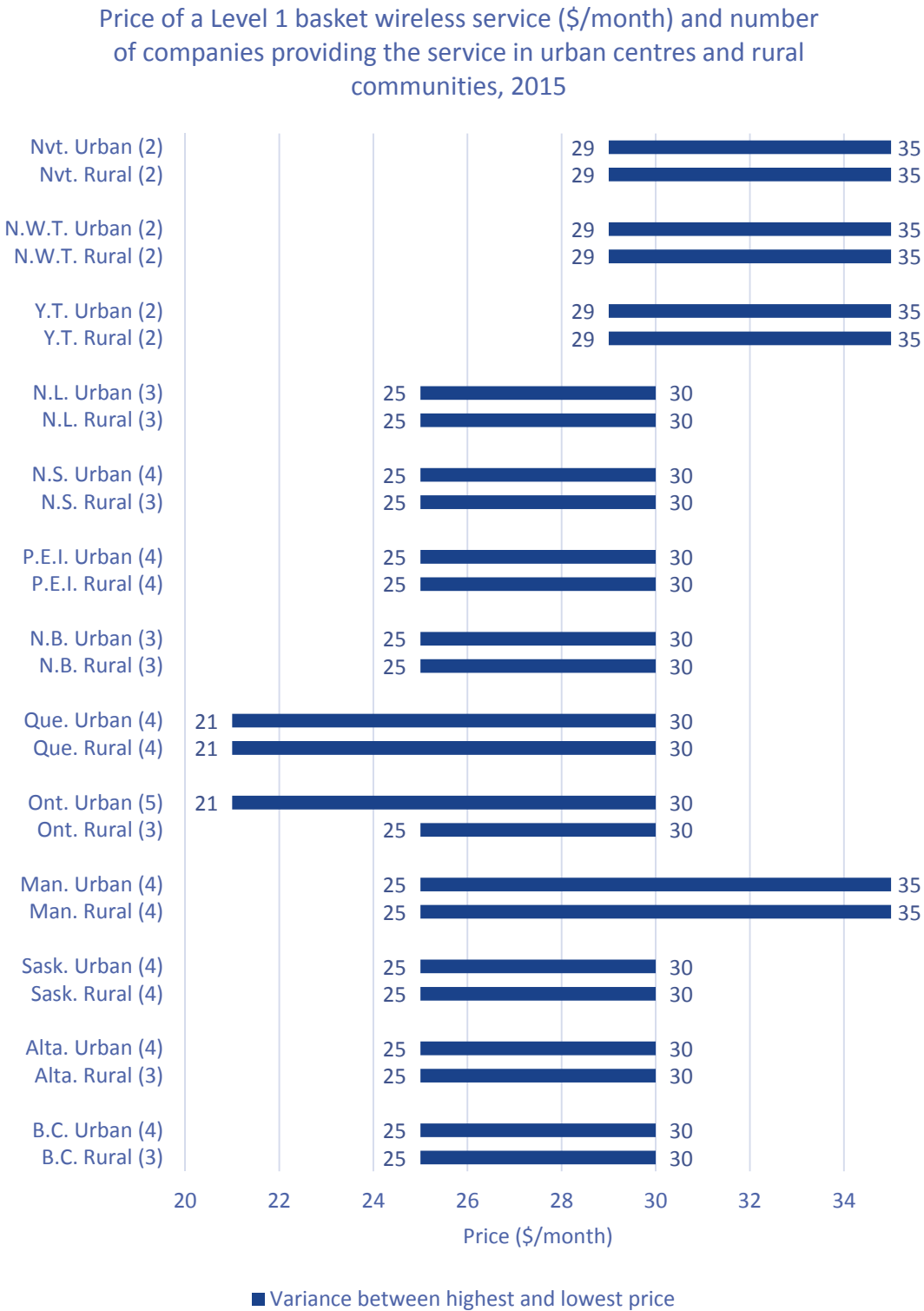
The average price variances among rural communities for Level 1, 2, 3, and 4 service baskets were \$6, \$14, \$17, and \$11, respectively. In the urban centres for the identical service baskets, the price variances were \$6, \$15, \$19, \$16, respectively.

Which rural communities were included? 54 rural communities were selected to assess the price of wireless services (see Appendix 9). These communities met the following criteria:

- They were not part of one of the census metropolitan areas of the 24 urban centres;
- They had population densities of fewer than 400 people per square kilometre, or their population centres had fewer than 1,000 people;
- The number of communities in each province/territory was proportional to the population of the province/territory; and
- The communities were not clustered together.

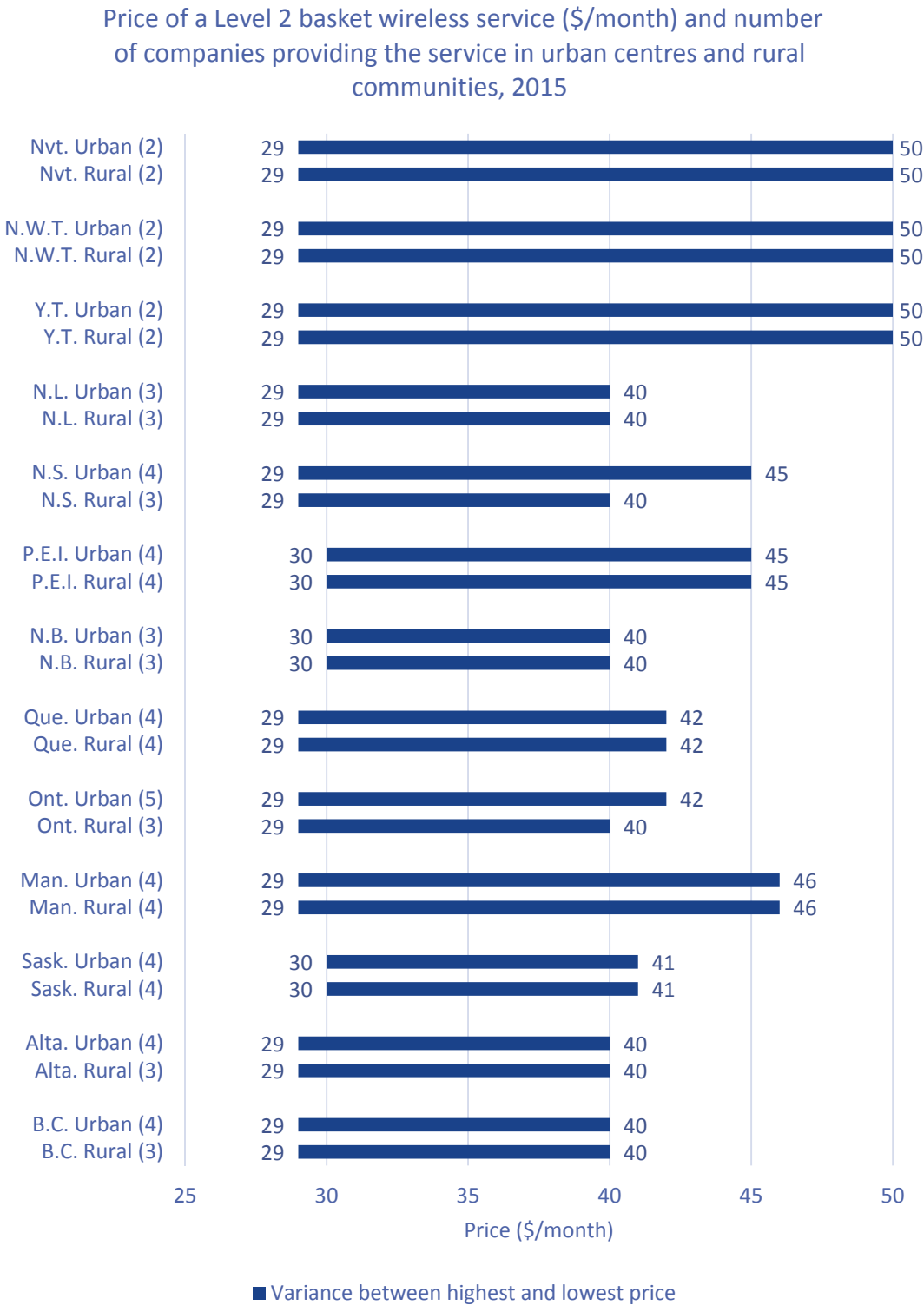
Figures 5.5.19 to 5.5.22 display the range in the monthly price of wireless services in urban centres and rural communities in Canada, by province and territory. The number at the end of each bar is the highest price. The number appearing in parentheses along the vertical axis after the name of each province and territory represents the number of local WSPs.

Figure 5.5.19 Price of a Level 1 basket wireless service (\$/month) and number of companies providing the service in urban centres and rural communities, 2015



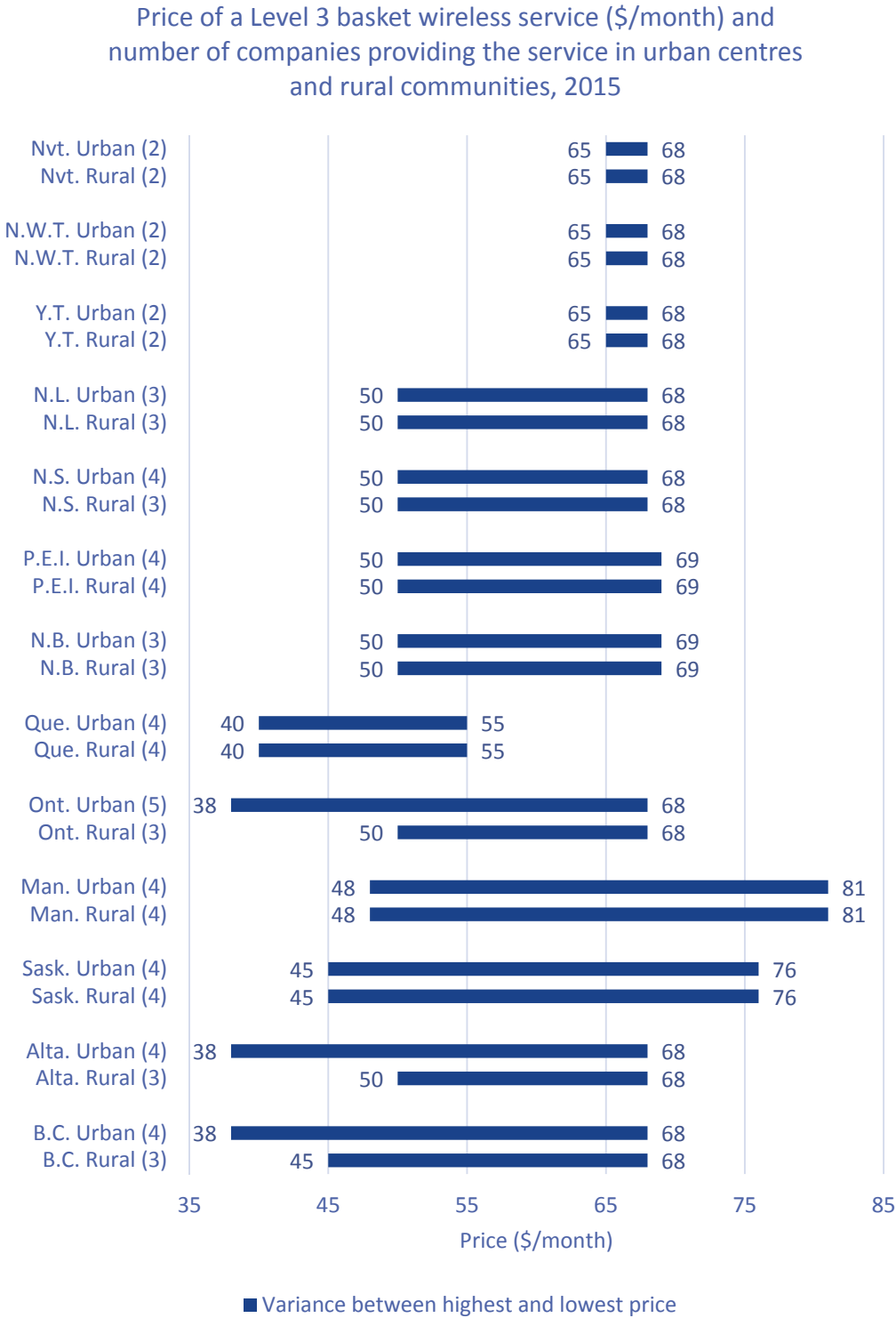
Source: CRTC data collection

Figure 5.5.20 Price of a Level 2 basket wireless service (\$/month) and number of companies providing the service in urban centres and rural communities, 2015



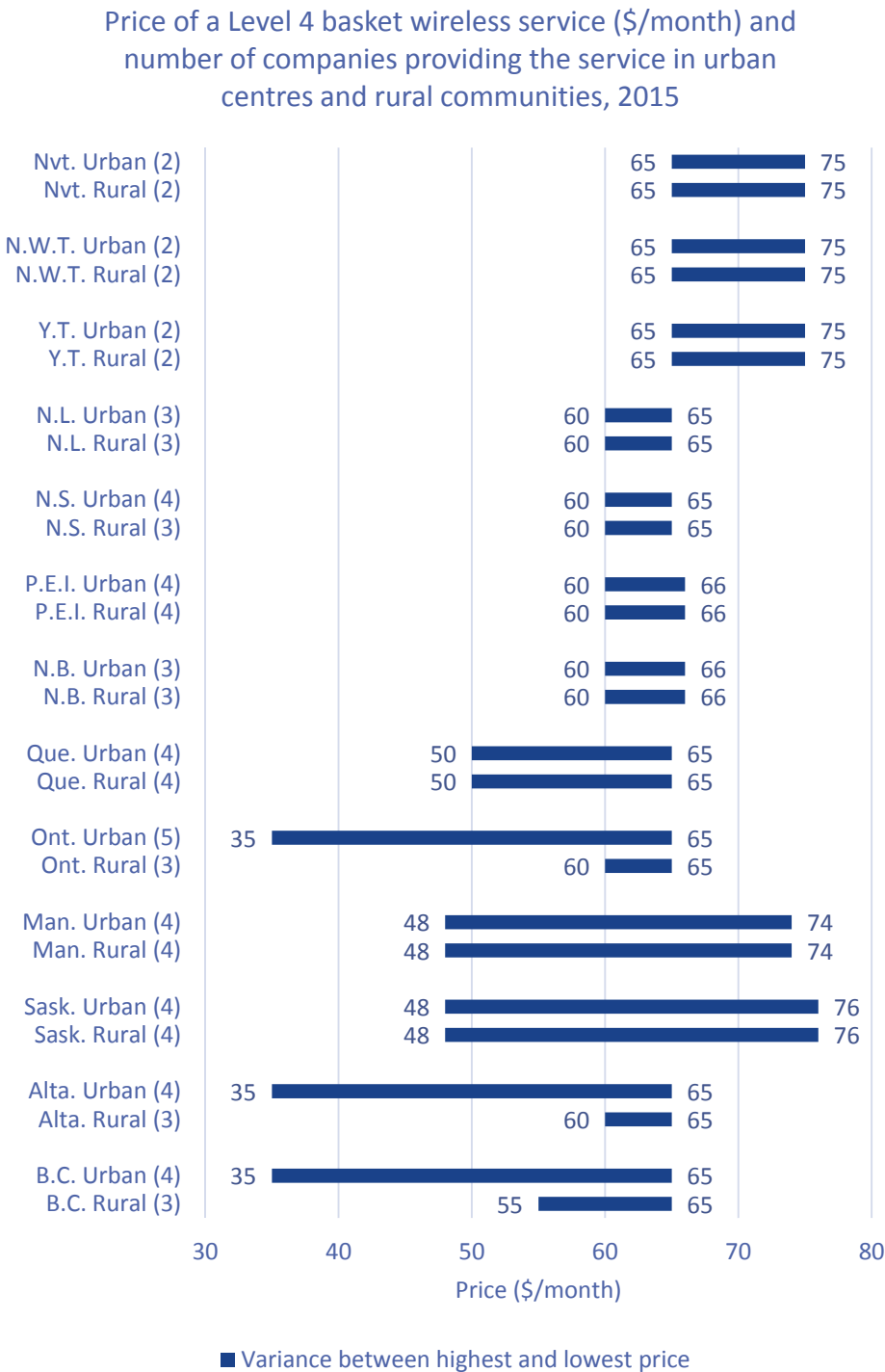
Source: CRTC data collection

Figure 5.5.21 Price of a Level 3 basket wireless service (\$/month) and number of companies providing the service in urban centres and rural communities, 2015



Source: CRTC data collection

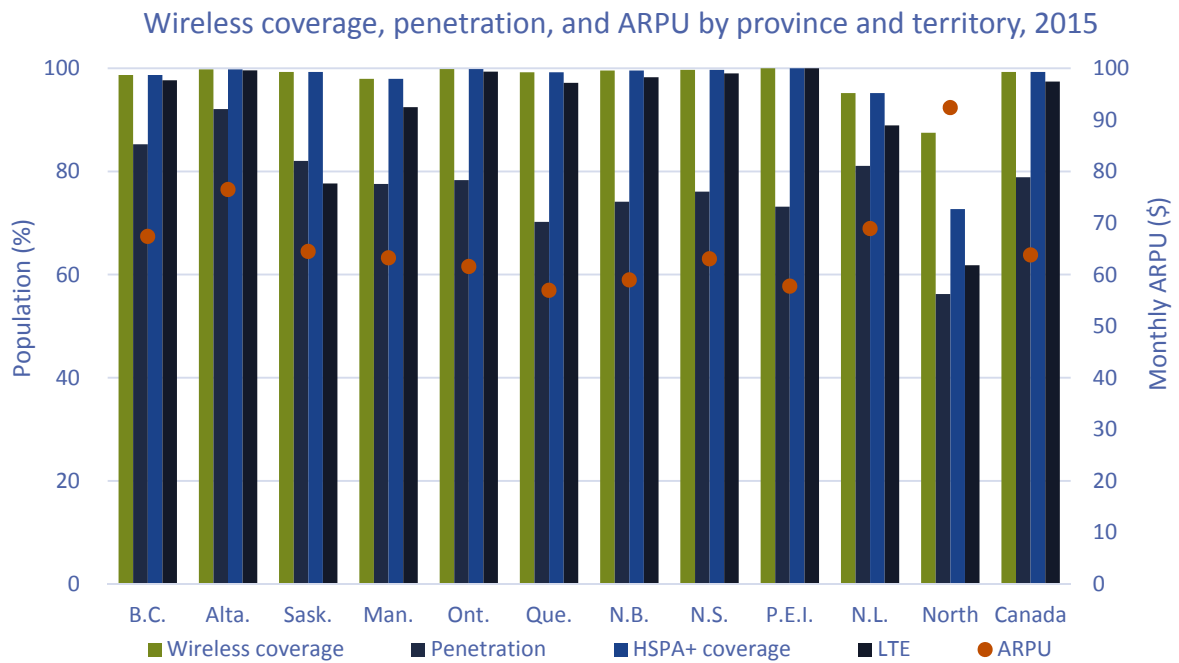
Figure 5.5.22 Price of a Level 4 basket wireless service (\$/month) and number of companies providing the service in urban centres and rural communities, 2015



Source: CRTC data collection

vii Coverage/availability details

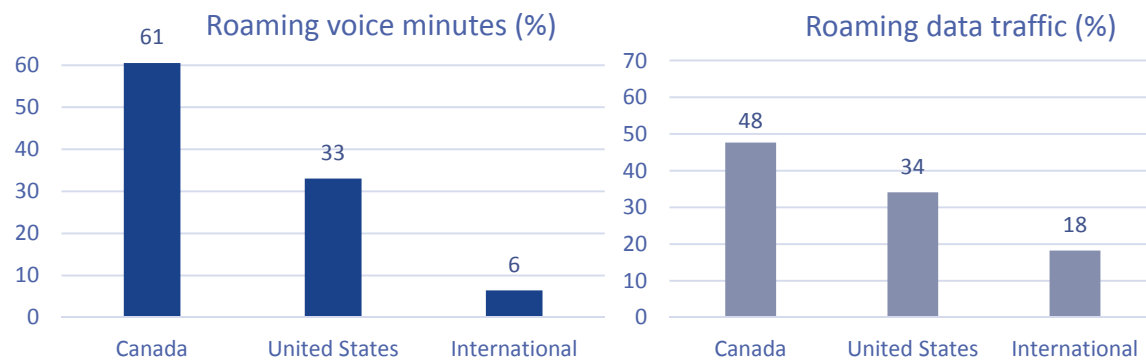
Figure 5.5.23 Wireless coverage, penetration, and ARPU by province and territory, 2015



Source: CRTC data collection

This table shows wireless coverage and penetration rates for various wireless technologies such as LTE and HSPA+, by percentage of population for each province and the territories. The table also shows the average monthly revenue per user (ARPU) in each region.

Figure 5.5.24 Roaming voice and data traffic by destination, 2015



Source: CRTC data collection

WSPs extend their coverage area to areas where they do not have facilities by making arrangements with other WSPs that do have facilities in those areas to offer service to their end-users. When a subscriber uses the facilities of another WSP, the subscriber is said to be “roaming.” This dual chart shows the percentage of voice minutes and data traffic, excluding MMS and SMS, derived from roaming-in and roaming-out within Canada, the United States, and internationally.

Table 5.5.15 Wireless coverage, penetration, and average revenue per subscriber, by province and territory, 2015

Province/territory	Coverage (%)			Penetration rate (%)	ARPU (\$/month)
	Wireless	HSPA+	LTE		
British Columbia	98.7	98.7	97.7	85.3	67.32
Alberta	99.8	99.8	99.6	92.1	76.48
Saskatchewan	99.3	99.3	77.7	82.0	64.45
Manitoba	99.2	98.0	92.5	77.6	63.21
Ontario	99.8	99.8	99.3	78.3	61.56
Quebec	99.2	99.2	97.2	70.2	56.92
New Brunswick	99.6	99.6	98.3	74.1	58.95
Nova Scotia	99.7	99.7	99.0	76.1	63.02
Prince Edward Island	99.9	99.9	99.9	73.2	57.73
Newfoundland and Labrador	95.2	95.2	88.9	81.1	68.90
The North	87.5	76.9	61.8	56.2	92.37
Canada	99.3	99.3	97.4	81.6	63.78

Source: CRTC data collection

This table shows wireless coverage and penetration rates for various wireless technologies, such as LTE and HSPA+, by percentage of population for each province and the territories. The table also shows the average monthly revenue per user in each region. Provincial penetration rates and ARPU excludes data from WIND and Bragg, however, Canada's penetration rate includes the data from WIND and Bragg.

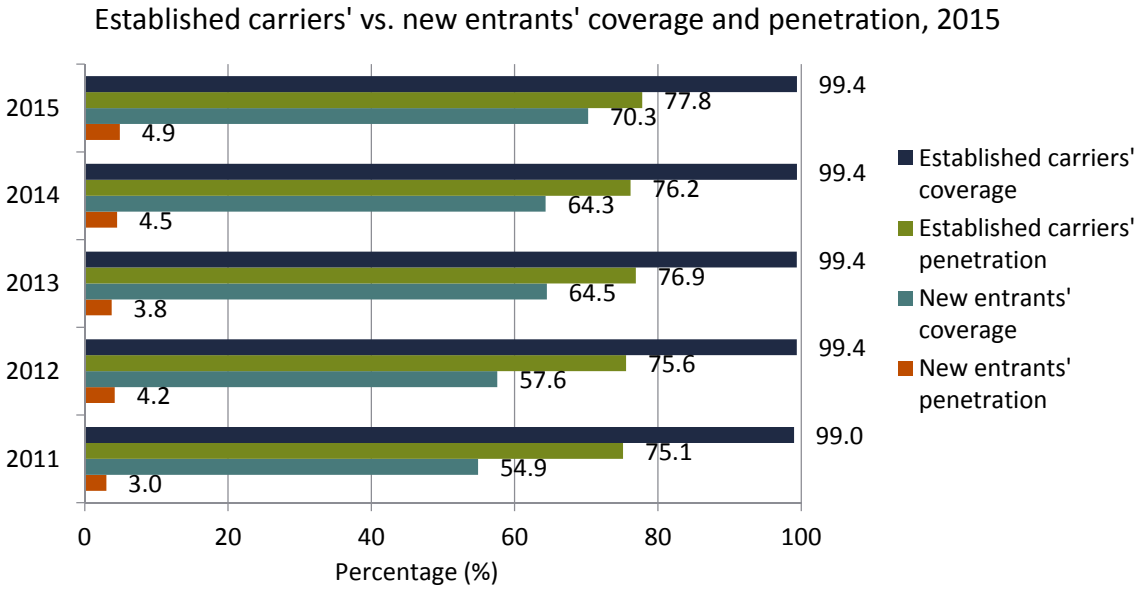
Table 5.5.16 Percentage of population covered by number of different wireless networks, by province and territory, (%), 2015

Province/territory	None	1 network only	2 networks only	3 networks only	4 or more networks
British Columbia	1	2	33	11	53
Alberta	0	0	35	9	56
Saskatchewan	1	25	71	3	0
Manitoba	2	2	21	75	0
Ontario	0	0	25	33	42
Quebec	1	4	5	18	73
New Brunswick	0	4	92	4	0
Nova Scotia	0	4	14	82	0
Prince Edward Island	0	1	17	82	0
Newfoundland and Labrador	4	49	47	0	0
The North	25	15	60	0	0
Canada	1	3	25	25	46

Source: CRTC data collection

This table represents the number of different wireless networks, in terms of radio access facilities, in each of the provinces and territories. In many provinces, facilities-based wireless service providers who own spectrum share the same radio access facilities to offer telecommunications services to the public. Some adjustments were made to more accurately reflect the coverage in The North.

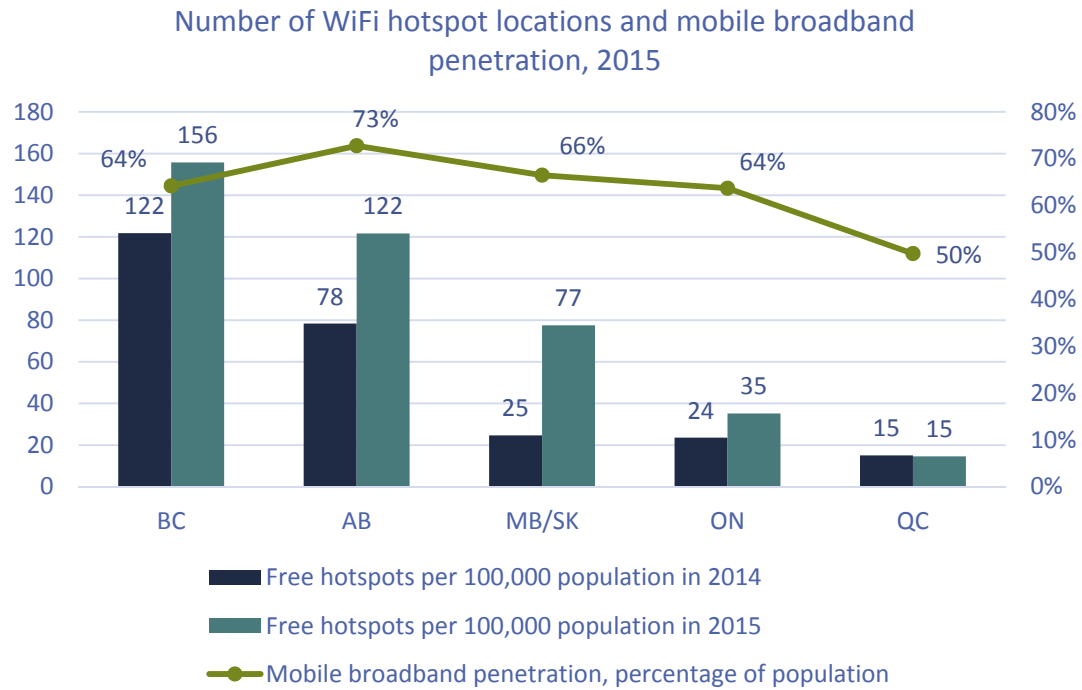
Figure 5.5.25 Established carriers' coverage and penetration vs. new entrants' coverage and penetration, (% of population), 2015



Source: CRTC data collection

Canada's wireless service market is dominated by established carriers. These companies offer significantly more coverage and achieve higher subscriber penetration rates than the new entrants.

Figure 5.5.26 Number of WiFi hotspot locations and mobile broadband penetration, 2015



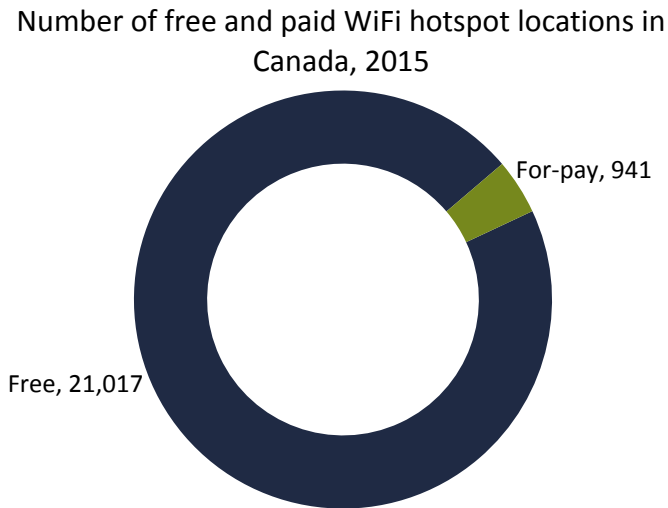
Source: CRTC data collection

WiFi hotspots are an important way in which TSPs attempt to differentiate their services from each other, as well as a way to extend their brand. Major providers in western Canada have moved towards providing free hotspots, as shown in the above chart.

Only hotspots provided by the major TSPs are included, which may exclude independently run free hotspots provided by hotels, restaurants, and other public facilities.

Data for the Atlantic provinces and the North is not reported due to the confidentiality of the data.

Figure 5.5.27 Number of free and pay-for-use WiFi hotspot locations in Canada, 2015



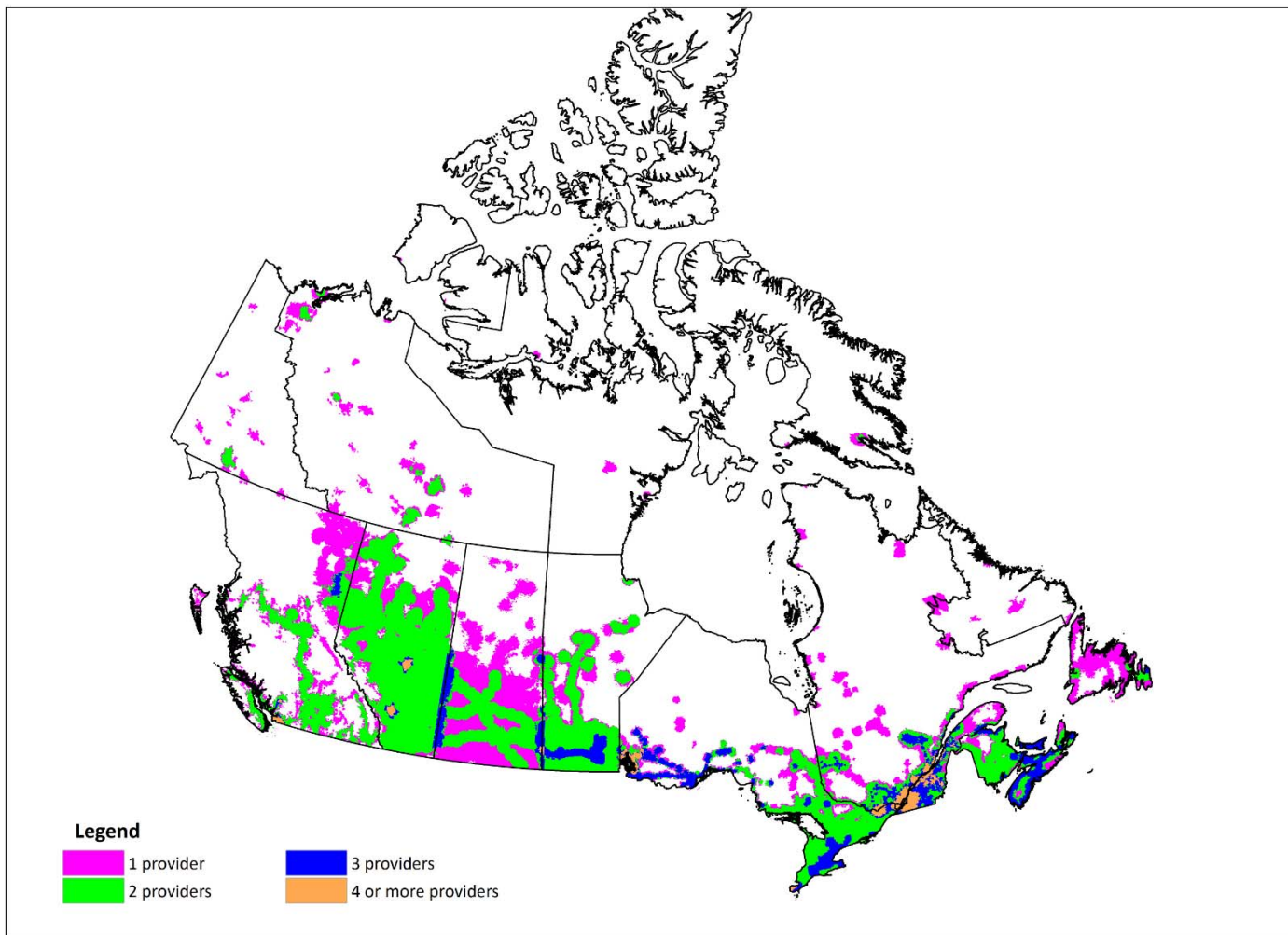
Source: CRTC data collection

The above chart shows the number of free and pay-for-use WiFi hotspots provided by major TSPs in Canada. Hotspots are locations where Internet access via 802.11 WiFi technology is provided to the public. Free is defined as having no charge for at least 1/2 hour of access, even if access requires being a paid customer to the location.

This does not include hotspots that only provide access to a provider's existing customers.

Map 5.5.1 Wireless service availability by number of facilities-based WSPs, 2015

Wireless service coverage by number of facilities-based WSPs, 2015

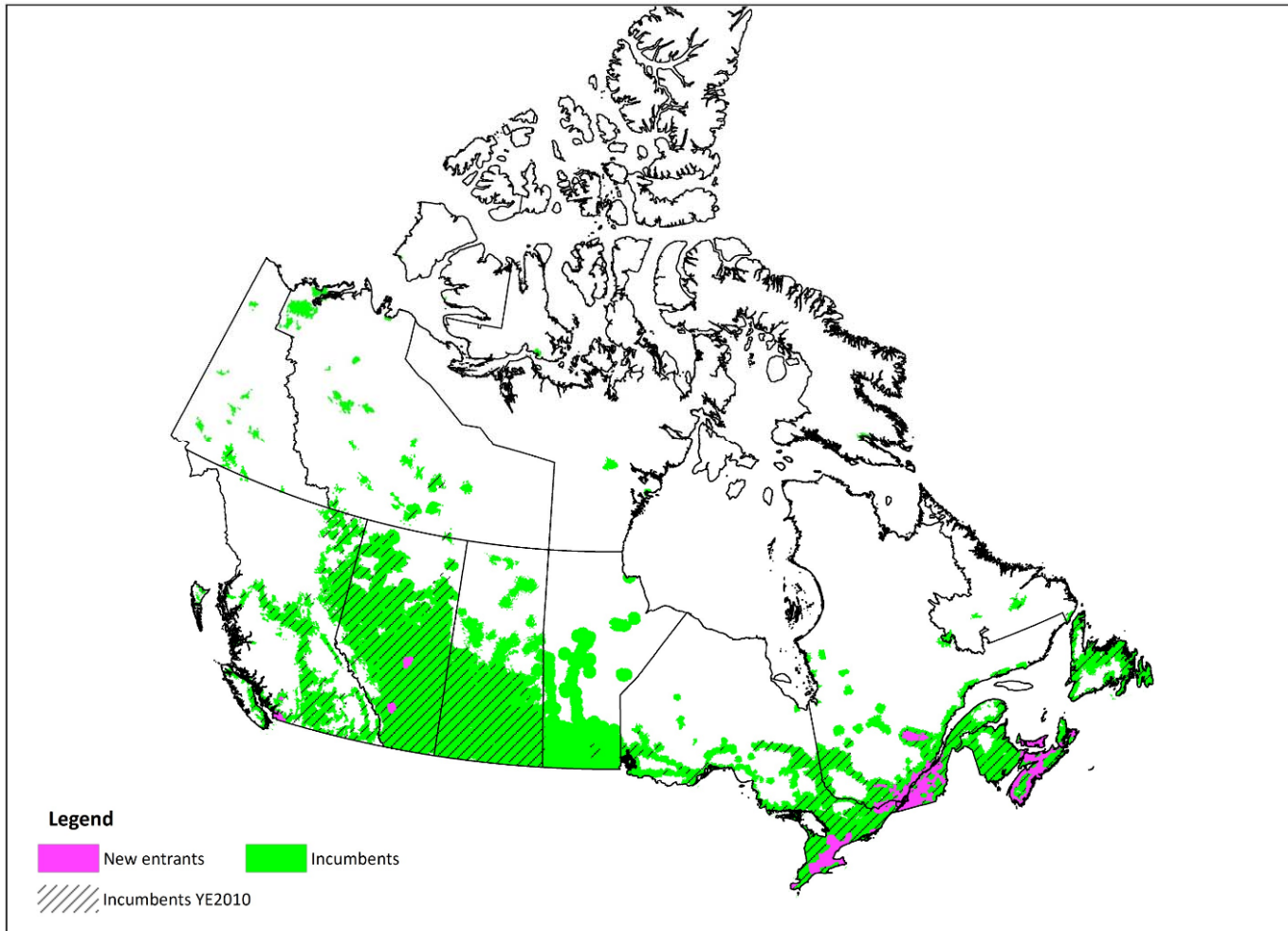


Source: CRTC data collection

This map shows the cross-country availability of wireless services from facilities-based WSPs.

Map 5.5.2 Wireless HSPA+ service availability by incumbent and new-entrant facilities-based WSPs, 2015

HSPA+ network coverage 2010 vs. 2015

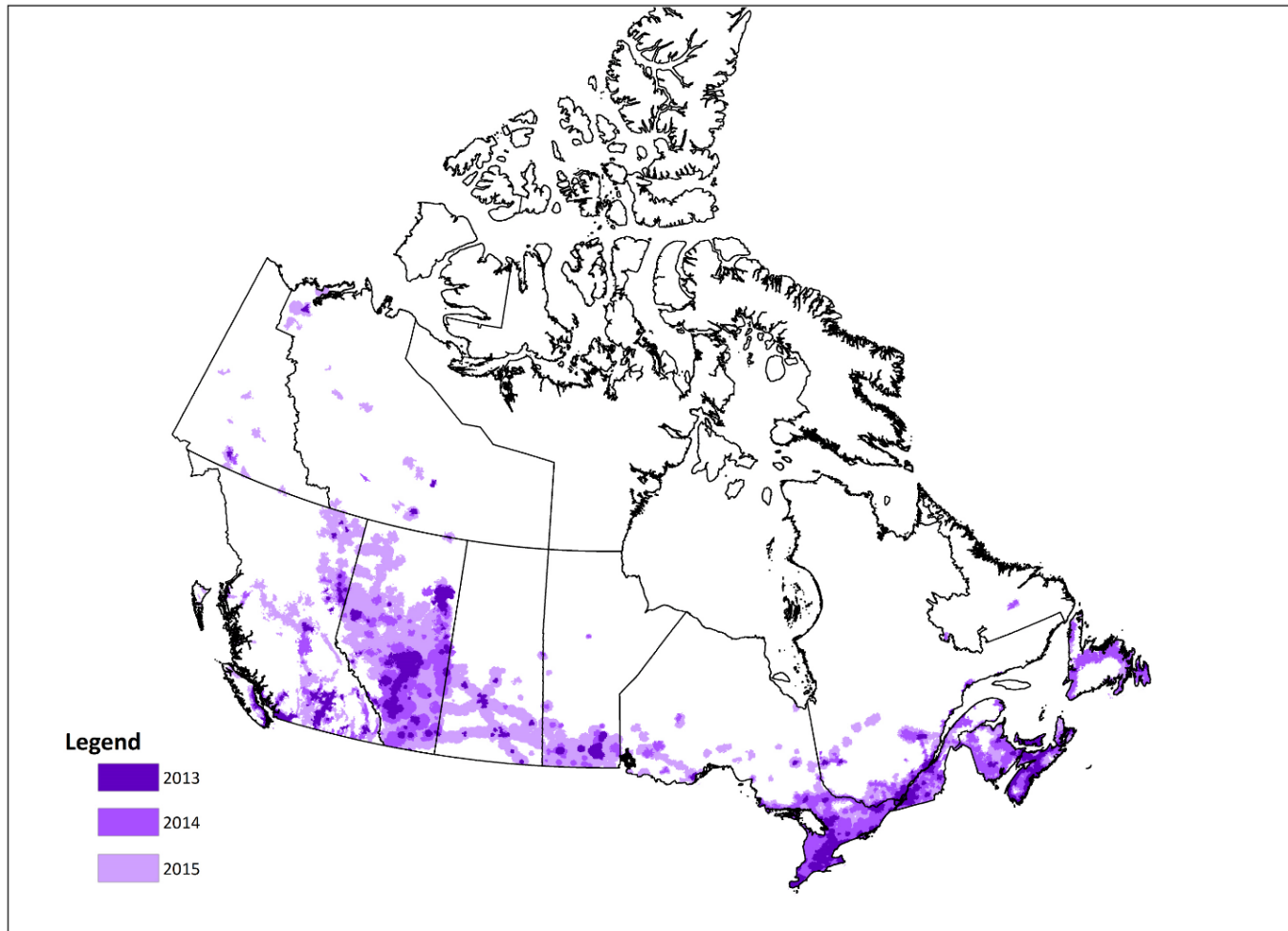


Source: CRTC data collection

This map shows the cross-country availability of HSPA+ network by incumbent and new-entrant facilities-based WSPs, as well as, the expansion of the incumbents' HSPA+ network from 2010 to 2015.

Map 5.5.3 Wireless LTE service availability between 2013 and 2015

Expansion of LTE coverage since 2013



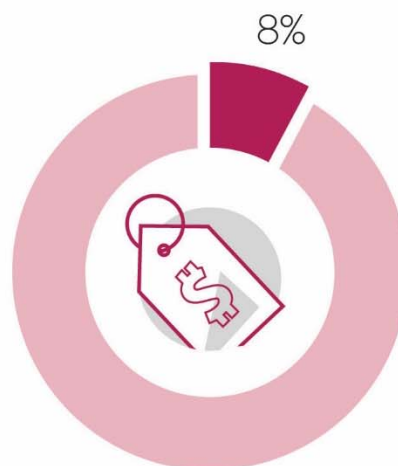
Source: CRTC data collection

This map shows the expansion of LTE coverage in Canada over the past three years.

5.6 Wholesale telecommunications sector

Telecommunications revenues in 2015

\$47.8 billion ▶



Wholesale

Revenues

\$3.9 B

Increase of 3.8%
over 2014

Percentage
of Revenues

74%

Not price regulated

Wireless
Revenues

\$1.1 B

Increase of 8.1%
over 2014

Wireline
Revenues

\$2.8 B

Increase of 2.1%
over 2014

Wholesale services are services provided by a TSP (telecommunications service provider) to another provider of telecommunication services for use in the provision of telecommunications services. All providers of telecommunications services rely on wholesale services to varying degrees. Resellers of telecommunications services depend more on wholesale services than companies that have their own facilities to provide service. In 2015, for the purposes of providing wireline services, resellers spent 46 cents out of every revenue dollar for wholesale services compared to less than 7 cents for service providers that have facilities.

The availability of wholesale services is a major factor that ultimately provides greater choice to Canadians in the telecommunications market. In 2015, the telecommunications wholesale market was \$3.9 billion of which 29% was for the provision of wireless services and 71% for wireline services.

Independent ISPs are frequently dependent on access services of the Incumbent TSPs and the cable-based carriers in order to connect to their customers. Over the years, sales of cable-based access services, known as TPIA (Third Party Internet Access), to independent ISPs have increased.

Wholesale from wireless services is an increasingly important part of the telecommunications landscape. Joint network building by several large carriers allow them to minimize overall costs and reduce the need for duplicate networks. Since 2011, network sharing and roaming revenues have increased at an average annual rate of 12.2%.

i Revenues

Table 5.6.1 Wholesale telecommunications revenues (\$ billions)

Sector	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Wireline	3.0	2.9	2.8	2.7	2.8	2.1	-1.8
Wireless	0.7	0.8	1.0	1.0	1.1	8.1	11.8
Total	3.7	3.7	3.7	3.8	3.9	3.8	1.3

Source: CRTC data collection

The table shows that wireline wholesale revenues have been declining since 2011, while wireless wholesale revenues have been increasing. The wireless wholesale market excludes fixed-wireless services.

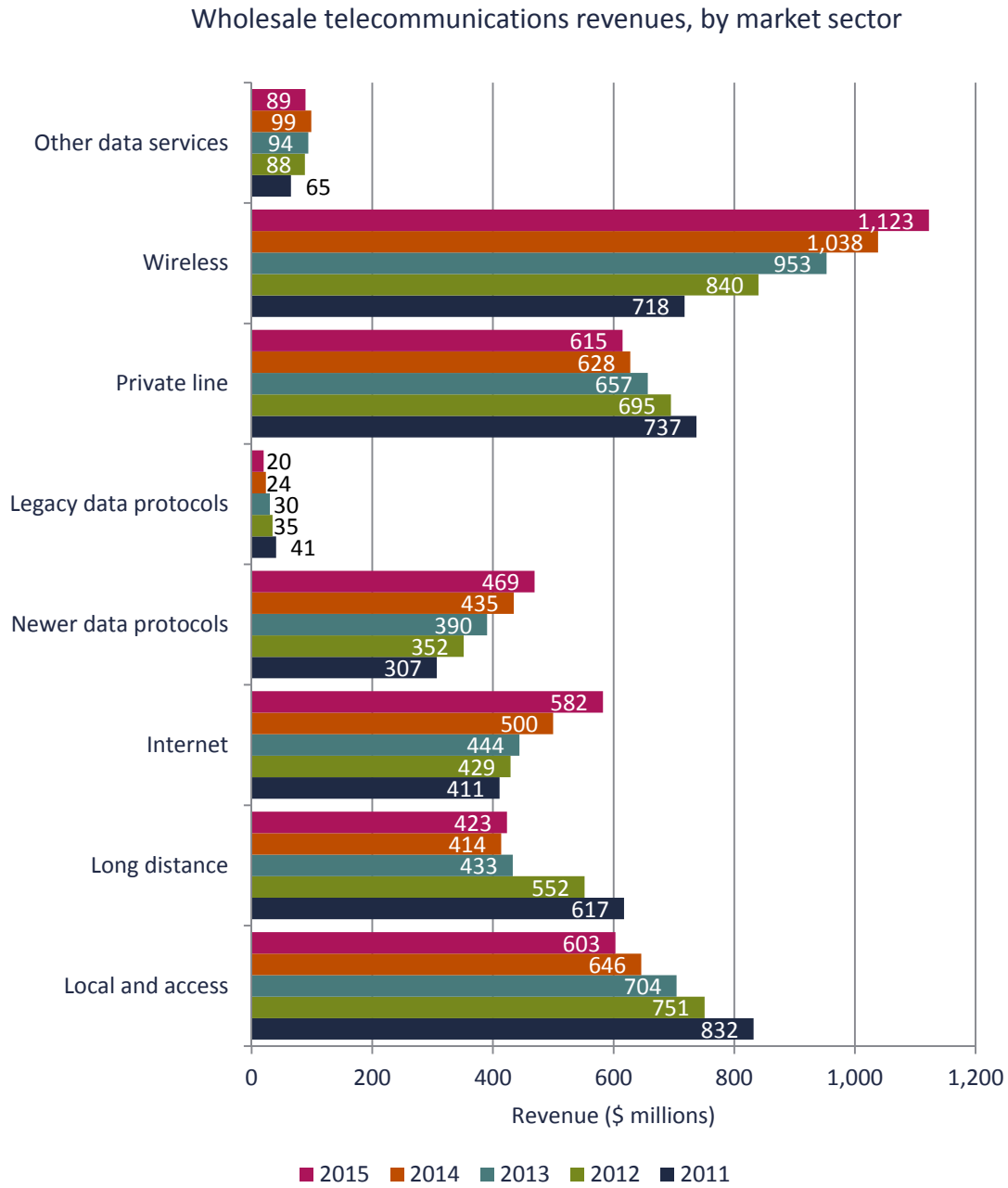
Table 5.6.2 Wholesale telecommunications revenues, by market sector (\$ millions)

Sector	Category	Subcategory	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Wireline	Voice	Local and access	832	751	704	646	603	-6.6	-7.7
		Long distance	617	552	433	414	423	2.3	-9.0
		Voice subtotal	1,449	1,303	1,137	1,059	1,026	-3.1	-8.3
	Non-voice	Internet	411	429	444	500	582	16.5	9.1
		Newer data protocols	307	352	390	435	469	8.0	11.2
		Legacy data protocols	41	35	30	24	20	-15.9	-16.3
		Other data services	65	88	94	99	89	-9.8	8.1
		Data subtotal	413	475	515	557	578	3.8	8.8
		Private line	737	695	657	628	615	-2.0	-4.4
		Non-voice subtotal	1,561	1,599	1,615	1,685	1,776	5.4	3.3
Total	Total voice and non-voice	3,010	2,901	2,753	2,744	2,802	2.1	-1.8	
Wireless	All	All	718	840	953	1,038	1,123	8.1	11.8
All	Total	All	3,728	3,742	3,706	3,783	3,925	3.8	1.3

Source: CRTC data collection

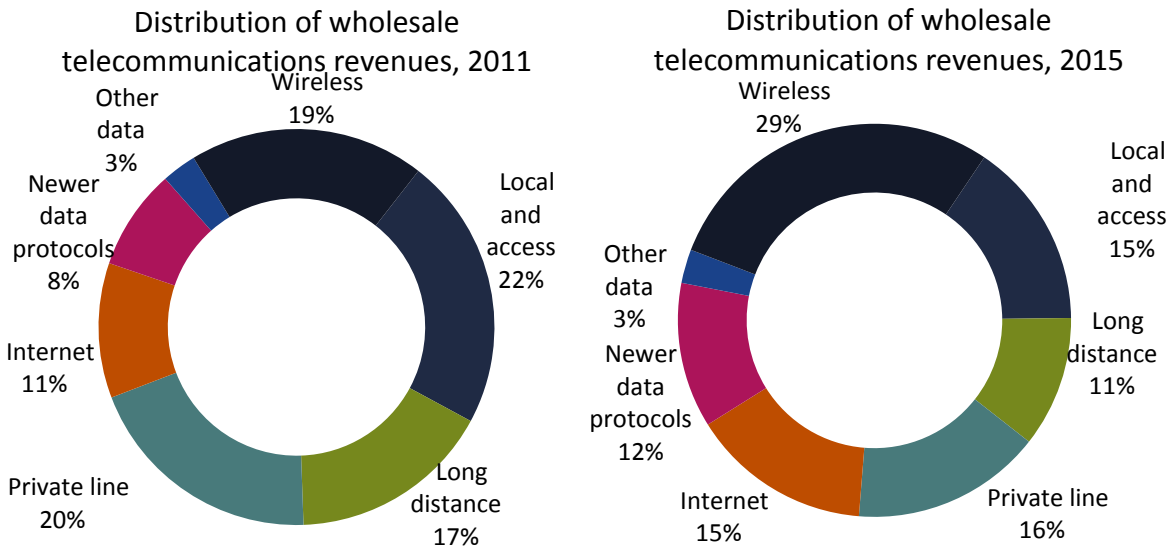
Voice wholesale revenues have declined 8.3% annually since 2011, whereas wireline non-voice revenues have increased 3.3%. The strongest revenue growth was in newer services such as Internet and mobile wireless services, and data services using newer data protocols such as Ethernet and IP. These services have increased between 9.1% and 11.8% annually since 2011.

Figure 5.6.1 Wholesale telecommunications revenues, by market sector



Source: CRTC data collection

Figure 5.6.2 Percentage distribution of wholesale telecommunications revenues, by market sector (2011 vs. 2015)



Source: CRTC data collection

These charts compare the percentage distribution of wholesale service revenues between 2011 and 2015. During this period, revenues from mobile wireless wholesale services have increased as a percentage of total wholesale revenues, from 19% in 2011 to 29% 2015. They make up the largest percentage of wholesale revenues, followed by local and access and private line.

Table 5.6.3 Local wholesale telecommunications revenues, by major component (\$ millions)

Component	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011– 2015
Interconnection	254	220	212	198	192	-2.9	-6.7
Centrex	88	76	64	57	50	-12.5	-13.2
PSTN access	354	327	304	283	263	-7.1	-7.2
Unbundled loops	60	47	44	40	37	-7.6	-11.4
Other revenues	42	44	42	52	42	-19.8	-0.2
Total	798	714	665	629	584	-7.2	-7.5

Source: CRTC data collection

This table displays local and access wholesale revenues by major component. Providers of telecommunications services use these components to provide retail telecommunications service. For example, unbundled loops can be used by an alternative service provider to provide local telephone service to its retail customers. In addition, interconnection allows the customers of one service provider to contact the customers of another service provider.

Table 5.6.4 Local wholesale telecommunications revenues, by province (\$ millions)

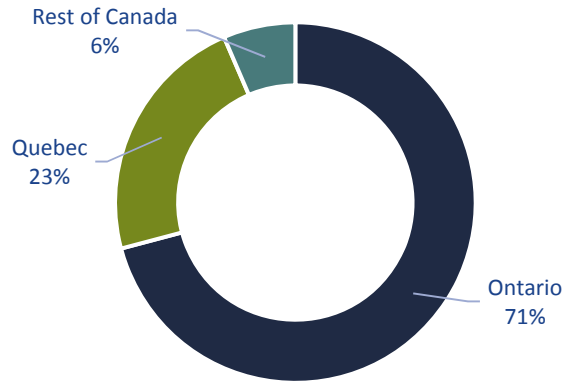
Province	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011– 2015
British Columbia	77	60	44	59	53	-10.2	-8.9
Alberta	87	58	58	45	62	37.8	-8.1
Saskatchewan	9	8	9	8	8	0.0	-2.9
Manitoba	32	31	28	19	15	-21.1	-17.3
Ontario	357	341	302	274	247	-9.9	-8.8
Quebec	194	174	176	174	159	-8.6	-4.9
New Brunswick	17	17	17	16	20	25.0	4.1
Nova Scotia	22	22	24	29	25	-13.8	3.2
Prince Edward Island	2	2	3	3	1	-66.7	-15.9
Newfoundland and Labrador	9	9	10	10	10	0.0	2.7
Yukon	1	1	1	1	1	0.0	0.0
Northwest Territories	1	1	1	1	1	0.0	0.0
Nunavut	0	0	0	0	0	-	-
Total	809	725	674	638	602	-5.6	-7.1

Source: CRTC data collection

This table shows local wholesale revenues by province by companies with annual revenues greater than \$100 million. Revenues include wholesale revenues from the sale and rental of terminal equipment.

Figure 5.6.3 Wholesale HSA based subscriptions across Canada, 2015

Wholesale HSA based subscriptions across Canada, 2015



The Commission has mandated that DSL and cable facilities be made available to third-party providers utilizing the wholesale HSA framework. The usage of these services varies greatly depending on the region, with independent ISP wholesale facilities based competition being much more successful in Ontario and Quebec.

Table 5.6.5 Internet-related wholesale revenues, by type of service (\$ millions)

Type of service	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Higher capacity access and transport	53	45	52	73	77	5.2	9.8
Lower capacity access	266	303	336	369	447	21.2	13.9
Other wholesale services	92	81	56	58	58	0.9	-10.8
Wholesale total	411	429	444	500	582	16.5	9.1

Source: CRTC data collection

Internet-related Wholesale revenues consist of services that provide access for TSPs to the Internet, to allow TSPs to connect directly to their subscribers, or to provide Internet related equipment, applications or other miscellaneous services. In the above table, they are divided into three categories.

- *In “Higher capacity access and transport”, refers to fibre-based Internet access services and the transfer of Internet traffic between networks.*
- *“Lower capacity access” includes services that connect TSPs directly to their end-users, typically for the purpose of providing Internet access. This includes wholesale DSL and Cable (TPIA) services under the wholesale high-speed access (HSA) framework. It also includes sales of non-fibre Internet connectivity between TSPs.*
- *“Other wholesale services” includes sales and rental equipment, applications, and other Internet-related services between TSPs.*

Table 5.6.6 Wholesale HSA revenues, by service component (\$ millions)

Service component	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2013-2015
Access	200	213	250	17.1	11.0
Capacity	54	107	158	48.1	74.4
Interface and other	33	27	29	8.7	-3.1
Total wholesale HSA services	287	347	437	26.0	21.4

Source: CRTC data collection

The Commission has mandated that DSL and cable facilities be made available to third-party providers utilizing the wholesale HSA framework. Wholesale HSA has the following components:

- *“Access”, which is paid per month for each end-user customer that they service via wholesale HSA. It may or may not include a charge for the assumed amount of capacity a user may use.*
- *“Capacity” is a charge that can be levied by the facility owner for capacity on their network in increments of 100 Mbps.*
- *Other charges include “Interface” which is the basic connection to the carrier, and other fees for services such as installation and modem equipment.*

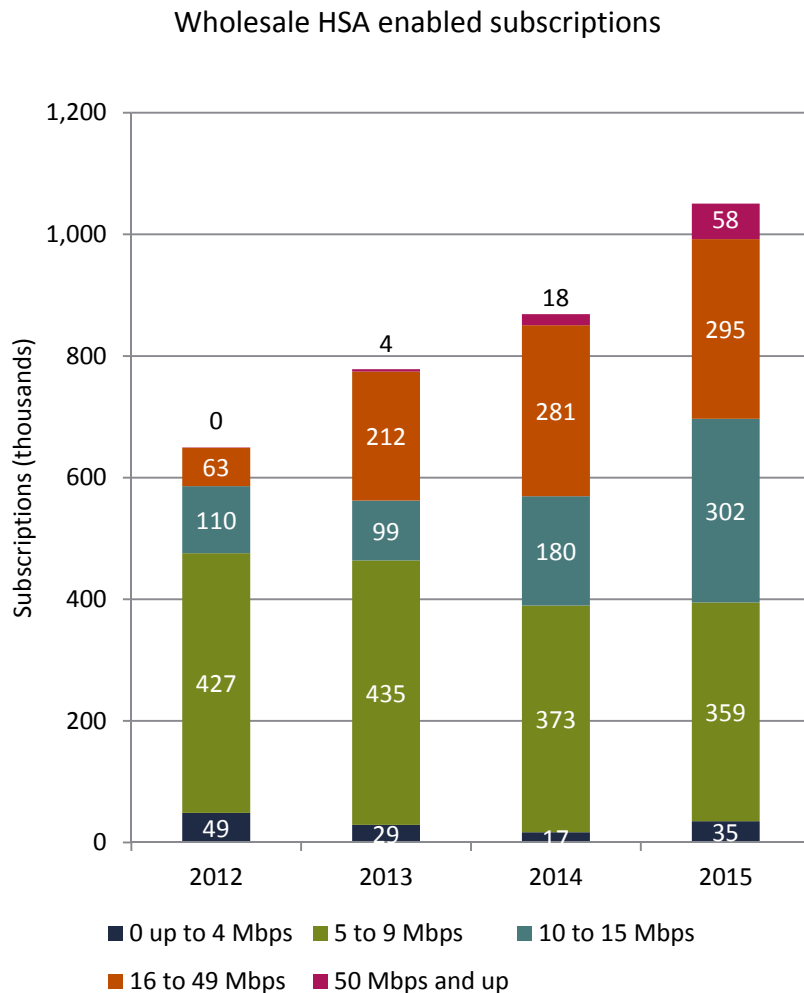
Table 5.6.7 DSL and cable wholesale high-speed access, by type of service (thousands)

Type of service	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Cable-enabled subscriptions	76	187	305	393	454	15.6	56.3
DSL-enabled subscriptions	468	458	462	480	561	16.8	4.6
Total DSL and cable	544	645	767	873	1,015	16.3	16.9

Source: CRTC data collection

The vast majority of the above subscriptions are covered under the wholesale HSA framework, as described above. Over time, TSPs have been making increased use of wholesale DSL and cable facilities to connect to their end-users.

Figure 5.6.4 Wholesale HSA enabled subscriptions, by service speed in Mbps (thousands)



Source: CRTC data collection

Wholesale HSA services are available at various speeds for end-user access. Over time, TSPs have availed themselves of higher-speed services to enable connectivity to their end-users. The above subscriptions are for

residential and business end-user locations. Totals may not exactly match previous tables due to the use of different data sources.

Table 5.6.8 Data protocol wholesale revenues, by service category (\$ millions)

Category	Subcategory	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Newer protocols	Ethernet	221	225	259	288	299	3.6	7.8
	IP	69	99	102	118	142	20.8	19.9
	Other	17	28	29	29	28	-1.0	13.8
	Total newer protocols	307	352	390	435	469	8.0	11.2
Legacy protocols	Total	41	35	30	24	20	-15.9	-16.3
Total	Total data protocols	348	386	421	458	489	6.7	8.9

Source: CRTC data collection

The data services were classified as services making use of newer data protocols such as Ethernet and IP, or legacy protocols such as X.25, ATM, and frame relay. This table displays the revenues from wholesale data services by the protocol used in the service from 2011 to 2015.

Table 5.6.9 Wireless mobile wholesale revenues, by type of service (\$ millions)

Type of service	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Interconnection and roaming	607	736	811	892	963	7.9	12.2
Other	111	105	142	146	160	9.5	9.5
Wholesale total	718	840	953	1,038	1,123	8.1	11.8

Source: CRTC data collection

Interconnection and roaming services are sold to other wireless service providers allowing the service provider to exchange their traffic and extend their geographic coverage area. 'Other' services mainly consist of, but are not limited to, arrangements for a wireless provider to provide wireless services for another company's customers, also known as resale or MVNO arrangements.

ii Subscriber data

Table 5.6.10 Local and access lines, by type of TSP (thousands)

Type of TSP	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Incumbent TSPs	847	742	683	658	598	-9.1	-8.3
Alternative TSPs	135	267	149	68	55	-19.1	-20.1
Cable-based carriers	16	33	5	4	5	25.0	-25.2
Total	999	1,042	837	730	657	-10.0	-9.9

Source: CRTC data collection

This table displays the number of local and access wholesale lines by type of service provider, as well as growth rates and the percentage of wholesale lines by type of service provider for the years 2011 to 2015. Over this period, incumbent TSPs' share of wholesale lines increased from 85% in 2011 to 91% in 2015.

iii Competitive landscape

Table 5.6.11 Wireline wholesale telecommunications revenue market share, by type of TSP (%)

Type of TSP	Subtype	2011	2012	2013	2014	2015
Incumbent TSPs	Incumbent TSPs	86	85	84	82	80
Alternative service providers	Facilities-based alternative service providers (includes cable-based carriers)	12	12	13	14	17
	Resellers	3	3	4	4	4
	Subtotal	14	15	16	18	20

Source: CRTC data collection

This table displays wireline wholesale revenues market share by type of TSPs for the years 2011 to 2015. Over this period, Incumbent TSPs have maintained the largest share of the market although their share has since decreased slightly. With an 80% share of wholesale revenues, they have the largest share of the wholesale market.

Table 5.6.12 Local and access revenues, by type of TSP (\$ millions)

Type	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Incumbent TSPs	794	708	657	625	580	-7.2	-7.6
Alternative TSPs	22	34	36	12	16	29.8	-8.3
Cable-based carriers	17	10	11	9	8	-15.5	-18.2
Total wholesale	832	751	704	646	603	-6.6	-7.7

Source: CRTC data collection

This table displays revenues from local and access wholesale services by type of service provider, as well as growth rates and the percentage of wholesale revenues by type of service provider for the years 2011 to 2015. Over this period, incumbent TSPs maintained approximately 95% of these revenues.

Table 5.6.13 Long distance revenues, by type of TSP (\$ millions)

Type	2011	2012	2013	2014	2015	Growth (%) 2014-2015	CAGR (%) 2011-2015
Incumbent TSPs	520	461	360	322	343	6.5	-9.9
Alternative TSPs	55	72	59	81	71	-12.4	6.6
Cable-based carriers	42	18	13	11	9	-15.7	-31.5
Total wholesale	617	552	433	414	423	2.2	-9.0

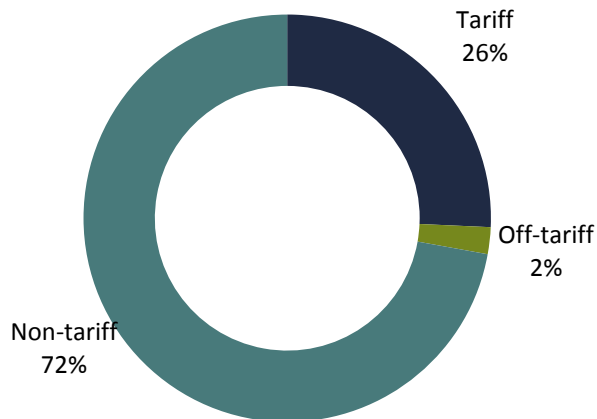
Source: CRTC data collection

This table displays revenues from long distance wholesale services by type of service provider, as well as revenue growth rates and the percentage of wholesale revenues by type of service provider for the years 2011 to 2015. Over this period, incumbent TSPs had a near 10% annual decline in these revenues, whereas alternative service providers had an over 6% annual increase. Wholesale long distance service includes the resale of long distance minutes that one service provider has acquired from another services provider. Providers of prepaid long distance calling cards rely on these services.

iv Forbearance

Figure 5.6.5 Telecommunications wholesale service revenues, by type of tariff, 2015 (%)

Telecommunications wholesale service revenues by type of tariff (%), 2015



Source: CRTC data collection

Approximately 74% of wholesale revenues were from non-tariff services and those services where the parties have agreed to an alternate price.

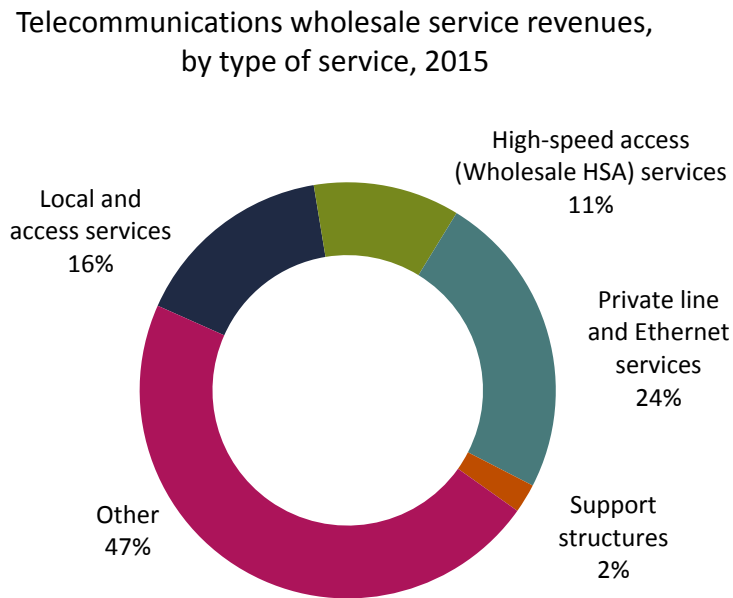
Tariff services are services whose rates, terms, and conditions are set out in a Commission-approved tariff.

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.

Tariff services revenues now exclude revenues from off-tariff services.

Figure 5.6.6 Telecommunications wholesale service revenues, by type of service, 2015 (%)



Source: CRTC data collection

This chart displays the percentage of revenues from wholesale services by type of wholesale service. For purposes of this chart, support structure revenue was included in wholesale revenues.

Table 5.6.14 Percentage of telecommunications wholesale revenues generated by forborne services (%)

Type of service	2011	2012	2013	2014	2015
Local and access	60	61	61	59	58
Long distance	96	99	99	97	98
Internet	59	56	41	35	33
Data	86	86	87	86	86
Private line	54	53	53	54	64
Wireless	100	100	100	100	100

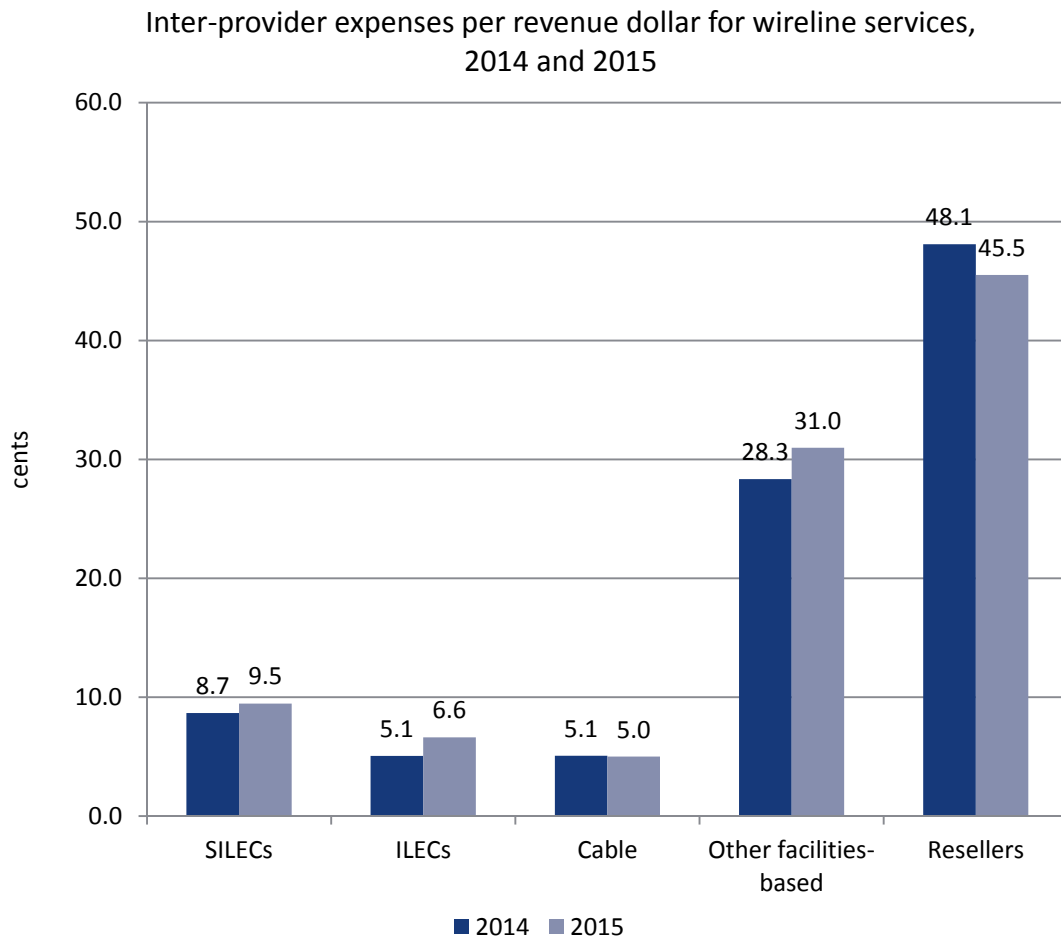
Source: CRTC data collection

This table displays the percentage of wholesale telecommunications revenues from services that are not provisioned in accordance with a Commission-approved tariff.

v Inter-provider expenses

Wholesale service revenues are the inter-provider expenses of providers of telecommunications services acquiring these services. All companies purchase telecommunications services from another carrier. The extent to which service providers rely on these services depends on the nature of their operations.

Figure 5.6.7 Inter-provider expenses per revenue dollar for wireline services, 2014 and 2015



Source: CRTC data collection

This table shows the extent to which various providers of telecommunications services rely on wholesale services. In total, facilities-based providers of telecommunications service spend less than 7 cents of every revenue dollar on wholesale telecommunications services, whereas resellers – service providers that do not own or operate transmission facilities – are very dependent. They spend 46 cents of every dollar on these services.

Inter-provider expense per revenue dollar compares the expenses incurred by a TSP in acquiring wholesale services to its telecommunications revenues for wireline services.

It is derived by dividing total annual inter- provider expenses by annual telecommunications revenues. This calculation includes all revenues from telecommunications services, including revenues from telecommunications services requiring limited dependency on wholesale services.

Providers who omitted inter-provider expenses were eliminated from consideration.

A.1 Methodology

This report is based on (1) the responses from broadcasting and telecommunications undertakings to the CRTC's annual surveys, issued jointly by Statistics Canada and the CRTC (referred to collectively as "CRTC data collection"); (2) data collected from other sources, including Statistics Canada, Innovation, Science and Economic Development Canada (ISED), company-specific financial reports, Numeris, and the Media Technology Monitor (MTM) reports; and (3) information previously filed with the CRTC in the context of regulatory proceedings. Unless otherwise noted, all broadcasting data in this report are for the 12-month period ending 31 August for the years quoted, whereas all telecommunications data, including Internet service data, are for the 12-month period ending 31 December for the years quoted.

Broadcasting-related data is reported as collected, while some telecommunications data may be adjusted or estimated for underreporting.

With respect to residential broadband availability data, the Commission coordinates with ISED to collect data on the availability of broadband Internet access services to Canadians. The Commission has collaborated with the provincial and territorial governments, as well as other federal government agencies and departments, to identify communities that do not have access to broadband services. The resulting data will assist the federal, provincial, and territorial governments in analyzing the broadband availability performance in both urban and rural communities. Combining these data collection initiatives enables the reporting burden on the industry to be reduced, uniform definitions and methodologies to be employed, and the quality of the data presented in this report to be enhanced.

Certain figures published in previous years' monitoring reports have been restated in this year's report to better reflect the developments in the markets or industry and to allow for a more meaningful comparison. Other figures may have changed as a result of service providers resubmitting previous years' data.

A.2 Data collection and analysis

i Data collection

Statistics Canada collects data under the authority of the *Statistics Act*, and the CRTC collects data under the authority of the *Broadcasting Act* and the *Telecommunications Act*. Statistics Canada uses the data to develop national accounts. The CRTC uses them to monitor the broadcasting and telecommunications industries' performance and adherence to regulations, as well as the overall effectiveness of the CRTC's regulatory frameworks. The data are used in the development of policy and regulation by a variety of stakeholders. Data collected are used to measure the financial performance of broadcasting and telecommunications service providers and to maintain and update the CRTC's data on the administration of broadcasting and telecommunications fees. Data are collected, to varying degrees, from all broadcasting and telecommunications service providers under the regulation and supervision of the CRTC. These service providers operate private and public radio, television, and broadcasting distribution services; pay, pay-per-view, video-on-demand, and specialty services; and wireline and wireless telecommunications services.

Broadcasting service providers (also known as broadcasting licensees) and telecommunications service providers complete annual surveys outlining financial information and quantitative data for each broadcast and calendar year, respectively. The data collected are published in annual financial and statistical summaries of revenues and, in the case of broadcasting licensees, expenditures, such as expenditures on Canadian programming. Summaries of broadcasting licensees' data are prepared and published on the CRTC's website at <http://www.crtc.gc.ca/eng/stats.htm>. The data collected are also used to produce the CRTC's *Communications Monitoring Report*.

Broadcasting regulations require broadcasting service providers to complete an annual survey. The *Telecommunications Act* requires providers of telecommunications services to provide data upon request by the CRTC. Both types of service providers access and submit the survey forms electronically using the CRTC's secure web-based Data Collection System (DCS).

The broadcasting survey covers the 12-month period ending 31 August of each year. All broadcasting service providers have until 30 November to complete and submit their annual survey forms. The telecommunications survey covers the 12-month period ending 31 December of each year.

Telecommunications survey forms that request data about facilities and the price of services are launched in January, and the respondents have until 28 February to complete and submit them. The remaining telecommunications survey forms are launched in February, and the respondents have until 30 March to complete and submit them.

As part of the broadcasting survey, commercial radio broadcasters must report on their contributions to Canadian content development (CCD). Broadcasting distribution undertakings (BDUs) must submit information regarding their contributions to the creation and production of Canadian programming. This information enables the CRTC to ensure that broadcasters are complying with their conditions of licence or regulatory requirements in this regard.

As part of the telecommunications survey, the CRTC requires providers of telecommunications services to maintain and update their data on registration lists, and to provide data for the operation of the revenue-based contribution regime and the assessment of telecommunications fees. The total annual revenues from the provision of telecommunications services in Canada are also used to assess the eligibility of carriers to operate as telecommunications common carriers under section 16 of the *Telecommunications Act*.

ii Data analysis

The CRTC analyzes the survey data to ensure that the information provided is accurate and complete. Year-over-year comparisons are made to identify any significant or unexplained changes, and the CRTC follows up with respondents as required to resolve or obtain explanations of any anomalies. The CRTC also subjects the data to computerized edits designed to ensure accuracy and internal consistency. When necessary, the CRTC compares reported data with audited financial information. The data or their derivatives (such as average revenues per line or per minute) are also compared with established benchmarks.

The objectives of this analysis are as follows:

- To ensure the accuracy and validity of the data collected in order to (a) provide Canadians with high-quality data to support their participation in CRTC processes and their informed decision making, and (b) support the CRTC's evidence-based decision-making process;
- To allow for the analysis of trends in the major categories of revenue and expenditures listed in the annual forms over a five-year period, particularly with reference to the previous year;
- To allow the Commission to reconcile actual expenditures with regulatory requirements;
- To ensure that the summary of financial data for operations connected to broadcasting licensees, included in the annual returns, corresponds to the data presented in the financial statements required of broadcasting licensees in accordance with the regulations referenced in Circular No. 404; and
- To maintain up-to-date registration lists of providers of telecommunications services on the CRTC website.

Revisions may be made to the data submitted, and to this report, after they are published. These revisions are generally the result of late receipt of data, modifications made by the respondents to previously filed data, or errors detected following data publication. Finally, certain figures published in the *Communications Monitoring Report* from previous years may be restated for consistency purposes. By way of example, such restatements can result from reclassifications undertaken with a view to better reflect market segments or industry developments. Historically, revisions have generally not had a major impact on the results of the data collection process.

Most of the tables and figures included in this report are derived from the data submitted via the DCS, while others are derived using data from Statistics Canada and Innovation, Science and Economic Development Canada (ISED) or from other third-party reports. Inconsistencies may arise between data sources, given that the companies surveyed, the definitions used, and the level of detail requested may differ for each source. The data source is therefore identified beneath each table and figure in the report.

A.3 Glossary

Disclaimer: these definitions are provided for information purposes only and are not legally binding.

i Broadcasting

Abusive comment: A comment that, when taken in context, tends to or is likely to expose an individual or a group or class of individuals to hatred or contempt on the basis of race, national or ethnic origin, colour, religion, sex, sexual orientation, age or mental or physical disability.

Advertising Standards Canada: A national, not-for-profit advertising self-regulatory body that responds to complaints by consumers and special interest groups regarding advertising with respect to all media subject to the Canadian Code of Advertising Standards, the principal instrument of advertising self-regulation. In addition, it undertakes pre-clearance functions in five industry categories, which consist of reviewing advertisements based on applicable legislation, regulations, and/or industry codes and guidelines. Additional information on the ASC can be found at: www.adstandards.com/en/

Affiliation payment: The remuneration that providers of discretionary programming services receive from broadcasting distribution undertakings that distribute their services.

Audio services: Includes multi-channel subscription (satellite radio) services, pay and specialty audio services, over-the-air radio stations, and video services broadcast over cable and the Internet.

Basic services: Basic service is the service distributed in a licensed area by a broadcasting distribution undertaking as a package consisting of programming services whose distribution is required by the Commission.

Broadcasting sector: Radio, television and distribution undertakings, comprised of public, private and community elements.

Broadcaster: An entity that controls an undertaking that broadcasts programming.

Broadcasting distribution undertaking: Providers of subscription television service to Canadians by redistributing programming from conventional over-the-air television and radio stations. They also distribute pay audio, pay television, pay-per-view, video-on-demand, and speciality services. Examples include cable (delivered through coaxial cables), satellite, and Internet Protocol Television (IPTV).

Canada Media Fund (CMF): A fund that fosters, promotes, develops and finances the production of Canadian content and relevant applications for all audiovisual media platforms. Its financing is obtained from government and private sources. Additional information on the CMF can be found at: <http://www.cmf-fmc.ca/>

Canadian Broadcast Standards Council: An independent organization created by the Canadian Association of Broadcasters to administer standards established by Canada’s private broadcasters. Its membership includes more than 790 private-sector radio and television stations, specialty services, pay services, and networks from across Canada, broadcasting in English, French, and third languages. Additional information on the CBSC can be found at: <http://www.cbsc.ca/>

Canadian content development (CCD) contributions: Financial contributions made by broadcasters to initiatives that aid in the development and promotion of Canadian musical and spoken word content for broadcast.

Canadian programming expenditures (CPE): The proportion of gross annual broadcasting related revenues that a licensee is required, by condition of licence, to spend on the production of Canadian programming for broadcast.

Category A/B/C services: *Category A* – A service that focuses on a specific genre (for example, music, children’s programming, weather, comedy programming). It is protected from competition from non-Canadian services and Category B services. All broadcasting distribution undertakings must carry these services. *Category B* – A service that focuses on a specific genre, that is not competitive with any Category A or Category C service. Category B services do not have any specific carriage rights. *Category C* – A service that operates in either of the competitive genres of national news or mainstream sports. There are no specific carriage rights for Category C Sports services. Category C News services must be made available in the best possible discretionary package consistent with their genre. They must also be made available to subscribers on a stand-alone basis.

“Cut the cord”: The process of cutting cable connections to change to low-cost television through over-the-air free broadcast via antenna or online video service broadcast over the Internet.

Discretionary services: A programming service that is not included in the basic service and that is distributed to subscribers on a discretionary basis for a fee separate from and in addition to the fee charged for the basic service.

Independent production funds: Established third-party funds that support creators of a variety of programming and other content. They help ensure that creators have access to financial and other support, including support for national and international promotion, across all audiovisual platforms. Canadian independent production funds are certified by the Commission according to criteria announced in Contributions to Canadian programming by broadcasting distribution undertakings, Broadcasting Regulatory Policy CRTC 2010-833, 9 November 2010.

Internet audio: Listening or streaming audio services available over the Internet.

Internet Protocol television (IPTV): Internet Protocol television is a system through which television services are delivered using Internet protocol over a private, managed network as opposed to traditional over-the-air (OTA), cable television or satellite.

Internet radio: Listening or streaming AM/FM radio stations available over the Internet.

Local Programming Improvement Fund (LPIF): A fund designed to improve the quality of local programming in non-metropolitan television markets across Canada. It was discontinued in August 2014.

Multi-channel subscription service (MDS): In the context of the Communications Monitoring Report, refers to subscription satellite radio services.

Non basic services: Non basic service is the service distributed in a licensed area by a broadcasting distribution undertaking consisting of programming services whose distribution is not required by the Commission.

Numeris: A Canadian audience measurement organization; the primary provider of viewership numbers for television and radio outlets in Canada (formerly the Bureau of Broadcast Measurement, or BBM Canada).

Offensive comment: A comment expressing offensive humour or other comments that do not fall under the “abusive comment” provision in CRTC regulations.

Offensive language: Offensive language in song lyrics or in spoken word programming.

On-Demand services: A system that allows users to select and watch/listen to video or audio content when they choose to, rather than having to watch at a specific broadcast time (for example, a video-on-demand or pay-per-view service).

Over-the-air (OTA) television service: A television service that may be accessed by Canadians with the use of an over-the-air antenna.

Pay television services: Generally, a service that provides commercial-free movies and series programming, and that is only available from broadcasting distribution undertakings.

Personal video recorder (PVR): A consumer electronics device or application software that records video in a digital format to a disk drive, USB flash drive, SD memory card, SSD or other local or networked mass storage device (also known as digital video recorder, or DVR).

Portable people meter (PPM): A system that measures how many people are exposed or listening to individual radio stations and television stations. The PPM is worn like a pager and detects hidden audio tones within a station or network's audio stream, logging each time it finds such a signal.

Programs of national interest (PNI): The CRTC has defined programs of national interest (PNI) as 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. For the purposes of this report, PNI expenditures include expenditures in any of the following programming categories:

- 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).

Service bundle: A group of related services that are sold as a package and provide financial gain.

Tangible benefits: In the absence of a competitive process relating to changes of ownership or effective control of radio or television programming services, the applicant is required to make financial contributions (called “tangible benefits”) that will yield measurable and significant improvements to the Canadian broadcasting system as a whole and to the communities served by the service(s) in question.

Tangible benefits are proportionate to the size and nature of the transaction and must be incremental to the normal cost of doing business. As a general rule, applicants are expected to make tangible benefit contributions representing a percentage (6% for radio and 10% for television services) of the value of the transaction and are usually paid over a five to seven period.

Tangible benefits is one means, used by the Commission, of ensuring the best possible proposal by the applicant and that approval is in the public interest, consistent with the overall objectives of the Broadcasting Act.

Video-on-demand (VOD): A service that allows viewers to choose the program they wish to watch and the time they wish to watch it, and for which a fee is generally charged. This type of service is available from service providers, such as cable or satellite companies, and is increasingly becoming available over the Internet.

ii Telecommunications

Access services: The facilities required to connect a subscriber to a communications network. Examples include local telephone lines and broadband access facilities that connect to subscribers’ premises.

Broadband Internet: High-speed Internet, with access of at least 1.5 Mbps.

Churn rate: 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 numbers of customers that have cancelled service in a month by the total number of subscribers for that service provider.

Commissioner for Complaints for Telecommunications Services (CCTS): The CCTS is an independent organization dedicated to working with consumers and service providers to resolve complaints about telephone and Internet services. Its structure and mandate were approved by the CRTC. The CCTS handles complaints about most telecommunications services provided to individuals and small businesses, including home phone, wireless, Internet, and VoIP services. CCTS is also responsible for administering the Wireless Code. Additional information on the CCTS can be found at: <https://www.ccts-cprst.ca/>

Connections: Access to one or more communications services, such as local telephone services, Internet access service, wireless service, and broadcast distribution services. Wireless service can be either mobile or fixed. Broadcast distribution can be cable, satellite direct-to-home, or IPTV.

Dedicated mobile broadband user: A user who subscribes to a data-only plan for access data services on a mobile network. These data plan subscriptions are purchased separately from voice services, either as a stand-alone service subscription (hub, dongle, stick, or cellular modem) or as a separate subscription data package to a voice service plan.

Fixed-wireless: A wireless network that uses either licensed or unlicensed spectrum to provide communications services (voice and/or data), where the service is intended to be used in a fixed location.

Forbearance: The action of refraining from regulation.

HSPA/HSPA+/LTE: 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 as 4G (fourth generation) cellular. LTE is the current standard that is now widely deployed in most mobile networks. HSPA+, or evolved High-speed Packet Access, is a form of HSPA that uses technical measures to provide faster transmission speeds.

Latency: Delay between transmission and receipt of signal.

Machine-to-machine (M2M) communication: Networking of intelligent communications-enabled remote devices that permit information to be automatically collected or exchanged without human intervention. For example, vending machines reporting inventory levels.

Megabits per second (Mbps): A theoretical unit of measurement of the speed for data transfer over a transmission medium (e.g. copper, co-axial cable, fibre optics, or wireless), consisting of 1,000,000 bits per second or 125,000 bytes per second where a byte consists of 8 bits.

Network-related capital expenditures: Money that is spent on communications networks (e.g. landline, cable, and wireless) for equipment, labour, software, etc. that, in accordance with accounting practices, can be capitalized in a company's financial records.

Packet: A unit of data formatted for transmission on a network. Data is broken up into packets for sending over a packet switching network. Each packet has a header containing its source and destination, a block of data content, and an error-checking code. All the data packets related to a message may not take the same route to get to their destination; they are reassembled once they have arrived.

Paging: A service that allows transmitting a signal via radio from any telephone in the PSTN to a personal, portable receiving device in a defined operating area. More sophisticated systems provide audible or visual display messages.

Peering: A settlement-free exchange of routing announcements between two Internet service providers for the purpose of ensuring that traffic from the first can reach customers of the second, and vice-versa.

Private line: A transmission facility that carries dedicated communications between two or more points. A private line is not connected to the PSTN (public switched telephone network) and the communications carried over the private line are not switched.

Roaming: A service offered by mobile communications network operators which allows a subscriber to use her or his terminal while in the service area of another service provider. Usually measured by minute or by message, roaming normally involves at least two charges, an end-user retail charge paid by the end-user to a service provider, and an intercarrier retail charge paid from one service provider to another for network use.

Satellite Internet services: Access to the Internet can be facilitated in remote areas by using satellite transport in two ways. One is a direct-to-home service where a subscriber has a small antenna (typically in the Ka-band) at their premises. The other is where a provider of telecommunications services has an agreement with a satellite operator for satellite transport services (typically in the C-band, which requires large antennas) that is connected to a terrestrially-based distribution system in a community. Typically, access to Internet services via satellite is only used in communities where there is no suitable terrestrially-based transmission service.

Short Message Service (SMS)/Multi-media Messaging Service (MMS): SMS is a text messaging service that uses standardized communications protocols to allow phones (typically mobile phones) to exchanges short text messages. Due to the methodology used to transmit text messages over mobile wireless networks, these messages are restricted in length to 140 octets (where an octet is 8 bits). Messages of a longer length are broken down by the sending device into SMS of 140 octets that are subsequently reassembled into the complete message by the receiving device. MMS expands the core SMS capability to allow the sending of multi-media content such as pictures, short video clips, news and entertainment content, or marketing material such as coupons and product images.

Standard mobile broadband user: An individual who owns a smartphone or a regular cellphone with a subscription to a data and voice plan. (Mobile phone plans with browsing only are excluded from this category.)

Tariff/Non-tariff/Off-tariff services: *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.

Voice over Internet Protocol (VoIP): VoIP is a digital communications technology makes use of IP packets carried over packet-switched network(s). There are generally two types of networks used for VoIP services. The first is the open/public Internet and the other is dedicated or managed IP networks operated by carriers such as cable companies, usually referred to as access-dependent VoIP. When the public Internet network is used for VoIP service, this is referred to as access-independent VoIP.

Wholesale services: In the context of telecommunications services, provision of a telecommunications service or facility to a service provider, regardless of whether that service provider rebills the service or facility to another entity, or uses that service or facility internally to support the services it bills.

WiFi hotspot: A physical location that offers, through a local area wireless computer networking (Wi-Fi) technology, Internet access over a wireless local area network through the use of a router connected to a link to an Internet service provider.

iii Other

Compound annual growth rate (CAGR): The year-over-year growth rate of an amount over a specified period of time.

Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA): EBITDA is an accounting measure calculated using a company's net earnings before deducting interest, taxes, depreciation, and amortization. EBITDA is a measure of the performance of a company's current operations with its current assets, as it is a measure of a company's profitability before the effects of financing are considered.

A.4 List of acronyms used in the report

ARPU	average revenue per user
ASC	Advertising Standards Canada
ATM	asynchronous transfer mode
AWS	advanced wireless service
BDU	Broadcasting distribution undertaking
CAGR	compound annual growth rate
Capex	capital expenditure
CBC	Canadian Broadcasting Corporation
CBSC	Canadian Broadcast Standards Council
CCD	Canadian Content Development
CCTS	Commissioner for Complaints for Telecommunications Services
CMF	Canadian Media Fund
CPE	Canadian programming expenditures
CPI	Consumer Price Index
CRTC, the Commission	Canadian Radio-television and Telecommunications Commission
DCS	Data collection system
DSL	digital subscriber line
DTH	direct-to-home
EBITDA	earnings before interest, taxes, depreciation and amortization
FTTH	fibre-to-the-home
FTTP	fibre-to-the-premises
FTTN	fibre-to-the-node
GB	gigabyte
HSA	high speed access
HSDS	high-speed digital service
HSPA	high-speed packet access
HSPA+	evolved high-speed packet access
ICT	Information and communications technology
IP	Internet Protocol
IPTV	Internet Protocol television
IP-VPN	Internet Protocol – virtual private network
ISDN	integrated services digital network

ISP	Internet service provider
Kbps	kilobits per second
LAN	local area network
LPIF	Local programming improvement fund
LTE	long-term evolution
MB	Megabyte
Mbps	megabits per second
MDS	multipoint distribution service
MMS	multimedia messaging service
MTM	Media Technology Monitor
MVNO	mobile virtual network operator
M2M	Machine-to-machine
n/a	not available
NAS	Network access service
PBIT	profit before interest and taxes
PNI	programs of national interest
PPM	portable people meter
PPV	pay-per-view
PSTN	public switched telephone network
PVR	personal video recorder
RDU	radiocommunication distribution undertaking
SMS	short message service
TPI	telephone price index
TPIA	third-party Internet access
TSP	telecommunications service provider
TTY	teletypewriter
VOD	video-on-demand
VoIP	voice over Internet Protocol
WAN	wide area network
WSP	wireless service provider
3G	third-generation
4G	fourth-generation

A.5 Circulars, decisions, public notices, orders, notices of consultation, regulatory policies and codes referenced in the report

Circular No. 404	<i>Requirements for the Filing of Financial Statements with the Broadcasting Annual Return</i> , Circular No. 404, 23 August 1994
Broadcasting Decision 2010-782	<i>Change in the effective control of Canwest Global Communications Corp.'s licensed broadcasting subsidiaries</i> , Broadcasting Decision CRTC 2010-782, 22 October 2010
Broadcasting Decision CRTC 2010-942	<i>Transfer of effective control of various commercial radio programming undertakings from Corus Entertainment Inc. to Cogeco inc.</i> , Broadcasting Decision CRTC 2010-942, 17 December 2010
Broadcasting Decision CRTC 2011-163	<i>Change in effective control of CTVglobemedia Inc.'s licensed broadcasting subsidiaries</i> , Broadcasting Decision CRTC 2011-163, 7 March 2011
Broadcasting Decision CRTC 2012-394	<i>Global News Plus BC – Specialty Category B service</i> , Broadcasting Decision CRTC 2012-394, 20 July 2012
Broadcasting Decision 2013-207	<i>The Score – Change in effective control and licence renewal and amendment</i> , Broadcasting Decision CRTC 2013-207, 30 April 2013
Broadcasting Decision 2013-283	<i>TVtropolis – Acquisition of assets</i> , Broadcasting Decision CRTC 2013-283, 11 June 2013
Broadcasting Decision 2013-310	<i>Astral broadcasting undertakings – Change of effective control</i> , Broadcasting Decision CRTC 2013-310, 27 June 2013
Broadcasting Decision 2013-530	<i>CityNews Channel (formerly known as CITY News (Toronto)) – Revocation of licence</i> , Broadcasting Decision CRTC 2013-310, 1 October 2013
Broadcasting Decision 2013-737	<i>TELETOON/TÉLÉTOON, TELETOON Retro, TÉLÉTOON Rétro and Cartoon Network – Change of effective control; TELETOON/TÉLÉTOON, TELETOON Retro and TÉLÉTOON Rétro – Licence renewal and amendment</i> , Broadcasting Decision CRTC 2013-373, 20 December 2013
Broadcasting Decision 2013-738	<i>Historia and Séries+ – Acquisition of assets and change in effective control</i> Broadcasting Decision CRTC 2013-738, 20 December 2013
Broadcasting Decision 2014-62	<i>Change of effective control – Follow-up to the Astral-BCE transaction</i> , Broadcasting Decision CRTC 2014-62, 17 February 2014

Broadcasting Decision 2014-388	<i>Change in the effective control of Disney Junior, Disney XD and Family Channel from Bell Media Inc. to DHX Media Ltd. and licence amendments</i> , Broadcasting Decision CRTC 2014-388, 24 July 2014
Broadcasting Decision 2014-465	<i>MusiquePlus and MusiMax - Change in effective control and licence amendments</i> , Broadcasting Decision CRTC 2014-465, 11 September 2014
Broadcasting Order 2011-60	<i>Exemption order for small video-on-demand undertakings</i> , Broadcasting Order CRTC 2011-60, 31 January 2011
Broadcasting Public Notice 1990-89	<i>Native Broadcasting Policy</i> , Broadcasting Public Notice CRTC 1990-89, 20 September 1990
Broadcasting Public Notice 1999-117	<i>Ethnic Broadcasting Policy</i> , Broadcasting Public Notice CRTC 1999-117, 16 July 1999
Broadcasting Public Notice 2006-143	<i>Exemption order respecting certain network operations</i> , Broadcasting Public Notice CRTC 2006-143, 10 November 2006
Telecom Regulatory Policy 2013-271	<i>The Wireless Code</i> , Telecom Regulatory Policy CRTC 2013-271, 3 June 2013

A.6 List of Canadian companies referenced in the report and their full names

Access Communications	Access Communications Co-operative Limited
Astral	Astral Media Inc.
BCE	Bell Canada Enterprises
Bell Aliant	Bell Aliant Regional Communications, Limited Partnership
Bell Mobility	Bell Mobility Inc.
Bragg	Bragg Communications Incorporated
CBC	Canadian Broadcasting Corporation
Cogeco	Cogeco Data Services Inc., Cogeco Cable Canada LP, Cogeco Cable Québec General Partnership, Cogeco Cable Canada General Partnership
Corus	Corus Entertainment Inc.
Distributel	Distributel Communications Limited
EastLink	EastLink Inc.
Lansdowne	Lansdowne Rural Telephone Co. Ltd
MTS Allstream	MTS Allstream Inc.
Northwestel	Northwestel Inc.
Québecor	Québecor Media Inc.
Primus	Primus Telecommunications Canada Inc.
Remstar	Remstar Broadcasting Inc. (V)
Rogers	Rogers Media Inc., Broadcasting Limited, Rogers Communications Partnership
SaskTel	Saskatchewan Telecommunications
Shaw	Shaw Communications Inc.
Sogetel	Sogetel inc
SRC	Société Radio-Canada
TELUS	TELUS Communications Company, TELUS Services Inc.
Télébec	Télébec, Limited Partnership
Télé-Québec	Société de télédiffusion du Québec
Videotron	Videotron Ltd., Videotron G.P.
WIND	WIND Mobile Corp.
Xplornet	Xplornet Broadband Inc., Xplornet Communications Inc.
Yak	YAK Communications (Canada) Corp.

A.7 Telecommunications market sector description

A) Wireline voice

Wireline voice-related telecommunications services can be divided into two broad market segments: (i) local and access services, and (ii) long distance services.

i. Local and access services

The local and access segment is composed of wireline services relating to access and connectivity to the public switched telephone network (PSTN), and includes services used by both retail and wholesale customers.

Local wireline telephone service enables customers to place unlimited calls within a defined local calling area for a basic monthly fee. This service is either access-dependent or access-independent. Access-dependent service includes managed wireline access from the telecommunications service provider to the customer, a connection to the PSTN, and a telephone number. Access-independent service does not include the managed wireline access component. Customers of access-independent service must subscribe to broadband Internet service, which serves as the access component.

Local wireline telephone service includes automated call answering, business Centrex, and Integrated Services Digital Network (ISDN) services, as well as other ancillary services such as inside wiring, installation and repair, teleconferencing, and miscellaneous local services.

Local and access services include (a) local services provided to other providers of telecommunications services on a wholesale basis, and (b) access services for interconnection between carriers and other service providers, including switching and aggregation.

ii. Long distance services

Retail long distance services encompass wireline voice traffic to locations outside the local calling area. These services are sold in a variety of ways, such as through a standard per-minute charge, a monthly subscription plan, calling cards, or in a bundle with other services.

Wholesale long distance services are provided (a) under connection arrangements between a facilities-based telecommunications service provider and a long distance service provider to transit long distance minutes, or (b) on a wholesale, bulk, long-distance-minute basis by facilities-based telecommunications service providers to resellers of long distance services.

B) Internet

Internet-related telecommunications services can be divided into two broad market segments: (i) Internet access and transport, and (ii) Internet applications and other Internet-related services.

i. Internet access and transport

Internet access service involves the provision of an Internet Protocol connection to an end-user, which enables the end-user to exchange application traffic with Internet hosts and other end-users. Internet access service consists of the following three major components:

- a) data connection between a modem at the end-user's location (such as a residential dwelling) and the Internet service provider (ISP);
- b) ISP facilities, which include
 - routers, to switch traffic between ISP end-users and the Internet at large;
 - servers, to provide in-house ISP services, such as email; and
 - network management elements; and
- c) a connection from the ISP to the Internet.

Internet access services are available at a variety of speeds. Low-speed, or narrowband, access services operate at speeds of up to 64 kilobits per second and are typically provided using dial-up access lines. High-speed access services, including wideband [up to 1.5 megabits per second (Mbps)] and broadband (faster than 1.5 Mbps), generally operate using digital subscriber line (DSL) technologies, coaxial cables, terrestrial wireless technologies, satellites, or fibre-optic cables.

Internet transport service is a type of Internet connectivity service typically sold to ISPs and some larger business customers. Internet transport capacity is provided over Internet backbone facilities that carry aggregated traffic across domestic and international links between Internet traffic switches or routers. Internet transport service provides partial control over the movement of customers' Internet traffic. In some cases, peering arrangements between Internet backbone service providers substitute for the outright purchase of Internet transport by one ISP from another.

ii. Internet applications and other Internet-related services

A growing number of Internet application services, including email and Web hosting, piggyback on Internet connectivity services. Internet application services are typically bundled together with Internet access services. However, telecommunications service providers also participate in emerging stand-alone business Internet application service markets, which include services such as premium Web hosting services, Internet data centre and off-site data storage services, and security and firewall services.

C) Data and private line

Data services include managed local area network (LAN) and wide area network (WAN) services for data, video, and voice networks within a metropolitan area or on a national or international scale. Data services include legacy protocols such as X.25 (packet switched WAN communication), Asynchronous Transfer Mode (ATM), and frame relay; newer protocols such as Ethernet and Internet Protocol-Virtual Private Network (IP-VPN); and the provisioning and management of networks and related equipment.

Private line services provide the capability to link two or more locations over dedicated facilities for the purpose of transporting data, video, or voice traffic. These services include high-capacity digital transmission services (at speeds ranging up to gigabit speeds over fibre), as well as voice-grade and other analogue services. Transmission facilities for private line services include copper wire, fibre-optic cable, and satellite facilities.

D) Wireless

Wireless services are composed of telecommunications services provided via mobile wireless access facilities. These services include mobile telephony, mobile data (such as text and multimedia messaging), roaming, wireless Internet access, and paging services. Data and private line services by satellite are included in the “Data and private line” section of this report, while mobile telephone services are included in the “Wireless” section of this report.

In addition to enabling voice communications over wireless networks, new wireless technologies are enabling users to send text messages and multimedia messages, including photos, graphics, videos, and audio clips, from one device to another and from one carrier to another. Data usage is expected to continue to grow as existing and new carriers forge network agreements and expand and upgrade their networks, and as terminal equipment makers introduce new devices.

A.8 Classification of Canadian TSPs

For the purposes of monitoring and reporting on the state of competition in the telecommunications market sectors, providers of telecommunications services operating in Canada are classified into two broad categories: incumbent providers and alternative providers. The category into which a given provider falls may change from one year to the next as a result of mergers or acquisitions in the industry. For example, if a provider acquires or establishes a company that provides mobile (wireless) service, the wireless company takes the same classification as the parent provider. Companies providing telecommunications services are classified according to the structure set out below.

1. **Incumbent providers** are the companies that provided local telecommunications services on a monopoly basis prior to the introduction of competition. For the purposes of this report, these companies' operations outside their traditional operating territories are included in the "alternative providers" category. Incumbent providers are subdivided into large and small providers.
 - a) *Large incumbent providers* 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. The large incumbent providers are Bell Aliant; Bell Canada; MTS Allstream; Northwestel, SaskTel; Télébec, and TELUS.
 - b) *Small incumbent providers* serve relatively small geographical areas (mostly municipal areas generally located in less densely populated regions) in Ontario, Quebec, and, in one instance, British Columbia. 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 providers are Lansdowne in Ontario and Sogetel in Quebec.
2. **Alternative providers** are either: i) providers of telecommunications services that are not incumbent providers as described in 1) above; or ii) incumbent providers conducting out-of-territory operations, such as Bell Canada conducting operations in Alberta and British Columbia or MTS Allstream, conducting operations across Canada. Alternative providers are subdivided into facilities-based and non-facilities-based providers.
 - a) *Facilities-based alternative providers* own and operate telecommunications networks. This group is further subdivided into facilities-based incumbent providers (out-of-territory) and facilities-based non-incumbent providers.

Facilities-based non-incumbent providers are further subdivided into cable-based carriers, utility telcos, and other carriers.

- *Cable-based carriers* are the former cable monopolies that also provide telecommunications services (e.g. wireline voice, Internet, data and private line, and wireless services). These providers include such companies as Bragg, Cogeco, Rogers, Shaw, and Videotron.

- *Utility telcos* are providers of telecommunications services whose market entry, or whose corporate group's market entry, into telecommunications services was preceded by a group-member company's operations in the electricity, gas, or other utility business.
 - *Other carriers* own physical transmission facilities (e.g. intercity, intra-city, or local transmission facilities). These service providers include such companies as Xplornet.
- b) *Non-facilities-based alternative providers* do not own or operate a telecommunications network. These companies are referred to as resellers, since they 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. Examples of non-facilities-based alternative providers are Distributel, Primus, Yak, and independent Internet service providers.

A.9 Rural communities included in service price assessment

According to the 2011 Census, approximately 19% of Canadians lived in rural communities. To assess the price of communications services for this segment of the population, 54 rural communities were selected. These communities represented 3% of Canadians living in rural communities and were selected based on the following criteria:

- The community was not part of one of the census metropolitan areas of the 24 urban centres listed in Table A.4.2 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/territory reflected that province's or territory's proportion of the total population of Canada; and
- The communities were not geographically clustered.

Table A.9.1 List of rural communities

Province	Community	Province	Community
British Columbia	Barriere	Quebec	L'Islet
	Bowser		La Guadeloupe
	Cobble Hill		Lac-Des-Écorces
	Hazelton		New Carlisle
	Kaslo		Laterrière
	Keremeos		Rock Island
	Thrums		Saint-Honoré (Témiscouata)
Alberta	Cremona		New Brunswick
	Evansburg	Florenceville	
	Glendon	Lamèque	
	Hythe	Prince Edward Island	Crapaud
	Wabasca		Hunter River
	Saskatchewan	Broadview	Nova Scotia
Gull Lake		Bear River	
Naicam		Mahone Bay	
Redvers		Wedgeport	
Spiritwood		Newfoundland and Labrador	Burin
Ashern	Harbour Main		
La Broquerie	New Harbour		
Manitoba	Norway House	Territory	Community
	Pine Falls		
	Southport	Yukon	Dawson City
	Bayfield		Mayo
	Ripley	Northwest Territories	Fort Simpson
Bancroft	Fort Smith		
Echo Bay	Cape Dorset		
Ontario	Emsdale	Nunavut	Igloolik
	Ingleside		
	Lion's Head		

Table A.9.2 List of urban centres

Province	Urban centre	Province	Urban centre
British Columbia	Vancouver	Quebec	Montréal
	Victoria		Québec
Alberta	Calgary	New Brunswick	Fredericton
	Edmonton	Prince Edward Island	Charlottetown
Saskatchewan	Saskatoon	Nova Scotia	Halifax
	Regina	Newfoundland and Labrador	St. John's
Manitoba	Winnipeg		
Ontario	Toronto	Territory	Community
	Ottawa – Gatineau	Yukon	Whitehorse
	Hamilton	Northwest Territories	Yellowknife
	London		
	Kitchener – Waterloo	Nunavut	Iqaluit
	St. Catharines – Niagara		
	Windsor		
	Oshawa		

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

A.10 About broadband measurement

i Methodology

To collect data for this report, the CRTC used a test environment that aims to replicate how a typical consumer would utilize online streaming and real-time communications services. The services were accessed by a typical wireline residential broadband service, and a national LTE cellular data network, using mainstream off-the-shelf consumer electronics: Android- and iOS-based tablets and phones, smart TVs, Windows- and Linux-based laptop and desktop computers, and various set-top streaming devices. A web browser was used to access the streaming services on the PCs, and official applications (apps) were used on the other devices.

To measure the data consumed by these services on the wireline connection, a specially-configured Linux-based computer was inserted between the upstream Internet connection and the local network. Using industry-standard data collection tools, all data flowing between the test device and the Internet was captured for analysis. For the LTE connection, traffic was recorded using the same tools, but from a virtual interface on a computer that mirrors the LTE interface on the test device. This process is completely transparent to the streaming services and test devices.

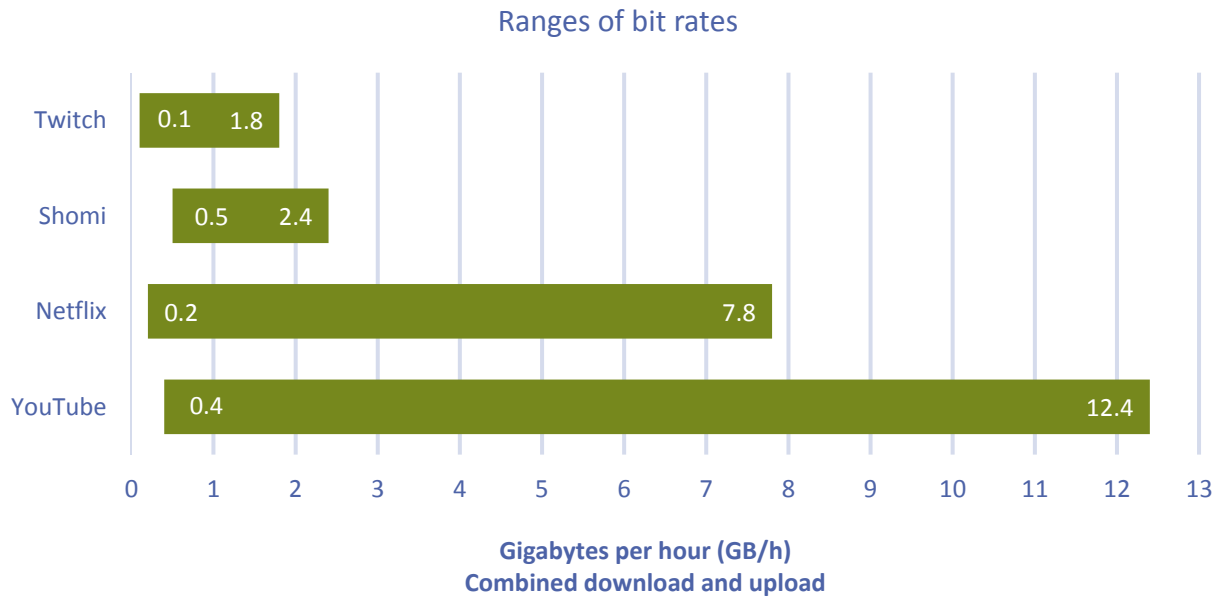
The maximum speeds of the wireline and LTE Internet connections were tested, and found to be significantly higher than the maximum observed speeds of the streaming services tested; in other words, the Internet connections did not limit the speed of the streams in any way. To ensure accuracy, multiple measurements were taken for each service and quality level (where this setting was available), and background data usage (i.e. the usage of background apps and services, other than the one being tested) was minimized.

ii Automatic bit rates

On a consumer's network, multiple applications and devices contend for access to a limited amount of bandwidth. Assuming that the bandwidth of the consumer's Internet package is high enough, multiple applications can share a connection without any noticeable drop in quality. However, on connections that are constrained by low bandwidth or those that have too many applications running simultaneously, the quality of the consumer's experience will be impacted.

To avoid interruptions, and to provide the best user experience given the aforementioned constraints, many applications will dynamically adjust the quality of their stream. A decrease in the quality of the stream means lower demand for instantaneous bandwidth, and less data usage overall. Conversely, higher stream qualities require more instantaneous bandwidth and will use more data. Figure A.10.1 shows the range of bitrates for some common video streaming services.

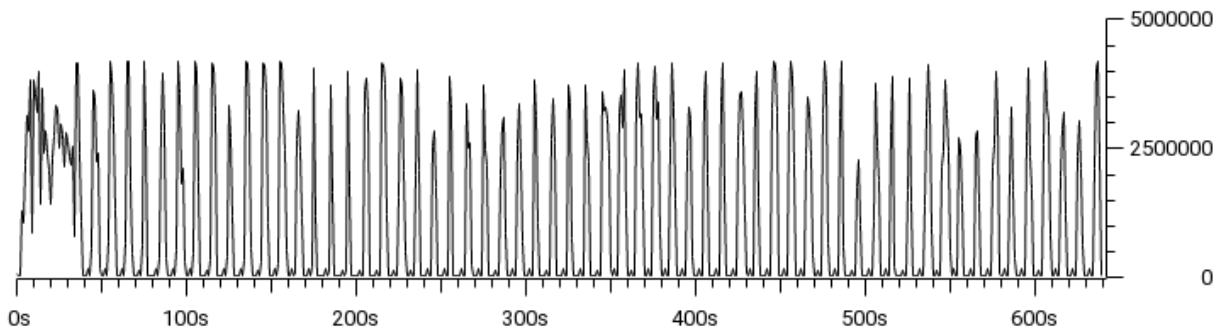
Figure A.10.1 Ranges of bit rates for some video streaming services



Source: CRTC Technology Resource Centre

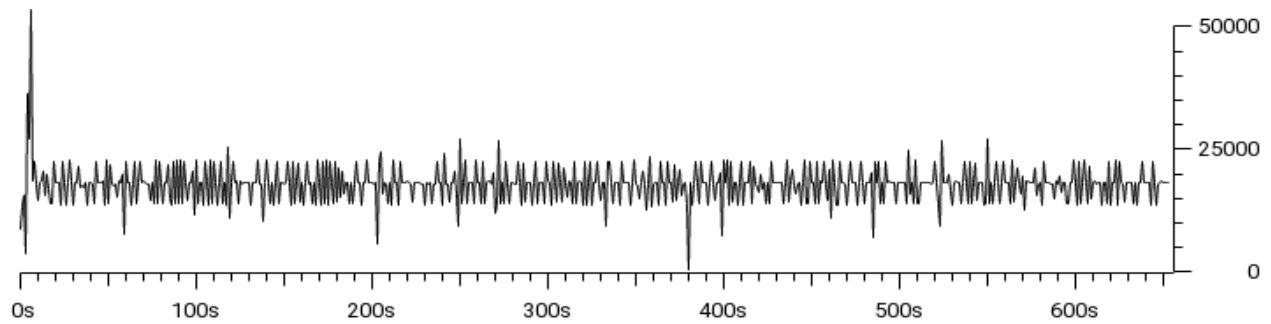
Additionally, streaming services have different patterns of data delivery; some deliver fixed-size blocks of data however quickly the Internet connection can accept them (most video streaming services), while others send a constant stream of data at a fixed rate (predominantly audio streaming and real-time communications services). The difference in bandwidth usage is detailed in Figures A.10.2 and A.10.3.

Figure A.10.2 Example data rate graph of a fixed-size chunk streaming service



Source: CRTC Technology Resource Centre

Figure A.10.3 Example data rate graph of a fixed-rate streaming service



While the bandwidth usage characteristics of a streaming service doesn't affect its overall data usage, it may impact other activities for subscribers who share an Internet connection, or who have multiple devices. As the number of simultaneous streams increases, the likelihood of saturating a household's Internet connection increases; saturating the connection results in dropped packets and may interrupt streams to buffer data.

iii Effect of Compression on Data Usage

When audio and video are streamed over the Internet, they are sent in a compressed format. The *codec* determines the format of the media, and directly affects the data usage of its stream. Although audio compression has not changed much in recent years, the proliferation of UHD video has spurred the development of more efficient video compression standards.¹⁸ Newer codecs allow the same video to be more efficiently compressed, resulting in a lower streaming bit rate for video of the same quality. This means consumers will be able to view higher-quality video without needing to increase the speed of their Internet connection or their data usage.

¹⁸ H.264/MPEG-4 Advanced Video Coding (AVC) is a video codec standard defined by the Moving Picture Experts Group (MPEG) that has become the *de facto* compression method for many streaming video services. However, when H.264 is used with high-resolution UHD video, the stream's bit rate often exceeds the speed of typical residential Internet connections. For this reason, some streaming services have started using newer, more efficient codecs to stream their data, like H.264's successor H.265 High Efficiency Video Coding (HEVC).