DotMobile Petition to Governor in Council concerning

Telecom Regulatory Policy CRTC 2021-130

Notice No. TIPB-001-2021

Reply Submission

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Introduction.

1. The Samuelson-Glushko Canadian Internet Policy & Public Interest Clinic (CIPPIC) and the Open Media Engagement Network (OpenMedia) is pleased to submit its comments in response to a petition to the Governor in Council filed by DotMobile and seeking to vary elements of Telecom Regulatory Policy CRTC 2021-130, a decision issued by the Canadian Radio-television and Telecommunications Commission which reviewed Canada's mobile wireless regime.[1] CIPPIC and OpenMedia support DotMobile's petition. The decision under review fails to address long standing problems in Canada's mobile retail market and, as a result, will help cement Canada's place as dead last among its peers in terms of mobile affordability and connectivity.

2. A sustained lack of competition has led to highly unaffordable mobile services, harming individuals while undermining Canada's ability to realize the full potential of mobile networks. Canada continues to fall further and further behind its global counterparts as high costs deter adoption and usage of mobile services, while large numbers of Canadians are forced to chose between maintaining their cell phone plan and other essentials such as food and shelter.

3. TRP CRTC 2021-130 acknowledges these problems in Canadian competition, pricing and affordability. However the solution it adopts fails to address the underlying problems. Indeed, the CRTC's solution artificially and unnecessarily replicates many of the barriers to competition that have generated the problematic status quo the decision identifies.

4. The lack of affordable mobile services has deeply impacted individuals in Canada, making this issue a top priority. In the course of the CRTC proceeding that generated TRP

[1] DotMobile, Petition to Governor-in-Council to Vary Telecom Regulatory Policy CRTC 2021-130, May 4th, 2021,

CRTC 2021-130, over 18,000 members of OpenMedia's community submitted comments emphasizing the need for more affordable mobile services and a greater choice of providers.

5. The government has signaled a commitment to mobile affordability. There is no path to affordability that does not include a robust virtual wholesale solution. We therefore support DotMobile's petition to vary TRP CRTC 2021-130 and to direct the CRTC to exercise its rate-setting powers and put in place a full virtual wholesale regime.

Mobile Services in Canada are Unaffordable.

6. In TRP CRTC 2021-130, the Commission concluded that:

> The Commission is satisfied that the evidence before it shows that retail prices are higher in Canada than in other comparable jurisdictions. Furthermore, factors such as network costs or network quality do not appear to explain the price differentials. Rather, it is likely that insufficient competition in Canada contributes to higher prices in comparison to other countries.[2]

There is ample evidence to support this central finding. CIPPIC and OpenMedia have documented this persistent trend for years and in numerous CRTC proceedings, including the proceeding that generated the regulatory policy under review. Persistently unaffordable retail prices fueled by a lack of competition have now pushed Canada to near dead-last among its global peers in terms of mobile adoption (37th out of 38 OECD countries and rapidly falling) and data usage (33rd out of 39 OECD countries and persistently declining).

Mobile services are over-priced and unaffordable

7. While much commentary has sought to challenge the conclusion that mobile costs in Canada are high, it is ultimately a conclusion that is difficult to reasonably deny. There are two primary methods for comparing mobile pricing. One mechanism is to compare the average

[2] TRP CRTC 2021-130, para 122.

revenue that service providers extract per user (ARPU) and the other measures the cheapest available price for different baskets of service offerings (price baskets). Canadian mobile costs are persistently high across both of these pricing comparison methodologies.

8. As a measure, ARPU has the advantage of capturing not only advertised plan prices, but also usage-specific costs, and reflects the actual average amount customers are paying. ARPU is also a helpful comparative measure because it is able to capture all promotions and pricing arrangements in a competitive landscape that offers many complicated rate structures.[3]

9. Inclusion of consumption costs (that is, per GB usage costs) in addition to advertised prices (the prices of mobile plans advertised to customers) can also cause some comparative distortions, as higher operator revenues might be attributed to higher levels of usage rather than to higher prices.[4] But Canadian ARPU has been persistently high when compared to peer countries *even while mobile data usage has been amongst the lowest*.

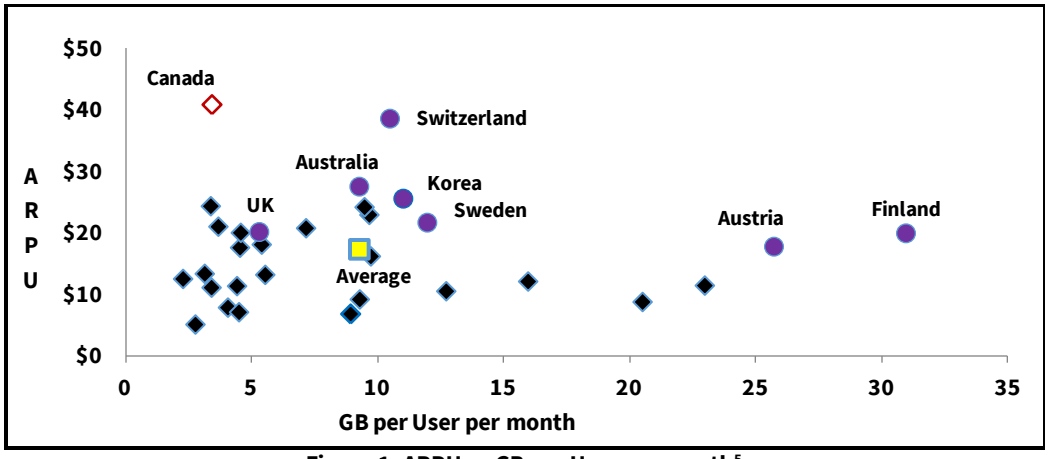

Figure 1: ARPU vs GB per User per month[5]

[3] United States, Federal Communications Commission, 2020 Communications Marketplace Report, FCC-20-188A1, December 31, 2020, https://docs.fcc.gov/public/attachments/FCC-20-188A1.pdf, para 46.

[4] OECD, "OECD Bundled Communications Price Baskets", DSTI/CDEP/CISP(2019)7/FINAL, December 18, 2020, endnote 2.

[5] Economist Intelligence Unit, "The Inclusive Internet Index 2021", 5th Edition, https://theinclusiveinternet.eiu.com/, provides

Canada is a true outlier *both* these respects. Its average data usage is fourth lowest among included countries, while its average revenue per user is the highest. In terms of cost to usage ratios, Canada's is $11.92 /GB/user/month—about 6 times the average of $1.86.[6]

10. Two countries that are excluded from Figure 1 are noteworthy because their cost to usage ratios are remotely proximate to Canada's—the United States and Japan. Both are excluded because neither has yet reported its data usage for 2020. In terms of ARPU, the United States reports slightly higher ARPU ($45/month) than Canada ($40.75/month), while even its 2019 data usage (6.19 GB/user/month) is close to double Canada's. Japan's ARPU is lower than Canada's ($36.33/month) while it's 2019 data usage is also substantially higher (5.05 GB/user/month). In this regard, Canada outpaces both of these countries in terms of cost to usage ratios (US: $7.27 /GB/user/month | Japan: $7.19/GB/user/month) even using their lower 2019 reported average data usage. It is also notable that prices in both the United States and Japan have been rapidly decreasing in recent years, while this has not been the case in Canada.[7]

Average Revenue per User in each included country in PPP adjusted US Dollars. Monthly data usage is obtained from: OECD, Broadband Statistics, https://www.oecd.org/sti/broadband/broadband-statistics/, 1.13 Mobile data usage per mobile broadband subscription per month, December 2020. All countries reported in both sources are included: Australia (9.26 GB/user/month, $27.50); Austria (25.75 GB/user/month, $17.58), Belgium (3.41 GB/user/month, $24.17), Canada (3.42 GB/user/month, $40.75), Chile (12.75 GB/user/month, $10.33), Colombia (2.8 GB/user/month, $4.92), Costa Rica (4.09 GB/user/month, $7.67), Czechia (3.17 GB/user/month, $13.17), Denmark (7.19 GB/user/month, $20.58), Estonia (16 GB/user/month, $11.92), Finland (30.99 GB/user/month, $19.75), France (9.6 GB/user/month, $22.75), Germany (4.57 GB/user/month, $17.42), Greece (3.44 GB/user/month, $10.92), Hungary (5.57 GB/user/month, $13.00), Ireland (9.51 GB/user/month, $24.00), Italy (9.76 GB/user/month, $16.00), South Korea (11.05 GB/user/month, $25.50), Latvia (23.01 GB/user/month, $11.25), Lithuania (20.54 GB/user/month, $8.58), Mexico (4.53 GB/user/month, $6.92), Netherlands (3.71 GB/user/month, $20.83), New Zealand (4.6 GB/user/month, $20.83), New Zealand (4.6 GB/user/month, $19.83), Poland (9.32 GB/user/month, $9.00), Portugal (4.45 GB/user/month, $11.17), Slovakia (2.31 GB/user/month, $12.33), Spain (5.43 GB/user/month, $17.92), Sweden (11.99 GB/user/month, $21,58), Switzerland (10.52 GB/user/month, $38.42), Turkey (8.92 GB/user/month, $6.67), United Kingdom (5.29 GB/user/month, $20.08). As explained below, no 2020 mobile usage data is available for the United States or Japan, so these were not included in the graph.

[6] This figure is calculated by dividing a country's average monthly revenue per user (provided in PPP adjusted USD) by the same countries average GB per user per month. If the United States and Japan are included using their reported 2019 data usage, th an the average among included countries is 2.06, roughly 1/6th the Canadian ratio.

[7] Wall Communications, "Price Comparison of WIreline, Wireless and Internet Services in Canada and with Foreign Jurisdictions: 2020 Edition, *Innovation, Science and Economic Development Canada*, January 15th, 2021,

11. As noted above, ARPU as a metric is susceptible to usage-based cost differences. Namely, ARPU increases as more usage-related costs are incurred. The fact that Canada presents consistently world-leading ARPU even while producing persistently low data usage further underscores how high costs in Canada truly are compared to its counterparts.

12. The other method of conducting pricing comparisons is to through the use of pricing 'baskets'. Pricing baskets present the lowest advertised tariff from each country that represents different levels of usage. Pricing baskets have the advantage of better reflecting actual market offerings faced by customers while being less susceptible to customer costs arising from differences in actual usage of a service.[8] Here, too, Canada is consistently among the highest in the world. A summary of Canada's position in various pricing basket based comparisons further confirms Canada's position as a global leader in high mobile costs:

Study	Criteria	Ranking	NOTES
ISED/Wall Communications International Pricing Comparison	8 pricing baskets, 7 countries	1st/2nd highest in 4 of 7 price baskets[9]	"Canada's average mobile Internet service prices fall on the high side (along with the US and Japan) of the group of surveyed countries. Canadian prices have been increasing over the last three years while other countries have been declining (most noticeably the US and Japan) or remaining fairly stable."[10]
US FCC, Communications	Overall mean cost & cost per	26th / 26 highest mean cost;	When adjusting for a range of factors (network quality/coverage, data usage, demographic

https://www.ic.gc.ca/eic/site/693.nsf/eng/00190.html, p 73, "Canadian prices have been increasing over the last three years while other countries have been declining (most noticeably the US and Japan) or remaining fairly stable." See also: TRP CRTC 2021-130, para 125: "Canadian retail prices have not fallen as much as they have in other jurisdictions, and remain above international benchmarks.".

[8] OECD, "OECD Bundled Communications Price Baskets", DSTI/CDEP/CISP(2019)7/FINAL, December 18, 2020.

[9] Wall Communications, "Price Comparison of WIreline, Wireless and Internet Services in Canada and with Foreign Jurisdictions: 2020 Edition, *Innovation, Science and Economic Development Canada*, January 15th, 2021, https://www.ic.gc.ca/eic/site/693.nsf/eng/00190.html, p 7.

[10] Wall Communications, "Price Comparison of WIreline, Wireless and Internet Services in Canada and with Foreign Jurisdictions: 2020 Edition, *Innovation, Science and Economic Development Canada*, January 15th, 2021, https://www.ic.gc.ca/eic/site/693.nsf/eng/00190.html, p 73.

<table>
<tr><td>Marketplace Report 2020, Appendix G[11]</td><td>GB, 26 countries</td><td>25th / 26 highest $/GB</td><td>characteristics, and terrain variability & population density) have minimal impact on Canada's ranking (Canada remains 24th-25th highest out of 26 countries when adjusting for these factors).</td></tr>
<tr><td rowspan="4">ReWheel/Research[12]</td><td rowspan="4">Plans that offer at least 1,000 minutes of voice, data access rates of 5 Mbps+,[13] and 4/5G; EU and OECD countries</td><td>6GB or more | 2nd most expensive</td><td rowspan="4">The median cost per GB of mobile data in Canada across all plans that meet ReWheel's eligibility criteria is 4 times the OECD average and 5 times the EU average.
When the maximum amount of GB/month is compared across at all €5 increments between €30 - €80, Canadian plans offer the 2nd least amount of data throughout all OECD/EU countries.</td></tr>
<tr><td>50GB or more | 2nd most expensive</td></tr>
<tr><td>Median $ per GB | 2nd most expensive</td></tr>
<tr><td>Max GB/mth for €30 | 2nd least amount of data</td></tr>
</table>

Table 1: Canada's High Retail Prices are Consistent & Cross-Cutting

Across all of these studies, Canada's retail rates are persistently among the highest in all comparable territories.

13. It is notable that controlling for factors such as average income across various countries does not improve Canada's global affordability standings. First off, ARPU figures presented in Figure 1 are adjusted for price purchasing parity (PPP), a metric that allows for affordability comparisons by adjusting currency conversions to account for the cost of a fixed basket of essential goods in each country. Second, a recent study by S&P Global Market Intelligence compared mobile ARPU to disposable income in numerous countries, and found that Canada remains an extreme outlier when mobile operate revenues are adjusted for disposable income.

[11] United States, Federal Communications Commission, 2020 Communications Marketplace Report, FCC-20-188A8, December 31, 2020, Appendix G, https://docs.fcc.gov/public/attachments/FCC-20-188A8.pdf, Fig G-30, paras 25-27. Note that in a fourth model, price is adjusted to account for country-level differences in the value of content available over mobile networks. In this last model, the FCC ranks Canada 22nd out of 26, on the basis that the content available to Canadians provides a higher value proposition than in some other countries in its comparison set.

[12] ReWheel/Research, "The State of 4G & 5G Pricing, 1H2020", *Digital Fuel Monitor*, April 2020, http://research.rewheel.fi/insights/2020_may_pro_1h2020_release/.

[13] The 5 Mbps limit is to control for plans that offer unlimited data, but at throttled access rates that prevent core functionality.

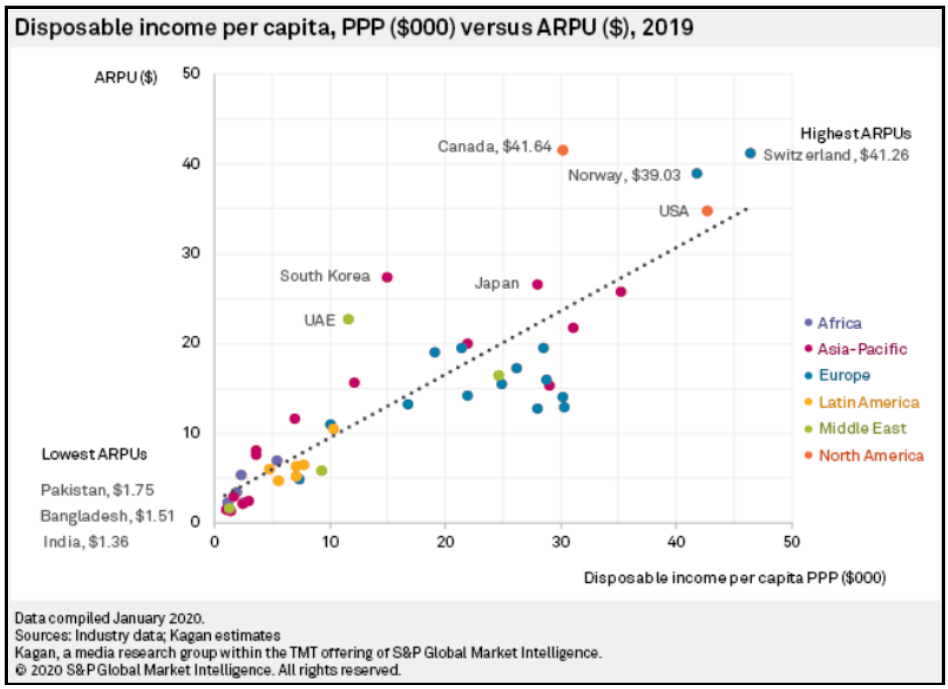

Figure 2: ARPU and Disposable Income, 2019
SOURCE: S&P Global Market Intelligence[14]

Canada is furthest away from the 'trend line' in Figure 2, indicating the highest disparity between cost and disposable income. Technological differences and geographic deployment challenges cannot account for these persistently high prices either. As noted in our submissions to the underlying proceeding that generated TNC CRTC 2021-130 (and confirmed by the Commission in that decision), Canadian network costs are not comparatively high to a degree that could justify Canada's consistently exorbitant prices.[15] Additionally, as noted in Table 1, the FCC's international pricing comparison in its recent Communications Marketplace Report provides adjusted rankings that control for technological differences and geographic challenges like population density does little to improve Canada's rankings (24th out of 26).[16]

[14] Julber Osio, "Global Mobile Service Revenue Up 1.9%, ARPU Diluted 0.6% in 2019", *S&P Global Market Intelligence*, April 13, 2020, https://www.spglobal.com/marketintelligence/en/news-insights/research/global-mobile-service-revenue-up-19-arpu-diluted-06-in-2019.

[15] TRP CRTC 2021-130, para 122.

[16] United States, Federal Communications Commission, 2020 Communications Marketplace Report, FCC-20-188A8, December

Network Quality is Mediocre

14. It is additionally notable that Canadians do not receive much value in terms of service quality in exchange for these exorbitant rates. As mobile data speeds around the world continued to increase despite the pandemic, the comparative quality of Canada's mobile services has slipped.[17] In terms of mobile download speeds, Canada ranks 19th globally, while the performance of Canada's mobile networks in terms of upload speeds and latency are thoroughly mediocre when compared to the global and OECD average:[18]

	Download Speed (Global Rank)	Upload Speed	Latency
Canada	87.65 Mbps (19th)	12.79 Mbps	35 ms
Global Average	56.74 Mbps	12.61 Mbps	37 ms
OECD Average	74.05 Mbps	14.97 Mbps	33 ms
G7 Average	74.54 Mbps	12.6 Mbps	40 ms
South Korea	192.16 Mbps (2nd)	21.42 Mbps	30 ms
Australia	126.97 Mbps (9th)	16.02 Mbps	27 ms
Finland	83.01 Mbps (20th)	16.21 Mbps	25 ms
Sweden	97.06 Mbps (16th)	17.34 Mbps	31 ms

Table 2: Comparative Quality of Canadian Mobile Networks

This drop in relative performance occurs despite a relative decrease in the data load on Canadian mobile networks – as noted below, millions of Canadians have cancelled their mobile data subscriptions in recent months whereas average mobile data speeds in Canada are growing at much slower rates than among its global peers (as discussed below).

31, 2020, Appendix G, https://docs.fcc.gov/public/attachments/FCC-20-188A8.pdf, Fig G-30, Model 3.

[17] Isla McKetta, "Despite All Odds, Global Internet Speeds Continue Impressive Increase", September 8, 2021, https://www.speedtest.net/insights/blog/world-internet-speeds-july-2021/. In this respect, we note that average speeds in Canada (as well as the average amount of time mobile data was offloaded to WiFi networks) remained roughly consistent over the pandemic period (https://www.opensignal.com/2021/08/04/mobile-download-speed-recovery-stories-vary-in-markets-around-the-world) and as such Canada's change in rankings cannot be attributed to changes in mobile data consumption.

[18] Ookla, "Canada Mobile and Fixed Broadband Internet Speeds, August 2021, https://www.speedtest.net/global-index/canada?mobile#market-analysis. Canada's mobile download speeds in August 2021 was 87.65 mbps, ranking 19th in Ookla's Speedtest Global Index. Canada's mobile upload speed was 12.79 Mbps and reported mobile latency is 35 ms whereas the average mobile upload speed among *all* countries was 12.61 Mbps and 37 ms, respectively. High latency, in particular, undermines the quality of real-time mobile connectivity. Canada's quality of mobile services remains mediocre at best when compared to the average among 36 OECD countries (no data is available for Iceland): Average download speed: 74 Mbps | Average upload speed: 14.97 Mbps | Average latency: 33 ms.

15. Overall, the relative mediocrity of Canada's mobile network quality offers no explanation for the persistently high prices Canadians face.

Cost undermines mobile connectivity

16. As noted above, the impact of Canada's persistently high mobile service costs has been significant. Specifically, as a result of high prices, mobile services in Canada are drastically underutilized. In 2020, Canada reported only 72 mobile subscriptions per 100 inhabitants, ranking 37th out of 38 OECD countries in terms of mobile adoption and well below the OECD average of 117 mobile subscriptions.[19] Canadian subscribers also use their mobile devices far less than residents of our international counterparts. In 2020, Canada ranked 33rd out of 36 OECD countries in terms of the average amount of data used by each subscriber each month, with just 3.4 GB of monthly data usage per subscriber.[20] The OECD average data usage for that same year was 7.5 GB per monthly subscriber.

17. Of particular concern is the rate at which Canada is continuing to fall further and further behind our global counterparts, rapidly cementing our position as a true global outlier in terms of low mobile adoption and data usage.

18. While Canada has long been a laggard in terms of mobile adoption, its drop in OECD rankings since 2016 has ranged from steady to precipitous.[21]

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[19] OECD, Broadband Statistics, https://www.oecd.org/sti/broadband/broadband-statistics/, 1.2.2 OECD Mobile Broadband Subscriptions per 100 inhabitant, December 2020; 1.1.2 Total Mobile Broadband Subscriptions by Country (Dec 2020): Canada reported 15,794,330 total subscribers.

[20] OECD, Broadband Statistics, https://www.oecd.org/sti/broadband/broadband-statistics/, 1.13 Mobile data usage per mobile broadband subscription per month, Dec 2020.

[21] OECD, Broadband Statistics, https://www.oecd.org/sti/broadband/broadband-statistics/, 1.5.2 OECD Historical Mobile Broadband Subscriptions per 100 inhabitants, December 2020.

	2016	2017	2018	2019	2020
OECD Ranking (out of 38)	30th	31st	32nd	33rd	37th

Table 3: Mobile Subscriptions per 100 Inhabitants
Canada's OECD Ranking

As subscribers in other jurisdictions are increasingly adopting multiple subscriptions to fully realize the benefits of mobile connectivity, at least one fifth of Canadians still do not have a mobile subscription at all. During the pandemic, when Canadians faced extreme financial and other constraints, over 3.5 million mobile subscriptions were cancelled—an approximate 12% decline on a per 100 inhabitant basis.[22] While individuals in all countries faced financial stress during the pandemic, few experienced such significant declines in mobile subscriptions and, on average, subscription levels across the OECD actually increased by more than 2% over the same period. If this trend continues unabated, Canada will soon be dead last among OECD countries in terms of mobile adoption.[23]

19. Canadian mobile subscribers are also making increasingly anemic use of their mobile connectivity when compared to their global counterparts. In terms of OECD rankings, Canada has dropped from 25th among OECD countries in 2016 to 33rd in 2020.[24] While mobile data usage in Canada grows every year, we are being rapidly outpaced by our global counterparts.

[22] Canadian mobile subscriptions decreased from 81.08 subscriptions per 100 inhabitants in the second quarter of 2020 to 71.68 subscriptions per 100 inhabitants in the fourth quarter of 2020. This was the largest decline in mobile subscriptions between 2Q2020 and 4Q2020 in the OECD region (New Zealand experienced the second largest decline over that period – from 97.57 subscriptions per 100 inhabitants to 90.93 subscriptions per 100 inhabitants, a 7% decline). On average, subscriptions across the OECD increased over the same period from 115.38 subscriptions per 100 inhabitants in 2Q2020 to 117.48 subscriptions per 100 inhabitants in 4Q2020, a 2% increase.

We note that a methodological shift in Canada's reporting removed 1.5 million subscriptions from its total subscriptions in 2Q2020, but this methodological shift does not impact the real decline in subscriptions between 2Q2020 and 4Q2020.

[23] OECD, Broadband Statistics, https://www.oecd.org/sti/broadband/broadband-statistics/, 1.5.2 OECD Historical Mobile Broadband Subscriptions per 100 inhabitants, December 2020; 1.1.2 Total Mobile Broadband Subscriptions by Country (Dec 2020): Canada reported 15,794,330 total subscribers.

[24] OECD, Broadband Statistics, https://www.oecd.org/sti/broadband/broadband-statistics/, 1.13 Mobile data usage per mobile broadband subscription per month, Dec 2020.

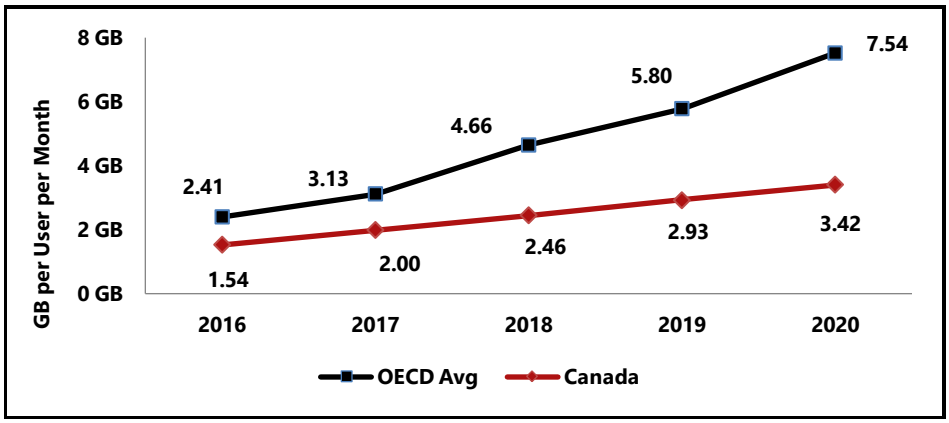

Figure 3: Average Data per User per Month (Canada vs OECD Average)[25]

Over this period of time, average data usage across the OECD grew at an annual rate of 33% (CAGR) while growth in Canada was only 22% CAGR. Average data usage and growth amongst the top 10 OECD countries paints an even starker picture in terms of Canada's global mobile connectivity prospects. Average data usage amongst the top 10 countries in the OECD was 17.9 GB per user per month in 2020, well over 5 times the Canadian average.[26]

20. While many considerations can impact the level of adoption and usage of a particular service, cost is a central factor and Canada's persistently high costs are impeding the potential of mobile connectivity. This is particularly the case where prices are disproportionately high.

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[25] OECD, Broadband Statistics, https://www.oecd.org/sti/broadband/broadband-statistics/, 1.5.2 OECD Historical Mobile Broadband Subscriptions per 100 inhabitants, Dec 2020; 1.2 OECD Fixed and Mobile Broadband Subscriptions per 100 in habitants, Dec 2020; 1.13 Mobile data usage per mobile broadband subscription per month, Dec 2020.

[26] Finland (30.99 GB/user/month); Austria (25.75 GB/user/month); Latvia (23.01 GB/user/month); Lithuania (20.54 GB/user/month); Iceland (16.7 GB/user/month); Estonia (16 GB/user/month); Chile (12.75 GB/user/month) ; Sweden (11.99 GB GB/user/month); Korea (11.05 GB/user/month); Switzerland (10.52 GB/user/month). Note that annual growth rates among these top 10 countries are comparable to the OECD average (35% CAGR from 2016, when average data usage among these countries was 5.34 GB/user/month), demonstrating that mobile data usage in these countries has not topped off and the gap between these top 10 and Canada will also continue to grow.

We further note that Canada's growing lag cannot be explained by reference to differences in adoption of wireline services. The top 15 OECD countries in terms of wireline adoption averaged about 7.25 GB/user/month of mobile data usage in 2020, an amount that is on par with the OECD average and is more than double Canada's 2020 mobile data usage.

OECD, Broadband Statistics, https://www.oecd.org/sti/broadband/broadband-statistics/, 1.5.2 OECD Historical Mobile Broadband Subscriptions per 100 inhabitants, Dec 2020; 1.2 OECD Fixed and Mobile Broadband Subscriptions per 100 in habitants, Dec 2020; 1.13 Mobile data usage per mobile broadband subscription per month, Dec 2020.

21. In an online questionnaire submitted by OpenMedia in TNC CRTC 2019-57, 8,596 of respondents identified price, while an additional 4,935 identified insufficient data allotments as factors impeding them from getting the service they want from their cell phone plan.[27]

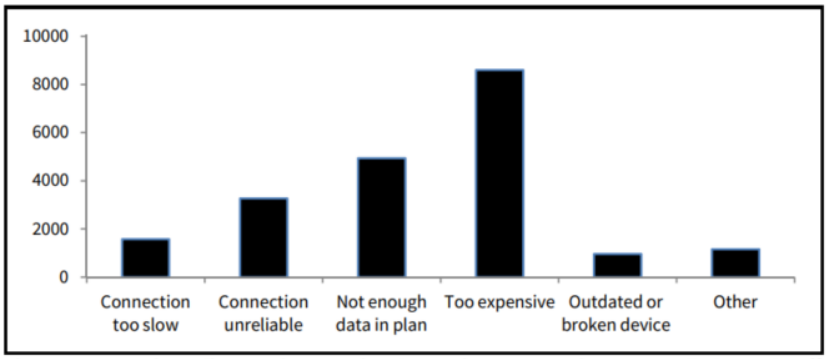

Figure 4: What factors (if any) are impeding you from getting the service you want from your cell phone plan? Select all that apply (n=10,067)

22. Moreover, mobile services are essential to modern life. So essential that, when asked to identify what other necessities had caused surveyed Toronto respondents to miss a meal, 20% indicated they had skipped meals in order to pay their cell phone bill.[28]

23. Canada's high prices and poor mobile adoption are equally stark when the comparatively mediocre quality of Canadian mobile networks is taken into account and compared to its mobile peers.

[27] See CIPPIC/OpenMedia, Further Comments, November 22, 2019, Figure 4. B. Of 10,067 respondents to the public online questionnaire, 8,596 individuals responded to the question: "What factors (if any) are impeding you from getting the service you want from your cell phone plan? Select all that apply:" by selecting 'Too expensive" from a pre-populated list of factors. Other results were: Connection is too slow (1,572 indications); Connection is unreliable (e.g. lose reception or service drops)(3,266 indications); Not enough data (4,935 indications); Too expensive (8,596 indications); Outdated or broken device (960 indications); Other (please elaborate below)(1,149 indications).

[28] "Who's Hungry: Profile of Hunger in the Toronto Region", November 5, 2019, https://www.dailybread.ca/blog/whos-hungry-2019-a-profile-of-hunger-in-the-toronto-region/, p 11. Only rent ranked higher, and transportation was the other necessity listed in the top 3 by respondents.

	Download Speed (Global Rank, Mbps)	**Mobile Adoption** (OECD Rank, Subs per 100 inhabitants)	**Data Usage** (OECD Rank, GB/User/Month)	**Cost** ($ per GB per User per Month)
Canada	19th (87.65)	37th (71.7)	33rd (3.42)	$11.92
Australia	9th (126.97)	11th (123.3)	15th (9.26)	$2.97
Finland	20th (83.01)	3rd (156.1)	1st (30.99)	$0.64
South Korea	2nd (192.16)	13th (115.6)	9th (11.05)	$2.31
Sweden	16th (97.06)	9th (125.8)	8th (11.99)	$1.80
OECD Average	74.05 Mbps[29]	117.5	7.54	$2.06[30]
G7 Average	74.54 Mbps	114.2	6.28*	$5.42

Table 4: Comparing Cost, Quality & Adoption
*** 2019 per user monthly data usage is provided for the United States and Japan**

All in all, Canadians pay far more and receive far less.

24. In light of these staggering deficiencies, substantial steps to instill greater mobile competition are required in order to render mobile services affordable and to arrest Canada's continued decline in global standings.

MVNOs are the only path to affordable connectivity.

25. A wholesale MVNO regime is the only way to instill sustained and meaningful mobile competition in Canada.

26. The Commission's rejection of MVNOs is based on the following faulty presumptions:

- MVNOs will only provide aggressive price competition when first entering the market in order to build a customer base, but will stop competing once their market base is built;[31]
- The CRTC dismisses jurisdictions where sustained MVNO-based competition has emerged organically as irrelevant to Canada on the presumption that this robust competition emerged because incumbent providers enjoyed spare network capacity;[32]

[29] Average of 36 OECD countries. No speed data is available for Iceland. Source: Ookla, Speedtest Global Index, August 2021 (accessed September 22, 2021), https://www.speedtest.net/global-index#mobile.

[30] Average of 33 OECD countries. No ARPU is available for Norway, Luxemburg, Iceland or Slovenia.

[31] TRP CRTC 2021-130, paras 238 and 241.

[32] TRP CRTC 2021-130, para 239.

- Wholesale MVNO-based competition can only be sustained through the operation of an active regulatory regime to which the CRTC objects;[33] and
- Regional MNOs provide a more sustained form of competition than MVNOs.[34]

With respect, the Commission's conclusions are inconsistent with the government's clearly stated affordability mandate, the record of this proceeding, and the Commissions' own determinations in TRP CRTC 2021-130. Specifically, these core conclusions do not reflect the finding that retail prices are higher than they should be, the competitive dynamics of other MVNO-rich markets, the proportionate benefits of a properly calibrated wholesale regime, and the limits of regional MNO based competition.

High retail prices provide substantial latitude for sustained price competition.

27. The Commission correctly held that retail prices are high across Canada and in all regions. The vast majority of Canadian subscribers remain subscribed to a national provider, who have collectively sustained market shares in the 90% range.[35] These national providers charge higher

[33] TRP CRTC 2021-130, para 240.

[34] TRP CRTC 2021-130, paras 207 and 263.

[35] CRTC, Communications Monitoring Report, . It is also notable that mobile services are highly prone to coordinated effects. As the United States Federal Communications Commission recently noted in AT&T and T-Mobile, WT Docket No. 11-65, https://apps.fcc.gov/edocs_public/attachmatch/DA-11-1955A2.pdf, paras. 74-78:

> As the courts have stated, "[t]he combination of a concentrated market and barriers to entry is a recipe for price coordination." That coordination need not be explicit, and typically is not. But "[t]acit coordination is feared by antitrust policy even more than express collusion" as it is harder to detect and to prevent ... Coordinated effects are of particular concern here because the retail mobile wireless services market, being relatively concentrated and hard to enter, appears conducive to coordination... Features of this market make it likely that the remaining three nationwide providers would be able to reach a consensus on the terms of coordination (by identifying a mutually agreeable coordinated price), deter cheating on that consensus (by undercutting the coordinated price to steal high-margin business from its rivals), and prevent new competition in this market. Because these providers offer the same plans and share the same prices nationwide, increased coordination would most likely take the form of raising the level of prices.
>
> Reaching a consensus would be facilitated by the small number of firms and the use of national prices and service plan offerings by most providers across most geographic markets. The transparency of prices (firms post and publicize them to market their plans), small size of individual retail transactions relative to the size of the market, and the common use of contracts by postpaid customers make it likely that cheating on a coordinated consensus would be detected rapidly and matched (or otherwise punished). Indeed, the nationwide providers pay close attention to each other's prices and quickly detect, evaluate and, if they choose, respond to pricing moves by rivals. Cheating would be deterred because a firm that expects its rivals to respond quickly to a price cut, as by matching, is unlikely to find it profitable to undercut a high coordinated price. Finally, new competition that would undermine or deter coordinated price is unlikely for reasons

prices than they would in a competitive environment.[36] In other words, the CRTC concludes that excessive pricing of this nature is only sustainable due to a lack of competition.[37]

28. Despite this finding, the Commission indicated that an MVNO regime could not provide price discipline in the long term, arguing that MVNOs would compete on price *only* over the short term, as they attempt to build a customer base.[38] This conclusion conflicts with the Commission's own finding regarding pricing dynamics in Canada's mobile ecosystem. The entrance of more competitors would lead to a more competitive environment, making it increasingly difficult for *any* provider to sustain excessive prices, as competition will enjoy the substantial market power currently enjoyed by the national providers. [39]

Understanding MVNO market dynamics in Canada and abroad.

29. The Commission acknowledges that MVNOs in many jurisdictions have captured as much as 30% market share collectively and have had a substantial impact on mobile competition.[40]

30. In some jurisdictions, where mobile competition is robust, incumbent operators have embraced MVNOs organically, allowing for a wholesale ecosystem to thrive and providing substantial service innovation and price discipline. In rejecting the applicability of these examples to Canada, TNC CRTC 2021-130 guesses that robust MVNO wholesale competition

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discussed in connection with analyzing the possibility that entry or expansion would preclude or counteract unilateral effects.

[36] TRP CRTC 2021-130, para 141.

[37] TRP CRTC 2021-130, para 136.

[38] TRP CRTC 2021-130, paras 238 and 241: "...the Commission expects that MVNOs entering a new market would want to compete on price in order to build a customer base, thereby placing downward pressure on market prices, particularly over the short term. ... For these reasons, the Commission considers that mandated wholesale MVNO access may result in a moderate downward impact on price as MVNOs first enter the market, but that these effects would be difficult to sustain over the long term."

[39] TRP CRTC 2021-130, para 152, 154 and 156.

[40] TRP CRTC 2021-130, para 237.

only develops organically in countries where incumbent mobile providers enjoy a large amount of spare network capacity.[41] As the CRTC itself notes, this presumption is unsupported by evidence and, in any case, would not explain why an MVNO presence has not organically developed in Canada. Indeed, in light of Canada's exceedingly low levels of mobile subscription adoption and per-subscriber network utilization, our networks are heavily underutilized.[42]

31. The fact that MVNO-based competition has not organically emerged in Canada is unrelated to network capacity, and rather a direct result of the lack of competition that the Commission acknowledged in TRP CRTC 2021-130.[43] National providers rely on flanker brands such as Koodo and Fido instead of competing for wholesale market shares, allowing these providers to ensure that their national pricing strategies are not undercut.[44] The fact that an MVNO regime has not organically emerged in Canada is not an indication that one would not be successful should it emerge by means of regulatory intervention.

32. MVNOs are most effective where mobile subscription adoption is low and average per user revenues (ARPU) are high.[45] Canada's mobile penetration rates are near the bottom of the OECD

[41] TRP CRTC 2021-130, para 239: "However, in a number of international markets referenced by parties, MVNOs successfully negotiated access to carrier networks without access being mandated. In those markets, it is likely that it was market conditions such as, for example, the presence of carriers with a large amount of spare network capacity, that facilitated negotiated wholesale MVNO access at a rate that enabled price competition."

[42] See Figure 3 and Table 3, above.

[43] TRP CRTC 2021-130, para 264: "the Commission considers that ... the failure by wireless carriers with both upstream and downstream market power to provide broad-based wholesale MVNO access results in these carriers providing a preference to their retail operations and subjecting prospective MVNOs to a disadvantage, such advantage or disadvantage is not undue or unreasonable."

[44] See: CIPPIC/OpenMedia, Further Comments, November 22, 2019, paras 17-20.

[45] Optiva, "Driving Success for MVNOS: A Competitive Framework", https://optiva.com/driving-success-mvnos-competitive-framework/.

heap, while ARPU in Canada has been consistently near the highest in the world for years.[46] As a result, the Canadian mobile ecosystem presents ideal conditions for MVNO-based competition.

Properly assessing the proportionality of regulatory intervention.

33. The CRTC explicitly acknowledges that MVNO-based competition can, in fact, lead to robust competition and price discipline in Canada. However, the Commission dismisses MVNOs as a solution on the basis that this form of broad MVNO market entry would require the operation of a regulatory regime in order to sustain it.[47]

34. Specifically, the Commission correctly concludes that competition in Canada is insufficient to incentivize reasonable negotiated wholesale MVNO prices from national operators.[48] This finding is correct, as is the CRTC's conclusion that MVNO-based competition can provide sustained long term price discipline in Canada if a regulated wholesale rate is employed.[49]

35. The conclusion that MVNO-based competition could provide a critical source of long-term price discipline should the CRTC engage its wholesale rate-setting powers supports the adoption of an MVNO regime. However, the CRTC ultimately relies on this conclusion to reject such a regime, describing this form of intervention as the type of "careful and ongoing

[46] CIPPIC/OpenMedia, Final Comments, July 15, 2020, paras 8-12 and Figure 1, above.

[47] TRP CRTC 2021-130, para 240.

[48] TRP CRTC 2021-130, para 240 and 264: "If left to negotiation, it is unlikely that carriers and MVNOs would successfully negotiate a wholesale rate that allows for an MVNO to compete aggressively on price, due to the significant disparity in size and bargaining power. ... the Commission considers that while the failure by wireless carriers with both upstream and downstream market power to provide broad-based wholesale MVNO access results in these carriers providing a preference to their retail operations and subjecting prospective MVNOs to a disadvantage, such advantage or disadvantage is not undue or unreasonable."

[49] TRP CRTC 2021-130, para 240: "...if the Commission were to determine the wholesale rate, then the MVNOs' profit margins, and their services offerings, will constantly be tied to that rate and restrict differentiation. As a result, the Commission is concerned that a mandated regime allowing for broad MVNO entry would be difficult to sustain over the long term without careful and ongoing regulatory assistance."; para 254: "The Commission considers that if wholesale MVNO access were mandated, MVNOs would be able to enter the mobile wireless service market while contributing comparatively little capital and taking on very little risk relative to regional wireless carriers."

regulatory assistance" that should be avoided.[50] The CRTC provides no basis for its hesitancy in applying a careful and ongoing regulatory regime in order to achieve long-term sustained MVNO-based price competition. This hesitance and the Commission's resulting conclusion that MVNOs can only provide short term price competition is particularly at odds with past CRTC regulatory precedent and the Government's 2019 Policy Direction on affordability.

36. Wholesale rate-setting is one of the Commission's central and most frequently applied regulatory tools. Wholesale rate-setting is the cornerstone of the Commission's regulatory approach to competition in the investment-heavy wireline ecosystem, and was recently recommended by the government's Broadcasting and Telecommunications Legislative Review panel as a necessary and central feature of mobile regulation as well.[51]

37. The Commission's dismissal of its wholesale rate-setting power is also inconsistent with the government's 2019 Policy Direction, which directed the Commission to emphasize how competing regulatory measures would "foster affordability and lower prices, particularly where telecommunications service providers exercise market power."[52] Instead, in concluding that an MVNO regime's impact on price "would be difficult to sustain over the long term" due to a lack of regulatory support,[53] the Commission fails to properly consider the degree to which reliance on its wholesale rate-setting power will foster affordability and lower prices.

[50] TRP CRTC 2021-130, para 240.

[51] Broadcasting and Telecommunications Legislative Review, "Canada's Communications Future: Time to Act", Final Report, January 2020, recommendations 30 and 31.

[52] Order Issuing a Direction to the CRTC on Implementing the Canadian Telecommunications Policy Objectives to Promote Competition, Affordability, Consumer Interests and Innovation, SOR/2019-227.

[53] TRP CRTC 2021-130, para 240.

The limits of regional MNO based competition.

38. Finally, the Commission concludes that MVNO based competition would to some degree come at the expense of existing regional MNOs, with negative consequences for these entities.[54] The CRTC concludes that the additional benefits provided by MVNO-based competition will not offset these negative consequences and, as a result, MVNO based access should not be mandated. This conclusion ignores the limits of MNO based competition while failing to account for the full potential of MVNOs.

39. As a starting point, regional MNO competition in Canada has been predominantly characterized by a series of consolidations and acquisitions by dominant providers. The spectrum holdings of regional providers and higher per customer revenue extracted by national providers create powerful economic incentives for the acquisition of regional competitors. Regional competitors are simply worth more money to national providers than they are to the regional operators themselves, as the national providers are able to leverage their market share to extract higher revenues.[55] As a result of multiple acquisitions over the years, sustained competition based on regional operators has proven difficult to establish.[56] By contrast, a mandated MVNO regime substantially reduces barriers to entry, opening the door to a multiplicity of competitors and rendering the exit or acquisition of a few unproblematic.[57]

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[54] TRP CRTC 2021-130, paras 221 and 254.

[55] Shaw's spectrum holdings, for example, are worth millions more to a national provider such as Rogers, while each Shaw customer is worth 150% more and costs 200% less in terms of revenues invested back into Rogers' network.See: CIPPIC/OpenMedia, Final Comments, July 15, 2020, para 15.

[56] Competition Bureau, Acquisition of Microcell Telecommunications Inc by Rogers Wireless Communications Inc, April 2005, https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/00257.html; Competition Bureau, Statement Regarding the Proposed Acquisition by TELUS of Public Mobile, November 29, 2013, https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/03633.html; Competition Bureau, Statement Regarding Bell's Acquisition of MTS, February 15, 2017, https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/04200.html; TeleGeography, "Rogers Busy Mobilicity plus Shaw's 5G Spectrum", June 25, 2015, https://www.commsupdate.com/articles/2015/06/25/rogers-buys-mobilicity-plus-shaws-4g-spectrum-wind-gets-windfall/.

[57] TRP CRTC 2021-130, paras 254-255.

40. Second, the Canadian mobile ecosystem lacks an aggressive market disrupter. None has emerged among existing regional competitors. As a result, innovative service offerings such as nationwide calling and roaming, unlimited plans and data rollovers frequently appear in Canada last, only after becoming ubiquitous in other countries around the world. A number of MVNOs with an established track record of innovative service offerings and market disruption have expressed an interest in taking advantage of a mandated MVNO regime.[58] By contrast, there are few opportunities for new regional MNOs to even enter the market.

41. Additionally, an MVNO regime offers regional MNOs with positive competitive opportunities that can offset to some degree the negative consequences resulting from a potential influx of new virtual competitors by providing new customer bases in regions that are currently foreclosed to them. With their established subscriber shares and revenue streams, regional MNOs are well placed to compete with any emerging MVNOs. In assessing the magnitude that an MVNO regime might have on regional competitors, the CRTC failed to take into account these potential advantages. The Commission also failed to account for the valuable resources that regional entities accrue when investing in spectrum and networks, assets which is retained even in the face of increased virtual competition.[59]

42. Most importantly, however, withholding regulatory support for MVNO access on the basis that it may have negative consequences on regional providers simply ignores the demonstrably minimal impact that years of regional-based competition has provided in Canada.[60] Canada's

[58] TRP CRTC 2021-130, para 215; Ryan Reynolds, owner of Mint Mobile, April 15, 2021, 9:31 PM, twitter.com: "True story. I was planning on selling landlines to Canadians through @Mintmobile until this decision. Literally. This photo was taken on Saturday."

[59] TRP CRTC 2021-130, paras 230-231 and 255 and CIPPIC/OM, Final Comments, July 15, 2020, para 15.

[60] TRP CRTC 2021-130, paras 136 and 139: "Despite the fact that net subscriber addition figures and porting data suggest that the market is moving in the right direction in terms of growing regional wireless carriers, the provincial/territorial market shares of

regional providers are now firmly established. Yet, despite some mild success in eroding the national providers' collective market share, the national providers have continued to grow both their customer bases and their revenues over this same period of time.[61]

43. More importantly, as documented in the opening section to this submission, Canada's competitive model has delivered some of the highest prices and lowest rates of mobile adoption in the world. And even as the regional providers have managed to establish their competitive presence, Canada has fallen further and further behind its global peers in terms mobile affordability and connectivity. The outcome of the current competitive model speaks for itself.

The government must order the CRTC to mandate wholesale MVNO access.

44. We therefore respectfully request that the Governor-in-Council DotMobile's petition to vary Telecom Regulatory Policy CRTC 2021-130 in order to establish an MVNO wholesale regime.

45. While the Commission can be directed to establish the specific parameters of this regime, to be effective the order in council must at minimum specify a number of key and essential features.[62] TNC CRTC 2021-130 must be varied to explicitly include the following criteria:

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the national wireless carriers combined have not changed in any significant way over the last five years. The same is also true for SaskTel in Saskatchewan; the carrier has largely maintained its market share over the last five years. In addition, even if the growth patterns witnessed in the last five years continued, this would very likely not result in gains large enough that the regional wireless carriers' market shares would grow in a significant way in the foreseeable future in most parts of Canada."

[61] CRTC, Communications Monitoring Report 2020, "Open Dataset – Retail Mobile Sector", Figures MB-F3 and MB-F8. The national (Top 3) providers increased their total subscriber based by at least 2.3% each year between 2015 – 2019, and increased their total revenue base by at least 2.6% in each year over the same time period.

[62] Tamir Israel, "CRTC Offers Far Too Little, Far Too Late in Stuttering Bid for More Cell Phone Competition", April 21, 2021, https://cippic.ca/news/CRTC_offers_far_too_little_far_too_late_for_broken_cell_phone_competition.

- **No geographic limitations.** MVNOs must be able to compete on a national basis so that they can truly realize their innovative and competitive potential and cater to niche markets.

- **No unreasonable eligibility limitations.** The MVNO mandate must embrace the multiplicity of operators who have signaled their interest in becoming MVNOs. This includes companies that do not own spectrum and do not operate other telecommunications facilities. Limiting MVNO access to existing mobile providers is arbitrary and will prevent disruptive competitors from emerging.

- **No time limits.** The MVNO mandate cannot include an expiry date. While the Commission may revisit the ongoing viability and utility of the regime, imposing a time limit on the regime at the outset would simply discourage participants from entering the market.

- **Engage the CRTC's Wholesale Rate Setting Powers.** An MVNO mandate must engage the CRTC's wholesale rate-setting power. Rates must follow the Phase II cost model that is central to the Commission's wholesale wireline regime.

46. The lack of affordable mobile services is preventing Canada from fully realizing the benefits of mobile services. Mobile connectivity essential to participation in modern life, yet Canada's excessively high and uncompetitive pricing has deeply suppressed adoption and usage for years. Canada is falling further and further behind its international peers, and as an influx of new and innovative 5G services are on the cusp of emerging, we can no longer afford to wait for this troubling trend to reverse itself.

47. Your government has frequently noted its commitment to improving Internet affordability in Canada. Ordering the CRTC to establish a full MVNO mandate is the clearest path to ensuring that affordability manifests.

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