



Telecom Notice of Consultation CRTC 2019-57

Review of Mobile Wireless Services

CRTC Reference No: 2001-NOC2019-0057

Final Comments

Tamir Israel, Staff Lawyer
Samuelson-Glushko Canadian Internet Policy & Public Interest Clinic (**CIPPIC**)

July 15, 2020

TABLE OF CONTENTS

Provider Revenue & Customer Retail Prices Are High	2
Neither Network Investment Nor Quality Explain High Prices	7
The Impact of Canada's High Costs: Low Adoption & Low Usage	10
Full MVNO Access & Low-Cost Plans	11

1. The Samuelson-Glushko Canadian Internet Policy & Public Interest Clinic (CIPPIC) and OpenMedia are pleased to provide our final comments in Telecom Notice of Consultation CRTC 2019-57.

2. As we have emphasized throughout the course of this proceeding, mobile prices in Canada are far too high and this suppresses adoption and usage. The Canadian mobile marketplace has persistently ranked amongst the lowest among developed countries in terms of adoption and data usage while ranking highest in terms of service provider revenues with equal persistence. These trends have not only persisted despite ongoing efforts to foster facilities-based competition, but are accelerating. We are falling further and further behind our international peers.

3. High provider revenues and retail rates cannot be explained through service provider investment costs or network quality. Canada is not a sufficient outlier on either of these two metrics to explain its persistently high retail costs. Rather, it is indicative of a choice made by our national providers, who have emphasized usage suppression and expansive network sharing as a strategy for addressing mobile connectivity. Extensive private network sharing arrangements have allowed Canadian providers to build a mobile network at lower cost than would otherwise have been the case in Canada by reducing duplication. The use of per unit data costs has further suppressed usage, lowering demand and further decreasing investment costs. The results of these savings have not, however, been enjoyed by Canadian mobile subscribers.

4. Remedying the persistently high retail costs and provider revenues that have characterized Canadian mobile markets in recent years requires a robust regulatory response. A full MVNO access regime is the only path to sustained long term mobile competition that avoids inefficient duplication and allows for a range of new innovative market entrants. In effect, this would emulate the model for efficient wholesale competition developed in the wireline context to mobile. Mandating national providers to offer low-cost plans will further alleviate Canada's persistently low mobile adoption rates, assuming such plans are properly calibrated to ensure they are both functional and affordable. We urge the Commission to take these important steps before Canada falls even further behind its international peers.

5. We note that data relied upon in this submission is current at least as of May 15, 2020, but has not been consistently updated to account for any new data that has emerged after that point in time, including more recent quarterly financial reports and independent network quality analyses that may have emerged since that time.¹

6. Regardless, it is important to note that the trends outlined in this section are do not represent a ‘snapshot’ of the Canadian mobile landscape, but rather persistent features of mobile retail in Canada that have characterized mobile retail in Canada for years. These trends include: world-leading prices and incumbent revenues, mediocre levels of investment and quality, and under-utilized networks resulting from low levels of usage and adoption.²

Provider Revenue & Customer Retail Prices Are High

7. Providers have suggested that Canadian retail mobile prices are not high when compared to our global peers or, alternatively, that high historical prices are on the cusp of dropping in a manner that will place the Canadian retail market more in line with that of its international peers. The recent emergence of unlimited plans has done little to improve this general state of affairs.

8. Canadian prices remain high by global standards, and amongst the highest at many levels of demand. The use of pricing baskets has been criticized by some on the basis that it creates artificial demand levels that do not always correspond to real-world usage. This criticism has no foundation, as pricing baskets are a widely used method for international pricing comparisons. Regardless, a pricing comparison study conducted by ReWheel/Research in April 2020 demonstrates that Canadian prices remain high across almost *all* demand tiers.³ Across OECD

¹ CIPPIC/OpenMedia, Response, Rogers Communications Partnership, Request to Extend the Deadline for Final Submissions, CRTC Reference No: 1011-NOC2019-0057, June 29, 2020; CRTC, Procedural Letter regarding Rogers Communications Partnership, Request to Extend the Deadline for Final Submissions, CRTC Reference No: 1011-NOC2019-0057, July 2, 2020.

² CIPPIC/OpenMedia, Intervention, TNC CRTC 2019-57, CRTC Reference No: 1011-NOC2019-0057, May 15, 2019; CIPPIC/OpenMedia, Further Comments, TNC CRTC 2019-57, CRTC Reference No: 1011-NOC2019-0057, November 22, 2019; CIPPIC/OpenMedia(CRTC)15May2020 1011-NOC2019-0057.

³ Note ReWheel/Research accounts for the term-limited nature of promotions when deciding which tariff best meets the demand specifications of a particular pricing bucket. See: ReWheel/Research, “The State of 4G & 5G Pricing, 1H2020”, *Digital*

and EU countries, Canada persistently provides close to the worst value proposition across all of these service combinations, as detailed in Table 1.

Comparative Criteria ⁴	How Canada Fairs
Lowest Cost plan with: • At least 6GB monthly data	Canadian plans are the second most expensive of all OECD/EU countries, with only Greece lacking more affordable options.
Lowest Cost plan with: • At least 50GB monthly data	Canada is the second most expensive of all OECD/EU countries, with only Greece lacking more affordable options.
Median price per GB per Month across all eligible plans.	Cost in Canada is about €6.5/GB, which is 4 times the OECD average of about €1.5/GB, 5 times the EU average of about €1.25/GB, and a higher per GB median rate than all other OECD/EU countries other than Japan (about €6.75/GB).
Maximum amount of data that can be obtained for €30 on any eligible plan.	Canadian plans provide the second least amount of GB per month at usable access rates of at least 5 Mbps among all OECD/EU states, with only Greece lacking more affordable options. If the requirement for 1000 voice minutes is removed, Canadian plans <i>continue</i> to provide the second least amount of data usage per month , with only Japan lacking more affordable options.
Maximum amount of data that can be obtained for eligible plans priced at all €5 increments between €5 - €80.	Across all OECD/EU countries, Canada offers the second, third or fourth least amount of data across all tiers priced between €5 - €25 per month, and the second least amount of data across all tiers priced between €30 - €80 per month.

Table 1: Canada’s High Retail Prices are Cross-Cutting

The cross-cutting nature of Canada’s high retail rates confirms that pricing is not a product of any given pricing basket in use but rather a strong indication that Canadian prices truly are persistently high.

9. As we pointed out in our response to a Request for Information issued by the Commission, the recent emergence of unlimited plans has done nothing to change this long-standing dynamic. Canada’s throttled unlimited plans remain among the most costly and restrictive unlimited plans globally. Specifically, Canada’s unlimited plans are the 3rd most

Fuel Monitor, April 2020, p 17. This is in contrast to some other studies where it is unclear in what way term limitation impacts the consideration of promotional tariffs.

⁴ Unless explicitly stated otherwise, all comparative categories include at least:

- 1000 Minutes of voice
- Functional data access rates of at least 5 Mbps
- 4G or 5G

costly among unlimited plans in EU and OECD countries.⁵

	Price	Data Cap	Throttled Access Rate
United Kingdom⁶	one third the Canadian price	double the data available in Canada	25% less speed than the Canadian throttled rate
Australia⁷	30% less per month than Canada	10 times the data available in Canada	double the Canadian throttled rate
23 EU/OECD Countries	less than Canada's cheapest unlimited plan ⁸	at least double the data available in Canada ⁹	10 times the Canadian throttled rate ¹⁰

Table 2: How do Canada's New Unlimited Plans Compare

Canadian unlimited plans are also throttled to a highly restrictive 512 kbps once a monthly data allotment expires. By contrast, unlimited plans are available in 28 EU/OECD countries that provide truly limitless access at data speeds capable of streaming high definition mobile video (5 Mbps) once a data allotment as expired and, in 23 of these countries, these plans cost less per month than Canada's highly throttled plans.¹¹

⁵ ReWheel/Research, "The State of 4G & 5G Pricing, 1H2020", *Digital Fuel Monitor*, April 2020, p 7. Only Greece and Malta featured more expensive unlimited 4/5G plans with at least 1000 voice minutes.

⁶ See CIPPIC/OpenMedia(CRTC)15May2020 1011-NOC2019-0057, p 2. The United Kingdom plan used is priced \$33 USD/PPP and offers a 100 GB data usage allotment, with a throttled access rate of 384 kbps once that data allotment is exhausted. The Canadian plan used for comparison is the most data rich plan included in the referenced study, and is priced at \$96 USD/PPP, includes a 50 GB data usage allotment, with a throttled access rate of 512 kbps once that data allotment is exhausted.

⁷ See CIPPIC/OpenMedia(CRTC)15May2020 1011-NOC2019-0057, p 2. The Australian plan used is priced at \$47 USD/PPP and offers a 100 GB data usage allotment, with a throttled access rate of 1 Mbps once that data allotment is exhausted. The Canadian plan used for comparison is the most affordable unlimited plan included in the referenced study, and is priced at \$58 USD/PPP, includes a 10 GB data usage allotment, with a throttled access rate of 512 kbps once that data allotment is exhausted.

⁸ ReWheel/Research, "The State of 4G & 5G Pricing, 1H2020", *Digital Fuel Monitor*, April 2020, p 9. The lowest priced Canadian unlimited plan available throttles usage to 0.512 Mbps once a fixed monthly data allotment expires and costs 49.50€. For less than 49.50€, 23 EU/OECD countries offer unlimited plans that provide limitless 5 Mbps access once a fixed data allotment expires. All plans include at least 1000 minutes of voice as well, and operate on 4G/5G networks. Note that Greece is not among the 23 EU/OECD countries.

⁹ ReWheel/Research, "The State of 4G & 5G Pricing, 1H2020", *Digital Fuel Monitor*, April 2020, p 10 For €50, the most data rich Canadian plan offers 15 GB of data at usable access rates of 5 Mbps or more, whereas all but two OECD/EU countries offer double the amount of data at that price, and one of the two countries that provides less is Greece, which is not among the 23 EU/OECD countries that offer truly limitless plans at 5 Gbps access rates.

¹⁰ ReWheel/Research, "The State of 4G & 5G Pricing, 1H2020", *Digital Fuel Monitor*, April 2020, pp 9 and 10. All of these plans provide truly limitless data at 5 Mbps. The Canadian plans provide truly unlimited data at only 512 Kbps.

¹¹ ReWheel/Research, "The State of 4G & 5G Pricing, 1H2020", *Digital Fuel Monitor*, April 2020, p 9. The lowest priced Canadian unlimited plan available throttles usage to 0.512 Mbps once a fixed monthly data allotment expires and costs 49.50€. For less than 49.50€, 23 EU/OECD countries offer unlimited plans that provide limitless 5 Mbps access once a fixed data allotment expires. All plans include at least 1000 minutes of voice as well, and operate on 4G/5G networks.

10. Comparing average service provider revenues on a per user basis (ARPU) provides additional evidence that Canadian providers are consistently charging higher retail rates. ARPU provides a useful proxy for retail pricing in a manner that reflects the full complexity of a market characterized by multiple service offerings, as explained by the Federal Communications Commission:

20. Average Revenue Per Unit. Various measures of Average Revenue per Unit (ARPU) are frequently used as a proxy for price, particularly in industries with multiple pricing plans and complex rate structures, such as mobile wireless service.¹²

This cross-cutting metric reflects revenues in a manner that accounts for all promotions, different monthly packages, different types of usage fees, and related factors.

11. As noted in our previous comments, Canadian providers have persistently charged ARPU that is among the highest in the world.¹³ Further, Even as technological developments create more efficient mobile services and drive ARPU down for most service providers around the world, ARPU continues to grow in Canada, with 6.6% year over year growth in 2018.¹⁴ A recent study by S&P Global Market Intelligence examined 47 markets around the world, and found once again that Canada's ARPU was the highest among all examined markets.¹⁵ The S&P Global study also indicated that Canadian ARPU is an even greater outlier when compared to disposable income in studied markets:

¹² FCC, Communications Marketplace Report, FCC-CIRC1812-07, GN Docket No 18-231, November 21, 2018, para 20

¹³ CIPPIC/OpenMedia, Intervention, TNC CRTC 2019-57, CRTC Reference No: 1011-NOC2019-0057, May 15, 2019, para 12; CIPPIC/OpenMedia, Further Comments, TNC CRTC 2019-57, CRTC Reference No: 1011-NOC2019-0057, November 22, 2019, Further Comments, para 13.

¹⁴ CRTC, Communications Monitoring Report 2019, Figure 10.12, p 314.

¹⁵ 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>.

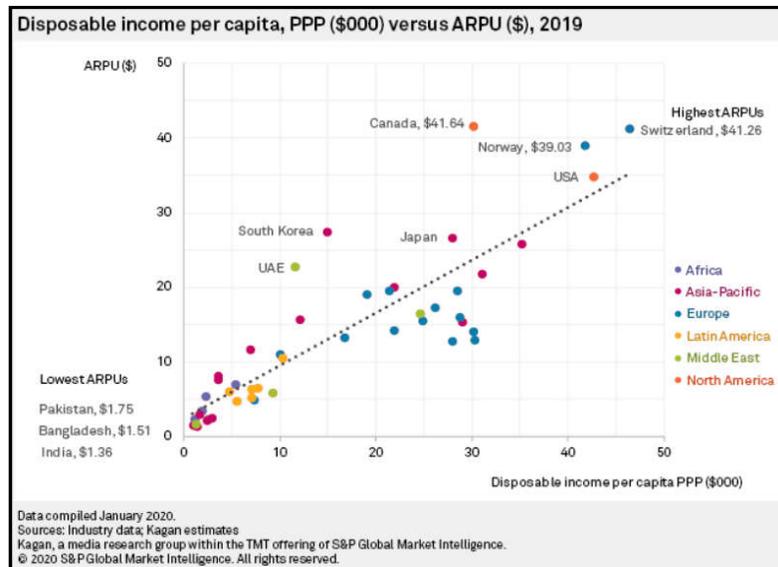


Figure 1: ARPU and Disposable Income, 2019
SOURCE: S&P Global Market Intelligence¹⁶

Markets to the right of the trend line suggest that ARPU is below the global trend in terms of spending on mobile services. Canada’s placement farthest to the left of the trend line suggests that average revenues in Canada constitute a substantially higher proportion of disposable income than other markets included in the study.

12. High data usage levels cannot explain Canada’s higher per user revenues. When ARPU is compared to average data usage, Canada remains an extreme outlier, with high revenues per user and low average data usage per user:

¹⁶ 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>.

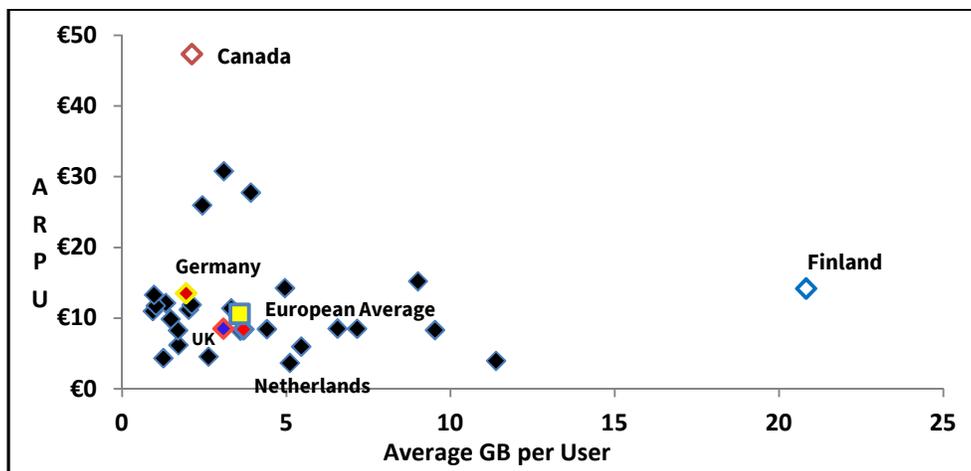


Figure 2: Average Revenue compared to Average Usage, Canada & Europe, 2018¹⁷

Canada continues to fall further behind our peers, where data usage continues to grow at an accelerating pace while costs decline more rapidly than here.

Neither Network Investment Nor Quality Explain High Prices

13. As demonstrated in the previous section and in our previous submissions to this proceeding, persistently high retail prices in Canada cannot be explained through high data usage, as these prices remain high when assessed on a per unit basis and when taking into account actual average usage. Some have suggested that high retail prices can be explained by high levels of investment by Canadian providers. Canadian investment in mobile networks has been persistently moderate, however, and cannot explain the wide disparity in mobile prices and revenues.

14. Investment in mobile networks is comparably low by global standards. As noted in our initial intervention to this proceeding, Canada’s level of capital intensity over the 2008-2013 period was in line with its peers, which averaged investment rates of 14.04% as a percentage of

¹⁷ DATA SOURCE: CRTc Communications Monitoring Report, 2019 (Fig 10.15 Avg MB per Month per User; Fig 10.12, National ARPU 2018); BEREC, International Roaming Benchmark Data Report, October 3, 2019, BoR(19)174Rev.1 (ARPU and per subscriber data usage, Europe, 2018). The currency exchange rate in 2018 was 1 CAD = 0.68€. We did not adjust for PPP. A previous version of this chart included in our Further Comments to this proceeding used projections regarding 2018 Canadian ARPU and average data usage.

revenues.¹⁸ In 2018, global mobile capital intensity was 13.2%.¹⁹ Capital intensity among Canada’s 3 national providers has been persistently lower than this, averaging 8.9% from 2014-2018:

2014	2015	2016	2017	2018	AVG
9.8%	9.1%	8.6%	8.1%	8.7%	8.9%

Table 3: Capital Intensity, Top 3 National Providers, 2014-2018²⁰

This calculation of capital intensity excludes spectrum-related costs, which are typically reported separately by providers. Spectrum licenses can be marginally more expensive in Canada than in other jurisdictions.

15. However, spectrum license fees are generally excluded from capital investment calculations for good reason. Spectrum retains substantial value, even if unused. Shaw, for example, purchased spectrum licenses in the 2008 AWS auction and spent two years developing a wireless network before reconsidering market entry. By selling its 2008 AWS spectrum to Rogers, Shaw was able to recoup its initial spectrum costs as well as its total investments in wireless infrastructure, as well as an additional profit of \$68 million.²¹ Even unused, spectrum retains substantial value and, moreover, the value of spectrum generally increases over time.²²

16. Regardless of this retained value, spectrum investment does not explain the disparity in retail rates outlined in the previous section. Adjusting the national providers’ capital intensity to account for spectrum investment yields an average investment rate of 17.8% from 2013-2019:

¹⁸ CIPPIC/OpenMedia, Intervention, TNC CRTC 2019-57, CRTC Reference No: 1011-NOC2019-0057, May 15, 2019, Figure 3.

¹⁹ AnalysysMason, “Telecoms CapEx Forecast: Worldwide Trends and Forecasts”, March 2019.

²⁰ DATA SOURCE: CRTC, Communications Monitoring Report, 2019, Figure 10.24: Capital Intensity of Top 3 vs other providers.

²¹ Shaw initially purchased its AWS spectrum licenses for \$190 million, and invested an additional \$90 million (adjusted for tax recovery). Shaw sold its spectrum to Rogers for \$350 million in 2015. See: Shaw, Annual Reports for 2009 (p 70), 2011 (p 51) and 2016 (p 40).

²² An analysis from Deloitte recently concluded that spectrum is generally undervalued as an asset, in part due to a tendency to value spectrum at its purchase price rather than its current, increased value. Proper valuation unlocks a number of benefits for providers, including access to asset-based financing: Deloitte Insights, “Spectrum Portfolios in a 5G World: Rethinking the Value of Spectrum”, (2018), <https://www2.deloitte.com/content/dam/Deloitte/cn/Documents/technology-media-telecommunications/deloitte-cn-tmt-spectrum-protfolios-in-a-5g-world-en-181227.pdf>.

2013	2014	2015	2016	2017	2018	2019	AVG
11.8%	37.2%	24.1%	11.5%	11.2%	10.3%	21%	17.8%

Table 4: CAPEX + Spectrum Investment as Percentage of Revenues, Top 3 National Providers²³

Additionally, it is notable that a study conducted by the GSMA concluded that it could find no correlation between the cost of spectrum and retail mobile costs in developed countries.²⁴ Examining total investment by Canada’s largest mobile provider, Bell Canada, appears to support this conclusion. Bell’s combined capital expenditure and spectrum license investment from 2013-2019 averaged 11.6% of mobile revenues—below the global average capital intensity in 2018.²⁵

17. Reliance on extensive network sharing has allowed Canada’s providers to build national networks with lower levels of investment.²⁶ Network sharing in general has evolved as a strategy for avoiding duplication in the deployment of wireless networks, with McKinsey & Company indicating network sharing arrangements leading to deployment cost reductions of up to 30% accompanied by network quality improvements.²⁷ Examinations of mergers have also suggested a level of redundant duplication that can be reduced through network sharing.²⁸ Canadian providers, however, have adopted some of the most expansive network sharing arrangements.²⁹ For example, a study by ReWheel/Research found that Canadian providers had built roughly the same number of mobile sites in Canada as Finnish mobile providers had built despite the need to cover 30 times the geographic area and 6 times the

²³ DATA SOURCE: Annual financial reports of Bell, Rogers and TELUS, 2013-2019.

²⁴ GSMA, “The Impact of Spectrum Prices on Consumers”, *GSMA Intelligence*, September 2019, <https://www.gsma.com/spectrum/wp-content/uploads/2019/09/Impact-of-spectrum-prices-on-consumers.pdf>, p 18.

²⁵ DATA SOURCE: Annual financial reports for Bell Canada, 2013-2019.

²⁶ ReWheel/Research, “Root Cause of Weak Competition in Canadian Wireless Market”, September 8, 2019.

²⁷ Ferry Grijpink, Alexandre Menard, Halldor Sigurdsson & Nemanja Vucevic, “Network Sharing and 5G: A Turning Point for Lone Riders”, February 2018, *McKinsey & Company*, <https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/network-sharing-and-5g-a-turning-point-for-lone-riders>.

²⁸ ReWheel/Research, “T-Mobile and Tele2 4 to 3 Merger in the Netherlands”, November 2018. See Further Comments, paras 9-10.

²⁹ ReWheel/Research, “Root Cause of Weak Competition in Canadian Wireless Market”, September 8, 2019.

population as Finland.³⁰ Private network sharing arrangements have allowed Canadian providers to rely on far less cell sites to achieve broader mobile coverage at lower cost. Yet these cost savings have not been passed along to Canadian customers.

18. Finally, as also noted in our previous submissions, the quality of Canadian mobile networks does not represent a sufficiently superior customer quality capable of justifying Canada's persistently higher retail prices. While mobile subscribers enjoy fast mobile speeds on Canada's networks, an exclusive focus on download speed alone is misplaced as this does not reflect the full subscribe experience. As noted in our previous submissions, while Canada is 1st in download speed experience, it is 29th in latency, and between 17th—25th in usage of data intensive applications such as video, voice and gaming.³¹ These metrics do not represent a substantially different value proposition to Canadian customers, and does not unlock new or different usage of mobile devices that are restricted in other jurisdictions. Indeed, as outlined in the next section, high per usage costs substantially undermine the ability of Canadians to fully realize the value of their mobile devices by suppressing mobile data usage and adoption.

The Impact of Canada's High Costs: Low Adoption & Low Usage

19. As noted in our previous submissions to this proceeding, Canada's persistently high costs are suppressing usage and adoption. Canada's mobile networks are among the least utilized among OECD and EU states.³² Canada's global rankings on these fronts were most recently summarized in our response to a request for information in this proceeding filed with the Commission on May 29, 2020:

Canada remains a laggard in terms of per capita mobile subscriptions (78.8 subscriptions per 100 inhabitants, 31st out of 37 OECD countries and well below the OECD average of 112.8 subscriptions per capita). Canada continues to fall further behind in this respect, with anemic year over year growth of 3.9 new mobile subscriptions per 100 inhabitants, while its OECD peers averaged 6.5 new mobile subscriptions per 100 inhabitants in 2018-

³⁰ ReWheel/Research, "Root Cause of Weak Competition in Canadian Wireless Market", September 8, 2019.

³¹ OpenSignal, "The State of Mobile Network Experience 2020: One Year Into the 5G Era", May 2020.

³² ReWheel/Research, "Spectrum Usage in 2018 – Country Averages", <http://research.rewheel.fi/networkeconomics/>, measuring network utilization as per capita MB per Mhz of spectrum, and ranking Canada 32nd out of 38 examined states.

2019. Canada also remains a laggard in terms of average data usage per subscriber (30th out of 36 OECD peers and at barely one half of the OECD average). Between 2016 and 2018, average data usage per mobile subscriber across the OECD grew by 40% on a compounded annual basis while CAGR in Canada over the same period was merely 26%.³³

As Canadian retail prices remain persistently high, we fall ever further behind our international peers.

20. In essence this results from a choice made by our national providers, who have emphasized usage suppression and expansive network sharing as a strategy for addressing mobile connectivity. Other countries have succeeded in providing comparable mobile networks at substantially lower prices, leading to greater adoption and more extensive usage. Specifically notable are Australia (which shares Canada’s low population density) and Finland, which features comparable levels of mobile cell sites despite a far smaller geographic footprint and population:

	Speed	Latency	Mobile Experience (video, voice, gaming)	Subscriptions per 100 (OECD Rank)	Average Data per User (OECD Rank)
Canada	1 st	29 th	17 th –25 th	78.8 (31 st)	2.46 (30 th)
Australia	6 th	10 th	12 th –22 nd	143.6 (5 th)	3.39 GB (23 rd)
Finland	20 th	19 th	7 th –15 th	154.5 (2 nd)	19.39 (1 st)

Table 5: Canada, Australia & Finland

These and other global comparisons suggest that lower retail pricing and, by extension, greater mobile adoption and usage are achievable. However without robust competition, these outcomes are unlikely to manifest in Canada.

Full MVNO Access & Low-Cost Plans

21. Mandating full MVNO access will facilitate innovation, improve the lack of choice in Canadian mobile retail markets, and impose necessary price discipline. In addition, requiring carriage of low-cost plans may alleviate Canada’s persistently low mobile adoption rates.

22. Compelling national providers to offer low-cost mobile packages can provide an avenue for

³³ CIPPIC/OpenMedia(CRTC)15May2020 1011-NOC2019-0057, p 1.

adoption to individuals who are currently priced out of mobile connectivity altogether. It may also reduce the need for existing subscribers to choose between mobile connectivity and other critical life necessities.³⁴ With such a requirement in place, Canada's mobile telecommunications will be more responsive to the economic and social requirements of Canadians and, as such, imposing such a requirement would be in line with the telecommunications policy objectives. It would particularly be consistent with the 2019 Policy Direction, which emphasizes affordability.

23. However, for its impact to be meaningful, a mandated low-cost plan must be both functional and affordable. It must include sufficient voice, text and data so as to reflect anticipated usage in Canada. The most recent data available suggests that average data usage at the time such plans will take effect will be at least 4 GB per month.³⁵ To be affordable, such a plan would need to be between \$20 and \$30 per month. This rate is also reflective of the average per GB revenue rate anticipated in Canada at the time these plans would become available based on currently available data.³⁶ These projections are based on Canada's current rate of monthly data usage and per unit revenue annual change. However, as we have noted above, these rates of change are slow by international standards and as such this represents a conservative estimate of what average usage and cost should be in 2021. As noted in our further comments to this proceeding, low-cost plans should be continually monitored to ensure they address four key criteria: evolving usage needs, evolving individual/household spending capabilities, evolving cost of data deliver, and the broader competitive landscape.³⁷

24. More generally, only a full MNVO wholesale access regime can form the basis for long

³⁴ "Who's Hungry: Profile of Hunger in the Toronto Region", 2019: <https://www.dailybread.ca/wp-content/uploads/2019/11/DB-WhosHungry-2019-Final-WebLR.pdf>, p 11.

³⁵ The most recent data available on average data usage in Canada indicates average usage of 2.46 GB per month in 2018 and an annual growth rate of approximately 26%. Extending this projection would yield 3.79 GB per month in 2019, 3.39 GB per month in 2020 and 4.29 GB in 2021, the earliest year that these plans could reasonably be implemented. See: CRTC, Communications Monitoring Report 2019, Figure 10.15, Average monthly data usage per mobile subscriber.

³⁶ The most recent data available indicates that Canadian providers generate an average of \$12.42 in revenue per GB, and that average per GB revenues are decreasing at a rate of about 23.7% per year (23.7% CAGR decrease from 2015 – 2018). Extending this projection would yield \$9.48 in revenue per GB in 2019, \$7.23 average revenue per GB in 2020 and \$5.52 average revenue per GB in 2021, the earliest year that these plans could reasonably be implemented. At \$5.52 average revenue per GB, a 4 GB plan will generate about \$22.07 in revenue. See CRTC, Communications Monitoring Report 2019, Table 10.5 Average Revenue per 1GB.

³⁷ CIPPIC/OpenMedia, Further Comments, TNC CRTC 2019-57, CRTC Reference No: 1011-NOC2019-0057, November 22, 2019, para 24.

term sustained competition in Canada while avoiding inefficient duplication of infrastructure. A full and unlimited MVNO mandate will permit a wide variety of new and innovative market entrants without jeopardizing infrastructure investment as national providers will continue to recover their investment costs plus a markup reflective of their risk. In a sense, mandating MVNO access will operate to extend the savings Canadian national providers already enjoy through the extensive network sharing arrangements they have put in place exclusively between each other. As noted above, savings resulting from this efficient network deployment strategy have not been passed along to customers. Extending network sharing on a cost recovery plus basis to new parties through a full MVNO mandate will provide a new avenue for this to occur. Absent such a step, we can expect Canada to continue to remain under utilized as we fall further and further behind our international peers.

***** END OF DOCUMENT *****