January 11, 2019

The Broadcasting and Telecommunications Legislative Review Panel
c/o Innovation, Science and Economic Development Canada
235 Queen Street, 1st Floor
Ottawa, Ontario K1A 0H5

VMedia Inc. ("VMedia") is grateful for the opportunity to submit comments on the broadcasting and telecommunications legislative review (the "Review") initiated by Innovation, Science and Economic Development ("ISED") Canada.

Executive Summary

The Review

ES1.The issues outlined in the terms of reference and the themes described by the panel appointed by ISED to review the relevant legislation (the "Panel") are extensive. There are seven terms of reference relating to issues to consider in connection with the Telecommunications and Radiocommunication Acts, and eight in connection with the Broadcasting Act. In addition, there are four themes set out by the Panel intended to "help guide its work and structure meaningful dialogue during its consultation process".

ES2.Among those 19 elements of consideration, we note that the word competition is mentioned only twice, with little elaboration or context.

ES3.As the second point under both the Telecommunications and Radiocommunication Acts, under the heading "Competition, Innovation, and Affordability", the question is asked, "Are legislative changes warranted to better promote competition, innovation and affordability?"

ES4.In addition, competition is mentioned at the very end of the first of the Panel's themes, "Reducing Barriers to Access by All Canadian to Advanced Telecommunications Networks". All of the rest of that theme focuses on the

achievements of telephone and cable companies, and the heavy lifting ahead of them as they keep up with digital transformation.

ES5.There is no mention at all of competition in the terms of reference relating to the Broadcasting Act.

ES6.Similarly, regarding consideration of (i) Canadians as consumers of those services, who collectively pay nearly $45 billion per year for those services to a very small number of providers, and (ii) the need for a close examination of whether they are being well served, at reasonable prices, compared to other industrialized nations, there is very little.

ES7.This absence of focus on competition, with no acknowledgement of the problematic state of consumer choice in services and resultant meaningful competition, and the entitlement of consumers to a competitive market in the provision of services which are not just essential, but absolutely and increasingly central to their everyday lives, is disappointing.

> **Recommendation**: VMedia's central comment is to urge the Panel to review its themes, and add to them the specific consideration of whether Canadian consumers are well-served by the current regulatory framework, which has permitted a level of concentration in the telecom and broadcasting industries virtually unparalleled in the industrialized world.

The Economic Interests of Consumers

ES8.The lack of focus on competition and the entitlement of consumers to world-leading, rather than world-lagging, telecommunications services, is particularly relevant because telecommunications (and broadcasting) services comprise the fourth largest household expenditure after shelter, food and transportation.

ES9.Yet, unlike those needs, which are met by a myriad of competing suppliers ensuring fair pricing disciplined by market forces, telecom in each of the markets across Canada has always been and still is today largely a duopoly, dominated by a total of five major incumbents, operating in pairs in the markets across the country.

ES10.Three of them account for 92% of mobile revenues, a market share that is steadily increasing. One of the three focuses primarily on the Quebec market, leaving much of the rest of the country to the other two major providers.

ES11.Five incumbents account for 87% of fixed internet revenues, but that does not suggest that the five compete against each other. In fact there are only two providers in any given market, a cable and a telecom provider, and that duopoly more typically shares that 87% of the market it serves.

ES12.In 2016, a year in which wage growth was 0.4%, and the Consumer Price Index barely budged, average household mobile and internet expenditures, paid to those few providers, rose 5.5% and 6.5% respectively. In that same year, the lowest quintile of Canadian households, those with less than $32,090 of household income, spent 8.6% of their annual income on communications services.

ES13.This is no surprise, as even a recent study commissioned by ISED itself (the "Wall Report") shows that Canadian wireless rates are among the highest in the world, and by some accounts that gap is widening.

ES14.It is especially important that there be a greater focus on the economic experience of consumers in view of the impending introduction of 5G. A particular examination should be undertaken as part of the Panel's process going forward to consider how the introduction of 5G should be managed.

Competition in Broadband Fixed Internet

ES15.In the Wall Report it was shown that Canada also lags in the pricing of fixed internet. But in this case there are competitors, in the form of independent internet service providers ("ISPs") such as VMedia, which purchase wholesale access to incumbent facilities to offer them at retail prices competitive with the incumbents. VMedia and other ISPs pay substantial tariffs for such access, calculated through rigourous costing processes conducted by the CRTC to ensure that all of the costs of the incumbents associated with such access are covered as well as a substantial mark up.

ES16.Even so, ISPs are able to offer internet plans virtually identical to those offered by the incumbents for prices 12.5% to 35% lower.

ES17.This has been achieved despite:

a. a tariff pricing framework that is not reflective of actual incumbent costs, nor transparent,

b. ongoing efforts by incumbents to destabilize, undermine and ultimately eliminate the ISP sector, to allow continued economic exploitation of Canadian consumers, and

c. the resultant stifling of innovation which has made Canada an outlier among developed nations in broadband services and enabling the digital economy.

The Role of ISPs

ES18.Despite uneconomic and arbitrary tariffs imposed on ISPs through consistently problematic costing processes, ISPs have been able to offer services identical or superior to those of the incumbents to Canadians at prices as much as 50% lower.

ES19.This is because incumbents generate margins of up to 90% on internet services, while ISPs have made do on margins as low as 25%. That delta represents economically unjustifiable tariffs, which serve as a proxy for purportedly just and reasonable wholesale prices.

ES20.In addition, ISPs have introduced innovative product offerings. It was the ISPs' introduction of unlimited packages over 10 years ago, responding to the already growing demand for video content over the internet, that led to the usage-based billing controversy of 2011 and the accompanying consumer revolt.

ES21.These benefits have been delivered within a framework that results in an inconsistent regulatory approach. The framework is intended to implement a policy that nurtures the formation and growth of the ISP sector. It has instead resulted in policies and tariff procedures, and an administrative regime intended to regulate the behavior of incumbents, that has largely left ISPs vulnerable to persistent efforts of incumbents to prevent new entities from forming, and to put existing ones out of business.

The Present Crisis

ES22.ISPs currently face yet another existential crisis in the form of a new regulatory policy (the "FTTP Access Policy") which mandates the granting to ISPs of access to new fibre to the premises ("FTTP") networks being rolled out by the incumbents.

ES23.The crisis ISPs face has two elements, one long term, the other short term. In the long term, the ability of ISPs to be able to fund their access to FTTP facilities, under the new disaggregated framework contained in the FTTP Access Policy, is questionable at best.

ES24.Moreover, the requirements of the FTTP Access Policy that ISPs build out to the many points of connection that the disaggregated model requires are animated by a desire to have facilities built by ISPs, in an acknowledgement of the mandate to encourage facilities development in the Policy Direction of 2006 (the "Policy Direction").

ES25.In the short term, and after a lengthy process marked yet again by extensive delays by the incumbents, the CRTC initiated an interim tariff proceeding for accessing incumbent fibre pending the implementation of that disaggregated framework.

ES26.During this delay, more and more fibre had been (and continues to be) installed across an expanding urban footprint, significantly increasing the localized monopolies that sprout up with each FTTP-served building and neighbourhood. But even more problematic are the tariffs set by the CRTC.

ES27.For example, the interim approved monthly FTTP wholesale access rate for one telecom incumbent was set at, and remains, $121.79. Per month. Per home. This, when the highest retail price that incumbent quotes as at today's date for 1Gbps service is $104.95.

ES28.In the event, in November 2018 CNOC filed a review and vary application (the "CNOC Application") with the CRTC, asking that it reconsider the FTTP Access Policy. The substance of the application is that, as structured, the FTTP Access Policy makes it impossible for ISPs to participate in such a way that they can continue to serve their existing markets and survive. It also highlights the unintended consequence of the FTTP Access Policy's adherence to the Policy Direction, which orders the CRTC to pursue policy objectives of the Telecommunications Act "with a view to increasing incentives for innovation in and construction of competing telecommunications network facilities". As structured, the FTTP Access Policy creates no incentive whatsoever for ISPs to do any such thing.

ES29.The Policy Direction is commendable insofar as it provides imperatives to promote competition. But the requirement that consideration be given to the creation of additional facilities is flawed.

> **Recommendation:** For these reasons, VMedia recommends that the Policy Direction be immediately amended to remove the requirement that the CRTC be required to consider the investment in and construction of competing telecommunications network facilities in implementing the policy objectives set out in section 7 of the Telecommunications Act.

A Flawed Tariff Framework

ES30.VMedia believes that existing costing processes have shown themselves to be obstacles to the development of a robust and stable competitive market.

ES31.Moreover, the tariff framework allows incumbents to dramatically undercut ISP pricing, knowing full well the prices paid by ISPs to them for identical services. This is an insidious form of predatory pricing, as it is the ISP's supplier that is trying to force the ISP, the customer, out of business.

ES32.The uncertainty in wholesale access tariff costing processes should be eliminated. Mindful of the fact that the margin over costs of facilities is 90%, an assumption should be made as to what is a reasonable ongoing fixed wholesale price for access, set as a percentage of the retail price set by the incumbent.

Recommendation: VMedia recommends that tariff be fixed through a formulaic mechanism introduced through legislated changes to the Telecommunications Act, and updated every five years by regulation .

Incumbent Efforts to Sabotage ISPs

ES33.Since its formation in 2012, VMedia has experienced deliberate and concerted efforts by certain incumbents to prevent VMedia from launching, and then after it launched, to target and obliterate its business entirely. All of these tactics were either permitted within the regulatory framework, or if prohibited, the prohibitions were not accompanied by any practical, timely, or adequately punitive recourse.

The Four Year Stall

ES34.VMedia first requested a third party internet access ("TPIA") arrangement with an incumbent in 2011. Regulations only prescribe a timetable for proceeding with a request for TPIA service once the process is underway. For example once an incumbent enters into an NDA, the clock starts to tick. However, there is no deadline stipulated for commencing the negotiation process.

ES35.Citing backlogs, blackouts, and inadequate resources the incumbent stalled VMedia for nearly four years. Even once it agreed to enter into negotiations, and start the prescribed clock, the incumbent imposed onerous security guarantee requirements which delayed the launch for another year. In the result, VMedia launched its direct TPIA service in May, 2016. The delay cost VMedia dearly in margin payments to the reseller, as well as considerable market good will and loss of reputation due to the complexities of installing customers and troubleshooting.

The TV Stall

ES36.In order to launch its BDU service, VMedia required an affiliate arrangement with the major vertically integrated entities ("VIEs"). Without those deals with all of them, VMedia could not launch its TV service.

ES37.In this case too, one of the VIEs refused to enter into negotiations. Instead, it delayed and delayed entering into an NDA, a prerequisite to sharing their rate card, until VMedia provided a TV channel packaging plan with retail prices. This of course was impossible without the rate card. So VMedia went in circles with the VIE for over a year, trying to push negotiations forward while facing the same choice between hoping the eventual deal would come sooner cooperatively than through a more adversarial process before the CRTC.

ES38.Finally a deal was completed, allowing VMedia to launch its brand, with both internet and TV, in April 2013, a year and a half after its initial request for services.

ES39.There are no punitive measures to discourage anti-competitive behavior, so independents are victims of ongoing skirmishes, delays and even efforts to eliminate competitors entirely, in a deliberate strategy to exploit the existing framework to reduce or eliminate competition.

ES40.The relationship between incumbents and ISPs is grossly asymmetrical, highlighted by the irreducible fact that the supplier of all of the ISPs' goods and services is also a very deep-pocketed competitor that wants the ISP segment to disappear. This is not a complaint against the incumbents. They are acting with perfect economic logic, given the framework that defines the scope of its abilities to act.

ES41.It is the framework that must change

> **Recommendation**: VMedia recommends a regime similar to the one administered by the Commission for Complaints for Telecom-Television Services be created to adjudicated issues arising between ISPs and incumbents. This regime would provide, among other things:
>
> a. for expedited relief against any behavior by an incumbent that would not be reasonable for a bona fide supplier of goods and services acting in good faith with the intention of maximizing market revenues for those goods and services
>
> b. that costs of any process incurred by an ISP seeking to enforce its rights be borne by the incumbent and
>
> c. that damages, both pecuniary and punitive, at the minimum sufficient to serve as a deterrent to such behavior, be payable by the incumbent.

Competition in Mobile Services

ES42.As shown above, there are currently no alternatives to the five mobile providers which dominate the market in Canada, 92% of which is shared among just three of them. While the Minister has made clear the Cabinet's desire for more competition in the market, including the development of a framework which would allow mobile virtual networks operators ("MVNOs"), which are non-facilities based competitors that are available in abundance in many markets around the world, including the US, no steps have yet been taken in that direction.

ES43. Faced with the introduction of 5G, which promises to greatly expand the importance of mobile services in the lives of all Canadians, it is important to consider how that technology can, at its inception, be made available in such a way that Canadians can feel secure that they have abundant choices, fair prices, excellent service and practices that place the highest value on their privacy and safety. In

VMedia's view, this can best be achieved through the creation of an independent wholesale 5G network.

The Need for a Third Party Wholesale Network

ES44.Many GHz of spectrum will be awarded for 5G mobile broadband services over the coming years, many times more than what has already been awarded since 1984, as regulators worldwide embark on a new wave of spectrum auctions focused on what is referred to as mid-band (e.g. 3.5 GHz) and mmWave spectrum bands.

ES45.Given the current levels of competition, services and pricing for mobile services in Canada described above, VMedia urges the Canadian government to take the appropriate steps to ensure that this vast and valuable public resource – valuable not just economically but strategically, and crucial to enabling Canadians to innovate and compete globally - does not end up under the same dominant influence as afflicts mobile services today.

ES46.It is an opportunity to ignite vibrant competition in wireless services, generate more investment by incumbents currently providing mobile services (mobile network operators or "MNOs") and other segments of the private sector in mobile broadband networks in Canada, and move Canada from the bottom ranks of OECD nations to the top.

ES47.To this end, VMedia proposes that all future spectrum awards in Canada, starting with the award for 3.5 GHz spectrum, include a significant amount of spectrum reserved for one or multiple wholesale networks, owned by other than current mobile network operators.

The Concept in Context

ES48.The concept of independent third party mobile broadband networks is not new and is gaining traction as governments increasingly realize the urgency of ensuring that every one of their citizens have universal access to the best possible mobile connectivity as soon as possible.

Implementation Proposal

ES49.A significant portion of all upcoming spectrum awards should be reserved for independent third party 5G networks that would be required to offer wholesale services to anyone else including MNOs, MVNOs and other third parties. These new wholesale networks would also be able to offer retail services in their home areas to ensure it can have a successful business case.

ES50. The approach would not only accelerate the development of 5G networks everywhere across Canada but also, and most importantly, provide for an opportunity to deploy capital from new private sector sources, other than current

MNOs who have not seen it to be in their best interest to deploy in rural and remote areas and to open up their networks to other innovators in terms of mobile broadband services.

ES51.VMedia does not advocate for a state-owned 5G network in Canada. Structural separation on the other hand would be ideal, and while VMedia is strongly in favour of it, pragmatism reigns, and the focus should be on the doable.

ES52.We propose that a minimum of 30-35% of all future spectrum awards in all bands starting in the 3.5 GHz band be awarded on this basis. These networks would then be only focused on providing wholesale services to any service provider within a given area for any kind of fixed or mobile 5G service. Ensuring access to multiple spectrum bands suitable for 5G would be a necessity to ensure a viable business case for these new networks.

ES53.The builders of these independent wholesale networks would need to be totally independent of any of the current MNOs operating in Canada. This would ensure that all Canadian and foreign innovators could get access to 5G networks on which to offer their services to the benefit of all, without risk of conflict of interest on the part of the wholesale network provider.

Alternative Wholesale Network Solution

A New Spectrum Set-Aside Approach

ES54.Consistent with a re-alignment of focus from promoting facilities-based competition to promoting competition, while still preserving incentives to invest in new infrastructure, ISED should consider changing the way spectrum set-asides work.

ES55.Under this proposal, there should still be a spectrum set-aside, but with the following conditions:

a. Any carrier should be permitted to bid on the set-aside spectrum. This would still allow the government, and indirectly the Canadian public, to obtain top dollar for this valuable public resource;

b. The winning bidder(s) must use 50% of the set-aside spectrum for the provision of wholesale services to unaffiliated non-carriers (e.g., MVNOs) and carriers not otherwise operating in the Canadian wireless market as of the date of the license issuance (“new wireless carriers”);

c. The set-aside spectrum cannot be deployed unless it is deployed simultaneously for both the licensees own use, and for the use by wholesale customers (i.e., no head start); and

d. The spectrum licensee must abide by the rulings of a specialized tribunal appointed to resolve technical and commercial issues related to use of the spectrum by any such MVNO or new-wireless carrier, where the prime mandate of the tribunal would be the promotion of competition.

ES56.While the price of such access may make it difficult for new operators and licensees of the set-aside spectrum to reach a wholesale agreement, ultimately the licensee would be faced with the need to get a deal done, or risk not being able to deploy the set-aside spectrum it acquired for its own purposes. This would help offset some of the unequal bargaining power in a wholesale relationship.

Any Approach is Better For Canadians than The Status Quo

ES57.The proposed approaches would lower the barrier to entry for spectrum, enabling new players to actively participate in this market, in a model geared to generating virtually market-driven wholesale rates, reducing the need for constant monitoring by regulators.

ES58.This would ensure that the future 5G market in Canada is not totally controlled by the current oligopoly, a state of affairs which is expected to occur if the Canadian government does not take corrective action as soon as possible.

ES59.In any event, whatever structural changes might be considered, VMedia strongly urges the immediate implementation of a wireless framework permitting MVNOs to offer the choices and fair prices that Canadians deserve.

ES60.An MVNO framework, with the improvements to analogous processes suggested in connection with ISPs in this submission, would inevitably be to the benefit of Canadians, providing instant relief until a more comprehensive restructuring of the existing framework, in conjunction with the introduction of 5G, can be implemented.

VMedia takes this opportunity to acknowledge and express its appreciation for the assistance of its own panel of experts, including Ed Antecol, Adjunct Professor, Osgoode Hall Law School, and others.

The Submission

The Review

1. The issues outlined in the terms of reference and the themes described by the panel appointed by ISED to review the relevant legislation (the "Panel") are extensive. There are seven terms of reference relating to issues to consider in connection with the Telecommunications and Radiocommunication Acts, and eight in connection with the Broadcasting Act. In addition, there are four themes set out by the Panel intended to "help guide its work and structure meaningful dialogue during its consultation process".

2. Among those 19 elements of consideration, we note that the word competition is mentioned only twice, with little elaboration or context.

3. As the second point under both the Telecommunications and Radiocommunication Acts, under the heading "Competition, Innovation, and Affordability", the question is asked, "Are legislative changes warranted to better promote competition, innovation and affordability?"

4. In addition, competition is mentioned at the very end of the first of the Panel's themes, "Reducing Barriers to Access by All Canadian to Advanced Telecommunications Networks". All of the rest of that theme focuses on the achievements of telephone and cable companies, and the heavy lifting ahead of them as they keep up with digital transformation.

5. There is no mention at all of competition in the terms of reference relating to the Broadcasting Act.

6. Similarly, regarding consideration of (i) Canadians as consumers of those services, who collectively pay nearly $45 billion per year for those services to a very small number of providers, and (ii) the need for a close examination of whether they are being served well, at reasonable prices, compared to other industrialized nations, there is very little.

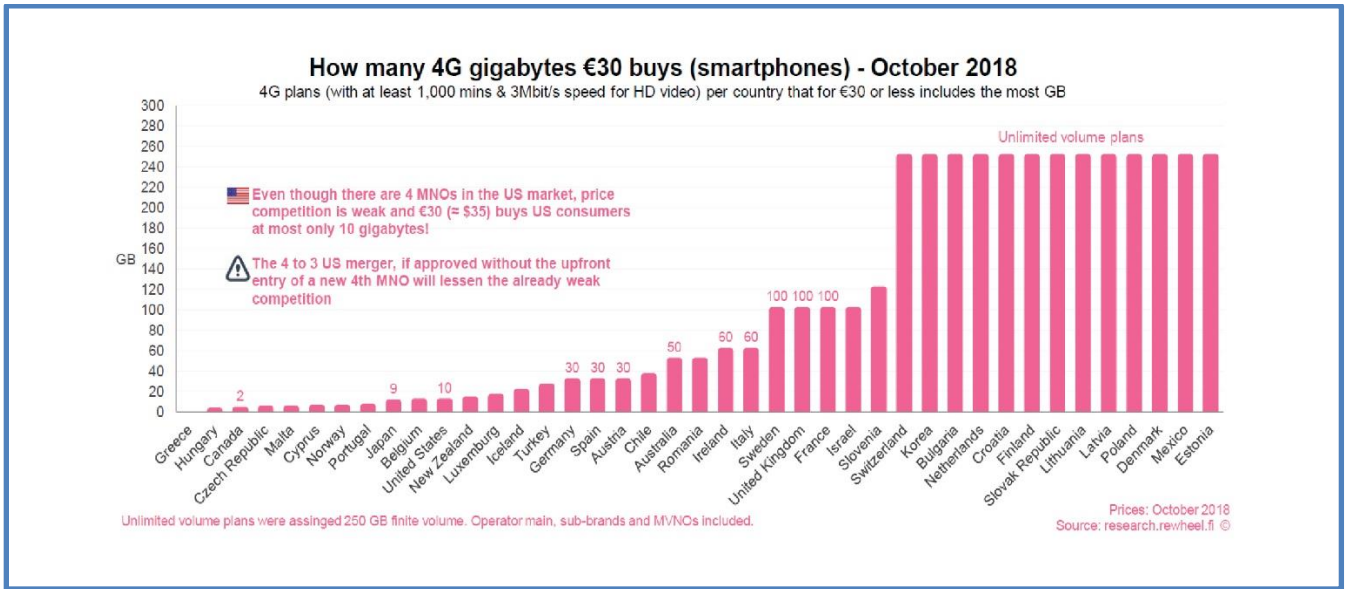
7. This absence of focus on competition, with no acknowledgement whatsoever of the problematic state of consumer choice in services and competition, and the entitlement of consumers to a competitive market in the provision of services which are not just essential, but absolutely and increasingly central to their everyday lives, is disappointing.

8. Since at least 2008 the telecommunications industry has been in a constant state of upheaval as policymakers have sought to expand the availability of internet services beyond the incumbent telecom and cable duopolies that overwhelmingly dominate the market; leading to a virtual consumer revolt in 2011 when incumbents tried to

universally impose low usage caps unconscionably costly incremental usage fees on Canadians, just as the video streaming revolution was beginning to unfold.

9. Similarly in the case of mobile services, for years governments and policymakers, including the Minister of ISED[1], have acknowledged that Canadians have been ill-served by the incumbents, persistently ranking among the lowest of 35 OECD countries in mobile usage and highest in cost of services. Indeed, a recent study ranks Canada near to dead last in gigabyte ("GB") of data per dollar on mobile services.[2]

10. The study considered the number of GB that the equivalent of €30 buys in different countries. In many countries, €30 buys unlimited GB, in the UK and France it buys 100 GB, in the US 10 GB, but in Canada only 2 GB.



11. Despite the best intentions of regulators and policymakers, the existing framework has not been conducive to dealing with the competitive problems that beset the Canadian telecommunications market in a meaningful way and providing consumers with better value and real alternatives.

12. A great deal of time and immense economic resources have been spent on trying to achieve a way forward that will resolve this, and while some progress has been made, a competitive market for mobile services is non-existent. While the choices

[1] Speech, The Honourable Navdeep Bains, PC, MP Minister of Innovation, Science and Economic Development Toronto, Ontario June 5, 2017
https://www.canada.ca/en/innovation-science-economic development/news/2017/06/2017_canadian_telecomsummit.html

[2] Rewheel/research, The state of 4G pricing – 2H2018 – Digital Fuel Monitor 10th release
http://research.rewheel.fi/downloads/The_state_of_4G_pricing_DFMonitor_10th_release_2H2018_PUBLIC.pdf

in broadband services offered by competitive internet service providers has had an impact, that segment's future remains fragile, threatened by the limitation of its access to new carriage platforms such as fibre to the premises and 5G.

13. For these reasons, VMedia urges that the reexamination of the limitations of the existing framework in providing meaningful competitive services be given far greater prominence in the proceedings conducted by the Panel going forward.

> **Recommendation:** VMedia's central comment is to urge the Panel to review its themes, and add to them the consideration specifically of whether Canadian consumers are well-served by the current regulatory framework, which has permitted a level of concentration in the telecom and broadcasting industries virtually unparalleled in the industrialized world.

14. VMedia will focus its detailed comments below on those elements of the terms of reference, and the themes articulated by the Panel, relating to competition, and providing competitive services for Canadian consumers.

15. In doing so, our proposals regarding wireless services, in particular our detailed comments regarding the introduction of 5G, will respond to the theme of "Reducing barriers to access by all Canadians to advanced telecommunications networks". That discussion below proposes solutions for enabling innovators and new enterprises to gain access to spectrum resources as well as mobile broadband network resources. These are the key barriers currently inhibiting innovation and affordable services in the Canadian mobile market and will continue to be so in a 5G world, if no corrective action is taken now. Ensuring new access to spectrum and mobile broadband network resources is critical if Canada wants to ensure the creation of a vibrant and strong 5G environment in support of the digital Gig economy of the future.

The Economic Interests of Consumers

16. The lack of focus on competition and the entitlement of consumers to world-leading, rather than world-lagging, telecommunications services, is particularly relevant because telecommunications (and broadcasting) services comprise the fourth largest household expenditure after shelter, food and transportation.

17. Yet, unlike those needs, which are met by a myriad of competing suppliers ensuring fair pricing disciplined by market forces, telecom in each of the markets across Canada has always been and still is today largely a duopoly, dominated by a total of five major incumbents operating in pairs in the markets across the country.

18. Three of them account for 92% of mobile revenues, a market share that is steadily increasing. One of the three focuses primarily on the Quebec market, leaving much of the rest of the country to be served by the other two major providers.[3]

19. Five incumbents account for 87% of fixed internet revenues, but that does not suggest that the five compete against each other.[4] In fact there are only two providers in any given market, a cable and a telecom provider, and that duopoly more typically shares that 87% of the market it serves.

20. In 2016, a year in which wage growth was 0.4%[5], and the Consumer Price Index barely budged[6], average household mobile and internet expenditures, paid to those few providers, rose 5.5% and 6.5% respectively.

21. In that same year, the lowest quintile of Canadian households, those with less than $32,090 of household income, spent 8.6% of their annual income on communications services, and the lowest three quintiles, those making under $85,336 per year, including a good portion of Canada's middle class, spent an average of 6% - and substantially more than that if measured in terms of after tax, disposable income.[7]

22. In the meantime, in addition to being near to most expensive in terms of cost per GB as shown above, Canada has achieved the dubious distinctions of ranking 30th among 35 OECD nations in mobile data usage, and sixth to last in the same group in mobile data subscriptions[8].

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[3] Communications Monitoring Report, 2018
https://crtc.gc.ca/eng/publications/reports/PolicyMonitoring/2018/cmr2018-telecom.pdf at p. 19

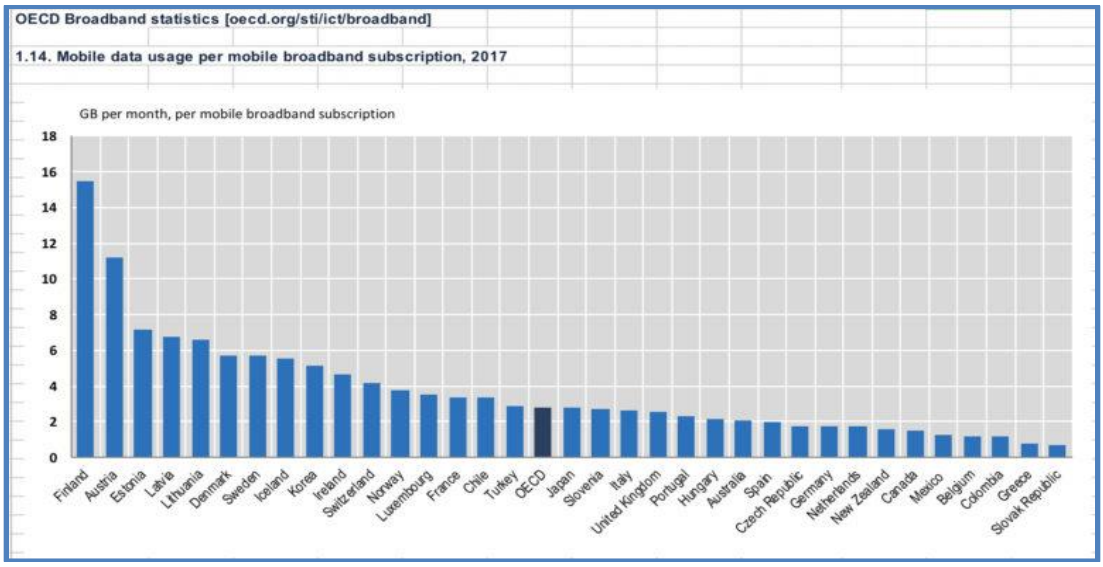
[4] Ibid. P. 5

[5] Statistics Canada, The Daily, Payroll employment, Earnings and Hours, September 2016,
https://www150.statcan.gc.ca/n1/daily-quotidien/171130/cg-b001-eng.htm

[6] Inflation Calculator, https://inflationcalculator.ca/2016-cpi-and-inflation-rates-for-canada/

[7] Communications Monitoring Report, 2018, *ii. What Communications Services do Canadian Households use*, infographic 1.3. https://crtc.gc.ca/eng/publications/reports/PolicyMonitoring/2018/cmr1.htm

[8] OECD, Fixed and wireless broadband subscriptions per 100 inhabitants (Dec. 2017),
http://www.oecd.org/sti/broadband/1.2.OECD-FixedMobileBB-2017-12.xls



23. This is no surprise, as even a recent study commissioned by ISED itself (the "Wall Report") shows that Canadian wireless rates generally are among the highest in the world[9], and by some accounts that gap is widening[10].

24. The Wall Report, as discouraging as it is, has certain methodological shortcomings that understate the scale of the divergence between Canada and those other markets, and the even greater disadvantage to Canadian consumers.

25. At page vi of that report, prices for mobile services in Canada are shown as being comparable to prices in the US and Japan, but are double or more relative to prices in other countries (Australia, UK, France, Italy, Germany). The Wall Report, however, focuses only on service packages with limited usage included and does not reflect unlimited packages seen elsewhere or other features distinguishing services such as roaming.

26. Unlimited mobile data usage is important in the marketplace as it provides subscribers with a worry-free way to remain continuously connected, and connectedness is a key benefit of mobile data usage.

27. Unlimited mobile data usage supports economic development both by development of applications that take advantage of connectedness (e.g. Uber) and by improving immediacy of communications in daily life, whether for business, security, home monitoring, or other applications.

28. Moreover, the growing availability of high-resolution video content for mobile devices encourages heavy data usage by consumers. Sadly, in Canada, the

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[9] Price Comparisons of Wireline, Wireless and Internet Services in Canada and with Foreign Jurisdictions, 2018 Edition, https://www.ic.gc.ca/eic/site/693.nsf/vwapj/telecom2018e.pdf/$file/telecom2018e.pdf. P.30

[10] http://www.michaelgeist.ca/2019/01/more-steps-needed-government-commissioned-report-shows-canadian-wireless-pricing-remains-among-highest-in-the-developed-world/

availability of sports and other content on mobile is not a benefit to consumers, but a lure designed to create data junkies, who will be a growing source of lucrative data overage fees.

29. The following table[11] provides a summary of mobile plans compiled in January 2019 in Canada, the US, UK and France, focusing on large and unlimited data usage plans. It reflects the far more dramatic actual differences between Canada and other countries than can be found in the Wall Report.

Bring your own device - SIM only plans	Canada				US		UK			France	
	TELUS	Rogers	Bell	Freedom	T Mobile	Verizon	3 UK	3 UK	EE UK	Orange	Free
GB included	80	83	23	20	unlimited	unlimited	100	unlimited	60	150	unlimited
Total per month	$ 484	$ 484	$ 201	$ 102	$ 85	$ 126	$ 35	$ 47	$ 53	$ 100	$ 31
Talk/Text	Canada - US			Canada	Canada, Mexico		UK only			Europe	100 countries
Overage per GB	$10			n/a	n/a	n/a	$ 1	n/a	$ 5	n/a	n/a
Includes international data roaming in	US only			n/a	210 countries	2G speeds after 0.5 GB per day in Canada, Mexico	71 countries (up to 19 GB)		Europe (up to 15 GB)	Europe (up to 70 GB)	3G in 50 countries, including Canada, US
Roaming add-on (per day)	$ 7	$ 7	$ 8	$ 5	$ 6	$ 6	$ 4	n/a	n/a	$ 2	n/a

Rates include unlimited talk/text, connection fees, sales tax; converted to Canadian $ and PPP rates per IMF at October 2018

Canadian rates are for Ontario; UK prices are increased by retail price index (RPI) % each year.

Freedom 20 GB plan is for on network usage - usage off network elsewhere in Canada is limited to 2 GB

T Mobile and Verizon rates are for single line; rates are lower if subscribing to multiple lines; Verizon adds on USF and regulatory charges that vary by state and line type.

T Mobile unlimited slows connection after 50 GB; Verizon unlimited slows connection after 75 GB; Freedom slows after plan usage exceeded

Free unlimited in France is for Freebox subscribers - other subscribers are capped at 100 GB

Free data roaming is on 3G; T Mobile roaming is at slower speeds

Orange - for usage over 100 GB, speed is reduced; Orange roaming add-on is charged per month (equivalent per day shown for 25 GB)

30. Importantly there are no unlimited mobile data plans in Canada at all. TELUS and Rogers have large plans including 80 GB, available for nearly $500 per month, however Bell and Freedom are capped at 20 GB. For a two-year contract, Freedom provides a 100 GB bonus, i.e. the equivalent of about 4 GB per month extra. Overage charges for Bell are $10 per GB, so using an additional 60 GB to match TELUS or Rogers included usage would cost $600. Unlimited plans are increasingly common in other countries, and in fact generally come at a lower subscription cost per month than capped plans do in Canada.

31. Canada lacks a price leader similar to T Mobile in the US, 3 UK or Free in France. While Freedom, a new entrant, provides a similar level of usage to that of Bell for half the price, Freedom restricts usage at this price to use in areas where it has its own network. Usage outside of Freedom's own network is limited to 10% of the

[11] Sourced from Company websites on January 10, 2019: https://www.telus.com/en/bc/mobility/planbuilder?INTCMP=Tcom_Plans_Individual_Plans_BAN_Plan_Builder&linktype=plans, https://www.rogers.com/consumer/wireless/smartphone-plans?tab=tab5, https://www.bell.ca/Mobility/Cell_phone_plans/Share_plans, https://www.freedommobile.ca/plans-and-devices/plans, https://www.t-mobile.com/cell-phone-plans?icid=WMM_TM_Q117TMO1PL_H85BRNKTDO37510, https://www.verizonwireless.com/plans/unlimited/, http://www.three.co.uk/Store/SIM/Plans_for_phones, https://shop.ee.co.uk/sim-only/pay-monthly-phones, https://boutique.orange.fr/mobile/forfaits-orange, http://mobile.free.fr. For comparative analysis, currencies all converted to USD at PPP rates estimated by IMF at October 2018: https://www.imf.org/external/datamapper/PPPEX@WEO/OEMDC/ADVEC/WEOWORLD, and then converted to Canadian using PPP conversion from USD.

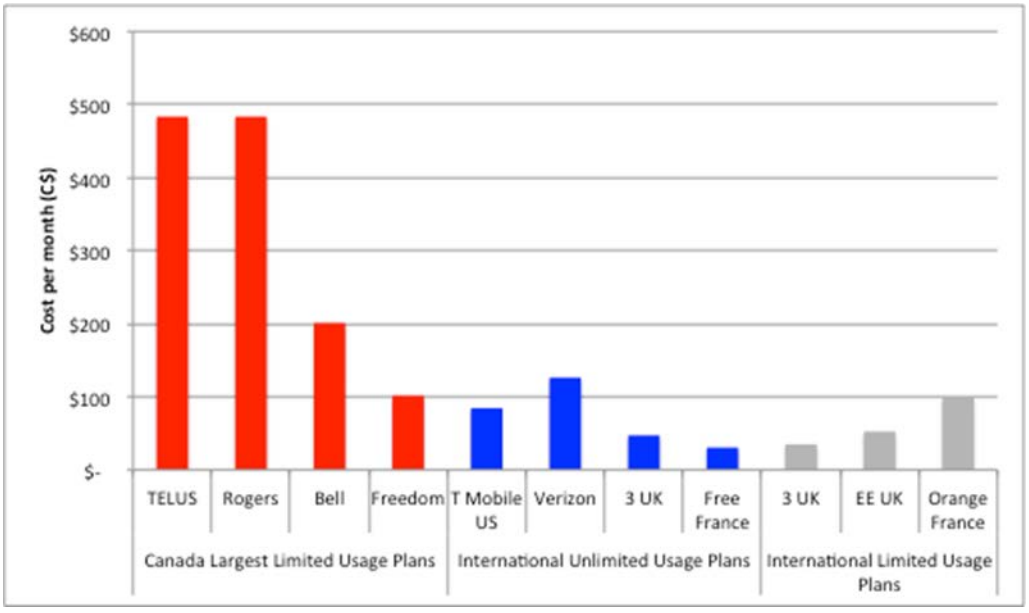
usage in the plan. Freedom is hampered by the need to pay high roaming charges to the incumbent operators in areas where Freedom has not yet deployed its own network.

32. Canadian packages including international data roaming focus only on the US. T Mobile US includes roaming to 210 countries, 3 UK to 71 countries and Free to 50 countries (although only at 3G speeds). Even with a plan including roaming, Canadian consumers have to pay extra – in the range of $12 per day – to use their data elsewhere than in the US. For an international traveler, this adds a significant cost to an already high monthly subscription.

33. Canada's largest plans are smaller than those offered elsewhere and are more expensive. For example, an 80 GB plan on TELUS or Rogers in Canada comes with a subscription cost of almost $500 per month. This is five times the equivalent amount charged by Orange – the large incumbent operator in France – for almost twice as much usage. Similarly, EE in the UK provides 60 GB in its largest package – three times that of Bell in Canada – for about one quarter of the price charged by Bell. On a per GB basis, prices in Canada are 9 to 10 times higher.

34. In short, Canada lacks the benefits of the most basic market dynamics that operate elsewhere, resulting in exorbitant prices for Canadian consumers.

35. The differences can be seen more starkly in the graphic below. All of the prices shown outside of Canada are considerably lower than Canadian prices for unlimited packages as well as for large, but limited, usage plans. The exception in Canada, as noted above, is Freedom Mobile, with a comparable "sticker price" offer to that of Verizon US or Orange France. However, Freedom's data usage is limited to areas of Canada where Freedom has its own network (primarily BC, Alberta and Ontario).



36. It is especially important that there be a greater focus on the economic experience of consumers in view of the impending introduction of 5G. A particular examination should be undertaken as part of the Panel's process going forward to consider how the introduction of 5G should be managed.

37. This represents an opportunity to reconsider its deployment in the context of how best to ensure that consumers can benefit from a competitive and dynamic market in the retail supply of 5G services.

38. Moreover, given the wide ranging impact that 5G is predicted to have on the lives of all Canadians, predicted to be a central element not just in how we communicate with each other, but how we live our everyday lives, it is even more important to consider whether such a resource should be concentrated in the hands of incumbent duopolies. VMedia will provide additional comments in this regard below.

Competition in Broadband Fixed Internet

39. In the Wall Report it was shown that Canada also lags in the pricing of fixed internet.[12] But in this case there are competitors, in the form of independent internet service providers ("ISPs") such as VMedia, which purchase wholesale access to incumbent facilities to offer them at retail prices competitive with the incumbents. VMedia and other ISPs pay substantial tariffs for such access, calculated through rigourous costing processes conducted by the CRTC to ensure that all of the costs of the incumbents associated with such access are covered as well as a substantial mark up.

40. Even so, ISPs are able to offer internet plans virtually identical to those offered by the incumbents for prices 12.5% to 35% lower[13]. Indeed ISPs have played a crucial role in introducing some small degree of pricing discipline, despite the fact that public awareness of the alternatives that ISPs represent is limited by ISPs' resources, which are dwarfed by incumbent brand histories and marketing budgets.

41. The following table provides a summary of fixed broadband service plans compiled in January 2019 in Canada, the US, UK and France, focusing on the highest speed available and including unlimited data usage[14].

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[12] Price Comparisons…, Section 5.3

[13] Ibid., Section 5.2

[14] Sourced from Company web sites on January 10, 2019: https://www.rogers.com/consumer/Internet, https://www.bell.ca/Bell_Internet/Internet_access, https://www.vmedia.ca/en/internet/compare-plans, https://www.xfinity.com/learn/offers?lob=Internet|hsd-1000+hsd-2000, https://www.verizon.com/home/fios-fastest-Internet/, https://www.virginmedia.com/shop/broadband/broadband-only.html, https://www.bt.com/broadband/deals/#, https://www.free.fr/freebox/, https://boutique.orange.fr/Internet/offres-fibre. For comparative analysis, currencies all converted to USD at PPP rates estimated by IMF at October 2018:

Broadband Plans	Canada			US			UK		France	
unlimited usage	Rogers	Bell	V Media	Comcast	Comcast	Verizon	Virgin UK	BT UK	Orange	Free
Service down speed	1 Gbps	1.5 Gbps	940 Mbps	1 Gbps	2 Gbps	940 Mbps	360 Mbps	67 Mbps	1 Gbps	10 Gbps
Service up speed	30 Mbps	940 Mbps	10 Mbps	n/a	n/a	880 Mbps	21 Mbps	n/a	300 Mbps	n/a
Total per month	$ 141	$ 121	$ 101	$ 99	$ 399	$ 106	$ 91	$ 72	$ 51	$ 61

Canadian prices for Ontario, including sales tax, over 12 months; V Media 940 Mbps service only available in Sudbury

Foreign prices converted to Canadian $ using PPP rates per IMF at October 2018

BT pricing is for 18 month contract; price is £58.99 per month after

Free pricing is no contract and includes telephone; Orange is 12 month contract, includes telephone and TV (160 channels)

Comcast pricing is for Philadelphia; no contract - 2 Gbps is 24 month agreement

42. There are distinctions between Canada and other countries that can be seen in the above table:

    a. With some exceptions, Canadian plans are more expensive per month than prices seen elsewhere. Prices are higher than comparable plans in the US and much higher than in France. Prices are lower in the UK than they are in Canada, but service speed is not comparable.

    b. Where available service speeds are much higher, notably in France, prices are much lower than in Canada, less than half. And while the Canadian price is for broadband only, the prices in France include other services (for Free, telephony, and for Orange, telephony and television).

    c. In Canada, bundles are expensive. In France, where Free has changed the competitive dynamics, consumers benefit not just from lower broadband prices, but from the inclusion of other services in the package. In Canada, including other services in a "bundle" increases costs substantially. In the case of Rogers, adding television and phone increases the price by approximately $50 per month, almost 40% more. Adding television to the Bell broadband price results in a similar increase, however since Bell shares capacity between television, phone and Internet, the max speed provided for Internet is then only 100 Mbps rather than 1.5 Gbps.

43. While the above represents only a limited set of comparable cases, the distinction between the UK and France shows the benefits to consumers of competition. In France, Free is a market disrupter and offers very high-speed service at an aggressive price. Orange, the large incumbent follows suit.

44. High speeds bring economic benefits in the form of greater usage and access to key services (e.g. government online services), use of e-commerce and promotion of home-based business. The following chart considers only the packages at Gigabit per second (Gbps) speed included above, being the ones with the greatest socio-

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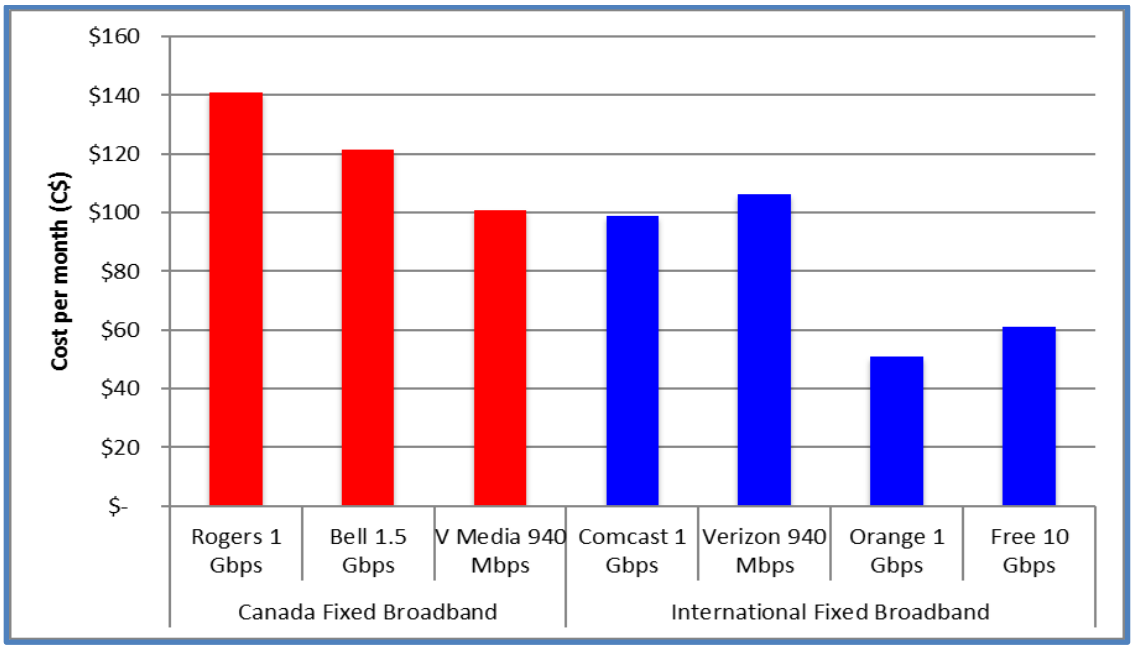
https://www.imf.org/external/datamapper/PPPEX@WEO/OEMDC/ADVEC/WEOWORLD, and then converted to Canadian using PPP conversion from USD.

economic benefit. Excluding the outlying Comcast 2 Gbps service, Canada is at about a 20% disadvantage relative to the US, and over 100% relative to France.



45. The Review is being undertaken at a crucial juncture. Competition in broadband services has been a policy objective for governments led by both major parties for nearly two decades. In that time, the dominance of the cable and telecom duopolies in each market has been undiminished, with ISPs achieving less than 13% market share (and much less in the broadcasting distribution vertical, which some, like VMedia, have recently begun to offer). However, the efforts and innovations of ISPs have had a profound impact on consumers' broadband service experience and prices.

46. This has been achieved despite:

a. a tariff pricing framework that is not reflective of actual costs, nor transparent,

b. ongoing efforts by incumbents to destabilize, undermine and ultimately eliminate the ISP sector, to allow them to continue their economic exploitation of Canadian consumers, and

c. the resultant stifling of innovation which has made Canada an outlier among developed nations in broadband services and enabling the digital economy

The Role of ISPs

47. Despite uneconomic and arbitrary tariffs imposed on ISPs through consistently problematic costing processes, ISPs have been able to offer services identical or superior to those of the incumbents to Canadians at prices as much as 50% lower.

48. This is because incumbents generate margins of up to 90% on internet services, while ISPs have made do on margins as low as 25%. That delta represents economically unjustifiable tariffs, which serve as a proxy for purportedly just and reasonable wholesale prices.

49. ISPs have in this way introduced not just a competitive product but also market-pricing discipline, which incumbents, operating as a duopoly in all markets across Canada, would not otherwise be subject to.

50. In addition, ISPs have introduced innovative product offerings. ISPs were the first to introduce unlimited broadband packages, doing away with artificial data usage caps, a notable innovation of the incumbents that allowed them to impose exorbitant overage charges on top of already high monthly rates, charges that had no relationship to underlying costs - presaging current practices with mobile data overage charges.

51. More importantly, those data caps imposed severe limitations on the way in which consumers could interact with and enjoy all of the benefits of high-speed internet services, not the least of which is the internet as a video content transmission platform.

52. It was the ISPs' introduction of unlimited packages over 10 years ago, responding to the already growing demand for video content over the internet, that led to the usage-based billing controversy of 2011 and the accompanying consumer revolt.

53. The controversy arose when incumbents sought to force ISPs to impose the same data cap framework on consumers that the incumbents did, to ensure incumbents could continue doing so. An incumbent went so far as to characterize anyone who needed more than 25GBs per month of usage as "bandwidth hogs" and "pirates"[15]. Today the same incumbent touts 1Gbps service speed, with the accompanying flood of data, as essential to enable Canadians to fully enjoy the internet, and unlimited packages are the norm.

54. This transformation of the market, and the concomitant benefits to consumers, would not have happened without the influence of ISPs and their truly market-based and customer - driven approach to internet.

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[15] https://www.youtube.com/watch?v=pOPl4_YsTzg, https://www.youtube.com/watch?v=ZWpuQP4evcU, https://www.youtube.com/watch?v=ZYizoh_r6D0

55. These benefits have been delivered within a framework that results in an inconsistent regulatory approach. The framework is intended to implement a policy that nurtures the formation and growth of the ISP sector. It has instead resulted in policies and tariff procedures, and an administrative regime intended to regulate the behavior of incumbents, that has largely left ISPs vulnerable to persistent efforts of incumbents to prevent new entities from forming, and to put existing ones out of business.

56. This instability has also made it near impossible for ISPs to raise capital, further weakening their ability to be a meaningful and longstanding competitive force.

The Present Crisis

57. Notwithstanding these shortcomings, ISPs have managed to survive, and continue to provide direct and indirect benefits to Canadian consumers. However, ISPs currently face yet another existential crisis in the form of a new regulatory policy (the "FTTP Access Policy") which mandates the granting to ISPs of access to new fibre to the premises ("FTTP") networks being rolled out by the incumbents[16].

58. The crisis ISPs face has two elements, one long term, the other short term.

59. In the long term, the ability of ISPs to be able to fund their access to FTTP facilities, under the new disaggregated framework contained in the FTTP Access Policy, is questionable at best. The time frame for the implementation of the disaggregated framework, largely dependent on the incumbents' timing, has provided and will continue to provide an insurmountable head start for the incumbents in grabbing market share that will be difficult for ISPs to meaningfully penetrate.

60. Moreover, the requirements of the FTTP Access Policy that ISPs build out to the many points of connection that the disaggregated model requires are animated by a desire to have facilities built by ISPs, in an acknowledgement of the mandate to encourage facilities development in the Policy Direction of 2006[17](the "Policy Direction").

61. In the short term, and after a lengthy process marked yet again by extensive delays by the incumbents, the CRTC initiated an interim tariff proceeding for accessing incumbent fibre pending the implementation of that disaggregated framework.

62. Finally, on August 29, 2017, pursuant to repeated efforts by the Canadian Network Operators Consortium ("CNOC"), the most relevant of which accompanies this submission as Exhibit 1 (and which itself is a compelling illustration of the cumbersome nature of the process itself, despite the fact that it was administered by the most consumer-activist CRTC in memory), the CRTC issued an order[18]

[16] Telecom Regulatory Policy CRTC 2015-326

[17] Order Issuing a Direction to the CRTC on Implementing the Canadian Telecommunications Policy Objectives

[18] Telecom Order CRTC 2017-312

setting interim tariffs, and thereby granting interim access to FTTP facilities – a full two years after the setting of the FTTP Access Policy.

63. During this delay, more and more fibre had been (and continues to be) installed across an expanding urban footprint, significantly increasing the localized monopolies that sprout up with each FTTP-served building and neighbourhood.

64. The delay itself was an illustration of how problematic the framework in ensuring continued competition in residential broadband services. But even more problematic are the tariffs set by the CRTC.

65. For example, the interim approved monthly FTTP wholesale access rate for one telecom incumbent was set at, and remains, $121.79. Per month. Per home. This, when the highest retail price that incumbent quotes as at today's date for 1Gbps service is $104.95.

66. This result is incomprehensible, especially when in another context, former Chairman Blais said:

> "*Competitors that provide retail Internet services to Canadians using wholesale high-speed services must have access to these services at just and reasonable prices. The fact that these large companies did not respect accepted costing principles and methodologies is very disturbing. What's even more concerning is the fact that Canadians' access to a choice of broadband Internet services would have been at stake had we not revised these rates. As always, we strive to create a dynamic competitive telecommunications market for Canadians."*[19]

67. It is beyond the scope of this submission to provide a costing analysis to show that the tariff is not just and reasonable. It has been very difficult historically to respond to incumbent costing studies since key elements are only available to the CRTC, and redacted from public filings, making it impossible for VMedia, CNOC or anyone else to fully refute costing claims.

68. As disconnected as the tariff is to that incumbent's highest retail price, it is difficult if not impossible to reconcile this tariff with the publicly available information as to the cost of FTTP rollouts to homes by that incumbent.[20]

69. Taking the announced cost ($1.4 billion), and footprint (1.1 million homes), the investment comes to $1,270 per home. Based on the tariff, the incumbent is now able to recover the cost of its investment from ISPs within 10 months. *After that period, its "wholesale" rate to ISPs will be 100% margin.*

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[19] CRTC finds proposed wholesale high-speed access rates unreasonable, 6 October 2016, http://news.gc.ca/web/article-en.do?nid=1133779.

[20] https://www.thestar.com/news/city_hall/2015/06/25/bell-canada-to-give-toronto-worlds-fastest-internet.html

70. At the same time, the incumbent is offering services to newly installed buildings. The offer is for 1Gbps speed broadband, plus a middle level TV package, and premium movie channels, plus plus plus, for as low as $62 per month, with the price guaranteed for five years. There is no doubt that this is a good deal for consumers. There is also no doubt that there can be no relationship between the incumbent's actual costs for FTTP facilities, and the tariff set by the CRTC, at least not one which would suggest that the tariff is "just and reasonable". The incumbent is clearly far better off selling to ISPs wholesale than to the public retail.

71. The benefit to consumers would of course be short-lived, because if these disparities between tariffs and retail prices are permitted to prevail, there will be no ISP alternative for consumers, only the dominance of a duopoly which governments have sought to restrict and reduce for two decades.

72. In the event, in November 2018 CNOC filed a review and vary application[21](the "CNOC Application") with the CRTC, asking that it reconsider the FTTP Access Policy. The substance of the application is that, as structured, the FTTP Access Policy makes it impossible for ISPs to participate in such a way that they can continue to serve their existing markets and survive. At best, small pockets of markets in dense urban areas might have the benefit of the competitive alternative that ISPs offer but the vast majority of the Canadian market will be left to manage with a duopoly regime.

73. The CNOC Application does however highlight the unintended consequence of the FTTP Access Policy's adherence to the Policy Direction. In S.1(c)(ii) the Policy Direction orders the CRTC to pursue policy objectives of the Telecommunications Act "with a view to increasing incentives for innovation in and construction of competing telecommunications network facilities". As structured, the FTTP Access Policy creates no incentive whatsoever for ISPs to do any such thing.

74. Even worse, if the FTTP Access Policy remains unamended, it will result in the virtual elimination of the competitive forces which the Policy Direction was intended to encourage.

75. The argument that underpins the facilities requirement in S.1(c)(ii), that competition generated by granting access to incumbent facilities will inhibit investment by incumbents, has never been proven to be valid in the Canadian or US context. The need to compete with the duopoly competitor in terms of facilities far outstrips the possible minimal market loss that may go to non-facilities based competitors.

76. However, that requirement has inhibited the ability of regulators to fully focus on the encouragement of competitive services to provide more choice and better prices and service levels to Canadian consumers. VMedia believes that FTTP Access Policy, and its requirement that ISPs invest heavily, and beyond their means, in facilities, was the result of the Commission's adherence to the requirement.

[21] CRTC Reference 8662-C182-201809534

77. If S.1(c)(ii) were in place in when there was the move to introduce competition into the long distance market, Canadians would still be paying multiple dollars per minute for calls between Toronto and Montreal, instead of the virtual pennies they pay today. Competition was introduced without duplicative facilities, and the incumbents continued to prosper. In the meantime the direct economic benefits and enhancements in productivity through cheaper long distance communications is incalculable.

78. The Policy Direction is commendable insofar as it provides imperatives to promote competition. But the requirement that consideration be given to the creation of additional facilities is flawed. Firstly, the prime objective of the Policy Direction, for good reason given the imperatives of encouraging competition as referenced above, is to do exactly that. Competition is a valid end in itself, and if it can be achieved without building out additional facilities, then that requirement should not be a consideration.

79. Second, there is no greater good served in building redundant facilities. The legacy benefits of the incumbents can never be matched by new market entrants, and if existing facilities can be used to generate multiple choices for consumers, while fairly treating the owner of those existing facilities that should be the way forward.

> **Recommendation:** For these reasons VMedia recommends that the Policy Direction be immediately amended to remove the requirement that the CRTC be required to consider the investment in and construction of competing telecommunications network facilities in implementing the policy objectives set out in section 7 of the Telecommunications Act.

A Flawed Tariff Framework

80. The FTTP Access Policy is not the first time that costing process outcomes have lacked justification. In 2011, as a means of resolving the usage based billing controversy, the CRTC set tariffs for wholesale access which included a usage component, in addition to fixed access charges.[22] The usage component measured capacity needs of ISPs, and resulted in a capacity based billing element, measured in megabits, which was added to the fixed portion.

81. What was remarkable about the tariffs was that the cost per megabit awarded to each incumbent varied wildly, not just between telecom and cable facilities providers but between incumbents within those verticals as well. For example, Bell was granted $22.13 per Mb (shortly afterwards reduced to $11.40 after lengthy review and vary proceedings, and then pursuant to a later proceeding[23], in October 2016, to *$1.49*) while MTS was awarded $2.81. Rogers was granted $12.51 while Cogeco was given $26.95.

[22] Telecom Regulatory Policy CRTC 2011-703
[23] Telecom Order CRTC 2016-396

82. The wide range cast doubt on the validity and accuracy of the cost data provided by the incumbents. As a senior Rogers executive commented at that time on the rates[24]:

> *'The executive said Rogers was "puzzled" by the disparity between its rates and those at other cable companies.*
>
> *"Normally, rates would be within a dollar or so of each other, which kind of makes sense," he said. "We have very similar networks, very similar customers and we operate in very similar territories." '*

83. These outcomes do not reflect a reliable costing process. They never have. To give effect to policies set by successive Federal cabinets, an alternative to the existing framework is needed to ensure just and reasonable rates, not tariffs which defy common sense.

84. VMedia believes that costing processes have shown themselves to be obstacles to the development of a robust and stable competitive market.

85. Moreover, the tariff framework allows incumbents to dramatically undercut ISP pricing, knowing full well the prices paid by ISPs to them for identical services. This is an insidious form of predatory pricing, as it is the ISP's supplier that is trying to force the ISP, the customer, out of business.

86. The argument that an incumbent is offering services at below-tariff promo pricing, to take market share from other incumbents, is clearly refuted by the incumbent's own actions. Recent examples (see Exhibit 2) with incumbent flanker brands have in some cases explicitly targeted ISP competitors, asking the consumer to compare the incumbent flanker brand price with that of a well-known ISP.

87. Given the tariff set for the ISP, responding without going out of business quickly is impossible. Failing to respond assures that the ISP will go out of business slowly. But in either case the ISP segment cannot survive in the long term.

88. The uncertainty in wholesale access tariff costing processes should be eliminated. Mindful of the fact that the margin over costs of facilities is 90%, an assumption should be made as to what is a reasonable ongoing fixed wholesale price for access, set as a percentage of the retail price set by the incumbent.

> **Recommendation:** Attached as Schedule A is a chart showing the historical percentage that tariffs for particular internet plans are of the retail prices that the incumbents charge for comparable plans. VMedia recommends that tariffs be fixed through a formulaic mechanism introduced

[24] business.financialpost.com/technology/small-internet-providers-seek-crtc-decision-reversal

through legislated changes to the Telecommunications Act, and updated every five years by regulation[25].

That mechanism would specify that:

1. As a general rule, the tariff for any given internet plan shall not exceed 35% of the incumbent's retail price for comparable plans.

2. Tariffs be set on that basis for all plans marketed by incumbents from time to time.

3. During periods that plans are subject to incumbent promotional pricing, if that promotional price is less than 65% of the posted retail price for that plan, tariffs shall be reduced to 35% of that promotional price so long as the promotion shall be in effect. This measure will discourage predatory pricing aimed at putting ISPs out of business.

4. Tariffs as reduced shall remain reduced for ISP subscribers who have signed up with ISPs with the benefit of a similar promotion, for the duration of the relevant promo period.

Incumbent Efforts to Sabotage ISPs

89. Since its formation in 2012 VMedia has experienced deliberate and concerted efforts by certain incumbents to prevent VMedia from launching, and then after it launched, to target and obliterate its business entirely. All of these tactics were either permitted within the regulatory framework, or if prohibited, the prohibitions were not accompanied by any practical, timely, or adequately punitive recourse.

90. Some of the attempts were related to telecom services, and others to broadcasting services. Since as an IPTV service provider they are inextricably connected, VMedia has referenced both categories.

The Four Year Stall

91. VMedia first requested a third party internet access ("TPIA") arrangement with an incumbent in 2011. Regulations only prescribe a timetable for proceeding with a request for TPIA service once the process is underway. For example once an incumbent enters into an NDA, the clock starts to tick. However, there is no deadline stipulated for commencing the negotiation process.

[25] It should be noted that there is precedent for such an approach. It was applied to roaming charges under S.27.1 of the Telecommunications Act (since repealed).

92. The persistent delays in agreeing to begin negotiations went on for so long, that VMedia could no longer afford to delay its launch. In the end, VMedia was forced to enter into a resale arrangement with another ISP that had a TPIA deal with the incumbent. This was of course at significantly greater cost reducing margins on that product to almost nil and, moreover, added a layer of delay and complexity to the installation process and troubleshooting since requests always had to go through the intermediary, as VMedia had no contractual relationship with the incumbent.

93. Citing backlogs, blackouts, and inadequate resources the incumbent stalled VMedia for nearly four years. Even once it agreed to enter into negotiations, and start the prescribed clock, the incumbent imposed onerous security guarantee requirements which delayed the launch for another year.

94. In the result, VMedia launched its direct TPIA service in May, 2016, after paying an unnecessary and substantial mark up for the first three years in business. The delay cost VMedia dearly in margin payments to the reseller, as well as considerable market good will and loss of reputation due to the complexities of installing customers and troubleshooting.

95. While VMedia had at all times the potential remedy of a Part 1 application, which if successful could have compelled the incumbent to enter into a TPIA deal, such a process would have been costly and lengthy, up to nine months or more to completion.

96. The dealings with the incumbent throughout were such that with each delay, VMedia had to weigh the length and cost of a Part 1 proceeding against the possibility that the incumbent might actually come to the table in less time than the proceeding would take to complete. Of course, if VMedia had known at the outset that the delays would add up to nearly four years it would have chosen to turn to the CRTC.

The TV Stall

97. In order to launch its BDU service, VMedia required an affiliate arrangement with the major vertically integrated entities (“VIEs”). Without those deals with all of them, VMedia could not launch its TV service.

98. In this case, too, one of the VIEs refused to enter into negotiations. Instead, it delayed and delayed entering into an NDA, a prerequisite to sharing their rate card, until VMedia provided a TV channel-packaging plan with retail prices. This of course was impossible without the rate card. So VMedia went in circles with the VIE for over a year, trying to push negotiations forward while facing the same choice between hoping the eventual deal would come sooner cooperatively than through a more adversarial process before the CRTC.

99. Finally, a deal was completed, allowing VMedia to launch its brand, with both internet and TV, in April 2013, a year and a half after its initial request for services.

100. It should be noted that the VIE framework (which in 2001[26], after decades of prohibition, began to allow carriage services like cable and telecom incumbents to acquire content providers such as TVA, CTVGlobeMedia and CanWest), has greatly contributed to the suffocating consolidation of market power in the hands of VIE incumbents, and given them even greater leverage over ISPs, independent BDUs and independent programming services alike.

101. All of the VIE interactions with independent players are uneconomic, and the VIE content assets are not exploited through maximizing their distribution as widely as possible through any and all paying distribution platforms, but by keeping those assets exclusive to themselves as much as possible, to help drive their carriage businesses, in particular internet and mobile.

102. Efforts like the Wholesale Code and undue preference provisions in the regulations are intended to manage anti-competitive behavior, but again, accessing such relief is enormously time-consuming and grievously costly for independents. More importantly, there are no punitive measures to discourage anti-competitive behavior, so independents are victims of ongoing skirmishes, delays and even efforts to eliminate competitors entirely, in a deliberate strategy to exploit the existing framework to reduce or eliminate competition.

103. Incumbents are not deterred from employing business practices which contravene the spirit and at times the language to the Acts, and regulations, resulting in a moral hazard that unduly impedes competition. The delays suffered by VMedia, which cost it many hundreds of thousands of dollars in unfunded overhead and additional costs paid to intermediaries, as well as a year and a half of first mover advantage in its space, went unpunished, and VMedia had no recourse for damages under the current framework, assuming VMedia could even have afforded the considerable fees involved in taking on some of the biggest companies in Canada.

104. The relationship between incumbents and ISPs is grossly asymmetrical, highlighted by the irreducible fact that the supplier of all of the ISPs' goods and services is also a very deep-pocketed competitor that wants the ISP segment to disappear. This is not a complaint against the incumbents. They are acting with perfect economic logic, given the framework that defines the scope of its abilities to act.

105. It is the framework that must change. A process is required to provide a)expedited relief against any behavior by an incumbent that would not be reasonable for a bona fide supplier of goods and services acting in good faith with the intention of maximizing market revenues for those goods and services b) that costs of any process incurred by an ISP seeking to enforce its rights be borne by the incumbent

[26] Decision CRTC 2001-384

and c) that damages, both pecuniary and punitive, at the minimum sufficient to serve as a deterrent to such behavior, be payable by the incumbent.

Recommendation: VMedia, like all ISPs, has had experience with the Commission for Complaints for Telecom-Television Services ("CCTS"). The CCTS ensures that consumers have every opportunity, at no cost to them, to enforce their rights against telecom and television providers. It has extensive powers to investigate and adjudicate, and award damages. VMedia recommends a regime similar to the CCTS be created to adjudicated issues arising between ISPs and incumbents. This regime would provide, among other things:

a. for expedited relief against any behavior by an incumbent that would not be reasonable for a bona fide supplier of goods and services acting in good faith with the intention of maximizing market revenues for those goods and services;

b. that costs of any process incurred by an ISP seeking to enforce its rights be borne by the incumbent; and

c. that damages, both pecuniary and punitive, at the minimum sufficient to serve as a deterrent to such behavior, be payable by the incumbent.

Competition in Mobile Services

106. As shown above, there are currently no alternatives to the five mobile providers which dominate the market in Canada, 92% of which is shared among just three of them. While the Minister has made clear the Cabinet's desire for more competition in the market, including the development of a framework which would allow mobile virtual networks operators ("MVNOs"), which are non-facilities based competitors that are available in abundance in many markets around the world, including the US, no steps have yet been taken in that direction.

107. The creation of MVNOs would introduce the potential for a similar form of competitive service as that provided by ISPs in the case of fixed internet, but if the pricing model followed a similar approach as with ISPs, and incumbents were permitted to obstruct, delay and even attempt to eliminate the segment, once created, MVNOs would clearly face the same precarious future.

108. Absent any other option, MVNOs would still be beneficial to Canadian consumers, in the same way ISPs have been able to moderate incumbent retail prices and plans, including the elimination of usage caps, a benefit Canadian clearly have yet to enjoy in the case of mobile, as we have shown above.

109. Faced with the introduction of 5G, which promises to greatly expand the importance of mobile services in the lives of all Canadians, it is important to consider how that technology can, at its inception, be made available in such a way that Canadians can feel secure that they have abundant choices, fair prices, excellent service and practices that place the highest value on their privacy and safety. In VMedia's view, this can best be achieved through the creation of an independent wholesale 5G network.

The Need for a Third Party Wholesale Network

110. Many GHz of spectrum will be awarded for 5G mobile broadband services over the coming years, many times more than what has already been awarded since 1984, as regulators worldwide embark on a new wave of spectrum auctions focused on what is referred to as mid-band (e.g. 3.5 GHz) and mmWave spectrum bands.

111. For example, by year-end 2019, the FCC is expected to have awarded close to 5 GHz of new mobile broadband spectrum in each area across the USA. Canada will be doing the same albeit with a few years of delay based on current trends. In comparison, currently 632 MHz of commercial mobile spectrum has been awarded in total in Canada[27]. The next few years will see close to an eight- fold increase in spectrum to be awarded.

112. Given the current levels of competition, services and pricing for mobile services in Canada described above, VMedia urges the Canadian government to take the appropriate steps to ensure that this vast and valuable public resource – valuable not just economically but strategically, and crucial to enabling Canadians to innovate and compete globally - does not end up under the same dominant influence as we have demonstrated afflicts mobile services today.

113. It is an opportunity to ignite vibrant competition in wireless services, more investment by incumbents currently providing mobile services (mobile network operators or "MNOs") and other segments of the private sector in mobile broadband networks in Canada, and moving Canada from the bottom ranks of OECD nations to the top.

114. To this end, VMedia proposes that all future spectrum awards in Canada, starting with the award for 3.5 GHz spectrum, include a significant amount of spectrum reserved for one or multiple wholesale networks, owned by other than current mobile network operators. A proposal on how this could be achieved and the associated rules set is provided below.

[27] See details of commercial mobile spectrum awarded in Canada, ISED web site, https://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf11210.html.

The Concept in Context

115.The concept of independent third party mobile broadband networks is not new and is gaining traction as governments increasingly realize the urgency of ensuring that every one of their citizens have universal access to the best possible mobile connectivity as soon as possible.

116.In 2016, Mexico went ahead and established a process to award all of its 700 MHz spectrum to an independent third party, The Altan Consortium ("Altan"). The initiative is privately funded, and the member of Altan include the Morgan Stanley Infrastructure Group as well as Canada's own Caisse de dépôt et Placements du Québec (CDPQ), which holds a 12.68% stake.

117.Referred to as a carriers' carrier, Altan wholesales capacity to the various MNOs or other clients active in its market. The solution is a virtual structural separation of national wireless services, where all interested parties are encouraged to participate in the retail segment of the wireless industry and compete against eachother in offering Mexicans the best service possible. Altan was awarded a 20-year concession with an option to extend for an additional 20 years.[28] This network launched in March 2018.

118.More recently, the German ruling party has called for government action to ensure Germany can achieve "one of the best mobile phone networks in the world"[29] and maintain its economic leadership. Members of the government have proposed that the state itself should build mobile towers to ensure they are no areas without coverage and to force MNOs to fulfill their obligations because "Every radio hole is an absurdity in a high-tech country like Germany."[30]

Implementation Proposal

119.A significant portion of all upcoming spectrum awards should be reserved for independent third party 5G networks that would be required to offer wholesale services to anyone else including MNOs, MVNOs and other third parties. These new wholesale networks would also be able to offer retail services in their home areas to ensure it can have a successful business case.

120. The approach described below would not only accelerate the development of 5G networks everywhere across Canada but also, and most importantly, provide for an opportunity to deploy capital from new private sector sources, other than current MNOs who have not seen it to be in their best interest to deploy in rural and remote

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[28] "*Mexico Selects Winning Tender for National Wholesale Mobile Network"*, Julie Webber, November 18, 2016, Financial Times.

[29] "*German ruling party calls for state-owned infrastructure to push 5G networks*", January 4, 2019, Source: Xinhua

[30] "*5G-Netzausbau: Vom Staat statt per Provider*?", Computer Bild, January 3, 2019, and "*Wirtschaftsminister droht Mobilfunkanbietern mit Sanktionen*", Zeit Online, January 2, 2019

areas and to open up their networks to other innovators in terms of mobile broadband services.

121. We also highlight recent press coverage that the Canadian government is assessing options to bring private backers to help build better broadband connections in rural and remote areas. These high speed broadband "holes", even more pernicious than German radio ones, can be sealed with the third party wholesale network approach we describe, in a quick and efficient manner.[31]

122. VMedia does not advocate for a state-owned 5G network in Canada. Structural separation would be ideal, and while VMedia is strongly in favour of it, pragmatism reigns, and the focus should be on the doable. These examples however illustrate the hunger for new solutions to ensure that all citizens participate in the coming enhancements to the everyday lives of those fortunate enough to be connected to the best available services, and the game changers that developed and developing countries increasingly feel the need to introduce.

123. Given Canada's experience over the last 30 years, we respectfully submit that a different approach should also be part of ISED's plan to ensure 5G connectivity across Canada is achieved quickly, and that this approach should be the urgent creation of a framework for the development of independent 5G third party wholesale networks.

124. This new approach should be reflected in the new legislation by adding stimulating innovation in services and access to networks on reasonable terms as objectives of a new Telecom Act.

125. We propose that a minimum of 30-35% of all future spectrum awards in all bands starting in the 3.5 GHz band be awarded on this basis. These networks would then be only focused on providing wholesale services to any service provider within a given area for any kind of fixed or mobile 5G service. Ensuring access to multiple spectrum bands suitable for 5G would be a necessity to ensure a viable business case for these new networks.

126. Reserving 30% to 35% of all spectrum for new wholesale networks would ensure that one or more of the current MNOs would also need to access these wholesale networks in order to continue enhancing their service offerings, thereby ensuring future revenues for the wholesale network.

127. VMedia believes that is critical to start this process with the 3.5 GHz spectrum band owing to its propagation characteristics, of the order of a few Kms, compared to mmWave spectrum, with an expected typical range of less than 1 Km. The 3.5 GHz will be required for the wholesale networks to establish a good coverage base for local 5G services now and in the future.

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[31] "*Ottawa searching for private backers to fund broadband internet connections for rural and northern communities"*, Jordan Press, The Canadian Press, December 31, 2018 (published in The Star).

128. Award processes for wholesale networks should be conducted on a Tier 4 or Tier 5 basis to encourage local investment and innovation across all Canadian cities, large and small, as well as all rural and remote areas. Licensing should be done on a granular basis consistent with market requirements and the specific frequencies being licensed (e.g. very high frequencies provide limited geographic coverage and therefore can be licensed for very small areas). In the US, for example, the FCC has begun licensing frequencies for 5G on a county basis, of which there are over 3,000 across the country. Part of the objectives for licensing by county is to provide smaller and rural carriers with opportunities to fill “holes” in coverage areas not addressed by the large national carriers.

129. For the rural and remote areas, the many broadband funding initiatives introduced by ISED over the last 10 years or more provide ample demonstration that there are many types of companies, organizations, for profit or not, that are ready to build networks to ensure that their communities are served with better broadband services. We believe this continue to be encouraged to ensure that 5G services can be deployed in a timely manner everywhere and not only in urban areas.

130. The builders of these independent wholesale networks would need to be totally independent of any of the current MNOs operating in Canada. This would ensure that all Canadian and foreign innovators could get access to 5G networks on which to offer their services to the benefit of all, without risk of conflict of interest on the part of the wholesale network provider.

Ensuring Fair Pricing

131. The winning bidders in each region would be committed to aggressive build-out requirements with target deadlines after 3 years (e.g. 40% of population), after 5 years (60% of population) and after 10 years (e.g. 75% of population). Spectrum that would be still unused or not meet the 75% deployment requirement after 10 years would be returned to ISED for re-auction. This would ensure motivation to fill the pipes, and the only way that would be achieved would be with fair prices.

132. The licenses for this reserved spectrum should be awarded via a reverse auction process. This process would be separate from the auction for current MNOs in all future spectrum bands but should be conducted in parallel to ensure these wholesale networks can be deployed within a similar timeframe as the current MNOs.

133. The participants in the reverse auction would bid by committing to the lowest possible wholesale rate for mobile data, SMS and voice services across each service area they bid for. The starting point for bidding would be average of current tariffed roaming rates as provided by Canadian incumbents. Thus, in exchange for access to “free spectrum”, the winning organizations would be subjected to the obligation to provide wholesale services to anyone, without discrimination, and at

the lowest possible wholesale rates. Under such a framework, there would be no need for significant and constant regulatory intervention. The framework will regulate itself.

134. The winning organizations would be guaranteed to have non-discriminatory access to wholesale wireline services from all existing telecom carriers for its backhaul links and any interconnection requirements. In the context of the significant increases in access points which will be required for deployment of 5G in mmWave, government intervention may be required to ensure access to support structures as well as backhaul links if the current market for backhaul links, forborne from regulation, does not function satisfactorily. (This is a problem which ISPs will also face under the FTTP Access Policy, if it is implemented unamended).

135. For remote and rural areas, the winning consortium would have access to an initial network build-out subsidy up to pre-set percentage e.g. 50% of initial build out costs up, to a maximum amount per area. The rural and remote areas that include a subsidy in the maximum amount would be defined in advance of the reverse auction and be part of the information known to potential bidders.

136. The third party wholesale networks would be subject to the same wireless siting obligations as all MNOs and be able to co-locate with any other MNO.

137. The third party 5G wholesale networks would have equal access as that provided to current regional MNOs to roaming services from any of the current MNOs on terms and conditions that are identical to the tariffs put in place by the CRTC. The average of current tariffs would be a maximum price and lower prices could be offered by current MNOs. Current MNOs would also be required to wholesale international roaming services to the third party wholesale network operators at reasonable rates as well as terms and conditions.

Alternative Wholesale Network Solution

138. VMedia is not unaware of the scale of the changes proposed above. Any adoption of such a proposal by a government in Canada will be a result of a willingness to implement profound innovations to the manner in which wireless services are delivered to Canadians, and the assessment of the availability of the substantial financial resources from the private sector which would be required. These challenges have been understood and taken on, or are soon to be taken on, in other countries as shown above so it is not beyond our capabilities to do so.

139. However, the need for a change to the status quo is so profound that measures that are politically less challenging ought to also be considered. For this reason VMedia is proposing an alternative wholesale network approach that requires less innovation of the existing framework, and which may also satisfy the objectives outlined above.

A New Spectrum Set-Aside Approach

140. Consistent with a re-alignment of focus from promoting facilities-based competition to promoting competition, while still preserving incentives to invest in new infrastructure, ISED should consider changing the way spectrum set-asides work.

141. Today spectrum set asides exist to allow almost anyone other the three major MNOs that dominate the market, to bid on a portion of spectrum being auctioned off. The net result is a taxpayer gift to the strongest new entrants in each region of the country e.g., Shaw in BC, Alberta, and Southern Ontario, Videotron in Quebec, and Eastlink in the Maritime provinces, which can acquire spectrum at a lower price than the other incumbents that must compete openly for the remaining spectrum.

142. At some point, targeted taxpayer subsidies to those regional MNOs, to promote facilities-based competition by a fourth carrier, need to stop, and the focus needs to shift to promoting competition more broadly, with greater access to spectrum and networks made available to a wide range of potential retail service competitors. VMedia believes this can be achieved by the adoption of a new approach to spectrum set-asides.

143. Under this proposal, there should still be a spectrum set-aside, but with the following conditions:

a. Any carrier should be permitted to bid on the set-aside spectrum. This would still allow the government, and indirectly the Canadian public, to obtain top dollar for this valuable public resource;

b. The winning bidder(s) must use 50% of the set-aside spectrum for the provision of wholesale services to unaffiliated non-carriers (e.g., MVNOs) and carriers not otherwise operating in the Canadian wireless market as of the date of the license issuance (“new wireless carriers”);

c. The set-aside spectrum cannot be deployed unless it is deployed simultaneously for both the licensees own use, and for the use by wholesale customers (i.e., no head start);and

d. The spectrum licensee must abide by the rulings of a specialized tribunal appointed to resolve technical and commercial issues related to use of the spectrum by any such MVNO or new-wireless carrier, where the prime mandate of the tribunal would be the promotion of competition.

144. Ideally, the MVNOs and other new wireless carriers would want to access that portion of the licensees’ set-aside spectrum in a Multi-Operator Core Network (MOCN) configuration with aggregated access to the set-aside portion of the radio access network of the licensee.

145. While the price of such access may make it difficult for new operators and licensees of the set-aside spectrum to reach a wholesale agreement, ultimately the licensee would be faced with the need to get a deal done, or risk not being able to deploy the set-aside spectrum it acquired for its own purposes. This would help off-set some of the unequal bargaining power in a wholesale relationship.

146. There would not be any material disincentive to invest in facilities under this approach. A wireless carrier could decide it was uninterested in wholesale customers, and therefore just bid on that portion of the spectrum that is unencumbered. On the other hand, a carrier may see an opportunity to acquire spectrum where half is sufficient for its needs, and earn additional wholesale revenues. Such a carrier would still make the same decisions as to where and when to deploy with the only constraint being that when they deploy, they must do so with at least one unaffiliated new MVNO/wireless carrier, and not discriminate against any potential interested party.

147. A strong wireless carrier like a national MNO would have an incentive to acquire set-aside spectrum for its own use, and derive wholesale revenue from the remaining paid-for, but otherwise unusable portion of the set-aside spectrum. This may well result in a market approach similar to that of Sprint in the US which actively encourages and supports wholesale customers.

148. Such an approach would increase competition for services into the home while not deterring future investments in 5G wireless infrastructure.

Any Approach is Better For Canadians than The Status Quo

149. VMedia believes that the approaches proposed herein to ensure wider access to spectrum, and the wireless market, by competitors, facilities-based or otherwise, across Canada would be not only beneficial but critical to making 5G a success for consumers and businesses alike, and Canada a leader worldwide. In our preferred independent wholesale network approach, many large and small organizations, for example ISPs currently operating across Canada, could become acquirers of 5G spectrum, enhancing network investment as well as competition across Canada.

150. The proposed approaches would lower the barrier to entry for spectrum, enabling new players to actively participate in this market, in a model geared to generating virtually market-driven wholesale rates, reducing the need for constant monitoring by regulators.

151. This would ensure that the future 5G market in Canada is not totally controlled by the current oligopoly, a state of affair which is expected to occur if the Canadian government does not take corrective action as soon as possible.

152. In any event, whatever structural changes might be considered, VMedia strongly urges the immediate implementation of a wireless framework permitting MVNOs to offer the choices and fair prices that Canadians deserve. VMedia acknowledges that the cost study processes underpinning tariffs in the fixed broadband segment are problematic, as set out above, but the existence of ISPs under that framework have provided some benefits to Canadians, so that market differences between Canada and other countries, while still unjustifiable, are not as stark.

153. An MVNO framework, with the improvements to analogous processes suggested in connection with ISPs in this submission, would inevitably be to the benefit of Canadians, providing instant relief until a more comprehensive restructuring of the existing framework, in conjunction with the introduction of 5G, can be implemented.

This completes VMedia's comments. VMedia looks forward to the next stages of the Review process.

Schedule A

Plan	Usage	Wholesale Tariff	Carrier Regular Price	CBB Rate/100 Mbps	Wholesale Tariff + CBB / Customer	% of Carrier Retail Price
Rogers Ignite 30	250 GB	22.5	67.99	319.68	x.xx	x.xx
Rogers Ignite 60	Unlimited	28.65	85.99	319.68	x.xx	x.xx
Rogers Ignite 150	Unlimited	34.57	97.99	319.68	x.xx	x.xx
					x.xx	x.xx
Bell Fibe 25	Unlimited	24.57	84.95	149.08	x.xx	x.xx
Bell Fibe 50	Unlimited	24.57	99.95	149.08	x.xx	x.xx
Average						36.25%