

**BEFORE THE CANADIAN RADIO-TELEVISION
AND TELECOMMUNICATIONS COMMISSION**

TELECOM NOTICE OF CONSULTATION

CRTC 2019-57

**INTERVENTION OF
TNW WIRELESS INC.**

MAY 15, 2019

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1.0 EXECUTIVE SUMMARY

- ES-1. This intervention is submitted in response to the Canadian Radio-television and Telecommunications Commission (the “CRTC” or the “Commission”) in response to the Commission’s Notice of Consultation CRTC 2019-57 (the “Consultation”) regarding its review of mobile services in Canada.
- ES-2. TNW Wireless Inc. (“TNW Wireless”) is a licensed wireless operator and currently holds 25MHz bandwidth tier-2 850 MHz licences which provides service to certain areas in the Northwest region of British Columbia and parts of Yukon. Its licensed territory also includes the majority of the Alaska Highway.
- ES-3. TNW Wireless is a relatively new entrant to the Canadian wireless industry and is fairly small compared to national and regional wireless carriers. As such we believe that TNW Wireless is uniquely positioned to provide the Commission with valuable consultative input in this current process from the perspective of a small new entrant.
- ES-4. TNW Wireless is respectful of the Commission’s need to balance its objectives of creating a regulatory environment which creates an incentive for the national wireless carriers to invest in their networks with the objective of creating conditions for a sufficiently competitive market, which benefits Canadians as owners of the public airwaves.
- ES-5. TNW Wireless believes that there is a significant lack of competition in the Canadian wireless market due to the dominance of the national wireless carriers which control their national networks. This dominance has flourished under the current regulatory framework. A wholesale MVNO market has not developed as there is no incentive for the national wireless carriers to allow this to happen.
- ES-6. At the same time, the national wireless carriers have benefitted significantly from protection under the current regulatory framework. Their wireless profits, both in absolute terms and as a percentage of revenue continue to grow. Canadians, on the other hand, have not received any public dividend from profits accrued on their airwaves and continue to pay amongst the highest wireless rates in the world.
- ES-7. The national wireless carriers have relied on the current regulatory framework to restrict competition. This has occurred even where services are mandated under the current framework.
- ES-8. TNW Wireless supports the Commission’s position on facilities-based competition as a preferred structure for the Canadian wireless industry. The Company believes that the

Commission should establish a regulatory framework which would provide mandated wholesale MVNO access to facilities-based carriers, and that this would stimulate competition in the marketplace. We do not believe that an MVNO market will develop on its own under current conditions. However this should be balanced by requiring all wireless carriers to invest proportionally in Canada's wireless infrastructure.

ES-9. TNW Wireless does not believe that implementing mandated wholesale MVNO access under an appropriate framework will be a disincentive to investment by the national wireless carriers. We maintain that investment decisions are based on profit and that the carriers will continue to invest because it is very profitable to do so.

ES-10. Any new regulatory framework should include the use of alternative technologies such as Wi-Fi to deliver services. Wi-Fi is a ubiquitous and reliable technology which is ideal for static wireless requirements. Furthermore, it is currently being used extensively by the national carriers without restriction and this creates a tremendous imbalance in the delivery of services. This would allow the industry to focus mobile resources on mobile demands – where they are needed. This would also reduce the level of control exerted by the national wireless carriers in the market.

ES-11. The rollout of 5G services will be more than a technology upgrade. The increased number of applications that will depend on 5G will increase market size substantially. We believe this growth in demand will be the primary driver for investment in the rollout of 5G and that any implementation implantation of mandated wholesale MVNO access would have little if any effect on investment in this area.

2.0 REQUEST TO APPEAR AT PUBLIC HEARING

1. TNW Wireless Inc. (“TNW Wireless”) requests to appear at the public hearing regarding this Notice of Consultation.

3.0 INTRODUCTION

3.1 CRTC Notice of Consultation 2019-57

2. This intervention is submitted in response to the Canadian Radio-television and Telecommunications Commission (the “CRTC” or the “Commission”) in response to the Commission’s Notice of Consultation CRTC 2019-57 (the “Consultation”) regarding its review of mobile services in Canada.

3.2 Background of the Intervenor

3. TNW Wireless Inc. is a licensed wireless operator and currently holds 25MHz bandwidth tier-2 850 MHz licences which provides service to certain areas in the Northwest region of British Columbia and parts of Yukon. Its licensed territory also includes the majority of the Alaska Highway.
4. TNW operates its own tower/radio sites and its own core mobile network which provide service to its home public mobile network (“HPMN”). Services are currently provided on 3G for voice and data over circuit switch and packet switch system, UMTS 3G circuits and packets as well as a 4G/LTE data switch. TNW Wireless will soon operate its own 4G/LTE data over its LTE EPC core network.
5. TNW Wireless also has a licensing agreement to operate iPCS, a Smartphone-over-IP cloud spectrum technology to provide access to its HPMN and global communication services.
6. TNW Wireless is a relatively new entrant to the Canadian wireless industry and is fairly small compared to national and regional wireless carriers. The Company does not have a regulatory department nor does it maintain regulatory counsel on retainer. As such, the information that is contained in this intervention comes from Company management from our perspective both as entrepreneurs operating a smaller business and as people who have a firm belief that there is a significant role to be played by smaller carriers and that these smaller carriers can contribute significantly to the Canadian wireless landscape.
7. As the Commission is already aware from TNW Wireless’ Part 1 Application of July 3, 2017 (which ultimately resulted in Decision CRTC 2019-56), the company has a great

deal of highly relevant experience related to Canada's wireless regulatory framework and the difficulty in obtaining necessary services from national carriers, even when such services were deemed mandatory by the Commission, such as under CRTC 2015-177. The fact that TNW Wireless was required to seek relief through its Part 1 Application, resulting in a 2 year delay in even being able to start the process to obtain services is indicative itself of the power the national carriers hold, as well as their desire to restrict competition. It also supports the notion described in the Consultation documentation that there is not sufficient competition in the Canadian wireless market.

8. We also note that during the Part 1 process, while some smaller wireless providers supported our Application in principle, they could only do so tacitly as they were concerned that by stating public support for the Application, they would jeopardize their relationship with their current national provider(s). Whether this concern was justified or not, it is indicative of an unhealthy competitive environment.
9. As such we believe that TNW Wireless is uniquely positioned to provide the Commission with valuable consultative input in this current process from the perspective of a small new entrant. We recognize that our intervention is not likely to answer all the issues raised by our submission and that of others which is why we have requested to appear before the Commission at public hearings where we can provide a more interactive and fulsome contribution.

4.0 COMMENTS ON ISSUES IDENTIFIED IN THE NOTICE OF CONSULTATION: SETTING THE STAGE FOR A REGULATORY FRAMEWORK

4.1 Balancing Priorities

10. There is no debate as to the ultimate beneficiaries of public airwaves – the entirety of the communications spectrum is owned by Canadians, and is therefore intended to be for the benefit of Canadians. In the case of wireless services which derive from public airwaves, the Commission is tasked with the often conflicting situation of creating a regulatory environment which provides Canadians, with the best wireless service at the lowest cost, yet at the same time creating a regulatory framework which creates sufficient incentives for the private sector to invest long term in the provision of such services, i.e. but allows them to earn a reasonable profit.
11. The operative words here are “sufficient” and “reasonable”, and while no one would deny the national carriers in particular a reasonable or even “good” return on their investment, at some point where returns go beyond simply “good”, Canadians need to reap some **public dividend** from what is essentially the use of their assets, and companies need to

provide this to Canadians as the companies themselves benefit from the protection within this regulated environment.

12. It is our opinion, based on their behaviour and the ongoing goal of keeping competition to a minimum, that the national carriers are very protective of their enviable and very stable market position (90+ % for the 3 national carriers) and extraordinary and equally enviable return on investment (to be discussed later), they still fail to understand that the resource they utilize to generate revenue is a public trust and that the public has a stake in its utilization. In other words, the national carriers want all the benefits and protections of a regulatory environment when it is convenient, but do not acknowledge the inherent responsibility which allows them to prosper in that environment. One has only to look at the various requests and support for extensions related to this Consultation as clear indication that incumbents are preparing to launch a strong opposition to any changes to the regulatory framework which would increase competition in the industry.
13. In all fairness, Canadians seem to be satisfied with the overall *quality* of the wireless service they receive based on the Consultation interventions we have reviewed to date. But they are justifiably outraged at both the *cost* of services, the *flexibility* of services (ability to tailor to customer needs) and the sometimes questionable marketing of services – all of which they deem to be unfair and unresponsive to the desires of Canadians.
14. Given the high level of profits in the industry, these issues are clearly symptomatic of a fundamental lack of competition. This would seem a bit of an economic paradox since high profits coupled with multiple industry players would normally lead to downward price pressure. However, under the current regulatory framework, as the Commission has noted in the context of this Consultation, the usual market forces that would normally occur have not developed. We believe this is because the current regulatory environment favours the national carriers, with little incentive or regulation in place to allow competition to take hold.
15. Balancing the clearly conflicting priorities of multiple stakeholders is an unenviable task but we believe that balance is achievable at this stage of the industry's development. In this intervention, we will therefore convey to the Commission our sense of where that balance lies and how a change to the current framework would benefit our company and Canadians as owners of the airwaves, without creating a disincentive for investment in national and regional infrastructure by incumbents.

4.2 Market Dominance and Control of the National Network by the National Wireless Carriers

16. To their credit, the 3 national wireless carriers have built 3 robust and seemingly enviable national networks, largely due to the existing wireless regulatory framework. TNW Wireless is of the view that the Canadian market, due to its geographical expanse and low user density when compared to many other countries, can only support a limited number of national carriers, although it is beyond our ability to determine what that number is. In any event, it is unlikely that Canada will see the development of another national wireless carrier in the foreseeable future and so we need to deal with the current reality of a national oligopoly as if it will be in place for a while.
17. This oligopoly has resulted in a very strong state of dominance by the national carriers and TNW Wireless knows first-hand that such dominance allows the national carriers to be the gatekeepers in determining which companies can enter the industry and under what terms and conditions.
18. In CRTC 2015-177 the Commission established the basis for mandated wholesale access to national carrier networks. Yet even with this Decision in place and with its very clear directives to the national carriers, two of which TNW Wireless approached for access to mandated wholesale roaming, both refused to provide the service, and TNW Wireless was obliged to submit a Part 1 Application¹ to the Commission for them to comply with the Decision. While a component of the Application did deal with allowing TNW Wireless to provide part of its service via an alternative technology (which the Commission ultimately did not permit under the current regulatory framework), the two national carriers had refused to provide any wholesale roaming service even for traditional wireless technology.
19. Despite unusually vigorous opposition to the Application given the size of TNW Wireless, under its Decision CRTC 2019-56², the Commission did compel the national carriers to provide mandated wholesale roaming to TNW Wireless under traditional technology and did agree with our position that the national wireless carriers should not be the gatekeepers to the industry.
20. Nevertheless, it was just over two years from the time TNW Wireless initially requested mandated wholesale roaming services from the two carriers to the CRTC 2019-56

¹ <https://services.crtc.gc.ca/pub/TransferToWeb/2017/8620-R63-201705675.zip>

² <https://crtc.gc.ca/eng/archive/2019/2019-56.htm>

Decision. This is clear evidence of the dominance and control the national carriers have over the national network – even under a regulatory framework which provides for mandated service delivery.

21. The Commission noted in its Consultation documentation that the TNW Wireless Part 1 Application was one of two circumstances where it had to intervene and address disputes between a national carrier and a prospective MVNO (the other being Sugar Mobile Inc. which led to Decision CRTC 2017-57). It is clear therefore that competition is attempting to enter the Canadian market, but even with the best of intentions under the current regulatory framework, the national wireless carriers will always try to be the gatekeepers.
22. And therein lies the need for regulatory balance – the balance between creating a protected regulatory environment which promotes investment for a robust national network and a regulatory environment which truly mandates access to national networks (that cannot be challenged or procedurally delayed) and stimulates competition.
23. Such access however cannot simply be a free-for-all and we firmly believe that the right to access mandated services, even for smaller companies such as TNW Wireless, comes with a corresponding responsibility and that all wireless carriers need to contribute proportionately to the Canadian wireless infrastructure. This includes a proportional commitment to invest in infrastructure within a licensed territory
24. In paragraph 40 of the Consultation, the Commission states that it is of the view *that an appropriate mix of facilities-based and service-based competitors can and should exist in the market without specific regulations requiring their presence*. Based on our own experience and the well-documented behaviour of the national carriers, we believe that as long as they control the national network and remain the de facto gatekeepers to the industry there will not be true competition in Canada without a regulatory framework which supports non-dominant carriers – there is simply no incentive for the national carriers to provide service without mandating it. And certainly there will be no small players.

4.3 Profitability in the Industry as an Incentive for Investment

25. In Telecom Decision CRTC 2018-97, the Commission reconfirmed its long-standing position that facilities-based competition in the Canadian wireless market was, at least in the current environment, in the best interest of Canadian public policy. This position is supported by all the national wireless carriers, with the general consensus that facilities-

based competition enhances regulatory certainty which ultimately leads to incentives for capital investment in the national wireless infrastructure.

26. However the ultimate incentive for capital investment, regardless of industry sector, is return on that capital investment. In an unregulated environment, capital is driven in the direction of maximum return.
27. In the development of the Canadian Wireless industry, the Commission established a regulatory framework which was highly successful in creating conditions for the rapid growth of wireless services in the country, and as we have already noted, a very satisfactory quality of service as perceived by the market. This has occurred despite the rapidly evolving technology.
28. We expect that the incumbent carriers will rely heavily on this technological success as support for minimal changes to the existing regulatory framework, stating that they need incentives by way of regulation of competition and regulatory certainty to keep moving forward. However we have serious concerns that the term “regulatory certainty” will be used as a means of justifying *restrictive competition*.
29. However, as TNW Wireless has stated to the Commission on several occasions, the real incentive for companies to invest in their networks is profit, and the incumbent national wireless carriers do very well in that category. The 2017 Communications Monitoring Report³ shows that Bell Mobility, Telus Communications and Rogers Communications consistently hold approximately 90% of the market, and their relative market share has changed very little in the last few years despite the entry of regional and smaller wireless carriers. Furthermore, their respective public filings show that wireless service is their single most profitable product line.
30. There can be no more powerful incentive for investment than the profit accrued from that investment. The 2017 Communications Monitoring Report reported that investment in wireless infrastructure is quite significant, typically over \$2 billion per year. However the return on this investment is not only good, it is staggering by standards in any industry. The chart below is based on the 2017 Communications Monitoring Report and shows that the wireless industry EBITDA (earnings before interest, taxes, depreciation and amortization) is consistently over 40% and **trending upward**.

³ <https://crtc.gc.ca/eng/publications/reports/policymonitoring/2017/cmr5.htm#s55>

	Year		
	2014	2015	2016
Wireless Revenue (\$ billions)	22	23.6	24.4
EBITDA (\$ billions)	8.9	10.5	10.6
EBITDA (% Revenue)	40.6%	44.6%	43.4%
Investment (\$ billions)	2.3	2.1	2.3
EBITDA vs Investment	387%	500%	461%

The 2017 results for the industry may prove to be even better. The 2017 BCE Inc. (Bell Mobility Inc. parent company) annual report for example, shows an increase in wireless revenue of 10.1% and an increase in EBITDA of 9.1% from 2016. More importantly, the actual percent EBITDA related to wireless revenue grew from 42% in 2016 to **47.9% in 2017⁴**. This means for every dollar Bell charges its customer for wireless services, it makes a profit of nearly 48 cents.

Furthermore, the 2017 Communications Monitoring Report shows clearly that the larger the company, the higher the EBITDA, with small companies in the telecommunications sector typically accruing less than a third of EBITDA relative to large companies.

31. Therefore the national wireless carriers will continue to invest in wireless infrastructure because it is very profitable to do so. The incentive to invest is enhanced by the current industry structure of 3 dominant national wireless operators whereby investment in national infrastructure is necessary to maintain their respective competitive positions. For one national carrier to reduce its investment would be to cede its position with respect to the other two.
32. Furthermore, we believe that this incentive will be enhanced by the future implementation of 5G as 5G will significantly expand the market due to the potential new applications for the technology.
33. We therefore challenge the national wireless carriers to state categorically that they would reduce their investment in their national networks should competition be allowed to increase in Canada. We doubt their shareholders would react favourably to such a pronouncement.

⁴ BCE Inc. 2017 Annual Report, pages 49-51

34. At the same time, while reaping the reward of high profits, there has been no public dividend for Canadians, even though the Commission created the regulatory conditions in which these companies could prosper. Canadians have seen no significant relief from high pricing, unlike other countries which have seen a decrease in rates over time.
35. We therefore believe that the time is right for the Commission to de-emphasize (but not eliminate) investment incentives for the 3 national wireless carriers, and in any new framework, establish the conditions for smaller and mid-sized facilities-based competitors to also invest in the Canadian wireless network. This will create the competitive scenario which is sought by the Commission and the Canadian consumer.

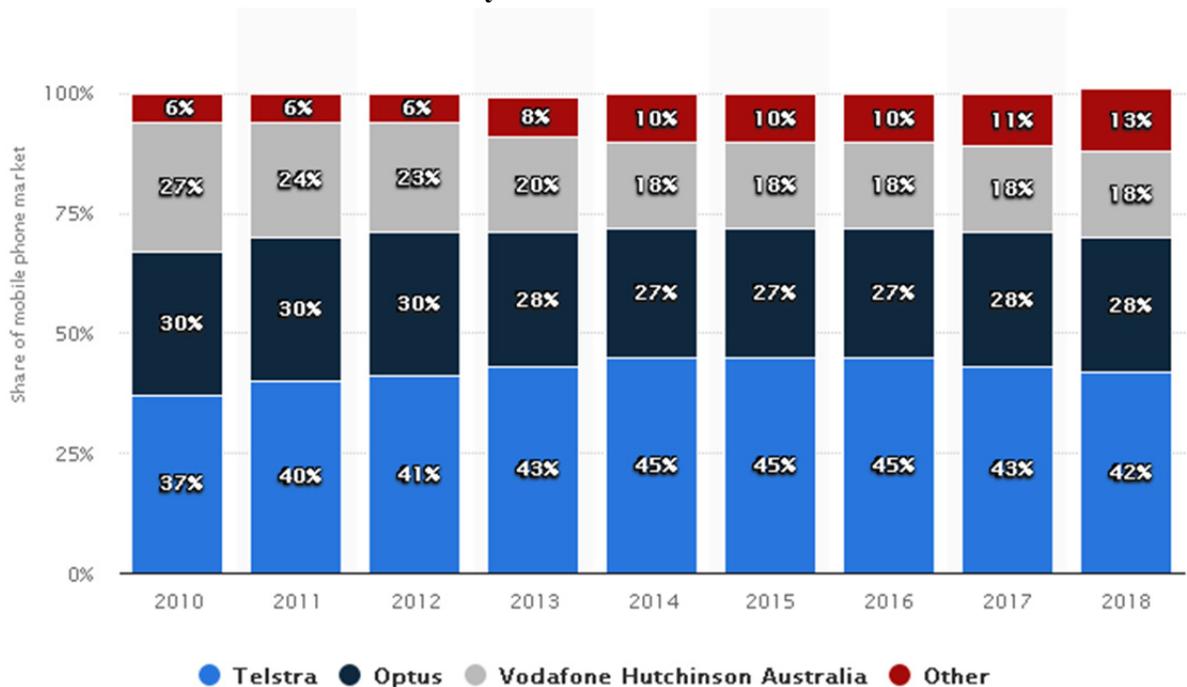
4.4 The Regulatory Framework and Market Concentration

36. In the Consultation the Commission notes that the 3 national wireless carriers hold 90% of the subscriber share with the remaining 10% divided amongst the other wireless carriers. The Commission further notes that retail market competition remains high “due in part to a series of acquisitions”.
37. We believe that it is important to recognize that acquisitions are not a contributing cause of concentration, but rather that acquisitions are an outcome of the current regulatory framework which promotes concentration and contributes to dominance in the national networks.
38. Given the imbalance in profitability and a regulatory framework that favours the national wireless carriers, market forces naturally have pushed towards a higher level of concentration through acquisition and less competition as many target companies were unprofitable or yielded returns that were much lower than the acquiring company – i.e. companies were not acquired because they were profitable, but because they were not.
39. Furthermore, the national wireless carriers are in a unique competitive position because they are the only companies that control the entire vertical structure of their operations and are the only companies that can operate unrestricted in all Canadian markets.
40. It is our opinion therefore that the regulatory status quo will maintain the high level of industry concentration.
41. Nevertheless, concentration in itself ought not to be the measure of industry competitiveness. Donald Armstrong, former Professor of Economics at McGill University long argued that industry structure in itself is not a measure of competition but

rather that competition should be measured by the actions of the industry and the ultimate benefit of the consumer.

42. Australia is often cited as a good comparison to Canada based on geographical expanse and population density. While we have not reviewed the regulatory framework in Australia, we were able to obtain information on industry concentration which shows that concentration of the top 3 providers is approximately 88% - similar to that of Canada.

Operators' market share of total mobile phone services in Australia from the financial years 2010 to 2018



© Statista 2019

However it does appear that the relative market shares of the top 3 players and the others has varied more over the years than in Canada indicating that there are some market forces at work. In fact a recent study released by ISED showed that subscribers in Sydney Australia on average paid one third the Canadian average for Level 4 service (2GB data)⁵

⁵ Price Comparisons of Wireline, Wireless and Internet Services in Canada and with Foreign Jurisdictions - 2018 Edition <http://www.ic.gc.ca/eic/site/693.nsf/eng/00169.html>

43. While a full review of the Australian market and related regulatory framework is beyond the scope of our intervention, we believed examples like this ought to be reviewed and considered by the Commission in its review and consideration.

4.5 The Role of ISED in the Industry: Spectrum Licensing versus Market Territoriality

44. Industry Science and Economic Development Canada (“ISED”) is amongst other things, the regulator for the licensing of spectrum in Canada. An ISED spectrum licence permits a licensee to use a specific frequency (or range) and bandwidth within a specified geographical contour and for a specific purpose.

45. In the case of GSM services, licences granted by ISED are for the use of a specific band and bandwidth within a specific geographical area/footprint.

46. TNW Wireless argued in its Part 1 Application that an ISED spectrum licence is a technical licence and that it is not a territorial marketing licence – i.e. it is solely a grant to operate radios for a specific purpose within a territory.

47. TNW Wireless further argued that this does in no way preclude other GSM-based service providers, even if they do not own licensed spectrum in that footprint, from providing GSM-based services if such services are provided without the use of licensed spectrum.

48. More importantly, TNW Wireless believes that in granting specific spectrum use, the licences are not a “permit” to exclude an operator from providing GSM-based services in any territory in Canada and that ISED spectrum licences are not territorial marketing licences as well.

49. We reiterate this point from our Part 1 Application as we believe that any reliance on ISED spectrum licences as the basis for determining where a company can market services should be put aside in any regulatory framework, as we believe this is fundamental to providing competition in Canada. To maintain this approach will mean that smaller providers will always be left with few business options and will this will ultimately lead to very few, if any, smaller players and the benefits they bring to the market and more concentration in the industry as a whole.

50. We are not aware of any regulated industry in Canada where this situation would arise.

5.0 ISSUES RAISED BY THE NOTICE OF CONSULTATION

5.1 Defining Competitive Markets

51. TNW Wireless believes that in order to have a meaningful review of competitive markets it is important to return to the concept of segregating a carrier's technical footprint (i.e. its ISED licensed spectrum geographic contour or technical footprint) from a market territory. We believe that the current framework which focusses on facilities-based competition seems to imply that a carrier's licensed spectrum territory also defines its limitations with respect to where it can market its services.
52. We believe that this notion is outdated and only benefits national carriers. Smaller companies like TNW Wireless need to be able to market services without geographical restriction and provide services via conventional and alternative means. Even if alternative delivery options are not permitted, the roaming restrictions that currently exist within the guidelines for mandated wholesale roaming agreements essentially establish market boundary limits for smaller companies, and so limit which geographic markets a smaller company can enter into.
53. From our perspective therefore, access to a geographical territory is more important than defining the specific market parameters – e.g. pre/postpaid, data, voice, etc., and we contend that universal market access for all facilities-based wireless carriers coupled with less restrictive mandated wholesale roaming will achieve the type of competition that the Commission is seeking.
54. As key indicators of competition, we believe that the Competition Bureau of Canada as a party to this Consultation is better positioned to comment on the best specific indicators. However as we have pointed out earlier, the Commission ought to look carefully at the relationship between retail pricing trends over time and pretax profit.

5.2 Competitiveness of the Mobiles Wireless Service Market

55. As stated earlier, we believe that in general Canadians seem satisfied with the technical delivery of wireless services but they are clearly not satisfied with the level of competition in the industry. This is reinforced as Canadians travel internationally; they are presented with more service provider options and lower cost wireless options than at home. This is reflected in many of the consumer interventions for the Consultation.
56. Based on publicly available data as well as anecdotally observed, our perception is that there has not been much change in competitive conditions in Canada; market shares have

changed very little, prices remain amongst the highest in the G7 and again from our own experience, it is hard to get into the market.

57. Furthermore, innovation (both technical and marketing), which is often the key to success in smaller businesses, is restricted under the current regulatory framework and therefore garners little reward. As such we do not foresee the level of competition changing in the future if the current framework remains in place as there is no incentive for such change.
58. Niche markets have not developed well under the current competitive environment. Niche strategies are often the purview of smaller companies which can identify and capitalize on niche markets which may be too small for national providers or less profitable. Allowing smaller players the opportunity to serve niche markets ought therefore to be considered.
59. Niche markets can be both at the retail and wholesale level. At a retail level for example, this could be services and plans customized to a very targeted market segment based on need. At a wholesale level it could be the investment in network infrastructure in underserved areas where the business case for larger companies may not be feasible. As an example, TNW Wireless has expensed considerable resources in the development of an implementation plan for the length of the Alaska Highway within its licensed spectrum. Provision of retail and wholesale services along this route makes business sense for the company and also a tangible example of how a smaller company can contribute to the development of the national network.

5.3 Regulatory Measures at the Retail Level

60. TNW Wireless fully supports the Wireless Code in its current form as well as mandatory participation in the Commission for Complaint for Telecom-television Services (“CCTS”). Our experience with CCTS has been good. We believe that it is a neutral body with the ability to fairly mediate disputes under a simple procedural process.
61. We believe that most if not all retail issues can be addressed within the Wireless Code and through the CCTS.
62. We refer the Commission however, to our previous points related to territoriality.

5.4 Regulatory Measures to Increase Competition

63. This is an area where we believe the Commission can have a significant impact and where market forces can do more for lowering prices than mandating the provision of

low-cost or “skinny” plans. Market forces through increased competition can better achieve optimal pricing versus an approach which targets a particular service delivery at a particular price.

64. From our perspective, the key is to allow facilities-based carriers such as TNW Wireless reasonably priced and predictable access to national networks through a renewed wholesale regulatory framework, along with the ability to utilize alternative network options such as Wi-Fi to deliver GSM-based services. While we will deal more fully with wholesale access in the next section, we would like to provide our opinion on Wi-Fi at this point.
65. Several decisions by the Commission over the last 3 years have excluded the use of Wi-Fi (typically public Wi-Fi) as a means of extending a licensed carrier’s home public mobile network (“HPMN”). From a policy perspective, the Commission was of the view that extending a home network through Wi-Fi would undermine policy objectives of mandated wholesale roaming by discouraging roaming customers from investing in their facilities.
66. The Commission also cited concerns over the use of Wi-Fi in general due to the inability of wireless service providers to assure end-users with availability, quality or reliability in any meaningful way.
67. We are of the firm belief that with the evolution of Wi-Fi, including significantly improved level of bandwidth and ubiquity of access, that this issue needs to be reassessed though this would need to include certain associated responsibilities (to be discussed in the following section). Furthermore, as evidenced extensively in our Part 1 Application, all Canadian wireless carriers already make significant use of public Wi-Fi in their service offerings, with several carriers actually defaulting to Wi-Fi calling when a phone is connected to Wi-Fi. As such Wi-Fi is already de facto part of the Canadian national network.
68. However to date, it is only national wireless carriers which have benefitted from Wi-Fi as a free way to offload network capacity and extend coverage. This has created a tremendous imbalance in the delivery of GSM services in favour of the national wireless carriers which can (and do) utilized Wi-Fi for the delivery of GSM services **without any technical or geographical restrictions** while at the same time, relying on the current regulatory framework to restrict the use of Wi-Fi by other carriers.
69. Subscribers do not get a monetary reward for accessing services through Wi-Fi – even though they may be paying for the underlying Internet connectivity. Nor do non-carrier

suppliers of public Wi-Fi (e.g. retail establishments, employers, friends, etc.) accrue any benefit by paying for a wireless carrier's provision of services through Wi-Fi.

“Offloading” network capacity to third party Wi-Fi providers without providing any benefit to other stakeholders is therefore more fittingly “freeloading” off others’ network capacity, with the cost reduction going straight to the bottom line of the wireless service provider.

70. From a competitive standpoint, the loosening of restrictions on the use of Wi-Fi would have a significant effect. First, we believe that it would reduce the stranglehold the national wireless providers have on the national network, thereby levelling some of the power imbalance in the industry. The dominance that the national wireless providers exert is based on the fact that there are no network alternatives and this contributes to the lack of competition. Competition will increase with an increase in network alternatives.
71. Second, Wi-Fi without a doubt has lower operating costs than access through licensed spectrum. There is no need to use more expensive and more limited spectrum resources when Wi-Fi is cheaper and equally reliable. However this must be available to all licensed wireless carriers equally.
72. From an investment perspective, we believe that the Commission’s concern that increased use of Wi-Fi will discourage investment in a carrier’s network facilities can be allayed. Rather than discouraging investment, we believe that Wi-Fi will simply redirect network investment where it is most needed and where it will be of the most use i.e. for truly mobile needs.
73. As such, mobile services and limited licensed spectrum resources should focus on mobile needs. If the needs of a user are static, then these needs can be better serviced through static technology options and cheaper resources such as Wi-Fi.
74. In a scenario of access to services through Wi-Fi, it should be the subscriber who should decide how to receive their wireless services based on their desired mix of access, cost and reliability.
75. Consumers should have the choice of the technology they use when alternatives are available.

5.5 Wholesale Regulatory Framework and Competition

76. The retail sale of wireless services is fairly unique as a business as the ability to sell such services requires that the provider offer national coverage to its clients (for the vast

majority of its clients), and so for non-national carriers, agreements with national service providers are a mandatory prerequisite for any business plan. Without these agreements, a wireless carrier is limited to providing service only within its licensed spectrum area. For a company like TNW Wireless, without a national roaming agreement, it would be difficult to attract customers in, for example, Haida Gwaii, British Columbia, if they could not use the service in Vancouver.

77. While the Commission has put some measures in place to mitigate this issue such as mandated wholesale access, these are still fairly restrictive and as we have shown, the national wireless carriers still have the ability to restrict or delay access to mandated roaming. Furthermore, under mandated wholesale access, the national wireless carriers still have the ability to set unreasonable contract conditions within the agreements which have the same effect as refusing to provide service (yet still appearing to comply with the regulatory framework).
78. The Commission has acknowledged in its background to the Consultation that despite the measures in place, the state of competition in the Canadian wireless market has not developed sufficiently to the benefit of the Canadian consumer. It also acknowledged that a sustainable MVNO market has failed to develop.
79. TNW Wireless is of the firm opinion that under current regulatory framework, there will be little or no change to the state of competition in Canada. Understandably, the national carriers will not allow this to happen, particularly with respect to the development of an MVNO market, as it is not in their best interest. The current framework assumes that some market forces will take hold to create competition, but as TNW Wireless knows first-hand, the framework is instead being used by the national wireless carriers to support their market position.
80. Returning to our position regarding territoriality, if sustainable competition is to thrive in Canada, then any future regulatory framework must acknowledge that an ISED licensed spectrum territory should not form the basis for a wireless carrier's marketing territory. Furthermore, as long as there are only 3 national wireless carriers which ultimately benefit from the regulatory environment they operate in, any new regulatory framework needs to modify mandated wholesale roaming to provide less restrictive access to the national network.
81. Furthermore, as noted in the previous section, in order to reduce the dominant position of the national carriers, reduce cost and increase reach, the use of Wi-Fi should be included in regulatory framework.

5.6 Technological Developments which would Require Changes to Wholesale Roaming Policy

82. Based on TNW Wireless' experience, we believe that the current wholesale roaming policy is not sufficiently responsive to technological developments. This contributes in part to the lack of real competition in the industry.
83. In its Part 1 Application, TNW Wireless proposed the market introduction of iPCS, a Smartphone-over-IP technology which was developed in-house as an innovative and inexpensive way of providing GSM services to its subscribers. This IP-only technology operates seamlessly to and from 4G/LTE and Wi-Fi. Furthermore, while on Wi-Fi, it disconnects from any visited public mobile network ("VPMN") and as such on Wi-Fi does not roam on any visited network.
84. A very in-depth technical explanation of iPCS was provided in TNW Wireless' Application, as was TNW Wireless' position that the technology was compliant under the current regulatory framework as it had been developed as a compliant technology with the Company's understanding of the existing regulations.
85. While the Commission did not comment on iPCS in general as a means of delivering GSM services, it did deny TNW Wireless access to mandated wholesale roaming citing its policy that Wi-Fi could not be used to "extend" a wireless carrier's HPMN. TNW Wireless had argued that under Wi-Fi, iPCS did not extend its HPMN but rather "remotely accessed" its HPMN. Furthermore, TNW Wireless argued that iPCS' ability to disconnect from any VPMN while on Wi-Fi minimized any potential use of a VPMN as most wireless subscribers are connected to Wi-Fi during a large portion of the day. This supports our position that static resources should be available for static usage.
86. We believe this is a good example where the incentive to innovate is hindered by regulatory policy.
87. National and regional wireless carriers argued strongly against iPCS and for the need for "regulatory certainty". However we continue to argue that their call for regulatory certainty should not be an excuse to deny the benefits of innovation and technological change just to maintain the current state of competition.
88. Regulatory certainty should simply mean that the rules of the game are clear and the application of the rules is predictable and as intended.

89. Wireless subscribers therefore ought to be able to choose the mode or modes of service delivery just as television subscribers can choose to receive service over cable, fibre, any number of Internet options, or even over-the-air.
90. In a truly competitive environment, it would be our job to convince subscribers to use our technology and we believe that consumers are savvy enough to make this type of decision.
91. We therefore propose that changes need to be made to the current wholesale roaming policy, which recognizes that technology is changing and will continue to change. The policy needs to be less restrictive and less open to interpretation.

5.7 Mandating National Wholesale MVNO Service

92. In this intervention, we have stressed that the national wireless carriers need to recognize their responsibilities associated with the protection they receive in a regulated environment. We are of the firm belief that the recognition of responsibilities need also apply to all wireless service providers and be mandated as such.
93. All wireless service providers need therefore to contribute to the development of the Canadian national wireless infrastructure in a manner proportional to their size. While the determination of a *pari passu* contribution to Canadian infrastructure is a bit daunting and beyond our ability to detail, the principle behind this is quite important as it addresses much of the Commission's concern regarding investment.
94. As TNW Wireless supports the Commission's view on facilities-based competition, at a minimum any carrier wishing to access mandated wholesale roaming should have licensed spectrum (thereby proportionately supporting ISED spectrum management), a core network, and be required to maintain their ISED conditions of licence, particularly related to percent of population served within a licensed area.
95. TNW Wireless for its part has made its intentions clear to the Commission as part of its Part 1 Application that it intends to invest beyond meeting its minimum conditions of licence in areas within its licensed territory, which it has deemed currently underserved. In the coming months, the Company will further announce some innovative approaches it has developed as part of its support of the Canadian wireless infrastructure.
96. As such we do not believe at this point in time that non-facilities-based service providers ought to have access to mandated national roaming. Even if the Commission saw fit to tax these types of companies as a means of "contribution", this would certainly create the

disincentive for facilities-based competition, which the Commission is trying to avoid. Furthermore, the Commission would be placed in the position of determining how such tax revenue would be used, which we believe is not the best use of its resources.

97. As true facilities-based competition develops, the value of non-facilities-based providers could be revisited.
98. With respect to different regulatory requirements for wholesale MVNO service based on geography, TNW Wireless believes that this is an area that is better established through normal market forces and that demand for MVNO services will necessarily gravitate as necessary to geographical areas of least competition and higher prices.
99. With respect to mandatory MVNO access by other wireless carriers, TNW Wireless feels that this is reasonable (within reasonable limits) and the Company itself would have no objection to providing such service.

5.8 Conditions for Regulated Wholesale MVNO Access

100. As an overriding principle, for a company like TNW Wireless, conditions for wholesale MVNO need to be;
 - Clear
 - Unambiguous
 - Executable within established timelines and,
 - Not subject to arbitrary or potentially exclusionary conditions
101. The Commission might even consider a standardized agreement for smaller companies.
102. This is all important for all the reasons already stated i.e. that smaller companies have no market power in this instance.

5.9 Setting a Wholesale Rate for MVNO Access

103. TNW believes that at this point in time, the Commission needs to establish an economically realistic ceiling rate for wholesale MVNO access which provides the service provider with a reasonable return on cost. We do not believe that smaller companies will be able to negotiate a reasonable rate given the lack of service provider options.
104. Furthermore, this rate needs to be protected from predatory pricing service providers e.g. the service providers should not be able to offer rates for its retail customers that are lower than wholesale rates.

105. A good level of predictability for smaller companies is as important as regulatory certainty is to the national wireless carriers. As such, some level of reserved capacity for wholesale MVNO access has to be a necessary component of any new regulatory framework. How this level would be determined and how it would be allocated amongst the various MVNOs is a difficult question. Although we doubt that TNW Wireless would make much of a dent in a national wireless provider's network, collectively Canadian MVNO's might have some impact. We simply do not have the answer to this at this time.
106. However there are possible considerations the Commission might want to examine. The first is to establish a target level of market concentration (perhaps with the input of the Competition Bureau) that the Commission would see as optimal (optimal being a level which maintains the robustness of 3 national networks). Reserve capacity would be a function of the difference between current market concentration and desired concentration (much like inflation targeting used by the Bank of Canada). This could be reviewed and adjusted on a regular basis and certainly if the demand is not there, the national wireless carriers should not have to keep the reserve.
107. Returning to the issue of Wi-Fi, presumably the increased use of Wi-Fi under a revised regulatory framework would reduce the need for reserve capacity.

5.10 Phasing out Mandated MVNO Access

108. We believe that it is premature to establish a formal phase-out of mandated MVNO access. Certainly the concept of a fixed date phase-out is problematic as no one at this point has a good grasp of how the market would evolve with a change in the regulatory framework.
109. Similarly, establishing specific market parameters for a phase-out is also difficult because it would be difficult to determine whether or not the market would simply return to its former state.
110. We are of the belief that as long as a significant power imbalance exists, supported by regulatory protection, robust competition will be difficult to achieve without a framework in place to support said competition. However, if future market conditions change – such as more technological alternatives, perhaps another national wireless service provider, i.e. any situations where there is the potential to shift the dynamics of the imbalance, then we would consider these conditions as appropriate for a phase-out or adjustment of the regulatory framework.

6.0 THE FUTURE OF WIRELESS SERVICES IN CANADA

6.1 General Comments on Impact of 5G on Investment

111. Without question, the rollout and eventual ubiquity of 5G services will have a profound impact on the lives of Canadians at a level not seen since the mass availability of the Internet. And unlike the most technological advances in communication technology seen over the last few years, because of its ability to become the underlying technology enabler of a multitude of new applications, 5G has the ability to expand the telecommunications market to a level that we believe cannot yet be quantified.
112. This has important implications when assessing a new regulatory framework. We believe that investment decisions in 5G are being driven and will continue to be driven by the belief that under a 5G environment the wireless telecommunications market will expand massively and perhaps even exponentially in the initial years.
113. As such we do not believe that the investment decisions and particularly the investment decisions of the national wireless carriers will change in any way as a result of changes to the current regulatory framework, which would provide mandated wholesale MVNO access to facilities-based wireless carriers. The potential 5G market is too lucrative for them to hold back infrastructure investment.
114. As an underlying technology which removes a number of telecommunications' technical limits, 5G will be a significant enabler for innovation. As such, in addition to the growth in the telecommunications market itself, the development of value added to applications and services has the potential to generate significant wealth for the Canadian economy.
115. Nevertheless, from a wholesale roaming regulatory perspective, 5G ought not to be treated differently than any other current technology. To do so would be to create 2 tiers of service providers, which we do not believe to be the Commission's intent, particularly with respect to creating a more competitive market.

7.0 CONCLUSIONS

116. TNW Wireless believes that there is not sufficient competition in the Canadian wireless industry and that the current regulatory framework does not promote the level of competition the Commission would like to see.

117. The dominance of the 3 national wireless carriers and the inability to reasonably negotiate wholesale MVNO access under the current framework is a primary contributor to this situation.
118. While we recognize the Commission's concern regarding incentives needed to promote investment in the national network by the national carriers, we believe that the current regulatory framework discourages competition and promotes concentration as it is difficult if not impossible for smaller companies to obtain wholesale MVNO access.
119. We maintain that mandated access to wholesale MVNO will not discourage investment by the national wireless carriers. Instead we believe that investment is driven and will continue to be driven by above average returns on investment.
120. TNW Wireless would favour a regulatory framework that provides mandated wholesale MVNO access to all facilities-based wireless carriers, and such framework should include an economically viable and predictable cost structure.
121. Carriers accessing mandated wholesale MVNO services should be required to contribute proportionately to the national wireless infrastructure.
122. TNW Wireless believes that facilities-based wireless carriers should be able to use Wi-Fi for the delivery of wireless services without restriction.

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