

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

IN THE MATTER OF

AN APPLICATION BY TNW WIRELESS INC.

(APPLICANT)

**PURSUANT TO THE PART 1 OF THE *CANADIAN RADIO-TELEVISION AND
TELECOMMUNICATIONS COMMISSION* RULES OF PRACTICE AND PROCEDURE
AND SECTIONS 24, 25, 32, 47, 55, AND 61 OF THE *TELECOMMUNICAIONS ACT***

DIRECTED TO

BELL MOBILITY INC.

AND

TELUS COMMUNICATIONS COMPANY

(RESPONDENTS)

**RELATING TO BELL MOBILITY INC. AND TELUS COMMUNICATIONS
COMPANY REFUSAL TO PROVIDE TNW WIRELESS INC. WITH MANDATORY
WHOLESALE ROAMING AGREEMENTS REQUIRED UNDER TELECOM
REGULATORY POLICY CRTC 2015-177 AND AS SPECIFIED IN THEIR CARRIER
ACCESS TARIFFS, CRTC 15011 ITEM 100 AND CRTC 21642, ITEM 233
RESPECTIVELY**

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1.0 INTRODUCTION AND REQUESET FOR RELIEF	6
1.1 The Application and the confidentiality claim.....	6
1.2 Rationale for the Application	6
1.3 Relief requested.....	10
1.3.1 Final relief.....	10
1.4 Structure of the Application	11
2.0 BACKGROUND TO THE DISPUTE.....	11
3.0 BELL AND TELUS HAVE NO LEGAL BASIS FOR REFUSING TO PROVIDE TNW WITH ROAMING AGREEMENTS	13
3.1 Base telecommunications policy	13
3.2 Reasons Bell has given for refusal to provide a roaming agreement	14
3.3 Bell has failed to demonstrate any legal basis for refusing to provide TNW a roaming agreement	15
3.4 Reasons Telus has given for refusal to provide a roaming agreement.....	16
4.0 IPCS TECHNOLOGY IS FULLY COMPLIANT WITH CRTC 2017-56.....	17
4.1 General description of iPCS technology	17
4.2 Ensuring incidental roaming	19
5.0 INDUSTRY AND COMPETITIVE ISSUES.....	20
5.1 The competitive landscape in the Canadian wireless market.....	20
5.2 TNW’s iPCS is a technology which is not only compliant with current regulations but operates on a fair competitive basis	22
5.3 iPCS and E911	24

6.0	TNW MEETS THE TEST FOR INTERIM RELIEF	26
6.1	There are serious issues to be determined.....	26
6.2	TNW will suffer irreparable harm if the interim relief is not granted.....	27
6.3	The balance of convenience favours TNW	27
7.0	RELIEF SOUGHT PROMOTES THE TELECOMMUNICATIONS POLICY OBJECTIVES AND IS CONSISTENT WITH POLICY DIRECTION	28
7.1	The relief sought is consistent with the Policy Direction.....	30
8.0	CONCLUSION.....	31
9.0	LIST OF PARTIES SERVED	31
10.0	NOTICE.....	31
Schedule 1		
	iPCS Smartphone-over-IP Cloud Spectrum.....	33

EXECUTIVE SUMMARY

- ES-1. This Part 1 Application is being brought on behalf of TNW Wireless Inc. (“TNW”). Any capitalized or shorthand terms not defined in this Executive Summary are defined in the balance of the Application.
- ES-2. TNW Wireless Inc. (formerly known as RuralCom Corporation “RuralCom”) is a licensed wireless operator offering wholesale and retail service in Canada. The company currently holds 25MHz bandwidth tier-2 850 MHz licenses which provide 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 also provides access to its Home Public Mobile Network (“HPMN”) and global communication services through a licensing agreement to operate iPCS, a Smartphone-over-IP technology. iPCS uses cloud spectrum and works seamlessly between Wi-Fi and 4G/LTE. The technical details of iPCS are provided in Section 4.0 of the Application.
- ES-4. It is TNW’s contention that TNW’s service offerings whether to its subscribers through traditional means as defined in this Application or through iPCS are fully compliant with the recent decision by the Commission in Telecom Decision CRTC 2017-56 (“CRTC 2017-56”)¹ as the underlying technologies allow only for incidental roaming on a Visited Public Mobile Network (“VPMN”) as defined by Telecom Regulatory Policy CRTC 2015-177 (“CRTC 2015-177”)² and do not allow for incidences of “permanent roaming” via permanent access to a roaming partner network.
- ES-5. Under CRTC 2015-177, the incumbent carriers are required to provide roaming access to their respective networks via Wholesale Roaming Agreements under their respective Carrier Access Tariffs as filed with the Commission.
- ES-6. On January 16, 2017, TNW requested in writing, Wholesale Roaming Agreements as contemplated in CRTC 2015-177 with both Bell Mobility Inc. (“Bell”) and Telus Communications Company (“Telus”).
- ES-7. Both Bell and Telus have to date refused to provide TNW with a Wholesale Roaming Agreement regardless of whether TNW’s service is provided to subscribers in a traditional manner or through iPCS, both citing the potential misuse of a roaming agreement to allow permanent access to their respective networks.

¹ Wholesale mobile wireless roaming service tariffs – Final terms and conditions, CRTC March 1, 2017

² Regulatory framework for wholesale mobile wireless services, CRTC May 5, 2015

- ES-8. TNW has provided both Bell and Telus all the technical information they have requested including a complete technical description of its traditional and iPCS service offering including support that neither can allow for permanent access to a roaming partner network. iPCS for example, disables the International Mobile Subscriber Identification code (IMSI) in its UICC SIM card module which then in turn disables the user's smartphone device 3GPP radio and stops emitting any electromagnetic frequency on any licensed spectrum. Therefore the device cannot be connected to another operator's PMN while it is connected to the TNW's own Public Mobile Network ("PMN") remotely. If there is no connection to a roaming partner PMN, there can be no roaming. To suggest otherwise would be to mandate that roaming is based on the location of the device rather than network access which is impossible given that more than one potential roaming partner can provide service in the same location.
- ES-9. In addition to dedicated usage of TNW's PMN, all voice calls and text messaging use TNW licensed spectrum at all times.
- ES-10. Canadian public policy supports the notion of wide access to mobile services. Bell and Telus service does not reach 100% of the Canadian population. Remote regions in Canada and even areas within urban centres there (inside some buildings, basements, for example) have poor or no reception yet may have access to a Wi-Fi signal. In these circumstances subscribers should not be deprived of mobile services where they can easily be provided.
- ES-11. It is therefore TNW's position that its service offerings comply with all of the Commissions current decisions and regulations and that Bell and Telus should provide TNW with Wholesale Roaming Agreements. Bell and Telus cannot refuse to provide these agreements based on their unilateral or collective determination of compliance and more importantly, hypothetical misuse that has not even occurred. TNW applied for wholesale roaming agreements with Bell and Telus on January 16, 2017. The completion of this process is long overdue as per CRTC directives and those of the Ministry of Innovation, Science and Economic Development ("ISED") Client Procedures Circulars (CPC)-2-0-17 - Conditions of License for Mandatory Roaming Furthermore TNW believes that the Bell and Telus position is more related to competition rather than compliance.
- ES-12. Small wireless carriers cannot properly compete in the marketplace without Wholesale Roaming Agreements which is why the Commission has developed its regulatory framework for wholesale mobile services. Without Wholesale Roaming Agreements, spectrum licenses in limited geographical areas have little value.

ES-13. Under CRTC 2017-56 Commission has determined that incumbents cannot include certain restrictive conditions in their Wholesale Roaming Agreements as this would limit competition. By extension, just because they cannot put such restrictions in their agreements does not mean incumbents should be able deny providing Wholesale Roaming Agreements in the first place using criteria they cannot put in a contract.

ES-14. Canadians continue to pay amongst the highest cost for mobile services in the G7, generally due to lack of competition in the industry. TNW recognizes and supports the requirement to set some balance in the competitive landscape for mobile service – a balance which takes into account the need to have incentives in place that encourage investment in infrastructure within an environment that encourages fair competition. However the Canadian competitive environment has to encourage investment and innovation at all levels and as such all innovators such as TNW need to have the opportunity to benefit from their investment and innovations and by extension the opportunity to benefit Canadians.

ES-15. On June 5, 2017, the Honourable Minister of Innovation, Science and Economic Development, Navdeep Bains announced measures to advance telecommunication services in Canada. In his announcement he stated;

At a time when middle-class Canadians are concerned about the rising cost of these services, the Government will encourage more private sector competition and investment in services that have become essential in a digital economy.

ES-16. The Minister’s message went on to emphasize amongst other things that wireless providers need to provide more options for Canadians at better price points for wireless services. He also directed the Commission to;

. . . reconsider a recent decision to exclude Wi-Fi-based service providers from access to roaming services. This action could potentially open the door to companies that use innovative solutions to provide Canadians with more affordable wireless service options.

ES-17. TNW believes that its approach request for relief as detailed in this Application, in addition to being fair and fully compliant, supports and furthers the Commission’s Policy Direction, the objectives of ISED’s direction to advance telecommunication services in Canada and is ultimately to the benefit of Canadians who should not be deprived of innovative technology

ES-18. As such TNW is seeking interim relief on an expedited basis to have the Commission compel Bell and Telus to provide in good faith and on economic terms, Wholesale Roaming Agreements as per their respective Carrier Access Tariffs including all necessary interconnection processes and guidelines as set out by the GSM Association Permanent References with Syniverse Technologies (“Syniverse”) within 30 days of the delivery of the Wholesale Roaming Agreements and in the interim, the ability to use iPCS technology until such time as it rules on final relief.

ES-19. TNW requests that the following final relief from the Commission:

- a. TNW requests that the Commission direct both Bell and Telus to provide TNW in good faith with Wholesale Roaming Agreements as per their respective Carrier Access Tariffs under reasonable economic terms and that the Commission direct both Bell and Telus to proceed with all necessary interconnection processes and guidelines as set out by the GSM Association Permanent References and to complete the interconnection through Syniverse’s facilities no more than 30 days after the delivery of the Wholesale Roaming Agreement.
- b. TNW requests that within the Wholesale Roaming Agreements, the Commission direct Bell and Telus not to make as pre-conditions to an agreement inclusions of clauses and components or even discussions regarding specific contract items as already ruled to be excluded from their tariffs in CRTC 2017-56 such as identified in paragraphs 55, 75 and 106 of the Decision.
- c. Further to 21 b. TNW requests that the Commission direct Bell and Telus not to refuse to provide Wholesale Roaming Agreements on the basis of any perceived misuse they deem may occur.
- d. TNW requests that the Commission review its iPCS technology for compliance with CRTC 2017-56 and a determination that the use of iPCS while on Wi-Fi using Wi-Node cannot be deemed roaming.

ES-20. TNW is of the opinion that it has met the Commission’s test for interim relief and that the balance of convenience favours granting of interim relief sought in this Application. By granting interim relief, Bell Telus will only be compelled to meet their regulatory obligations. They will be paid for their services and no permanent roaming can occur based on any of TNW’s service offerings. On the other hand, TNW is severely prejudiced by not being able to execute on its business plan if it cannot offer coverage based on incidental roaming and its investment including its annual license fee to ISED depreciates daily and cannot be recovered.

ES-21. Furthermore, public policy, government policy and service to Canadians favours the granting of interim relief.

1.0 INTRODUCTION AND REQUESET FOR RELIEF

1.1 The Application and the confidentiality claim

1. TNW Wireless Inc. (“TNW”) is bringing this application (“Application”) on behalf of itself pursuant to Part 1 of the *Canadian Radio-television and Telecommunications Commission Rules of Practice and Procedure*³ (“Rules) and sections 24, 25, 32, 47, 55, and 61 of the *Telecommunications Act* (“Act”)⁴.
2. Unless otherwise specified, nothing contained in this Application and any attachments are confidential.

1.2 Rationale for the Application

3. TNW Wireless Inc. (formerly known as *RuralCom Corporation* “RuralCom”) is a licensed wireless operator offering wholesale and retail service in Canada. The company currently holds 25MHz bandwidth tier-2 850 MHz licenses which provide 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 will operate its own 4G/LTE data over its LTE EPC core network.
5. TNW also provides access to its HPMN and global communication services through a licensing agreement to operate iPCS, a Smartphone-over-IP cloud spectrum technology. The technical details of iPCS are provided in Section 4.0 of the Application.
6. Both TNW’s traditional mobile offering and iPCS are fully compliant with CRTC 2017-56 and the inherent technologies allow only for incidental roaming on a visited public mobile network (“VPMN”) as defined by Telecom Regulatory Policy CRTC 2015-177 and do not allow for incidences of “permanent roaming”.
7. In order to be commercially viable, TNW requires roaming agreements from Bell Mobility Inc. (“Bell”) and Telus Communications Company (“Telus”) as mandated in CRTC 2015-177 (the “Roaming Agreement(s)”) and are a condition of license under ISED Client Procedures Circulars (CPC)-2-0-17- Conditions of License for Mandatory

³ SOR/2010-277, 30 November 2010 [“Rules”].

⁴ S.C 1993, c.38 [“Act”]

Roaming⁵. TNW meets all the criteria to obtain the mandatory Wholesale Roaming Agreements from Bell and Telus.

8. On January 16, 2017, TNW (at the time known as RuralCom) wrote to Bell to request a Wholesale Roaming Agreement under Bell's Access Service Tariff (CRTC 15011 Item 100). Bell was required to respond and provide TNW with a Preliminary Information Package ("PIP") within 2 weeks. Having received no response, TNW sent Bell a follow up letter on March 1, 2017. On April 7, 2017, nearly 3 months after the original request, meeting was held between Bell and TNW management to discuss a Wholesale Roaming Agreement. On April 13, 2017, TNW did receive from Bell a PIP.
9. On April 18, 2017, TNW provided Bell with a full proposal for a Wholesale Roaming Agreement including a proposed domestic roaming agreement conforming to GSM Association ("GSMA") AA12, GSMA Common Annexes AA13, an Inter-Operator Tariff ("IOT") and a Non-Disclosure Agreement ("NDA"). The proposal confirmed that TNW's overriding principle is to conform to all CRTC regulations currently in place, including CRTC 2017-56 and any other applicable regulations or decisions that might be rendered by the Commission in the future.
10. On May 11, 2017 Bell responded to the TNW proposal by refusing TNW's request citing amongst other things, that TNW did not provide any details on how it intended to ensure that its customers only used Bell services on an incidental basis and not a permanent basis. The response also requested answers to approximately 30 questions and noted that upon receipt of these answers, Bell "will consider such information and provide a further reply". On June 14, 2017 TNW provided detailed responses to all Bell's questions including technical specifications and complete support for TNW compliance with the incidental roaming provisions of CRTC 2017-56.
11. As of date of this Application, Bell has not responded further to TNW's request for a Wholesale Roaming Agreement.
12. On January 16, 2017, TNW (at the time known as RuralCom) wrote to Telus to request a Wholesale Roaming Agreement under Telus' Carrier Access Tariff CRTC 21462 Item 233.
13. On January 30, 2017 Telus responded to the TNW letter with a request to provide answers to a questionnaire of some 25 items covering technical aspects, managerial

⁵ CPC-2-0-17 — Conditions of Licence for Mandatory Roaming and Antenna Tower and Site Sharing and to Prohibit Exclusive Site Arrangements, ISED March 7, 2013

structure, ownership structure and customer profile. On February 1, 2017 TNW provided Telus with detailed responses to all its questions.

14. On March 3, 2017 Telus replied to TNW's information submission and denying a mandated Wholesale Roaming Agreement citing the following reasons:
 - i) Telus did not believe that TNW was offering service on its own network which is a condition of its license from Innovation Science and Economic Development ("ISED").
 - ii) Telus contended that it was not required to provide mandated roaming because it believed that TNW intended to serve subscribers who were based in locations outside of TNW's licensed spectrum area.
 - iii) Telus was of the view that TNW's proposed iPCS service would not comply with the terms of its GSM-based roaming service tariff (CRTC 21642, Item 233) because, TNW would seek to serve subscribers based in locations outside of its licensed spectrum area; therefore TNW subscribers roaming usage would not be incidental as is required by CRTC 2015-177, 2017-56 and 2017-57.

15. On March 7, 2017 TNW responded to the March 3, 2017 letter with the following clarification:
 - i) That TNW was in fact offering service on its own network, and had already met the ISED conditions of license.
 - ii) That TNW intends to serve subscribers within its own network footprint, and that it is working towards expanding its coverage within its licensed area.
 - iii) That in its use of WIFI-first technology, TNW Wireless is fully compliant with CRTC 2017-56. Further that under 2017-56 it is clear that the incumbents themselves cannot determine
 - iv) whether a wholesale roaming customer is making improper use of a roaming service including surpassing an acceptable level of roaming. It is solely up to the Commission to make this determination and that TELUS could not unilaterally refuse to provide a wholesale roaming agreement as mandated by the CRTC based on its internal assessment of TNW operations.

16. On March 10 2017 Telus reiterated its reasons for denying TNW access to mandatory roaming but also requested further details on TNW's "Basic Wireless Service". Specifically:
 - i) "locations that the TNW Wireless operational GSM network currently covers";
 - ii) "approximate population sizes of the various communities that the TNW Wireless operational GSM network currently serves";
 - iv) "the date upon which you started selling wireless service to end-customers";
 - iii) "where and how you are selling basic wireless service"; and
 - iv) "the number of retail customers to which you are currently providing service".
17. On June 16, 2017 Telus send an email to TNW stating that it maintained its position that it is not obliged to provide tariffed GSM-based roaming service to TNW Wireless.
18. It is TNW's belief that based on the refusal of both Bell and Telus to provide roaming agreements as per CRTC 2015-177 and as per their own respective Carrier Access Tariffs is unjustified. As a result Canadians are being deprived of the benefits of true competition in the wireless market and ultimately lower costs for wireless services. The current situation allows the major wireless carriers to unilaterally and perhaps collectively decide which companies can enter the Canadian wireless market, what technologies can be used within the Commissions guidelines and what constitutes compliance.
19. TNW believes that these disputes therefore represent significant policy issues that need to be clarified by the Commission including but not limited to:
 - a. Whether the iPCS technology is compliant with CRTC 2017-56 based on the technology that is described in the Application;
 - b. Whether a licensed operator that is required to provide services under CRTC 2015-177 can unilaterally determine what is a compliant technology;
 - c. Whether a licensed operator under 2015-177 can refuse to provide a mandated wholesale roaming agreement by insisting on provisions in advance and "through the back door" that have been specifically excluded under CRTC 2017-56 thereby

de facto allowing incumbents to enforce these provisions contrary to the spirit of the Commission's determination;

- d. Whether a licensed operator under 2015-177 can refuse to provide a wholesale roaming agreement based on its belief that misuse or non-compliance "might" occur rather than actually having occurred, rather than having the Commission make such adjudication in the proper forum as contemplated by CRTC 2017-56;
20. TNW recognizes the value of a regulated telecommunications marketplace and notwithstanding the above also recognizes that balance needs to be struck between the market incentives required to promote investment in Canadian telecommunications in a regulated environment and the necessity of promoting competition and development/deployment of new technologies that lead to more choice, lower cost and better service to Canadians. Therefore TNW is seeking interim relief on an expedited basis to have the Commission compel Bell and Telus to provide in good faith and on economic terms, Wholesale Roaming Agreements as per their respective Carrier Access Tariffs including all necessary interconnection processes and guidelines as set out by the GSM Association Permanent References with Syniverse within 30 days of the delivery of the Wholesale Roaming Agreements and in the interim, the ability to use iPCS technology until such time as it rules on final relief.

1.3 Relief requested

1.3.1 Final relief

21. TNW is a small wireless operator with limited licensed geographical coverage and as such its business plan and viability ultimately depend on the ability of its customers to roam incidentally on partner networks. Without this ability, it is virtually impossible for a company like TNW under its ISED license to operate as the majority of its potential subscribers need to have service beyond TNW's licensed territory at least on an incidental basis. Without the ability to roam, no regional wireless operator can survive and for ISED to issue regional licenses become problematic. Furthermore, TNW has invested heavily in its infrastructure and alternative technologies which have been designed to be fully compliant with both the letter and spirit of all current CRTC regulations and decisions. As such TNW requests that the following final relief from the Commission:
- a. TNW requests that the Commission direct both Bell and Telus to provide TNW in good faith with Wholesale Roaming Agreements as per their respective Carrier Access Tariffs under reasonable economic terms and that the Commission direct

both Bell and Telus to proceed with all necessary interconnection process and guideline as set by the GSM Association Permanent References and to complete the interconnection through Syniverse's facilities in no more than 30 days after the delivery of the Wholesale Roaming Agreements. .

- b. TNW requests that within the Wholesale Roaming Agreements, the Commission direct Bell and Telus not to make as pre-conditions to an agreement inclusions of clauses and components or even discussions regarding specific contract items as already ruled to be excluded from their tariffs in CRTC 2017-56 such as identified in paragraphs 55, 75 and 106 of the Decision.
- c. Further to 21 b. TNW requests that the Commission direct Bell and Telus not to refuse to provide Wholesale Roaming Agreements on the basis of any perceived misuse they deem may occur.
- d. TNW requests that the Commission review its iPCS technology for compliance with CRTC 2017-56 and a determination that the use of iPCS while on Wi-Fi using Wi-Node cannot be deemed roaming.

1.4 Structure of the Application

22. Part 1.0 of the Application includes a description of the Application including the rationale for the Application as well as the interim and final relief sought. Part 2.0 contains the background to the disputes. In part 3.0 TNW states why Bell and Telus have no legal basis for refusing to provide TNW with roaming agreements. In part 4.0 TNW provides a technical description of iPCS technology and TNW's assessment iPCS's compliance with current regulations. Part 5.0 provides a competitive assessment of the industry as it relates to the issues of the Application. Part 6.0 demonstrates why TNW meets the test for interim relief. Part 7.0 demonstrates that the relief sought promotes Canadian telecommunications policy and is consistent with the Commission's Policy Direction. Part 8.0 is the conclusion to the Application. Part 9.0 lists the parties being served and Part 10.0 contains a Notice to the Application.

2.0 BACKGROUND TO THE DISPUTE

23. TNW is a licensed is a licensed wireless operator offering wholesale and retail service in Canada. The company currently holds 25MHz bandwidth tier-2 850 MHz licenses which provide 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. It provides traditional mobile services in its licensed territory but it also has the rights to a technology known as iPCS which is an IP only Smartphone-over-IP cloud spectrum technology. iPCS works seamlessly between Wi-Fi and 4G/LTE however as will be described in detail in section 4.0 when on Wi-Fi deregisters from any VPMN and uses the TNW PMN and licensed spectrum on an exclusive basis to provide telecommunications services. As such TNW considers iPCS to be fully compliant with CRTC 2017-56.

24. As a small carrier, TNW is fully dependent on the execution of wholesale roaming agreements as mandated by the Commission under CRTC 2015-177 and as detailed in the incumbent providers' respective Carrier Access Tariffs in order to provide service to its subscribers beyond its limited licensed coverage area. TNW cannot offer reasonable service to its subscribers without roaming agreements in Canada.
25. Bell and Telus have each refused to provide roaming agreements to TNW, primarily on the basis of CRTC 2017-56 and CRTC 2017-57 which establish guidelines for what is deemed permanent versus incidental roaming on partner networks (TNW does however have roaming agreements with US carriers). Bell and Telus each contend that TNW will likely misuse its roaming agreements and allow permanent roaming on their respective networks despite being provided with copious technical material by TNW to demonstrate that this would not occur.
26. Bell and Telus have not provided any legal basis for their refusals and have offered only internal opinions and viewpoints on the matter. Notwithstanding TNW's position that it is fully compliant with all current rules and regulations, Bell and Telus refusal is based on what it believes to be misuse of roaming agreements in the future and not based on any actual misuse. Such discretion is not contemplated in CRTC 2017-56 and TNW is of the opinion that this is more of a decision related to competition rather than compliance.
27. The position of Bell and Telus is completely contrary to recent pronouncements by ISED on the future of telecommunications policy in Canada and a move to a more competitive yet fair marketplace.
28. With this background, TNW will outline in more detail the issues surrounding this Application including the broader implications on the relief sought for the Canadian competitive landscape and Canadians in general.

3.0 BELL AND TELUS HAVE NO LEGAL BASIS FOR REFUSING TO PROVIDE TNW WITH ROAMING AGREEMENTS

3.1 Base telecommunications policy

29. CRTC Telecom Regulatory Policy 2015-177 established the base regulatory framework for wholesale mobile services. Under this decision, the Commission determined amongst other things, in paragraphs 165-165 that fair and reasonable wholesale roaming arrangements need to be in place in order to prevent barriers to entry for to the smaller carriers;

165. The Commission considers that restrictions in wholesale roaming arrangements that may impede a wireless carrier from offering wholesale network access to an MVNO⁶ represent a barrier to entry to MVNOs.

166. Removing such restrictions, which prevent smaller wireless carriers, including new entrants, from offering access to their mobile wireless networks to MVNOs, will further the development of a competitive market for wholesale network access.

167. Accordingly, pursuant to section 24 of the Act, as a condition of offering and providing GSM-based wholesale roaming, Bell Mobility, RCP⁷, and TCC⁸ must provide roaming on their GSM-based mobile wireless networks to all subscribers served by their wholesale roaming partners, including the subscribers of any MVNOs operating on their wholesale roaming partners' networks.

30. Furthermore in paragraph 194 of CRTC 2015-177, the Commission regulatory measures needed to be in place for a minimum period of five years during which the Commission will monitor competitive conditions. As we will detail in sections 4.0 and 5.0 of this Application, TNW firmly believes that the mandatory nature of the current wholesale roaming agreements policy is at present, the only reason that Canada has any competition from smaller carriers in the wireless market because it is impractical for them to build out national networks and in an age of ubiquitous connectivity, it would be impossible for smaller carriers to sell a service without national coverage – or an alternative technology option.;

⁶ Mobile Virtual Network Operator

⁷ Rogers Communications Partnership

⁸ Telus Communications Company

3.2 Reasons Bell has given for refusal to provide a roaming agreement

31. In order to separate potential issues surrounding TNW's iPCS technology, TNW proposed 2 types of subscribers to Bell. The first type of subscriber (the "Traditional Subscriber") will utilize traditional 3GPP GSM for access to the TNW network and the second would use iPCS data only Smartphone-over-IP cloud spectrum technology (the "iPCS Subscriber"). Any subscriber using iPCS would NOT be able to use voice, data and text messaging through native device functions and TNW did explain why it would not be possible for an iPCS subscriber to do so.
 32. In the Bell letter of May 5, 2017 to TNW, whereby Bell refuses to provide a roaming agreement, the company incorrectly states that TNW failed to provide details to ensure that TNW customers would use Bell services on an incidental (and not permanent basis) in compliance with CRTC and ISED⁹ requirements. The refusal included both the "Traditional Subscriber", which would be no different from any other roaming situation with any other roaming partner and the "iPCS Subscriber". The letter then went on to ask some 2 dozen technical and market related questions, most of which related to concerns over permanent roaming.;
 33. In TNW's response to the May 5th letter on June 13, 2017, the company provided answers to all Bell's questions including providing extensive technical details on how TNW would prevent permanent roaming and limit customers' access to Bell's PMN¹⁰ and why the proposal and related technologies were fully compliant with CRTC 2017-56.
 34. In addition to the issue of permanent roaming the May 5th letter raised several concerns relating to the marketing of TNW Wireless services. This included concerns over;
 - a. Issuing phone numbers outside of the TNW network footprint
 - b. Selling Marketing services outside of the geographic area within the TNW footprint
- In its response, TNW cited CRTC 2017-56 paragraphs 46, 53 and 55 whereby the Commission ordered carriers to remove related restrictions from their proposed tariffs and as such that these were irrelevant and not a reason to refuse a roaming agreement
35. As of the date of this Application, TNW has not received a response from Bell to its letter of June 13th.

⁹ Innovation Science and Economic Development – formerly Industry Canada

¹⁰ Public Mobile Network

3.3 Bell has failed to demonstrate any legal basis for refusing to provide TNW a roaming agreement

36. TNW has provided Bell with all technical information to support the position that TNW is fully compliant with all current telecommunications regulations. It is TNW's opinion that Bell has not provided any legal basis for refusal to provide TNW with a roaming agreement and that the refusal is based on competitive concerns rather than technical compliance. This is supported by the fact that Bell has refused to provide TNW with a roaming agreement even for what has been defined as "Traditional Subscribers". Under Bell tariff CRTC 15011 – Item 100, Bell is required to provide TNW with a roaming agreement as TNW operates a PMN in Canada.
37. Bell's rationale for refusing to provide a roaming agreement is based solely on an internal assessment and conclusion that TNW will not ensure that its customers will use Bell's roaming services on an incidental (and not permanent basis) in compliance with CRTC and ISED requirements. TNW on the other hand has provided Bell with ample technical information to support its position that it has taken significant commercially reasonable steps to prevent permanent roaming on the Bell network. Bell on the other hand has failed to provide TNW with any technical information or argument to support its position and its position is based solely on its non-supported opinion on the matter.
38. Notwithstanding that TNW contends that it is fully compliant, an internal assessment is not a legal basis and Bell has not provided any legal opinion supporting its position.
39. Notwithstanding that TNW's position is that it is in compliance with all aspects of CRTC 2017-56, the Commission's decision is specific to dealing with permanent roaming that may have occurred. It does not deal or contemplate hypothetical misuse as interpreted by the roaming partner that may occur in the future. To give the major wireless carriers the ability to deny roaming service based on hypothetical actions of their competitors that may or may not occur in the future is to give these carriers the ability to unilaterally decide which companies enter the Canadian wireless market and opens the door to anti-competitive practices contrary to the Canadian Competition Act¹¹ related to creating barriers to entry and abuse of a dominant position in the marketplace. In fact, in paragraph 73 of the decision, the Commission notes that implementing an *ex ante* approach setting forth specific thresholds in the tariffs could be counterproductive having established several scenarios where problems could occur. We could not agree more. Given that there are only 3 national networks and in some regions, only 1 or 2 available

¹¹ Competition Act R.S.C., 1985, c. C-34

for roaming, this gives the incumbents considerable market power if they determine compliance on an arbitrary and *ex ante* basis as the smaller carriers do not have access to alternative services.

40. In its concluding paragraphs numbers 76-78 of CRTC 2017-56, the Commission is quite clear that restrictions in tariffs as proposed by incumbents related to roaming are not appropriate but that the principles behind the restrictions can be strong indicators of whether misuse has occurred. The Commission is also quite clear in paragraph 77. that incumbents can request the Commission determine whether a wholesale roaming partner is making improper use of an incumbent's network which we agree is the proper forum to do so.

3.4 Reasons Telus has given for refusal to provide a roaming agreement

41. TNW has provided Telus with all technical information to support the position that TNW is fully compliant with all current telecommunications regulations. As in the case of Bell, Telus has not provided any legal basis for refusal to provide TNW with a roaming agreement and that the refusal is based on competitive concerns rather than technical compliance.
42. In its initial refusal sent by email on March 7, 2017, Telus relies almost exclusively on their interpretation of CRTC 2017-56 and 2017-57 while also referring to their interpretation of a press release issued by TNW on February 1, 2017. Specifically the email states:

TELUS remains of the view that it is not obligated to provide wholesale roaming service to TNW Wireless pursuant to TELUS' GSM-based roaming service tariff, because the iPCS service does not comply with the final terms and conditions upon which mandatory roaming is to be provided, as outlined in Telecom Decision CRTC 2017-56. We also maintain our view that the type of roaming arrangement you are requesting is not mandatory roaming service that is required by the Innovation, Science and Economic Development Canada Conditions of Licence ("ISED COL").

43. The email goes on to provide further justification for the refusal by way of Telus' further interpretation of CRTC 2017-56 and cross referencing with Telus' incorrect understanding of iPCS technology. Telus also goes on to state that

We consider this service to be substantially similar, if not identical, to the Sugar Mobile service offering that was assessed by the CRTC in Telecom

Decision CRTC 2017-57. In that decision, the CRTC ruled that Rogers was not mandated, pursuant to its roaming tariff or the framework underpinning the final roaming tariff, to continue to provide roaming to Sugar Mobile's affiliate, Ice Wireless.

44. The statement in the previous paragraph is completely incorrect and TNW responded at length to Telus on March 7, 2017 with all the technical information to confirm that the technology behind Sugar Mobile's wireless services is completely different from that of TNW including all the information provided in Section 4.0.
45. TNW has sent subsequent technical support to Telus but Telus has not to our knowledge made any effort to understand the technology to be deployed and remains firm that it is not willing or required to provide that it believes will contravene CRTC 2017-56 and that it will not enter into any roaming agreement with TNW absent an order being made by the CRTC.
46. In its latest communication with TNW on June 16, 2017, Telus restated its position that it is not obligated to provide tariffed GSM-based roaming services to TNW.

4.0 IPCS TECHNOLOGY IS FULLY COMPLIANT WITH CRTC 2017-56

4.1 General description of iPCS technology

47. It is important to note that iPCS is not a technology that happens to be compliant with current telecommunications regulations. iPCS is a technology that was developed with the knowledge of regulations currently in place and designed to be compliant both with the letter and spirit of the regulations.
48. CRTC 2017-57 dealt with certain Wi-Fi based technologies which the Commission deemed non-compliant with CRTC 2017-56. iPCS as will be described below does not have the regulatory deficiencies as described in CRTC 2017-57.
49. iPCS is an IP only mobile technology which is under license to TNW. iPCS is cloud based and breaks a traditional mobile paradigm of one SIM card tied to one user and one device. iPCS is fueled by data providing full featured voice and messaging services. iPCS uses a thin client interface and is login versus IMSI based for access to mobile services. Data usage is tied to the active iPCS user profile and not the device or SIM card. iPCS provides seamless handover to/from Wi-Fi and 3G/4G/LTE for voice calls.

50. iPCS with Wi-Node is materially different from other types of "over-the-top" voice and text application services that use a VoIP application for voice and SMS text message while on 4G and Wi-Fi. These types of services on smartphones remain permanently registered on the Visited Public Mobile Network of the roaming partner even when using Wi-Fi temporarily as the means for Internet/data connectivity (see diagram in Schedule 1).
51. Key to the issue of incidental versus permanent roaming is what constitutes roaming on a VPMN. By definition TNW operates its own PMN as per accepted guidelines of the GSM Association. Furthermore iPCS uses the TNW PMN exclusively (including its licensed spectrum at all times), i.e. TNW's HPMN when providing service to its subscribers via the iPCS Wi-Node technology.
52. iPCS uses TNW's PMN exclusively (including its licensed spectrum at all times), i.e. TNW's HPMN when providing service to its subscribers via the iPCS Wi-Node technology (described in more detail later). Intrinsic to the use of a PMN is the use of licensed spectrum. If no licensed spectrum is used, there cannot be any deemed use of a PMN. iPCS cannot therefore be deemed to be using another wireless operator's PMN as a VPMN since iPCS using Wi-Node disables the International Mobile Subscriber Identification code (IMSI) in its generic UICC SIM card module which then in turn the operating system (IOS or Android) disables the user's smartphone device 3GPP radio(s) and stops emitting any electromagnetic frequency on any licensed spectrum. Therefore the device cannot be connected to another operator's PMN while it is connected to the TNW's own PMN remotely. The system monitors in real time the relative consumption of data on any given network.
53. As an example, if a subscriber happened to be registered to the PMN (VPMN) of Bell or Telus, arrives home, connects to a Wi-Fi Internet service provided by TNW, then his phone will de-register from the Bell or Telus PMN and the user's smartphone will very shortly stop emitting licensed radio frequencies, and will then no longer be consider a VPMN user. By alternating from the Bell or Telus PMN to TNW PMN and vice versa a subscriber will only incur incidental roaming as the majority of the time they will be on the TNW PMN.
54. iPCS utilizes a Wi-Node private network system to remotely access TNW's 850MHz licensed spectrum gateways and permits users to remain connected to TNW's Home Public Mobile Network (HPMN) while located within its licensed spectrum territory (in-territory) but where TNW Wireless signal is not available as well as when outside its licensed territory (out-of-territory) through the use of private networks all while assuring its end-users full availability, quality and reliability of services. iPCS Wi-Node therefore

provides coverage in areas where TNW does not have spectrum and/or fills in wireless coverage gaps in areas where TNW does have spectrum, but has not yet deployed network facilities.

55. iPCS Wi-Nodes enables TNW's wireless subscribers to use their service in remote locations both within or outside its licensed spectrum area through the use of embedded private network technologies which backhauls connectivity to TNW's closest physical (e)NodeB Wireless Base Station (BTS).
56. Through Wi-Node Gateways (cloud spectrum), subscribers make use of the TNW's licensed radio frequency of its Radio Access Network (RAN) remotely in order to maintain registration and communication with TNW's HPMN core network for Voice, Data and SMS services. Users' smartphones connect on a private network over Internet Protocol (IP) similar to cellular protocol such that the Home NodeB IuH interfaces (3G networks) or S1 interfaces over IP (4G/LTE networks) for connection to a BTS. TNW's RAN, the Wi-Node gateways and iPCS private network interface form a single inseparable network.
57. While using iPCS Wi-Node, users' devices de-register from any roaming partner network which halts the use of any Visited Public Mobile Network (VPMN) spectrum and automatically turns off the smartphone cellular radio while at the same time uses TNW's licensed spectrum through a private network connection via fixed Ethernet USB cable adaptor or Wi-Fi.
58. Incidental use of wholesale roaming service occurs in real time when the Wi-Node gateway connectivity is lost on the private network and therefore the cellular radio is turned back on and registration to a roaming network is re-established. This occurs without any interruption of an in-call voice or Internet connection other than a few second pause. As wholesale roaming agreements are on non-exclusive basis, iPCS controllers undertake real time load balancing and select which wholesale roaming partner network is to be used with each incidental roaming session. This optimizes the data consumption ratio between TNW's HPMN and the individual VPMN partner networks.

4.2 Ensuring incidental roaming

59. iPCS does not per se disable the native dialer and text functions. iPCS is a Smartphone-over-IP service which works transparently on a smartphone with IOS or Android. The application permits cloud-based phone service. For incidental roaming the TNW IMSI code is used.

60. In a roaming situation, iPCS will search for available networks. In the case of a roaming partner for example, the partner takes the IMSI information and connect with Syniverse, the common clearinghouse. Syniverse then contacts TNW's core network. TNW then returns authorization for data only service profile. A session is then initiated and a subscriber profile is downloaded between TNW and Bell via Syniverse. All voice and text services are disabled in the session and the session will only work with packet switch data (GPRS).
61. All iPCS usage is controlled at TNW's APN level and through the iPCS controller.
62. iPCS is to be sold with a contract provision binding the subscriber to Canadian regulations regarding incidental roaming. Contract provisions allow TNW to disable roaming capabilities if a subscriber exceeds such incidental roaming provisions. Several underlying technologies are in place to ensure compliance:
- a. iPCS measures in real time the usage on the TNW HPMN and any VPMN. If a subscriber exceeds usage to be considered incidental roaming, roaming is disabled until the next billing cycle. All other functions remain active.
 - b. iPCS can only operate if the TNW network is functional. Since iPCS cannot fall back onto the phone's native interface due to the nature of the technology and how the SIMs operate, there can be no roaming without iPCS as a system being fully operational. This also means a subscriber cannot use the phone's native interface to circumvent incidental roaming provisions. Only emergency services can be accessed from the native interface – as with any mobile phone.
 - c. If for any reason the iPCS generic SIM is not in a phone, there is no connection to the iPCS network and a subscriber would not be able to access any roaming partner.

5.0 INDUSTRY AND COMPETITIVE ISSUES

5.1 The competitive landscape in the Canadian wireless market

63. There is no question that the technological and competitive landscape in telecommunications has evolved rapidly in the last 20 years and Canadians for the most part have been net beneficiaries of this evolution. TNW agrees with the Commission's general position as set forth in CRTC 2015-177 and restated in 2017-56, that there is a balance between the benefits to Canadians of sustainable competition which provides reasonable prices and innovative services and the need to provide incentives for wireless

providers to invest in their networks and in innovation. This is particularly challenging in a regulated environment for essential services.

64. However, while there is a balance to be struck, there is no inherent long term conflict between these two objectives and an equitable set of rules can be established. Other industries such as ride sharing and hospitality services are having to deal with similar public policy issues whereby an innovative approach to a service is challenging well entrenched and regulated incumbent providers. Yet the balance is being struck and the playing field is being levelled so that the new entrants play by established rules, the incumbents compete fairly and overall the general public has access to more choice and generally lower prices.
65. Investment and innovation cannot be the sole purview of the incumbents or solely to the benefit of the incumbents. The Canadian competitive environment has to encourage investment and innovation at all levels and as such all innovators need to have the opportunity to benefit from their investment and innovations and by extension, benefit Canadians.
66. In telecommunications history, we cite the example of Voice-over-IP (VoIP) technology which started to take hold in the early 2000s. VoIP provided the opportunity for small telecommunications companies to take hold in a fiercely competitive environment for a relatively low capital cost of entry. VoIP providers piggy-backed onto incumbents' networks and were able to provide voice services to their clients at lower cost while providing the companies with better than average operating margins due to efficient nature of the technology. The result was the creation of numerous VoIP providers and it is now one of the most predominant voice technologies in use today and has spurred numerous small to large independent service providers. At the same time, there has not been a reduction in capital investment by the incumbents nor has there been a decrease in their profitability.
67. It is impractical for small or even mid-sized Canadian wireless carriers to build out a national network. Attempts have been made to do so and all have failed and such failures have been to the benefit of the incumbents which were able to acquire remaining assets. It is our opinion that for the foreseeable future, there will be only 3 national wireless networks and that the Canadian population and geography will not support any additional national networks. In a regulated environment, this is not necessarily a bad situation and we would prefer to see 3 competing robust national networks rather than several more marginal networks, provided that there is reasonable and mandated access in place for alternative suppliers as is the case for other telecommunications technologies.

68. This is why the Commission has mandated roaming agreements and the reason they are mandatory, is that a non-incumbent service provider cannot reasonably market a wireless service which does not have national coverage. Without a roaming agreement, an ISED spectrum license to a non-incumbent has virtually no value.
69. Incumbents therefore cannot have it both ways. They cannot benefit from the protection of a regulated environment and at the same time preemptively decide which companies can enter the Canadian wireless market and on what basis particularly if the entrants come in on an economically reasonable basis.
70. Canadians have not seen the benefits of true competition in the wireless industry and continue to pay amongst the highest rates in the G7 according to a study released by the Commission in August 2016¹². The incumbents market their own brands as well as sub-brands nationally as a mechanism to “fill the shelf” in marketing terms, but this still represents a relatively closed shop because of the concentration of ownership which has been getting even more tight as the incumbents and larger operators acquire other operations. At the same time, wireless revenues have been growing consistently since 2013¹³ as has profitability in the sector. In 2015, the EBITDA (earnings before interest, taxes, depreciation and amortization) for wireless services in the industry was 44.6%, an increase of nearly 10% from the previous year and nearly 10 percentage points higher than for the wireline sector which had an EBITDA of 35.0% in 2015.
71. Canadians therefore need to start seeing the benefits of real but fair competition in the Canadian wireless market. TNW appreciates the Commission’s concern over discouraging investment by wireless carriers in their own network infrastructure. However we believe particularly given the recent consolidation in the wireless market, that the incumbents have well surpassed the critical mass needed for profitability. We do not believe that granting the relief sought in this Application would in any way slow investment as the incumbents will still have to compete amongst themselves and maintain state-of-the-art networks.

5.2 TNW’s iPCS is a technology which is not only compliant with current regulations but operates on a fair competitive basis

72. As noted in section 4.1 of the Application, iPCS was designed with compliance in mind and on the basis of fair competition. No doubt that in addition to compliance with CRTC 2017-56, Respondents will cite CRTC 2017-57 regarding Ice Wireless Inc. (“Ice

¹² 2016 Price Comparison Study of Telecommunications Services in Canada and Select Foreign Jurisdictions, March 22, 2016, the Nordicity Group

¹³ Ref: Communications Monitoring Report 2016: Telecommunications sector overview, CRTC

Wireless”) as a precedent for denying the relief sought in this Application. But both the underlying technology and company situation cannot be compared and furthermore TNW is on public record as supporting both decisions.

73. In the case of Ice Wireless, the Commission had to make a number of determinations regarding the use of Wi-Fi as a component to a service provider’s network. This is of course the key to the discussion as Ice Wireless argued that public Wi-Fi should be treated as part of a cellular network for the purpose of what is and what is not roaming. We believe the Commission correctly concluded that it would be unreasonable and inconsistent with the Commission’s *facilities based* policy and approach to include Wi-Fi in the definition of a wireless carrier’s home network for the purpose of mandated wholesale roaming. Furthermore the Commission stated its concern that non-facilities based competition would eliminate incentives to invest in their own networks. The Commission however, did not cite the use of Wi-Fi itself as criteria for non-compliance as it did recognize that other compliant service providers do or could use Wi-Fi as part of their network. Furthermore the Commission left open the door for further defining “Carrier Wi-Fi” as part of a network. Therefore the technology itself was not the compliance issue but rather how the technology was used.
74. Sugar Mobile Inc. (“Sugar Mobile”) is an affiliate of Ice Wireless and until CRTC 2017-57 operated as an MVNO on the Ice Wireless network. It offered wireless service across Canada using either Wi-Fi or cellular data accessed via a SIM card. The SIM card was registered to Ice Wireless and is embedded with a northern Canada 867 area code, but Sugar Mobile end-users could choose a phone number with an area code from anywhere in Canada, and it is this number that people calling them would dial. When not on Wi-Fi, Sugar Mobile subscribers would access the Rogers Communications Company Inc. (“RCCI”) network under a roaming agreement.
75. The Sugar Mobile technology was non-compliant on several levels. It was a non-facilities based service, meaning it did not invest or maintain its own network nor did it utilize as any part of its access via Wi-Fi a spectrum licensed by ISED. Furthermore, when subscribers used the Sugar Mobile application in a Wi-Fi environment, they remained registered and connected to the RCCI network at all times. This not only consumed RCCI network resources but with the registration, would have to be considered “roaming” for all intents and purposes. Therefore the Sugar Mobile service offering was not compliant in both the letter and the spirit of the regulations.
76. iPCS on the TNW network is not at all the same and for technical reasons outline in section 4, meets both the letter and the spirit of the regulations as follows:

- a. TNW is facilities based service provider and a licensed wireless operator. It has licensed spectrum granted under ISED and has invested heavily in its own network.
 - b. Significant investment has also gone into the development of the iPCS technology which was partly supported by the Canadian Scientific Research and Experimental Development (“SRED”) program.
 - c. Every call or text made under the iPCS environment (Wi-Fi or 4G/LTE) utilizes TNW’s own PMN licensed spectrum and core network.
 - d. While using iPCS Wi-Node, users' devices de-register from any roaming partner network which halts the use of any Visited Public Mobile Network (VPMN) spectrum and the smartphone operating system automatically turns off the smartphone cellular radio while at the same time uses TNW's licensed spectrum through a private network connection via fixed Ethernet USB cable adaptor or Wi-Fi. Therefore no roaming partner resources are being used.
77. Under these circumstances a subscriber using iPCS via Wi-Node cannot be considered roaming. To do so would open the door to a conflicting interpretation of roaming based on location rather than network access. For example, if TNW had roaming agreements with all three incumbents and a subscriber enters an iPCS Wi-Node triggering the disabling of the 3GPP radio and deregistration from a roaming network (or even the TNW 3G network) and ultimately using the TNW PMN exclusively, with which roaming partner would the subscriber be deemed to be roaming?
78. Also, since the TNW PMN is used exclusively for iPCS, all usage would therefore need to be included in any determination of incidental roaming data.

5.3 iPCS and E911

79. Bell has indicated to TNW as one of its concerns, the provision of E911 services. TNW with affiliated partners, have invested and developed an E911 service. The E911 innovative process with is summarized here.
- a. When on the TNW network
TNW Wireless uses an Enhanced 9-1-1 system for all its emergency call originated from its subscriber. When call is initiated from the 3GPP GSM/UMTS Circuit Switch, calls are router to TNW current Voice over Internet Protocol (VoIP) Public Safety service provider. All 9-1-1 calls are directed to the Emergency Response

Center (ERC) as the primary Public Safety Answering Point (PSAP). Location information is retrieved from TNW's real-time Automatic Location Information (ALI) database. Once the physical location is verified the call is transferred to the appropriate PSAP within seconds.

TNW logs in real time, the geolocation position of the NodeB that it is connected to from the originating a 9-1-1 call and updates the ALI database while the call is being transmitted to the PSAP. If at least two NodeB radio was receiving registration signal from the user handset IMEI code, then the HNodeB gateway provides our ALI immediately through the angle of arrival (AOA), the estimated GPS coordinates of the position of the device. Furthermore, if a network based location triangulation is available while three NodeBs are receiving same registration signal then TNW's HNodeB Gateways, through the radio resource location services protocol (LCS) provides an estimated geolocation position of the handset under Time Difference of Arrival (TDOA) with Multi-Lateration calculation conversation system and permits the networks to determine the time difference and therefore distance from each NodeB radio to determine geoposition via triangulation. In all cases TNW's permanent GPS coordinate conversation data system converts the estimate GPS coordinates into the closest street address and updates the ALI data base as the call is connected to TNW's primary PSAP. The average process from retrieving the NodeB position or by AOA or TDOA then converting into GPS coordinates and then converting in the closest street address by using TNW real-time synchronizes MSAG (Master Street Address Guide) is less than 4 seconds and happens before the ALI database is queried by the PSAP provider. Third party PSAP emergency dispatch centers are now generally equipped with computer-assisted dispatch (CAD) system and have already implemented real-time onscreen Enhanced 9-1-1 street map display with graphic user interfaces (GUI) to highlight the caller's handset position.

b. When on a roaming partner network

All 9-1-1 calls made over a VPMN are being routed to the roaming partner PSAP service and TNW has no oversight or control on this case. If 9-1-1 is being dialed from the 3GPP GSM/UMTS dial pad interface, calls will be processed and routed normally used by the roaming partner to the VPMN PSAP service normally by the roaming partner as any basic 9-1-1 calls must be relayed to a call center, regardless of whether or not the mobile phone is already registered to the VPMN.

6.0 TNW MEETS THE TEST FOR INTERIM RELIEF

80. Wholesale roaming agreements are not an option for smaller wireless operators. Without being able to provide national or even full provincial coverage, it will be impossible for TNW to execute a viable business plan, even on a local level. TNW has in good faith, invested in its network and has made numerous good faith attempts to negotiate roaming agreements with both Bell and Telus. As such, TNW is requesting the interim and procedural relief noted in paragraph 20 and section 1.3 of this Application on an expedited basis.
81. The Commission requires that the party requesting relief demonstrate that the application meets the criteria for interim relief as set out by the Supreme Court of Canada in *Manitoba (Attorney General) v. Metropolitan Stores (MTS) Ltd.* [1987] 1 S.C.R. 110, as modified by the Court's decision in *RJR-MacDonald Inc. v. Canada (Attorney General)* [1994] 1 S.C.R. 311 (the RJR-MacDonald criteria). These criteria are that:
- a. there is a serious issue to be determined;
 - b. the party seeking relief will suffer irreparable harm if the interim relief is not granted; and
 - c. the balance of convenience, taking into account the public interest, favours retaining the status quo until the Commission has disposed of the issues.

6.1 There are serious issues to be determined

82. The Commission has previously determined that the threshold for finding there is a serious issue to be tried is low. Generally, if the application is not clearly frivolous, it will meet this standard¹⁴. There are several issues that have been raised in this Application none of which are frivolous and the outcome of the Commission's decisions on any or all of these matters will significantly affect Canadians' access to mobile services, the competitive environment and ultimately the cost of wireless services to Canadians.
83. In CRTC 2017-56, the Commission opened the door to consideration of alternative and innovative delivery technologies of mobile services and this Application represents a very specific and non-hypothetical situation where alternative technologies can be applied.

¹⁴ CRTC, "Commission Letter Addressed to William Sandiford (Canadian Network Operators Consortium Inc.) and Natalie MacDonald (Eastlink), 31 August 2015, CRTC File No. 8661-C182-201508417 ["CRTC Aug 2015 letter re interim relief test"]

84. Of particular concern to the Applicant, are issues related to the competitive environment and whether Bell and Telus, individually or collectively deny wholesale roaming agreements to smaller carriers where no misuse has occurred but simply on the belief that misuse might occur. Such predetermination we believe is outside the scope of their discretion and opens the door to the incumbents determining which companies can enter the Canadian wireless market and on what basis. Furthermore the procedure for dealing with disputes over perceived misuse is described in CRTC 2017-56 paragraph 77 whereby any or both parties may request that the Commission determine whether a wholesale roaming partner is making improper use of the service.

6.2 TNW will suffer irreparable harm if the interim relief is not granted

85. The Commission has previously determined that irreparable harm require an analysis of the nature of the harm rather than the magnitude. Harm is more likely to be irreparable where there is an unquantifiable loss or a loss that the applicant may not be able to recover. In this case TNW will without question suffer irreparable harm if relief is not granted.

86. TNW has invested heavily in the acquisition the spectrum license, payment of license fees and restoration the former RuralCom Network. Furthermore TNW has invested network upgrades and all necessary ancillary infrastructure for its wireless service. If TNW is not granted wholesale roaming agreements, it will not be able to properly launch its wireless service as subscribers will not be able to use the service outside TNW's current coverage area. With each day, the annual license fee paid to ISED depreciates and this cannot be recovered. Furthermore TNW is incurring other recurring costs which cannot be offset by revenue without a roaming agreement.

87. The viability of TNW as a wireless carrier is dependent on wholesale roaming agreements.

6.3 The balance of convenience favours TNW

88. The test for balance of convenience involves assessing whether the balance of convenience, taking into account the public interest, favours granting of interim relief. TNW believes that the balance of convenience clearly favours granting of relief.

89. As noted in section 6.2, TNW has invested heavily in its business and may not survive a protracted period of not being able to launch a full range of mobile services. Customer acquisition is highly dependent on being able to offer roaming for subscribers.
90. TNW is in active discussions with the Government of Canada, the Government of British Columbia and the Yukon Government for a project to provide connectivity along the Alaska Highway (most of which is in the TNW licensed spectrum area). This connectivity project is a high priority for all three governments as large portions of the highway have no coverage and is a stated priority of the Commission in the context of connecting remote highways¹⁵. This initiative would be in jeopardy if TNW is not able to execute on its business plan and there are no other carriers which have plans along the Alaska Highway.
91. If TNW cannot execute its business plan, Canadians will be deprived of a badly needed competitor to provide lower cost mobile communications.
92. iPCS is a highly innovative Canadian technology which was supported in part through the Canadian SRED program and has the potential to become an international standard in communications. Canadians should be able to benefit from this technology at a domestic operational level and from potential international revenues.
93. There would be no harm caused to Bell and/or Telus by granting the interim relief sought as they would be paid roaming fees as per their respective tariffs.

7.0 RELIEF SOUGHT PROMOTES THE TELECOMMUNICATIONS POLICY OBJECTIVES AND IS CONSISTENT WITH POLICY DIRECTION

94. This Application is clear in its objective to support the letter, spirit and future policy direction of telecommunications policy in Canada. Providing Canadians with more choice, at lower cost and alternative service delivery options is certainly consistent with government objectives and policy. As such the relief sought is well in line and consistent with these objectives and policies.
95. Many of the arguments made by Ice Wireless in its Part 1 application to the Commission are and remain valid from a policy perspective¹⁶. This includes the fact that the Commission itself noted in TRP 2015-177 that more than 90% of the mobile wireless market is controlled by the three incumbent national carriers, both in terms of revenues

¹⁵ CRTC Submission to the Government of Canada's Innovation Agenda, December 21, 2016

¹⁶ In the matter of an application by Ice Wireless Inc., Part 1 Application to the CRTC February 15, 2016

and number of subscribers¹⁷. Without a fundamental change to the Canadian competitive landscape which again balances the investment incentive by incumbents with the requirement for lower costs to Canadians, this situation will not change.

96. Canadian public policy supports the notion of wide access to mobile services. Bell and Telus service does not reach 100% of the Canadian population. Remote regions in Canada and even areas within urban centres there (inside some buildings, basements, for example) have poor or no reception yet may have access to a Wi-Fi signal. In these circumstances subscribers should not be deprived of mobile services where they can easily be provided.
97. What is being proposed by TNW strikes a balance by establishing a more level competitive playing field whereby all players have an incentive to invest and innovate. As we have seen over a broad spectrum of industries, innovation is in no way limited to major corporations and TNW is a prime example whereby a smaller company can innovate and develop sophisticated technology which contributes to telecommunications in Canada.
98. On June 5, 2017, the Honourable Minister of Innovation, Science and Economic Development, Navdeep Bains announced measures to advance telecommunication services in Canada. In his announcement he stated;

*At a time when middle-class Canadians are concerned about the rising cost of these services, the Government will encourage more private sector competition and investment in services that have become essential in a digital economy.*¹⁸

99. The Minister's message went on to emphasize amongst other things that wireless providers need to provide more options for Canadians at better price points for wireless services. He also directed the Commission to;

. . . reconsider a recent decision to exclude Wi-Fi-based service providers from access to roaming services. This action could potentially open the door to companies that use innovative solutions to provide Canadians with more affordable wireless service options.

¹⁷ TRP 2015-177, *supra* note 3, at para 35

¹⁸ https://www.canada.ca/en/innovation-science-economic-development/news/2017/06/government_of_canadaundertakesmeasurestoadvancetelecommunication.html?=&wbdisable=true

100. The Minister also reconfirmed publicly that Canadians pay more for basic cellphone service than consumers in the US and almost twice as much as consumer in the UK.
101. It is unlikely that under what is essentially a Canadian oligopoly in wireless services that Canadians will see any lowering of their cell rates without providing a competitive structure to allow for serious new entrants under fair and balanced rules.

7.1 The relief sought is consistent with the Policy Direction

102. The relief sought by TNW is consistent with instructions contained in the CRTC Policy Direction¹⁹ and pursuant to subsection 47(b) of the Act.
103. We note more specifically that under Part 1(a) of the Policy Direction, the Commission should;

(i) rely on market forces to the maximum extent feasible as the means of achieving the telecommunications policy objectives, and

(ii) when relying on regulation, use measures that are efficient and proportionate to their purpose and that interfere with the operation of competitive market forces to the minimum extent necessary to meet the policy objectives;

104. TNW contends that the current competitive situation does not rely enough on market forces and that the regulations currently in place do in fact interfere with the operation of a competitive market by indirectly giving power to the incumbents to decide which companies enter the wireless marketplace by using their own interpretation of compliance as a mechanism to deny entry. Roaming agreements are currently the gatekeepers of the industry.
105. If granted, the relief sought will allow market forces to achieve current and recently announced policy objectives in a fair and equitable manner to the benefit of Canadians. This would include lower cost to Canadian subscribers without unfairly impinging on roaming networks.

¹⁹ Order Issuing a Direction to the CRTC on Implementing the Canadian Telecommunications Policy Objectives, P.C. 2006-1534, 14 December 2006

8.0 CONCLUSION

106. Bell and Telus are very concerned about the entry of TNW into the Canadian wireless market as TNW represents a compliant mechanism to challenge their dominance in the market. Rather than provide a sound legal basis for their refusal to provide roaming agreements, they have simply stated that TNW does not conform to current regulations.
107. TNW has provided ample technical information to Bell and Telus to support its position that TNW subscribers will not be permanently roaming on their respective networks but again, rather than provide a specific technical or regulatory rationale, they have unilaterally or collectively determined that the TNW plan is at all levels including for Traditional Subscribers is non-compliant.
108. Neither Bell nor Telus has proposed any mechanism or alternative plan to TNW to satisfy their perceived compliance issues. TNW believes that neither Bell nor Telus will ever agree to provide TNW with a roaming agreement without specific direction from the Commission and have stated as such.
109. TNW believes by investing in the development of compliant technology and investing in its own network, that it has struck the balance for fair competition. Furthermore, TNW believes this balance is exactly the approach that ISED is currently seeking under its June 5, 2017 policy announcement.
110. TNW urges the Commission to grant both the interim and final relief requested in the Application so that Canadians can finally see some relief from high prices for mobile services

9.0 LIST OF PARTIES SERVED

111. This Application will be served on Bell Mobility Inc. and Telus Communications Company

10.0 NOTICE

112. This application is made by TNW Wireless Inc., c/o Lawry Trevor-Deutsch, 1304 – 330 Bay Street, Toronto Ontario, M5H 2S8 [email: regulatory@tnwcorp.com]

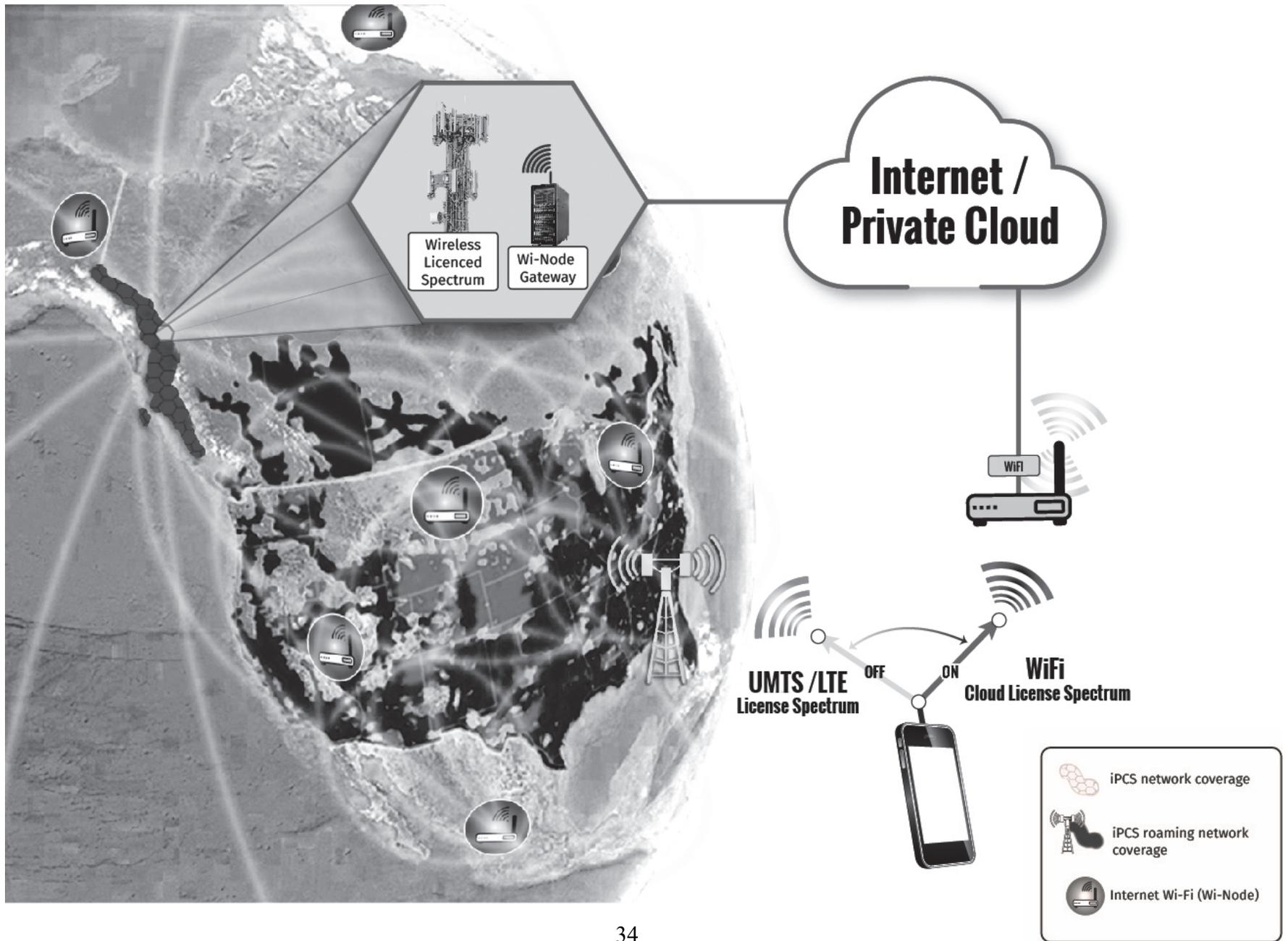
A copy of this application may be obtained by sending a request to regulatory@tnwcorp.com .

TAKE NOTICE that pursuant to section 25, and, as applicable section 26 of the Canadian Radio-television and Telecommunications Commission Rules of Practice and Procedure, any respondent or intervener is required to mail or deliver or transmit by electronic mail its answer to this application to the Secretary General of the Canadian Radio-television and Telecommunications Commission (“Commission”), Central Building, 1 Promenade du Portage, Gatineau (Québec) J8X 4B1, and to serve a copy of the answer on the applicant within 30 days of the date that this application is posted on the Commission’s website or by such other date as the Commission may specify. Service of the copy of the answer on the applicant may be effected by personal delivery, by electronic mail, or by ordinary mail. In the case of service by personal delivery, it may be effected at the address set out above.

If a respondent does not file or serve its answer within the time limit prescribed, the application may be disposed of without further notice to it.

Schedule 1 – iPCS Smartphone-over-IP Cloud Spectrum

When an iPCS subscriber device is connected to an internet Wi-Fi network, the 3G/LTE cellular radio is automatically deactivated on the device and therefore not using the roaming partner network and spectrum. At the same time, all connections seamlessly switch to a remote access of iPCS' own licensed spectrum, Cloud Spectrum-over-WiFi (CSoW). Therefore users are not permanently using partner networks roaming service and remain at all times in compliance of such usage agreements. iPCS can use several different roaming partner networks (if available) for each WiFi to 3G/LTE transfer between network session switches to obtain best quality of service. See following diagram.



*** END OF DOCUMENT ***