



Axia NetMedia Corp.

# Industry Canada's Spectrum Policy Framework for Canada Consultation Process

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Axia Net Media Corporation ("Axia") makes the following submission in response to Canada Gazette Notice SMSE-011-14 Publication date May 31, 2014, posted on Industry Canada Website May 21, 2014.

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## Executive Summary

Canadians, especially outside of metropolitan areas, require a new national regulatory and policy framework for establishing effective and sustainable competition in mobility and broadband services. This re-energized approach would be consistent with the Government of Canada's renewed commitment to Canadians in rural and remote areas, as seen in the broadband-related announcements in the 2014 federal budget.

The Government of Canada should adopt a policy framework that supports the CRTC implementing regulations that allow either provincial or municipal governments to elect to proceed with focused New Business Infrastructure (NBI) initiatives under their choice of price regulation, on a non-conflicted equal open access basis.

Industry Canada should adopt a new rural/remote wireless infrastructure license approach, licensing the 700MHz spectrum separately for metro and rural areas, working closely with all provinces to implement on a timely basis.

Concurrently, the CRTC should implement regulations that allow either provincial or municipal governments to elect to proceed with focused NBI initiatives under their choice of price regulation, on a non-conflicted equal open access basis.

This new rural/remote spectrum license approach and NBI initiative should pilot in Alberta.

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## 1 Axia Overview

### **Axia owns, operates and sells services over fibre optic communications networks.**

For over a decade, Axia has focused its business in areas where access to high bandwidth fibre infrastructure does not exist. Our success has been driven by our ability to deliver networks that provide our customers with increased choice, and provide communities (in many cases, rural communities) with a reliable infrastructure and resultant economic benefit. Axia is focused on providing services to customers in communities in Alberta, Massachusetts and France.

### **Axia delivers a distinctive value proposition to the market.**

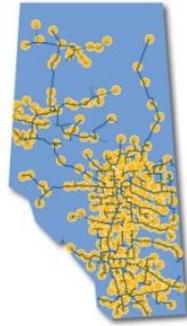
The success of our approach is evidenced by our growing footprint and increasing usage of our networks. Our goal is to be the preferred service provider of digital transport services delivered over high performing fibre optic networks, in the regions we operate.

- *Focus on fibre transport connectivity:* Axia's focus is on delivering the highest quality and most affordable digital transport services, freeing our customers to choose the Web Services which best meet their needs.
- *Support public policy, deliver infrastructure and increase competition in under-served regions:* Axia fosters competition by separating the network from the services provided over that network, thereby increasing the customer's choice of services and providers. Unlike the traditional Telco model, Axia's approach creates a value chain of industry players that each excel at delivering their core competency. The result is a transformation to markedly improved performance and service, lower cost and increased choice of services and providers for the end-user. Axia is fully aligned with principles of net neutrality.

### **Axia's priority is to drive long-term, broadband growth by increasing market penetration.**

With our established market position, Axia is focused on the following strategic imperatives:

- *Bringing new services to market:* To increase the use of our networks we invest in state-of-the-art electronics, and operating and business systems, to introduce next generation services to meet customer demands;
- *Connecting new customers to our networks:* We increase penetration of our addressable market through the connection of enterprises and government sites, wireless towers and selective Fibre to the Premise (FTTP) initiatives; and
- *Selectively expanding our network footprint:* We invest in our existing geographic regions to expand our addressable market in ways that are commercially attractive. We also manage investment in and disposition of networks to ensure our unique value proposition is recognized and the ongoing growth opportunity is attractive on a risk-adjusted basis.



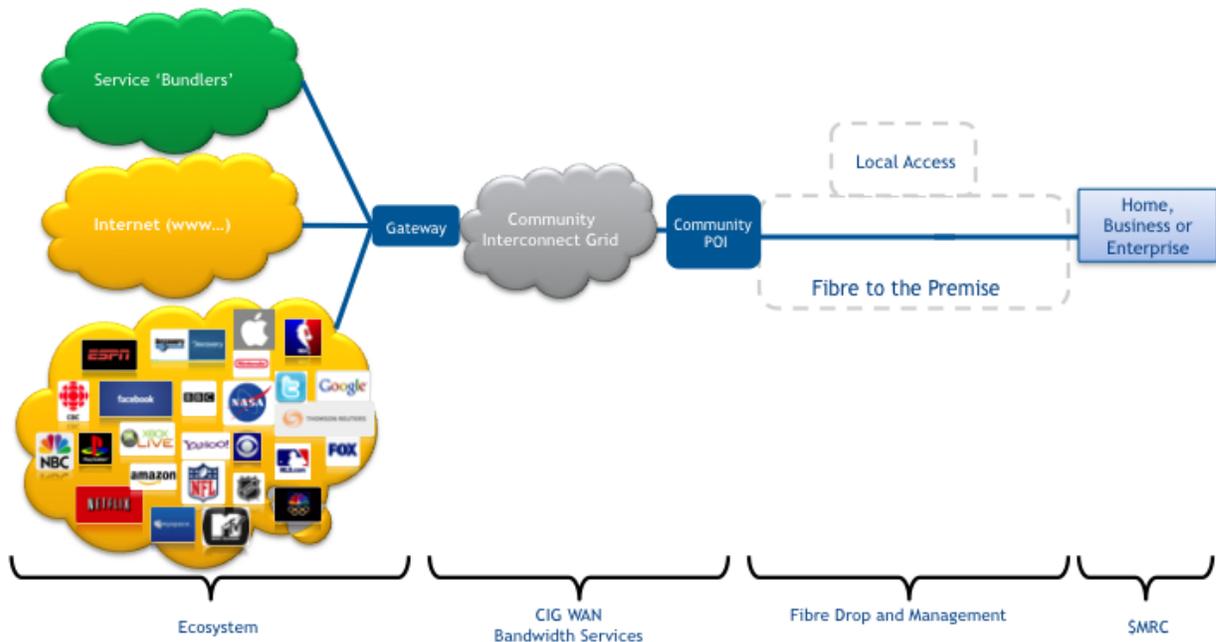
<b>Jurisdiction:</b>	North America: Alberta, Canada	North America: Western Massachusetts, USA	France
<b>Name:</b>	Axia	Axia NGNetworks	Covage
<b>Primary Services:</b>	Bandwidth	Bandwidth Dark fibre	Bandwidth Dark fibre
<b>Network Status:</b>	Operational	Early Activation	Operational
<b>Axia Ownership:</b>	100%	100%	50%
<b>Network Activation:</b>	2005	2014	2010
<b>Fibre length:</b>	13,000 kms	2,150 kms	8,530 kms
<b>Headcount:</b>	128	6	130
<b>Customer Connections:</b>	4,921	113	4,792
<b>Infrastructure Replacement Cost:</b>	\$380.0 million	\$70.0 million	\$290.0 million
<b>Axia's Investment:</b>	\$40.0 million	\$0.4 million	\$90.0 million
<b>Operating Structure:</b>	Combination of owned fibre networks and operating agreements with the Government of Alberta. The end of the current term on the operating agreement is June 30, 2018	Operating agreement with the state is a renewable ten year licence – initial term ends in 2023	Combination of owned fibre networks and concession agreements with regional communities with terms of varying lengths (from 15 years to 25 years) with terms ending from 2019 to 2037

## 2 The Next Generation Value Chain

The following diagram illustrates the value chain that creates the optimal competitive environment, performance and choice for the end-user:

- Service Bundlers: Application providers that have “on the ground” presence and local relationships with the associated jurisdiction.
- Peers: Major Web Services that are globally renowned as leaders in their domains.
- Internet: All other Web Services available on the World Wide Web.
- Community Interconnect Grid (CIG): Connects the local community POI with fibre back to the closest Internet Gateway with end-to-end fibre. Standardizing bandwidth rates across the CIG eliminates the digital divide, empowering the economics for community investment in fibre. Alberta’s SuperNet is an example of a CIG in action in Canada today.

- Fibre to the Premise: connects each home, business, enterprise and public sector facility with fibre back to the community POI.



### 3 Global Industry Background

#### 3.1 Sustainable Policy Leveraging the Next Generation Business Model

1. Axia has invested in Next Generation Networks in Canada, USA, France, Spain and Singapore. Related, Axia has developed strong partnerships by collaborating with governments around the world on Next Generation Network policy development. Our team has worked with governments in Australia, New Zealand, Scotland, Ireland, Japan, Finland, Qatar, Kuwait and Tunisia. Axia implements its unique business model in markets where government policies have concluded that the legacy Incumbent carrier approach will not enable acceptable competition and effective choice for end-user sustainably.
2. The global standard for Internet Protocols (IP) has enabled economies of scale and dramatically reduced the cost of technology to individual customers as long as the Ecosystem amortizes the cost of elements of a solution over many customers. Where competition exists, choice of functionality, service provider and cost all favour end user value. The benefits of an efficient marketplace are evidence in the rapid and entrepreneurial emergence of the ecosystem players.

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## 3.2 Next Generation Network Technical Summary

1. Next Generation Networks leverage IP standards, which provide a platform for anything we can see, hear, calculate and store. As a result, regulating the voice call and the TV content is no longer relevant to “pro-competition policy framework” for the end-user.
2. Fibre optic networks;
  - Eliminate distance, time and isolation between locations,
  - Have no effective capacity limitation from an end-user perspective, meaning that one fibre connection is all that is necessary for the foreseeable future,
  - Are less expensive than copper networks to build and maintain,
  - Are future-proof for digital connectivity between fixed points, and
  - Are fundamentally fixed cost and therefore public policy cannot rely on competing fibre networks at the residential or SME premise.
3. The platforms to provide sustained evolution of high performance digital connectivity already exists; fibre for fixed wire line and Wi-Fi/LTE for mobility. What is missing is the new commercial/regulatory framework that aligns the technology with the end-user interests on a sustained basis.

## 3.3 Telco and Cable Company Policy Implications

1. The legacy copper networks are out of date from a technology perspective, and are in a business/regulatory framework that promotes oligopolies in lieu of competition.
2. In all cases evolution to a “pro-competition policy framework” is compromised by vested interests and a history of telecommunications and cable company regulation that was based on regulating the charge for a phone-call or typically the content of a TV broadcast. The regulatory framework did not extend to the cost of the basic infrastructure or Internet services.
3. Historical legacy Incumbent Telco and Broadcast TV regulation is counterproductive in achieving a “pro-competition policy framework” because carriers get anti-trust exemptions on the presumption that they are regulated, when in fact the regulations are now dysfunctional from the customer’s perspective.
4. Elements of Web services being bundled into the Incumbent’s services including media and content are fundamentally conflicted with end-user choice. This is only achievable because the Incumbent has unregulated control over the network to the premise. This is why consumer advocates and Web Service providers argue for Net Neutrality; legacy Incumbents opposes it.
5. From the end user point of view the barrier to choice of Web services today is the legacy Incumbent fixed wire line network to their premise. This is as a result of no effective competition in fixed wireline even where both the Cable company and the Telco exist. True competition would allow customers the choice of content provider independent of data transportation provider.
6. The vast majority of premises in non-metro areas have only the legacy Telco as a fixed wire line provider.
7. Smart mobile devices are dependent on data functionality (as opposed to just voice) and therefore require access to a fibre grid to ensure end-user wireless performance. As a result competition in mobility is compromised in markets where the non-Incumbent mobile carrier must rely on their competitor’s fibre network for backhaul. This happens typically in non-metro markets.
8. Incumbent carriers naturally strive to extend their oligopolistic fixed wire line position to all telecommunication services and content and have been very effective in Canada

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in sustaining high prices for consumers. Some examples of their expansion of services are mobility, media rights, cloud services, data centres and security.

9. It is not possible to effectively regulate an Incumbent carrier that has integrated network services in addition to Web services, hosting services, cloud services and mobility. No regulator in any other sector would believe they could effectively manage "cost based regulation" given the complexities and breadth of the services in the Incumbent portfolio.
10. User demand for broadband far outpaces the Incumbent's capability to offer acceptable bandwidth performance but the existing copper network is too profitable to the Incumbents for them to invest in fibre networks.
11. Incumbents challenge pro competition and choice policy changes. They argue that pro competition / choice changes would give them a right to compensation, on the basis that conditions of their original investment have changed. Overall in Incumbent view, there is no need to augment current regulations as they feel their services are satisfactory.

## **4 Pro-Competition Next Generation Network Policy Structurally Separates Network Infrastructure from Web Services**

1. Define New Basic Infrastructure (NBI) as:
  - The fibre between the end user premise and the aggregation point in a community,
  - New towers in a community, and;
  - The fibre between the new tower and the aggregation point in that community.
  - The fibre between communities.
2. Eliminate ownership conflicts of interest by requiring that only parties that do not participate in any element of the Ecosystem services are eligible to own NBI.

This structure enables sustained competition in the value chain at the digital content ecosystem level and it enables control of the single purpose fibre grid pricing through effective cost based regulation. The benefits of sharing the costs of the infrastructure are passed along to the end users as opposed to being kept by the Incumbents.

This policy framework is proven in France and Singapore which created competition and compelling end user value using these principles. It is a policy approach which Canada should strongly consider in order to generate similar positive results.

## **5 Specific Challenges in Canada**

1. Metro, rural and remote geographical diversity exists in essentially all provinces.
2. Canada has national regulation in telecom but regulated entities evolved from provincial structuring that have different degrees of public ownership at multiple government layers.
3. Legacy integrated Incumbent carriers have dominant roles in each region and in every aspect of telecom.

4. Other comparable infrastructure facilities (water, sewer, power, roads, right of ways) are all under provincial and/or municipal government control. As such, attendant regulatory approaches are inconsistent.
5. Telecommunication performance in Canada outside of metropolitan areas is compromised by a lack of proactive policy resulting in the Incumbent's insufficient bandwidth offerings at an inflated price point.
6. Many residents live outside towns and cities. Their only practical solution is coverage by specialty parties using the 700 MHz spectrum in competition with the incumbent mobility provider.

## 6 A Policy Road Map for Canada

### Overview:

We appreciate the specific nature of Industry Canada's consultation. While we have included some key references in response to the technical questions asked of stakeholders, we have also endeavoured that Axia's submission address the key policy objectives of Canada's national telecommunications framework, those being:

- Robust investment and innovation by wireless telecommunications carriers so that Canadians benefit from world-class networks and the latest technologies;
- Sustained competition in the wireless telecommunications services market so that consumers and businesses benefit from competitive pricing and choice in service offerings; and
- Availability of these benefits to Canadians across the country, including those in rural areas, in a timely fashion.

The policy recommendations below relate to the above objectives. They also address some of the key components of the Government of Canada's previous consultation on the 700MHz policy and technical framework. From Axia's perspective, key findings from this consultation can also be used as the federal government manages its current exercise specific to 2000-2020 MHz and 2180-2200 MHz.

### 6.1 CRTC

1. Implements regulations that allow either provincial governments or municipal governments to elect to proceed with NBI initiatives under their choice of price regulation provided that;
  - The ownership of NBI is by private sector companies which have no affiliates that participate in the Ecosystem, the licensed wireless sector or have competing copper facilities.
  - The NBI is available to any party licensed by the CRTC on an equal open access basis.
  - In addition, the NBI entity is eligible to provide bandwidth and Internet services directly to end-users.
2. Implements regulations that prohibit other parties from building fibre or tower infrastructure where NBI is implemented under this policy.
3. Agrees to use its regulatory powers to cause the use of copper to be terminated 5 years after the implementation of the NBI if requested to do so as part of the commercial framework that the local government used to secure the NBI at the outset.

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## 6.2 Industry Canada

1. Policy framework supports the NBI initiative of CRTC.
2. Adopts a new rural / remote wireless infrastructure license approach;
  - License the 700 MHz spectrum separately for metro and rural-remote.
  - For rural remote wireless infrastructure run the competition based on best coverage, value and performance of service from the end user perspective. No upfront license fees should be required. Rigorous performance criteria must be met or the license will be lost.
3. Industry Canada should pilot the rural remote 700 MHz spectrum approach in Alberta (please refer to Axia's public submission on Spectrum in Appendix 1).

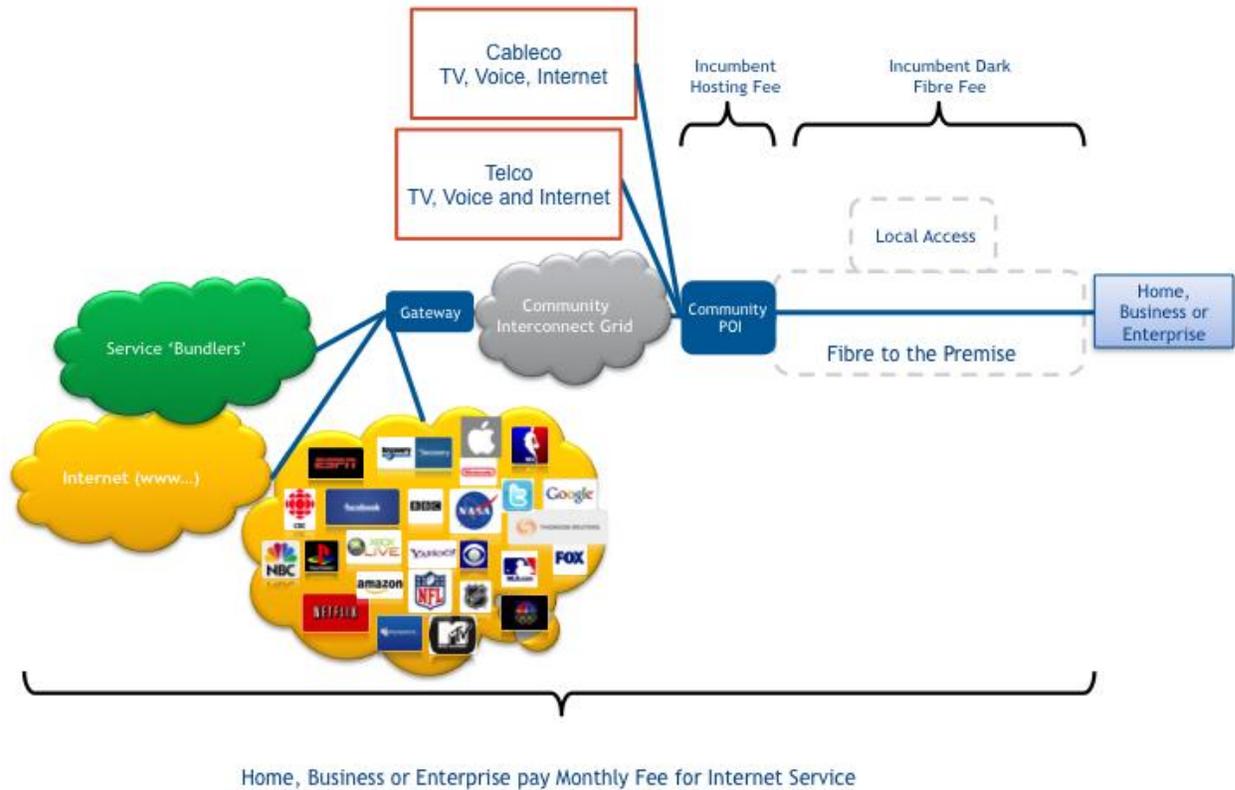
## 6.3 Government of Canada Writ-Large

1. Given success of SuperNet model in Alberta, federal policy-makers should engage with Axia (as the solution developer) to gain insights into proven best practices, lessons learned, operational challenges and opportunities. Return on investment of sizable Budget 2014 commitment to high-speed broadband in rural/remote areas (\$305m over five years) realized by leveraging existing Canadian industry leadership and expertise.

## 7 Implications of these Policies

1. The framework for evolution to effective competition in both FTTP based services and mobility services would be created at the national level.
2. Local governments are empowered and can choose priorities and needs for their evolution to FTTP and 700 MHz LTE.
3. The Incumbents have equal and affordable access to NBI; they simply have to compete with the new Ecosystem from a level local infrastructure playing field.
4. Alberta is an ideal first adopter as Alberta already has an independent fibre grid between all the rural remote communities. The fibre grid is available for both FTTP and rural / remote wireless companies, and promotes competition between mobility players.
5. Each level of government could choose whether and how to target financial support at the NBI, as it would get maximum leverage in the form of coverage and price to the End-user through the competitive license process. Use of other local infrastructure would be optimized.
6. Each level of government could choose whether or how to target financial support at the rural 700 MHz spectrum, as such financial support would get maximum leverage in the form of coverage and price through the competitive license process.
7. The end-users have the opportunity to drive their own access to Next Generation Network eco-systems by supporting the NBI and rural and remote wireless infrastructure as customers and through engaging their local governments.
8. The current outdated regulatory framework would only apply to legacy copper. The private sector, with local governments, would be able to implement the NBI without financial support and have access to the Next Generation Value Chain within the current ARPU typically charged by integrated Incumbents.
9. Local levels of government have the opportunity to specify the optimal pricing structure for sustainable access to each element of the network infrastructure. See below for two potential options available to the customer for acquiring services:

- a. Cable and Telco traditional packaged services. Telco pays “hosting fee” and “dark fibre fee” to the holder of the NBI and sells its services to the end customer.
- b. Next Generation Network Internet services. Customer purchases Internet services directly from the NBI holder.



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## Appendix 1

### **Spectrum is limited and lucrative in High Density Markets**

Anyone involved in the mobile broadband space will know that spectrum is a very limited commodity and in recent years has become extremely expensive to obtain. The last major auction of spectrum in Canada was the 105 MHz of Advanced Wireless Services (AWS) band in 2008, which netted the federal coffers \$4.3 billion. The value is driven by its ability to create profits in metropolitan and high density markets.

The 700 MHz spectrum has unique characteristics that make it extremely desirable in rural broadband applications. Its comparatively low frequency allows for a longer range and is better than higher frequency spectrum at penetrating buildings, which gives end-user a more reliable signal when they move indoors.

The trade-off is that these lower frequencies require larger antennas, which are harder to fit into handheld devices. All things being equal, a 700 MHz antenna needs to be about twice the size of a comparable AWS antenna. That means you either use a 700 MHz antenna which makes the handheld devices larger and less convenient, or you use their existing antennas which do not handle 700 MHz well, resulting in lost calls, which cancels out 700 MHz's benefits of increased range and penetration.

In rural low density markets the cost of the wireless tower and backhaul infrastructure makes any end user broadband service relatively expensive even if no purchase price is attributed to the 700 MHz spectrum.

However, it is feasible to split the licenses into those that apply to high density markets and those that target the rural, low density markets.

### **Choosing the best answer**

The Government of Canada has two choices:

- 1) *Add the new 700 MHz spectrum into existing cellular mobile frequencies, which slightly adds to the overall capacity while foregoing the unique range and penetration benefits of this spectrum; or*
- 2) *Split the 700 MHz spectrum into rural and urban licenses so that rural Canada is not lost yet again in the lucrative urban wireless pool.*

The AWS auction held in 2008 took the first approach, setting aside 40% of the spectrum for acquisition by new entrants to the wireless space. The net effect of this approach in rural Canada has been insignificant. The new entrants have focused on selecting the profitable metropolitan areas and have not had any material impact on rural broadband.

Auctioning off the 700 MHz spectrum gives us the opportunity to bring next generation network connectivity and all its benefits to rural Canada, and rural Canadians cannot afford to miss this opportunity.

### **Rural is Different**

With the exception of the mandatory telephone voice provision of the old Public Switched Telephone call network, telecom policy has failed rural Canada. The incremental revenue does not cover incremental infrastructure expenses and the Incumbent Telcos simply do not invest in rural Canada. The original copper telephone lines were built under a regulated

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monopoly framework through which the rural network costs were pooled with urban costs. This pooling approach has never applied to broadband, so rural residents and businesses have been left behind.

Now, with the smart phone reliance on data traffic more than voice traffic, rural mobility options are becoming limited to the mobility service provided by the telephone Incumbent.

Unless there is an alternative supplier of broadband services, rural residents will continue to be subordinated to an unregulated monopoly where the Incumbent carrier continues to charge whatever the market will bear on both its legacy copper network and its mobility wireless network. The foundation of a lasting optimal rural broadband service solution must have the following characteristics:

- *An independent broadband service sector that can compete with the Incumbent on a sustained basis.*
- *Open Neutral Access to a fibre backhaul grid that is not controlled by the Incumbent and is priced on the same basis as exists in metropolitan markets. (This eliminates the distance dislocation of the rural community.)*
- *Access to economics of shared towers that are not under the control of the Incumbent. (Rural markets cannot support duplicated tower infrastructure or Incumbent monopoly tower access pricing.)*
- *Access to the 700 MHz spectrum in rural markets without the burden of a licence purchase fee. (The licences should be awarded based on a competitive bid in respect of quality, cost and the coverage of the broadband service.)*

This approach would maximize the rural coverage for broadband without depending on the government for grants and ongoing financial support.

### **The Auction Solution is Simple**

First, structure the auction blocks into rural and urban regions, so the urban licenses do not interfere with rural areas, and allow all of the entrants to compete for all of the urban licenses.

Second, set aside the rural areas for a new kind of auction. The significant cost of reaching Canada's unserved rural regions – creating the infrastructure of fibre and towers – does not allow for any capital to be spent on acquiring spectrum. Instead, bidders should be required to bid three parameters for each geographical region and each frequency "block" of rural spectrum they want in that region:

- *The percentage of rural customers in that block that will be reached.*
- *The service options including quality and quantity that will be offered to the rural customer.*
- *What fees that they will charge for their services.*

Spectrum should then be awarded to those bidders with the best mix of these parameters and winning bidders should be given a finite time period in which to meet those obligations. Bidders could include any organization willing to make the commitments, and should explicitly include interested jurisdictional governments.

### **Alberta Has a Head Start**

The Government of Alberta has taken a leadership position on solving the rural broadband issue through its Rural Broadband Initiative and therefore may be best positioned to leverage the 700 MHz spectrum for the benefit of rural Albertans. Alberta already has an

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independent broadband service sector, a province wide fibre backhaul grid and has made a start on the tower pool. Consequently, Alberta is uniquely positioned to leverage the 700 MHz spectrum for the benefit of rural Albertans.

Axia believes that in Alberta, or any other province showing such leadership, the provincial government or its agent should be given all of the rural 700 MHz spectrum under a rural set-aside, at no cost to government, provided that:

- *The government in turn does not charge mobile broadband application providers*
- *The government makes it available to its independent broadband service providers in an open access model similar to that which is the foundation for the Alberta SuperNet. It would be made available on an ongoing basis to allow for incremental growth in coverage, and to allow smaller providers equal opportunity at bidding for access.*
- *The government seeks the widest possible, economically practical rural coverage and agrees to return any spectrum to Industry Canada for any rural areas not eventually covered by a licensed service provider.*

### **The Incumbent would simply have to compete with the independent sector in the rural market**

In Alberta there is a growing wireless service provider sector comprised of more than 70 independent WISPs that create an alternative to the Incumbent. Key enablers for the Alberta independents are backhaul and tower access services provided by Axia. Axia's services are enabled by a province wide fibre grid that interconnects Alberta's rural communities with the metro communities called the Alberta SuperNet. In addition, Alberta is implementing a province wide emergency first responders' wireless communication system that uses frequencies in the 700 MHz spectrum. This system will add substantially to the wireless tower infrastructure in rural Alberta.

This approach would also create the shared infrastructure economics for the licensed mobility sector that is intended to compete with Telus but otherwise would be relegated to roaming on the Telus network in rural Alberta.