

Consultation on Repurposing the 600 MHz Band

**Initial Comments of
the Public Interest Advocacy Centre
("PIAC")**

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TABLE OF CONTENTS

1. Introduction and Overview	1
Spectrum Policy and Trade-offs.....	3
2. OTA: An Adored, Accessible, Affordable, Auspicious Alternative	4
Current use of OTA in Canada	4
The Importance of OTA: An affordable alternative to costly distribution platforms.....	5
The Accessibility Promise of OTA.....	8
The Technological Promise of OTA	11
The need to promote OTA, not foreclose it	12
3. Spectrum policy objectives, and the need for an OTA policy	13
4. Position on repurposing the 600 MHz band.....	14
5. Conclusion.....	15
Appendix “A” - Access to television over time in Canada, and comparatively	

1. Introduction and Overview

- 1) The Public Interest Advocacy Centre (“**PIAC**”) makes the following comments in respect of Gazette Notice SLPB-005-14 (January 3, 2015) *Consultation on Repurposing the 600 MHz Band* (the “**600 MHz Consultation Document**”), as amended by Gazette Notice SLPB-001-15 (January 24, 2015).
- 2) Recently, PIAC has made submissions in Industry Canada’s consultations in respect of the AWS-3,¹ AWS-4,² and 3.5 GHz bands,³ and previously PIAC provided comments in the consultations in respect of a spectrum transfer policy,⁴ the 700 MHz⁵ band and the AWS-1⁶ band. PIAC, alongside other public interest groups⁷, also participated extensively in the Let’s Talk TV⁸ proceeding initiated by the Canadian Radio-television and Telecommunications Commission (the “**CRTC**”).
- 3) The 600 MHz Consultation Document seeks comments on all aspects related to the repurposing of the 600 MHz band to mobile use. As Industry Canada notes, current users of the 600 MHz band include over-the-air (“**OTA**”) TV broadcasting, remote rural broadband systems (“**RRBS**”), low-power apparatus such as wireless microphones and camera systems, television white space (“**TVWS**”) devices and wireless medical telemetry systems (“**WMTS**”).
- 4) The focus of these initial comments is on the proposals that affect OTA broadcasting.
- 5) In what follows, PIAC submits that some of Industry Canada’s proposals, trading off broadcasting spectrum for telecommunications (mobile) purposes, may hinder the potential

¹ Gazette Notice SLPB-004-14 (August 2, 2014) - Consultation on the Technical, Policy and Licensing Framework for Advanced Wireless Services in the Bands 1755-1780 MHz and 2155-2180 MHz (AWS-3).

² Gazette Notice SMSE-011-14 (May 31, 2014) - Consultation on a Policy, Technical and Licensing Framework for Use of the Bands 2000-2020 MHz and 2180-2200 MHz.

³ Gazette Notice DGSO-003-14 (September 6, 2014) – Consultation on Policy Changes in the 3500 MHz Band (3475-3650 MHz) and a New Licensing Process in Rural Areas.

⁴ Gazette Notice DGSO-002-13 (March 16, 2013) - *Consultation on Considerations Relating to Transfers, Divisions and Subordinate Licensing of Spectrum Licences*.

⁵ Gazette Notice DGSO-002-12 (May 5, 2012) — Consultation on a Licensing Framework for Mobile Broadband Services (MBS) — 700 MHz Band; and Gazette Notice SMSE-018-10 (November 30, 2010) — Consultation on a Policy and Technical Framework for the 700 MHz Band and Aspects Related to Commercial Mobile Spectrum.

⁶ Gazette Notice DGTP-002-07 (February 16, 2007) — Consultation on a Framework to Auction Spectrum in the 2 GHz Range including Advanced Wireless Services.

⁷ The Groups for the Public Interest consisted of the Public Interest Advocacy Centre, the Consumers' Association of Canada, the Council of Senior Citizens Organizations of British Columbia, the National Pensioners Federation, Option consommateurs and the Canadian Ethnocultural Council.

⁸ Broadcasting Notice of Consultation CRTC 2014-190, 2014-190-1, 2014-190-2 and 2014-190-3

of over-the-air (“OTA”) broadcasting in Canada, at a time when Industry Canada should be promoting that potential. OTA is an adored, accessible, affordable and auspicious alternative to expensive alternatives, and it should be promoted, not restricted.

- 6) Currently OTA is used by 7.3% of Canadians. 76% of Canadians have access to at least 5 channels; and 97% of Canadians live within range of a transmitter. Compared to other countries, including the United States, and notably Australia and the United Kingdom, OTA is a relatively underutilized television platform. (See Appendix “A”)
- 7) In PIAC’s view, OTA broadcasting is an affordable, accessible alternative to costly distribution platforms which continue to increase in price for consumers. As an alternative to traditional and online delivery models, OTA can provide competitive stimulus to vertically integrated (“VI”) incumbent broadcasters
- 8) In PIAC’s view, a near-consistent increase in the rates Canadians pay for BDU services and internet access service in recent years has been a function of the highly concentrated and vertically integrated nature of the Canadian broadcasting sector, and the Canadian communications industry more broadly, with a handful of firms owning the programming, distribution, and telecommunications (increasingly IP based) infrastructure over which broadcasting is increasingly being delivered. Comparatively, operators of OTA services unaffiliated with these VI firms, face major obstacles in procuring content and reaching audiences, despite their potential to act as competitive discipline as an affordable (free), independent, alternative to the VI firm’s offerings. As such, PIAC believes it is important to secure a future for those broadcasters.
- 9) OTA, while possibly perceived as ‘old’ technology, holds great technological promise in terms of offering high signal quality, and multiplexing a number of distinct broadcasting offerings within one channel.
- 10) To foreclose on the promise of OTA would be at odds with the CRTC’s recent affirmation of OTA’s importance. It would also signal that commercial mobile spectrum specifically, and online access, more generally, is the future of broadcasting consumption, which PIAC believes should not be a foregone conclusion in light of ongoing broadband affordability and accessibility challenges in Canada.
- 11) to the extent Canada will follow the U.S. in the 600 MHz spectrum conversion from broadcasting spectrum to commercial mobile spectrum, then Industry Canada should make efforts to ease the transition to new frequencies for OTA stations and actively assist the public in making this transition.

- 12) In either case, PIAC encourages Industry Canada, alongside the CRTC, to develop an OTA TV policy framework that provides OTA broadcasting (and its viewers) with a stable future, rather than serial re-assignments to accommodate for mobile spectrum displacement.

Spectrum Policy and Trade-offs

- 13) Radiofrequency spectrum is a scarce public resource, and connectivity is increasingly important to Canadians. At the same time, mobile wireless spending by Canadians represents a large and increasing household expense, as part of steadily increasing household bills for communications services.⁹
- 14) As PIAC documented in its comments in the AWS-3 Consultation, the importance of mobile wireless services in meeting Canadian consumers' communications needs has grown substantially over the last several years and continues to do so. As well, for an increasing proportion of Canadian consumers, wireless telecommunications services have supplanted wireline services.¹⁰ PIAC does not repeat those submissions here.
- 15) PIAC has therefore generally welcomed proposals to licence more commercial mobile spectrum to address the needs of Canadians, particularly those living in rural and remote areas.¹¹ PIAC's emphasis has generally been on promoting more competition and choice in wireless services, and access to high quality services wherever Canadians may be located. This is not just the view of PIAC, it is one of the policy objectives for recent¹² and upcoming¹³ spectrum auctions.
- 16) At the same time, the uses to which spectrum are put represent a multidimensional trade-off.
- 17) An example of those trade-offs was seen recently in the 3.5 GHz spectrum consultation, where concerns over the repurposing of fixed spectrum to mobile spectrum raised broad-based concern by fixed service providers, predominantly in Canada's less populated areas, and the users of those services for internet access. PIAC was one of many interveners who raised concerns¹⁴, and also questioned the drive to mobile. PIAC was pleased that the Minister heard the widespread concerns, and addressed them in a change in policy.

⁹ See Figure 1.

¹⁰ Comments of PIAC on the AWS-3 Consultation at para. 6 *et seq.*

¹¹ See e.g., Comments of PIAC on the AWS-4 Consultation (June 23, 2014) at para. 2.

¹² See e.g., *Policy and Technical Framework - Mobile Broadband Services (MBS) — 700 MHz Band and Broadband Radio Service (BRS) — 2500 MHz Band*, SMSE-002-12, (March 2012); *Licensing Framework for Mobile Broadband Services (MBS) — 700 MHz Band*, DGSA-001-13 (March 2013); and *Framework Relating to Transfers, Divisions and Subordinate Licensing of Spectrum Licenses for Commercial Mobile Spectrum*, DGSO-003-13, (June 2013); AWS (2008), 700 MHz (2014).

¹³ 2500 MHz.

¹⁴ Despite the challenges associated with fixed wireless service, PIAC questioned (i) the need at this time for a geographically differentiated strategy designed to put more mobile spectrum to use

- 18) In the 600 MHz Consultation, another trade-off is being proposed: a potential trade-off between OTA broadcasting, and commercial mobile spectrum. Although the amount to be repurposed has yet to be decided, the amount ranges from 20 MHz to 120 MHz, from an upper limit of 698 MHz to a lower limit to be decided (ranging from 678 MHz to 578 MHz).¹⁵
- 19) The trade-off is not dissimilar to the trade-off at issue in Industry Canada's consultation on the policy and technical framework for the 700 MHz band¹⁶, as PIAC explains later.
- 20) To examine the effect of the proposed trade-off, it is first necessary to situate OTA broadcasting within the broader communications environment in Canada. The next section addresses this.

2. OTA: An Adored, Accessible, Affordable, Auspicious Alternative

- 21) In this section, PIAC highlights the current use of OTA by Canadians, the cost of communications services in Canada, the technological promise of OTA, and the importance of OTA.
- 22) In PIAC's view, OTA is an adored, accessible, affordable, auspicious alternative to other broadcasting distribution platforms, and it should be promoted, not foreclosed.

Current use of OTA in Canada

- 23) OTA television use by Canadians has been in decline since the mid-1990s, with a report prepared for the CRTC in 2006 showing 9.7% of Canadians used over-the-air in 2006, down from 21.3% in 1995.¹⁷ However that report also showed significant regional differences in

in "urban" areas, and (ii) how the proposed urban-rural differentiation might affect customers of incumbent fixed wireless service providers currently in the band. (Comments of PIAC, October 8, 2014, at paras. 20, 32, and 39 *et seq.*)

PIAC also expressed the view that moving away from fixed service in the 3.5 GHz band to satisfy the trend towards mobile consumption, despite there not presently being a device ecosystem, and in spite of widespread concerns by rural stakeholders about disruption of existing services, would be contrary to the SPFC. Doing so would also be an unrequired regulatory measure, and one that is not minimally intrusive, efficient and effective. (PIAC Reply Comments, November 17 2014, at para. 74).

¹⁵ 600 MHz Consultation Document at para. 4.

¹⁶ Canada Gazette, Part I, Notice No. SMSE-018-10 – *Consultation on a Policy and Technical Framework for the 700 MHz Band and Aspects Related to Commercial Mobile Spectrum*.

¹⁷ Canadian Media Research Inc, "How Many Canadians Subscribe to Cable TV or Satellite TV?" (August 2006), online: <<http://www.crtc.gc.ca/eng/publications/reports/radio/cmri.pdf>> at 9.

OTA usage, from 3.2% in Newfoundland to 14.3% in Quebec.¹⁸ Usage also declined as a result of the analog-to-digital switchover for major urban centres and Provincial capitals in 2011.

- 24) According to a Harris/Decima Report tabled by the CRTC as part of its TalkTV proceeding, 5% of Canadians currently watch TV using an antenna.
- 25) The most recent study conducted by Numeris for the Television Bureau of Canada, polling 263,465 people across the country, showed OTA is still being used by 7.3% of Canadians (2,594,449 people by 2014 population estimates).¹⁹
- 26) According to the Chairman of the CRTC, OTA antennas are “ingenious devices”: 76% of Canadians have access to at least 5 channels through OTA transmission, and in some cities 15 or more channels. Furthermore, 97% of Canadians live within range of an OTA transmitter.²⁰
- 27) As part of the recent Let’s Talk TV proceeding, the CRTC proposed to allow local stations to shut down their OTA transmitters, which resulted in a flurry of negative reaction on the CRTC’s public comment system.²¹ OTA antenna enthusiast communities are still active online,²² and some businesses cater to the OTA consumer market by selling and installing OTA antennas.²³
- 28) OTA, while representing a relatively small proportion of broadcasting consumption in Canada, is a very popular medium amongst those who use it, and it is a disproportionately important medium, for a number of reasons, as explained in the next section.

The Importance of OTA: An affordable alternative to costly distribution platforms

- 29) OTA’s reach, both actual and potential, is as attractive as its cost to consumers: an upfront equipment cost (digital antenna), and thereafter no monthly subscription fees. When compared to *all* other monthly communications expenses, the value proposition to consumers is obvious.

¹⁸ *Ibid* at 11.

¹⁹ Television Bureau of Canada, “TV Reception by Type” (August 2014), online: <<http://www.tvb.ca/pages/tvreceptiontype>>; Statistics Canada, “Canada’s population estimates: Age and sex, 2014” (26 September 2014), online: <<http://www.statcan.gc.ca/daily-quotidien/140926/dq140926b-eng.htm>>.

²⁰ Speech, Jean-Pierre Blais to the London Chamber of Commerce on Let’s Talk TV and the future of television (29 January 2014).

²¹ See online: <<http://www.crtc.gc.ca/broadcast/eng/hearings/2014/2014-190oc2.htm>>.

²² Digital Home OTA Television Forums, online: <<http://www.digitalhome.ca/forum/forumdisplay.php?f=81>>.

²³ See e.g. The Antenna Guys, online: <<http://www.theantennaguys.com>>; Save and Replay, online: <<http://www.saveandreplay.com>>.

- 30) Figure 1 below shows the monthly household “spend” of Canadians on various communications services, including paid television access through a subscription through a broadcasting distribution undertaking (“BDU”), internet access service, mobile wireless service, home and home phone service.

Figure 1 – Monthly Household Communications “Spend” – 2009-13²⁴

Year	BDU Service (incl DTH, IPTV)		Internet Access		Mobile Wireless		Home Phone		Total Household Communications Expenditures		Inflation
2009	\$55.36		\$35.49		\$53.91		\$50.64				
2010	\$58.78	6.2%	\$36.45	2.7%	\$53.69	-0.4%	\$48.63	-4.0%			1.8%
2011	\$60.58	3.1%	\$38.44	5.5%	\$52.67	-1.9%	\$47.23	-2.9%	\$180.95		2.9%
2012	\$61.19	1.0%	\$40.70	5.9%	\$54.03	2.6%	\$46.18	-2.2%	\$185.25	2.4%	1.5%
2013	\$62.85	2.7%	\$43.98	8.1%	\$54.88	1.6%	\$46.75	1.2%	\$191.12	3.2%	0.9%

- 31) As the figure shows, Canadians have been spending increasing amounts on consuming BDU service, internet service, and mobile service, and less on home phone. In the past two years for which PIAC was able to find total monthly information, the net rise in monthly communications expenses has exceeded inflation.
- 32) These increases in communications services costs (where they are available in Canada) – each an essential service – poses an affordability challenge for low income Canadians.
- 33) OTA therefore is an attractive alternative to terrestrial distribution, and the more channels available in OTA, the more attractive that alternative becomes to those wishing to customize how they consume broadcasting. The same can be said for comparing OTA to accessing broadcasting “over-the-top” (“OTT”) via an internet connection. Whereas OTA does not require a BDU subscription, or an internet connection, OTT access does.
- 34) The Chairman of the CRTC, in referring to OTA antennas as “ingenious devices”, stated that “Digital television antennas such as these bring OTA television signals into our homes at a cost that beats even the best packages offered by the major service providers.”²⁵
- 35) In the recent CRTC policy decision coming out of the TalkTV proceeding, the CRTC affirmed the importance of OTA transmission to Canadians, and required conventional television licensees to maintain an OTA presence in order to retain certain regulatory privileges.

²⁴ PIAC research based on data from CRTC and from Statistic Canada. Year-over-year comparisons posed challenging due to inconsistent tracking, use of different data sets, and differing assumptions. PIAC used raw revenue data divided by subscribers, and adding on the “household” expenditures and inflation.

²⁵ Speech, Jean-Pierre Blais to the London Chamber of Commerce on Let's Talk TV and the future of television (29 January 2014).

The Commission considers that over-the-air television reception plays an important role in the Canadian broadcasting system, at this time, particularly with respect to the local and Canadian programming offered by conventional television stations. The Commission also considers that it is in the public interest that Canadians continue to have access to this inexpensive means of receiving Canadian programming.²⁶

- 36) The CRTC could not have been any clearer about the importance of OTA, and the potential of it.
- 37) OTA is in many communities a critical form of access to news and information. In some cases, and as the CRTC noted in its latest decision concerning Canada's National Public Alerting System, OTA access, and more specifically OTA access from "smaller broadcasters, such as Native, campus and community radio and television programming undertakings [...] may be the primary or only source of local information to their audiences."²⁷
- 38) At the same time, with OTA's potential to reach up to 97% of Canadians, the advertising potential for Canadian broadcasters and advertisers should not be written off in a move toward more targeted, behaviourally profiled advertising using information based on their use of smartphones and information collected via their set-top boxes.
- 39) While PIAC recognizes the perspective that residential broadband may be "cross-elastic" with OTA TV, and the concomitant view that OTA is a relatively inefficient use of spectrum compared to broadband, that implies that broadband access is indeed *available*, and *affordable*, a state which PIAC believes may not exist in Canada. Indeed, one proponent of that view questioned: "If universal broadband is achieved in an area, why is TV broadcasting needed?"²⁸ In PIAC's view, even if and when a state of affordable universal broadband is achieved in Canada, OTA will remain a vital access technology. OTA must therefore be retained and indeed promoted.
- 40) Furthermore, PIAC questions (as PIAC did in the context of the 700 MHz band) the "inefficiency" view of OTA. Echoing comments by the Canadian Association of Community Television Users and Stations PIAC questioned then, and questions now, the underlying assumption that mobile wireless is the most efficient use of the spectrum and that broadcasting is a less efficient use of spectrum. As PIAC noted, "Broadcast of a national

²⁶ Broadcasting Regulatory Policy CRTC 2015-24 - *Over-the-air transmission of television signals and local programming* (29 January 2015) at para. 14.

²⁷ Broadcasting Regulatory Policy CRTC 2014-444 and Broadcasting Orders CRTC 2014-445, 2014-446, 2014-447 and 2014-448 - *Amendments to various regulations, the standard conditions of licence for video-on-demand undertakings and certain exemption orders - Provisions requiring the mandatory distribution of emergency alert messages* (29 August 2014) at para. 16.

²⁸ See Michael J. Marcus, "On Improving the Efficiency of Limited Spectrum", Presentation to The Canadian Spectrum Summit, (2 May 2013) at 14.

event on TV is in fact more spectrum-efficient than having millions of individuals download the same event on their handset.”²⁹ Furthermore, efficient use of spectrum can be made by providing broadband internet to rural areas, thereby addressing consumers’ longstanding calls for broadband internet as an essential service in Canada. Efficient use of spectrum can also be made for public safety, education, innovation, cultural and linguistic programming and ensuring accessibility of products and services to people with disabilities.

- 41) From a privacy perspective, PIAC also believes OTA represents a way for consumers apprehensive about being tracked online and via their set-top box, to consume broadcasting content anonymously. PIAC believes privacy in broadcasting consumption is increasingly becoming a concern to consumers, with reports of one “smart” (internet-connected) TV manufacturer warning users of its smart TV not to reveal any personal information in front of it.³⁰

The Accessibility Promise of OTA

- 42) As PIAC argued as part of a coalition of several public interest groups in the CRTC’s TalkTV proceeding, OTA television has potential to grow and expand, even as some Canadians are considering “cord cutting” or “cord shaving”. A report by Strategy Analytics in the U.S. found that while the number of pay TV subscribers dropped by 588,000 in 2013, home antenna use rose by 7% from about 20 million households in 2012 to 21.5 million households in 2013.³¹ Some platforms such as Boxee even include an antenna with the purchase of their software application.
- 43) The potential for OTA was also recognized in a 2009 report on OTA for the CRTC:

The second area of potential “understatement” of local OTA TV revenues is the “incremental” advertising revenue arising from increased audience and revenues given the presence of an OTA transmitter. Most broadcasters now view transmitters as an unfortunate regulatory obligation rather than an incremental revenue source. This was certainly not always the case, as a relatively small portion of off-air viewing (as low as 3-5%) can still translate into increased audience and revenues that pays for transmission infrastructure. While off-air TV viewers are likely not to be major TV viewers, their viewing universe is inherently limited to a few OTA channels, rather than the hundreds of

²⁹ Reply Comments of PIAC in SMSE-018-10 (March 30, 2011) at 5.

³⁰ The Globe and Mail, “Smart TV eavesdropping on you? It’s not the only one” (9 February 2015) online: <http://www.theglobeandmail.com/technology/smart-tv-eavesdropping-on-you-its-not-the-only-one/article22880424/>. An excerpt from Samsung’s privacy policy read: “Please be aware that if your spoken words include personal or other sensitive information, that information will be among the data captured and transmitted to a third party through your use of Voice Recognition.”

³¹ 24/7 Wall St., “Pay TV Shows Troubling Subscriber Trends” (15 April 2014), online: Market Watch <<http://www.marketwatch.com/story/pay-tv-shows-troubling-subscriber-trends-2014-04-15>>.

channels most BDU subscribers receive. Moreover OTA transmission is the only way many DTH subscribers can receive local programming from their local broadcaster. Thus a small percentage of off air viewing can actually represent an even greater percentage of a station's audience.

Moreover, the must carry status of OTA TV historically afforded by virtue of having a local transmitter clearly still represents a clear and material audience and revenue increment over discretionary "highest penetrated tier" carriage.³²

- 44) At the TalkTV public hearing, Dr. Gregory Taylor explained the promise of OTA in depth.³³ As PIAC had,³⁴ Professor Taylor noted the widespread support of Canadians for OTA filed by individual Canadians³⁵, and suggested that OTA had an untapped potential to help Canadians access broadcasting affordably, compared to via data-capped online access (which in some areas, PIAC notes, may not be available).

16339 Indeed, I come to praise and resuscitate over-the-air television, not to bury it. Before we pull the national plug on this foundational sector, that until 10 years ago was referenced in this room as "the cornerstone" of the system, let's give it a proper chance to make a contribution. Simply put, Canadians have never seen the true capabilities of digital over-the-air television. Canada has continued to approach the OTA sector from a 20th century perspective, when 21st century digital over-the-air can be so much more.

16347 Under correct policy guidance, Canada can create a more vibrant OTA sector via multicasting which could assist in maximizing choice, instead of trapping the public into BDU contracts with little viable alternatives. Using sub-channels as avenues for new broadcasters as per the American model, Canada could introduce a wider variety of non-vertically integrated programming sources. Canada already has independent OTA broadcasters such as CHEK-TV in Victoria and CHCH in Hamilton. Allowing access to less expensive over-the-air sub-channels could encourage new players in the market.

- 45) Dr. Taylor argued that OTA should be expanded, not curtailed, for the following reasons:

- (i) continued viewership of tradition television;
- (ii) limiting the power of dominant BDUs (which PIAC notes are affiliates within an oligopoly of vertically integrated telecommunications and broadcasting companies);
- (iii) "Internet architecture has not yet matured to the point where it can replace over-the-air, which has no data cap"; and

³² Peter H. Miller, *The Business of Canadian OTA Television: Prepared for The Canadian Radio-television and Telecommunications Commission* (2009), online CRTC
<<http://www.crtc.gc.ca/eng/publications/reports/miller09.htm>>.

³³ Transcript of Proceeding, Volume 7, 16 September 2014, *Let's Talk TV: A Conversation with Canadians* at 16333 *et seq.*

³⁴ At 3294-95

³⁵ At 16338.

(iv) OTA offers a way to enfranchise or re-enfranchise certain elements of the Canadian population that otherwise could not or would not be able to access broadcasting services.³⁶

- 46) As PIAC argued, even while some TV consumers are considering cutting the cord, many are still keeping their antennae in order to access television available over the air, including local news and weather programs. OTA television could thus play a key role in sustaining, and even growing, local television stations. PIAC (and others) therefore encouraged the CRTC to examine the potential for OTA television to expand, and design policies to actively encourage that expansion.
- 47) PIAC, as part of a coalition of public interest groups, argued at the hearing that OTA transmission offers an accessibility benefit, and is a popular alternative to expensive cable packages.³⁷

³⁶ At 16351-56.
³⁷ Transcript of Proceeding, Volume 7, 9 September 2014, *Let's Talk TV: A Conversation with Canadians*.

3441 THE CHAIRPERSON: So on the October date.

3442 I'd like to -- I had a couple more issues here, and I don't know which one I should deal with.

3443 Okay, let's talk about the -- I can't remember your words, Mr. Lawford, but something about the abolition of over-the-air television. I clearly understand your position, especially if you're taking it from an affordability perspective, that over-the-air television is a lot more accessible to the extent that you're able to acquire the equipment to get over-the-air television. I get that and I don't want to go any further on that.

3444 But there are some places in the country where, because of topography, that over-the-air signals are not a significant source of programming. There are places, for instances, in the Jonquière/Chicoutimi area where it's less than 2 per cent of people actually rely on over-the-air there.

3445 Is your view -- you seem to argue that as long as there's a significant number of people that are benefiting from it that we should maintain the over-the-air system. Is that correct?

3446 MR. LAWFORD: I think that's absolutely correct, if I may just jump straight in. Yes, it's super efficient. You have, from the evidence filed on the end of last week, only \$17 million a year to pay for coverage of probably three-quarters of Canadians, because that's where folks are in urban areas where they can get most of the signals, and there are some border places where they can get more.

3447 That's a super-efficient way to this. So shutting them down and losing all the benefits to those people who can get the accessibility benefit, or use it as a complement to their BDU service, it just -- it does not seem to be at all a rationale regulatory approach.

The Technological Promise of OTA

- 48) OTA broadcasting, while vulnerable to perceptions of being antiquated and anachronistic, holds great technological promise. This promise is based on OTA's current reach, and possible capacity and quality improvements, relative to alternative broadcasting access platforms of cable, satellite, and OTT.
- 49) In the recent policy decision coming out of the TalkTV proceeding, the Commission recognized the comments made about the technological promise of OTA.

Multicasting, the use of one digital transmitter by one or more broadcasters to transmit several programming services at the same time using the same spectrum resources, was brought up by several participants in the online consultation as well as by interveners in Phase 3 of the consultation. In his intervention and hearing presentation, Dr. Gregory Taylor, Post-Doctoral Fellow at Ryerson University, suggested that over-the-air broadcasters have yet to explore the true capabilities of digital over-the-air television and that Canadian broadcasters should explore signal multicasting. Dr. Taylor also argued that a more vibrant over-the-air sector could be a way to maximize choice for Canadians and provide a viable alternative to cable and satellite subscriptions.³⁸

- 50) These technological developments and possibilities include digital subchanneling and multicasting.
- 51) Multicasting, which packs together multiple broadcasting streams into the 'digital subchannels' of a single OTA channel, has been a technical possibility for Canadian broadcasters since the digital television standard (the ATSC standard, defined in 1995) was adopted by Industry Canada in 2006.
- 52) According to media reports, OTT service Netflix encodes their video streams with the following bitrates: 2.2 Mbps for standard definition, and 3.8 Mbps for 720p high-definition.³⁹ Using this quality standard, OTA multicasting would be able to pack two 720p high-definition channels and one standard-definition channel into one OTA channel, or four standard definition channels into one OTA channel.⁴⁰ Multicasting could also be used for audio-only broadcasts, with up to 30 5.1-channel audio streams, or 100 stereo audio streams.⁴¹

³⁸ Broadcasting Regulatory Policy CRTC 2015-24 - *Over-the-air transmission of television signals and local programming* (29 January 2015) at para. 11.

³⁹ Janko Roettgers, "EyeIO: Netflix's secret weapon against bandwidth caps?" (1 February 2012), online: <<https://gigaom.com/2012/02/01/eyeio-video-encoding-netflix/>>.

⁴⁰ The majority of consumer equipment implements an older version of the ATSC standard with an outdated video compression algorithm (MPEG-2). Netflix uses a more recent standard (MPEG-4 AVC) for its standard definition and high definition streams which achieves the same perceived video quality at half the bitrate of MPEG-2, and uses the latest standard (HEVC) for its ultra high definition streams which achieves the same perceived video quality at a quarter of the bitrate of MPEG-2.

⁴¹ ATSC uses the Dolby AC-3 standard for audio. Dolby recommends 640kbps for 5.1 audio, and 192kbps for AC-3 stereo audio.

- 53) Further, the ATSC digital TV standard has been in a process of updating over the last many years. ATSC 2.0, designed to be an incremental update so that broadcasters do not need to invest significantly in new transmitter equipment, is nearly completed.⁴² The new standard contains the capability for: receivers in mobile devices, storing received broadcasts for playback on demand, interactivity through ‘triggers’ that activate content on a receiver or from the Internet and significantly higher quality through newer video compression.⁴³ The ATSC 3.0 standard is also being developed in parallel, which promises even greater efficiencies and new possibilities.⁴⁴
- 54) In Canada, PIAC understands that at this time only CFTV-TV Leamington has received authorization from the CRTC⁴⁵ for a multicast OTA service, with 4 channels, but that other broadcasters are preparing to take advantage of OTA’s technological promise, at a time when prioritizing mobile services risks foreclosing that promise.

The need to promote OTA, not foreclose it

- 55) In light of the foregoing, PIAC believes it would make no sense to foreclose on OTA transmission, which is free for consumers, in favour of mobile wireless service (which continues to become more expensive), and leaving consumers with only two main access mode for broadcasting: via a BDU or via an ISP (each also becoming more expensive).
- 56) Given the affordability and accessibility of OTA, its popularity among current users (representing a significant minority of Canadians who might otherwise not have any access to broadcasting), and given its technological promise, OTA is, or could be in an auspicious position – one that is favourable to great success. Therefore OTA as an efficient, accessible alternative to expensive BDU and ISP subscriptions should be expanded, not curtailed.
- 57) In that light, PIAC provides its responses to the two central questions posed by Industry Canada in this consultation: the overall proposal of repurposing the 600 MHz band in line with the U.S. (Consultation Question 1), and the anticipated future spectrum requirements

⁴² A candidate standard was released in November 2014, see online:
<http://www.atsc.org/cms/standards/cs_documents/S13-550r18-CS-ATSC-2.0.pdf>.

⁴³ Lynn Claudy, “TV’s Future: The Broadcast Empire Strikes Back” (29 November 2012), online:
<<http://spectrum.ieee.org/consumer-electronics/audiovideo/tvs-future-the-broadcast-empire-strikes-back>>.

⁴⁴ Skip Pizzi, “ATSC 3.0: Next Generation Broadcast Television” online:
<<http://www.atsc.org/cms/bootcamp/ATSC3.pdf>>. ATSC 3.0 was recently tested at the Consumer Electronics Show in January 2015, see: Richard Doherty, “ATSC Technology Shines at CES” online: <<http://atsc.org/newsletter/2014/02/atsc-technology-shines-at-ces/>>.

⁴⁵ Broadcasting Decision CRTC 2012-446, *CFTV-TV Leamington – Licence amendment*, online:
<<http://www.crtc.gc.ca/eng/archive/2012/2012-446.htm>>. See also, online:
<<http://cftvdt.tv/stations/>>.

for OTA TV broadcasting in Canada (Consultation Question 2). PIAC makes no comments at this time on the other, largely technical considerations raised in the 600 MHz Consultation Document.

3. Spectrum policy objectives, and the need for an OTA policy

- 58) Canada's spectrum policy objective is "To maximize the economic and social benefits that Canadians derive from the use of the radio frequency spectrum resource,"⁴⁶ and one of the "enabling guidelines" for this objective states that "spectrum should be made available for a range of services that are in the public interest."⁴⁷ In developing licensing frameworks for commercial mobile spectrum, Industry Canada has generally stated that it will be guided by the objectives stated in section 7 of the *Telecommunications Act*,⁴⁸ and the policy objective stated in the *Spectrum Policy Framework for Canada* to maximize the economic and social benefits that Canadians derive from the use of the radio frequency spectrum.
- 59) In PIAC's view, in light of the importance of OTA to Canadians, and the technological promise of OTA, the shuffling and shortchanging of OTA broadcasting for commercial mobile spectrum, while imposing an indeterminate moratorium on new applications for TV broadcasting certificates for all classes of TV stations, favours commercial mobile wireless carriers at the expense of OTA broadcasters and those who rely on it, and puts the future of OTA in doubt.
- 60) PIAC believes that this approach does not maximize the economic and social benefits that Canadians derive from the use of the radio frequency spectrum.
- 61) As PIAC noted in the context of the 700 MHz band, again there is much more at stake than the interests of the major wireless companies.⁴⁹ Suspending OTA licensing and placing OTA on uncertain footing, for the third time in recent years, puts at stake the interests of local broadcasters and people who rely on free OTA access. It also, in the drive toward favouring mobile service and broadband access, favours dominant, vertically integrated communications incumbents who have shown a reluctance to provide OTA service, and affordable (let alone free) basic access to television.
- 62) PIAC therefore calls on Industry Canada to work with the CRTC to develop a policy framework for OTA which would entail a broad public consultation and the development of long-term policy and research objectives for OTA broadcasting. This framework is vital to providing clarity and certainty for Canadian OTA users and broadcasters, and direction for

⁴⁶ Gazette Notice DGTP-001-07 (June 2007) *Spectrum Policy Framework for Canada*.

⁴⁷ *Spectrum Policy Framework*, Enabling Guideline (b).

⁴⁸ Telecommunications Act (S.C. 1993, c. 38)

⁴⁹ Reply Comments of PIAC in SMSE-018-10 (March 30, 2011) at 4.

Industry Canada, the CRTC and other policy makers in determining the future course of OTA broadcasting. OTA policy cannot be suspended in such a position that is tossed at whim in one direction or the other based on the needs of other policies, such as those related to commercial mobile spectrum. Industry Canada and policy makers must make the future of OTA broadcasting policy explicit and transparent.

- 63) In its recent, initial policy decisions from its TalkTV proceeding, the CRTC suggested that the importance of OTA reception “may” diminish over time, and explicitly linked that suggestion to recognition that Industry Canada was consulting on the repurposing of the 600 MHz band.⁵⁰ In PIAC’s view, this is a clear indication that the fate of OTA is largely in the hands of Industry Canada, despite the CRTC’s mandate and the numerous socio-cultural policy objectives under the *Broadcasting Act*. It is therefore, in PIAC’s view, imperative that the two regulators work jointly on a policy framework, based on active engagement with one another, and with the Canadian public. Failing that, Industry Canada may impair the CRTC’s ability to fulfil its mandate to Canadians.

4. Position on repurposing the 600 MHz band

- 184) Based on the foregoing comments, PIAC *opposes* the proposal to repurpose the band until Industry Canada and the CRTC have arrived at a policy framework for OTA.
- 185) If Industry Canada nevertheless proceeds with the proposed repurposing of the band, then PIAC urges Industry Canada to make provisions that minimize costs and disruptions for both broadcasters and consumers wishing to avail themselves of OTA. In this regard PIAC notes that Industry Canada believes that its proposal, which “is expected to impact virtually all OTA television broadcasters”,⁵¹ can be accomplished in a way that “ensure[s] that Canadians can achieve maximum benefits with minimum disruption of broadcast services.”⁵² While PIAC appreciates this commitment, PIAC believes that any repacking must be done in a way that (i) does not impose the transition costs on the OTA broadcasters; (ii) results in sufficient spectrum reserved for future OTA services; and (iii) eases or eliminates any cost to consumers to switch or upgrade OTA reception apparatus.

⁵⁰ Broadcasting Regulatory Policy CRTC 2015-24 at para. 20:

The Commission recognizes that in light of changing technology and new platforms for broadcasting, reliance on over-the-air television reception may diminish in the future. To this end, the Commission notes that the Department of Industry has initiated a consultation on repurposing spectrum in the 600 MHz band, one of the bands used for over-the-air television.

⁵¹ 600 MHz Consultation Document at para. 21.

⁵² 600 MHz Consultation Document at para. 18.

- 186) In terms of transition costs, PIAC believes those need to be measured and accounted for, and not imposed upon OTA broadcasters. While in the U.S. the FCC will be proceeding with an incentive auction, which Industry Canada notes is “designed to facilitate the repurposing of spectrum by encouraging TV broadcasters to voluntarily relinquish some or all of their spectrum usage rights in exchange for proceeds from an auction of the new mobile licences”,⁵³ it is not clear if Industry Canada is, or will be, proposing such a compensation mechanism for current 600 MHz licensees given that the Canadian plan as proposed will be entirely contingent upon, indeed automatically tied to, the outcome of the U.S. auction. Given that, it is unclear what commercial interest there may be in compensating OTA operators, and whether wireless service providers affiliated with OTA operators may favour themselves to the detriment of smaller, independent OTA operators.
- 187) More broadly, PIAC believes that to the extent Canada will follow the U.S. in the 600 MHz spectrum conversion from broadcasting spectrum to commercial mobile spectrum, Industry Canada should make efforts to ease the transition to new frequencies for OTA stations and actively assist the public in making this transition. At the same time, Industry Canada should not ignore the U.S.’s significantly higher commitment to universal broadband.
- 188) PIAC also believes that Industry Canada should explore the use of prospective 600 MHz licensing mechanisms to enhance Canadians’ access to broadcasting and telecommunications service, including exploring the use of the proceeds from any licensing to contribute to a OTA transition fund, or alternatively imposing a condition of licence on 600 MHz mobile spectrum licensees to contribute to such a fund. In this regard PIAC notes that Industry Canada has imposed a research and development obligation (2% of the company’s adjusted gross revenues from the use of the spectrum) on licensees of certain spectrum, and that no party has ever opposed Industry Canada’s authority to do so. Rather, a principal objection by some in the wireless industry to the R&D requirement was that no other country imposed such a R&D requirement. In PIAC’s view, Industry Canada could impose as a condition of spectrum licence the contribution to an OTA transition fund, the parameters of which could be defined in conjunction with, or independently by, the CRTC.

5. Conclusion

- 184) PIAC concludes these initial comments by reiterating the view that in making any tradeoffs in the assignment and use of spectrum, Industry Canada must not ignore the broadcasting promise of OTA in the rush toward mobile use which only benefits mobile service providers and their customers who are able to afford their increasingly expensive plans.

⁵³ 600 MHz Consultation Document at para. 14.

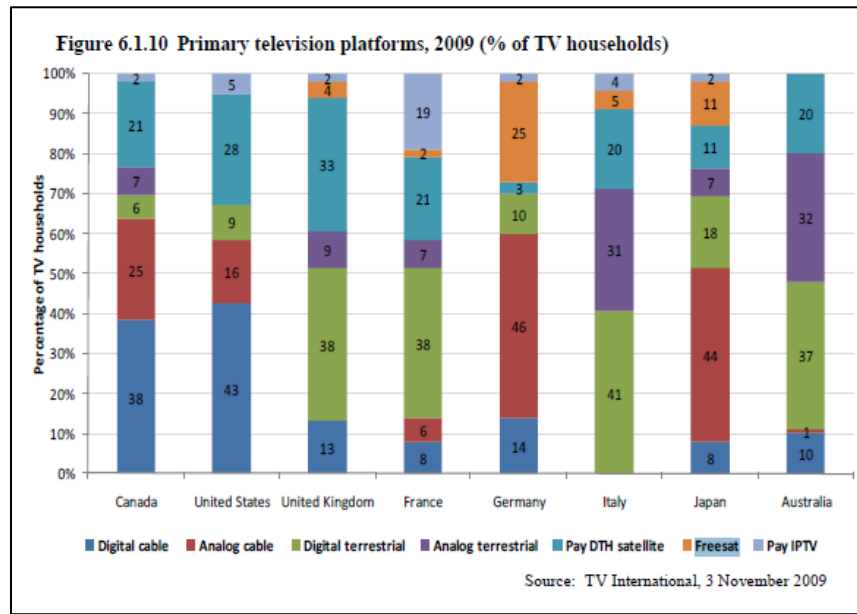
- 185) OTA is an adored, accessible, affordable, and auspicious alternative to expensive BDU and ISP subscriptions, and its potential should be expanded, not curtailed.
- 186) Industry Canada, in conjunction with the CRTC, should develop a policy framework and comprehensive plan for the future of OTA TV that provides OTA TV with a stable, predictable environment, with no disruptions to OTA broadcasters, no disruptions to viewers.
- 187) Any decision to tie Canadian spectrum policy in respect of the 600 MHz spectrum to U.S. decisions should preserve Industry Canada's ability, through its licensing powers, to ensure Canadians do not have to pay for any resulting transition costs, and are not worse off, economically, as OTA signals fade away in favour of paid subscription models.

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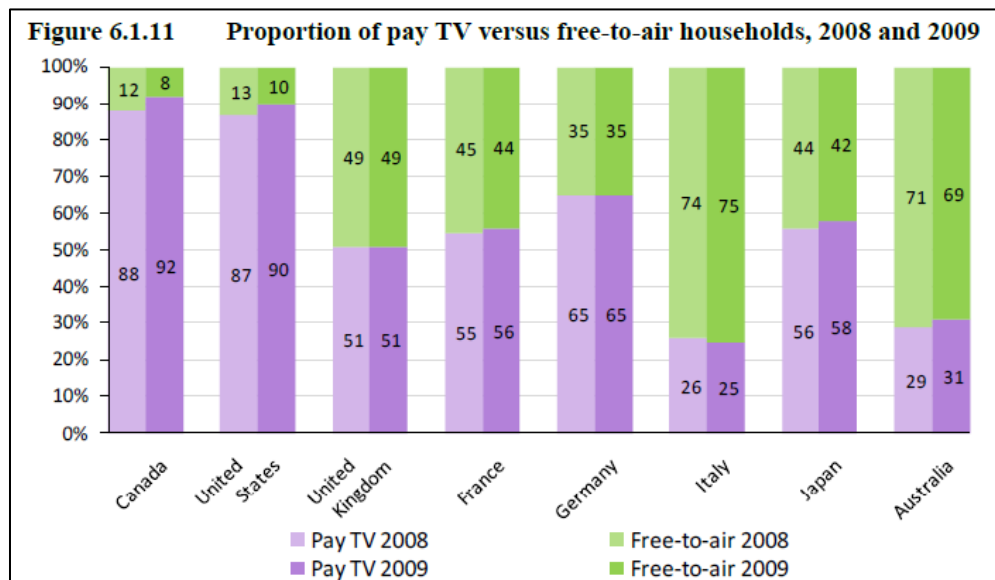
Appendix “A” - Access to television over time in Canada, and comparatively

Sources: CRTC Communications Monitoring Reports 2009-2014

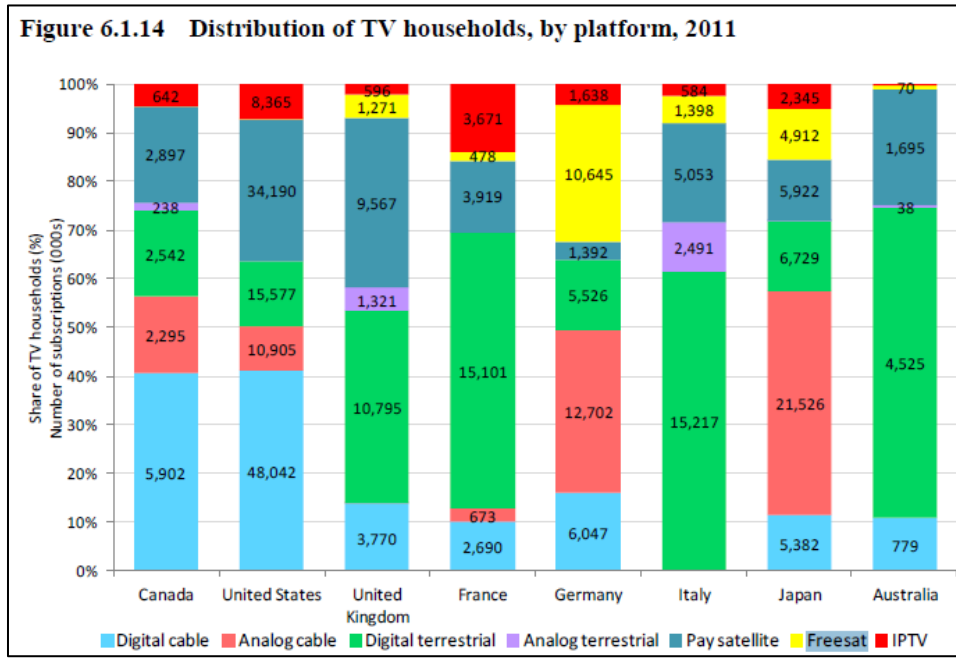
Primary television platforms, 2009 (% of TV households)



Proportion of pay TV versus free-to-air households, 2008 and 2009



Distribution of TV households, by platform, 2011



Proportion of pay TV versus free-to-air households 2012

