



Canadian Media Guild

La Guilde canadienne des médias

CWA/SCA CANADA

May 13, 2009

Robert Morin
Secretary General
CRTC

Submitted electronically

Dear Mr. Morin:

Please accept the attached document as fulfillment of our undertakings from the hearing for CRTC 2009-113 of May 7, 2009.

Respectfully submitted,

Karen Wirsig
Communications Co-ordinator
Tel: 416-591-5333, ext. 243
karen@cmg.ca

Canadian Media Guild

Undertakings requested by the CRTC Panel

- A: Estimate of the numbers of Canadians to be left behind by the transition to digital TV
- B: Comparing the costs of Multiplexing and Freesat
- C: Combining the multiplexing and freesat models to ensure no one is left behind

2009-113

May 13, 2009

Undertaking A - CRTC 2009-113

Estimating the number of Canadians to be left behind by the broadcasters' "Hybrid" plan

The Canadian Media Guild accepted an undertaking to "...file the number of Canadians who may not have a signal if we move to the hybrid model." As indicated in the Guild testimony last week, determining this number with a degree of accuracy would normally entail significant research effort.

In the short time available, an alternative approach is therefore required. The basic premise of this analysis is if one cannot measure something directly it is often possible to estimate its value indirectly using one or more indirect measurement techniques. This is somewhat analogous to the premise of one of the regular TV series running on Global on Friday evenings called "Numbers." The premise of the show revolves around two brothers, one an FBI agent and the other a mathematician. The mathematician uses a variety of mathematical models and indirect measurements to help solve the crimes featured in each episode.

We analyzed three basic units of measurement: population, households and TV sets. Each of these were further refined as to:

- Population by city or region
- Households by city or region
- Average number of people per household
- Total TV sets in operation
- Analogue TV sets in operation
- Digital TV sets in operation
- TV sets connected to a BDU service
- TV sets connected to an OTA antenna
- TV sets per household

Some of these criteria have been measured and the results appear in a number of places on the public record. However the Guild is not aware of any single study that dealt with them all at once.

Nonetheless, here is what we know about these criteria.

For population, the 2006 Census is the current standard for any analysis and study. In this study all numbers and calculations will be normalized to 2006 values to the extent possible.

- 2006 Canadian population – 32,987,532
- 2006 Canadian Households – 12,437,500
- 2006 Canadian Population per Household – 2.65
- 2006 Number of TV sets per Household – 2.2 (US number used as reasonable proxy)
- 2006 Canadian Households subscribing to a BDU Service – 9,978,000 (CRTC Broadcasting Policy Monitoring Report - 2007)

In 2006, there were 2.46 million households in Canada not subscribing to a BDU service. This represents 6.5 million people or 19.8% of the population. This is one measure with which to establish the viewers left behind after the OTA digital transition. OTA viewers will be a subset of this number which also includes households that do not have a TV set or are connected to a Black Market or Grey Market Service.

Another approach to determining how many viewers will be left behind is to determine how many will continue to have access to Digital OTA television after the transition. The evidence submitted by the Guild indicated that 977 communities would be left behind and 9 million to 12 million viewers would not have access to OTA digital television.

The methodology for these calculations is as follows. The statements and evidence placed on the public record by the broadcasters were reviewed to determine which cities would be provided with digital television transmitters. The cities found are shown in Table 1 – Cities Served by New Digital OTA Transmitters.

Table 1 – Cities Served by New Digital OTA Transmitters

Vancouver	Winnipeg	St John's	Regina
Victoria	Toronto	Corner Brook	Saskatoon
Courtenay	Ottawa	Charlottetown	Quebec
Kelowna	London	Halifax	Sherbrooke
Calgary	Hamilton	Sydney	
Edmonton	Woodstock	Fredericton	
Lethbridge	Windsor	Moncton	
Red Deer	Montreal	Yellowknife	

The locations in Table 1 are home to 64% of the Canadian population. These people will have access to digital OTA television. The converse to that is 36% or 12 million Canadians will not. The public record is not totally clear on what other locations may also get transmitters. Some other locations served by CBC affiliates may also be on the list but we won't know until those station owners provide their plans on the public record. CTV have also not been totally clear regarding which transmitters would be upgraded and which would not. In that regard, other locations that may be upgraded are included in Table 2 – Other Possible Cites Going Digital.

Table 2 – Other Possible Cites Going Digital

Dawson Creek	Saguenay	Sudbury
Prince George	Riviere-du-Loup	Timmins
Terrace	Rouyn	Kenora
Lloydminster	Sherbrook	Kitchener
Medicine Hat	Trois-Rivieres	North Bay
Kingston	Barrie	Yorkton
Peterborough	Saint John	
Thunder Bay	Sault St. Marie	

With transmitters in all the locations in Tables 1 and 2, 72% of the Canadian population will have access to digital OTA television. The converse to that is 28% or 9 million Canadians will not. The Broadcasters may have provided the CRTC more insight into this matter during the “In Camera” sessions.

There have been a variety of estimates of OTA viewership placed on the public record ranging from 8% to 12% of the population. These are shown in Table 3 – Number of Canadian OTA Viewers.

Table 3 – Number of Canadian OTA Viewers

Percentage	Population
8%	2,639,003
9%	2,968,878
10%	3,298,753
12%	3,958,504

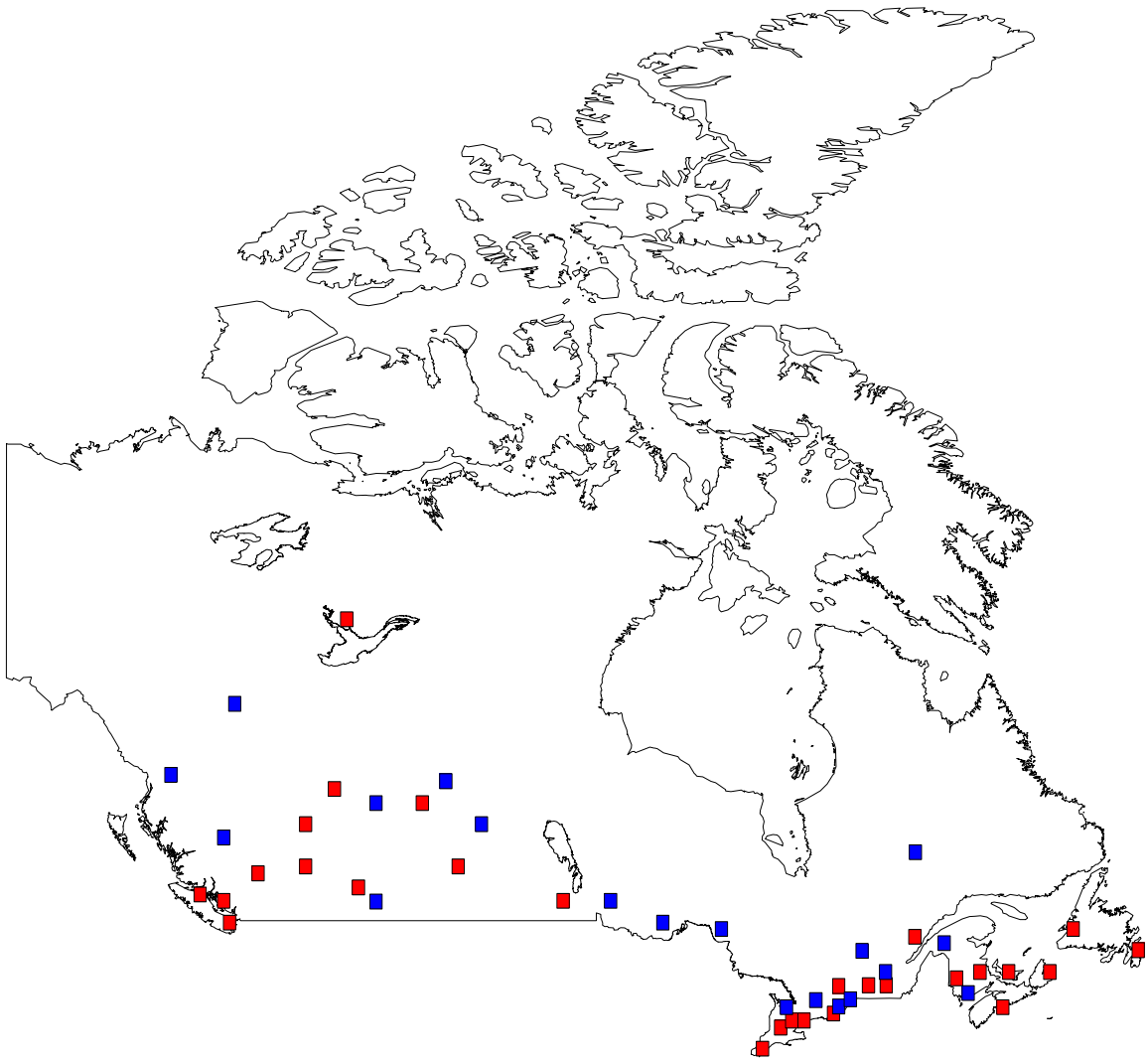
Depending on which of these estimates is correct, 2.6 million to 4 million viewers will be affected. Because of experiences in other countries that have transitioned to digital, where the number of households and TV sets affected were underestimated at the outset, it is more prudent to use the 4 million estimate. For the purposes of this study, we will also assume that these are evenly distributed

across the country. That would leave 1.4 million viewers, or 528k households, behind if the Table 1 communities are upgraded. If both the Table 1 and 2 communities are upgraded, there would be 1.1 million viewers, or 377K households, left behind. The cities from Tables 1 & 2 have been plotted on the enclosed map of Canada for comparison to the Map of Canadian Full Power Transmitters the CRTC place on the record. The cities in Table 1 are shown in red and the cities in Table 2 are shown in blue.

The Canadian Association of Broadcasters estimates that there are 3 million analogue TV sets in Canada not connected to a BDU service. Presumably they are all used for OTA reception. If we assume an even distribution, 840,000 TVs will be left behind if the transition involves Table 1 and 2 cities; 1 million sets would be left behind if only Table 1 cities are upgraded to digital. Assuming some of these are in households that also have a BDU subscription, these numbers support the above estimates of who will be left behind.

To conclude, while no new research was conducted on TV viewing in Canada, we have assembled some pertinent data regarding OTA viewing and the digital transition.

- 19.8% of the Canadian population does not subscribe to a BDU service
- 9 to 12 million Canadians will not have access to digital OTA television after the transition
- 1.1 million to 1.4 million OTA viewers will go dark after the transition
- 3 million TV sets in Canada are not connected to a BDU service



Produced by the Canadian Media Guild in response to a CRTC undertaking May 13, 2009

- OTA Transmitters going Digital
- OTA Transmitters maybe be going Digital

Undertaking B - CRTC 2009-113

Comparing the costs of Multiplexing and Freesat

The Canadian Media Guild accepted an undertaking from Commission Molnar to prepare a cost comparison of the Multiplexing proposal that the Guild presented during the current proceeding with the Freesat proposal that Bell TV presented.

In light of the time available to undertake this cost comparison, some modeling of the key variables involved in the study was required. Costs for both proposals vary depending on how many households are included, on the number of TV Stations included in both proposals and on the geographic location of the TV Stations due to the requirement for a fiber backhaul from each TV station to the Bell TV uplink in Toronto.

For simplicity and clarity this cost comparison will be based on incremental costing only for each alternative based on equivalent parameters for each such as the number of households involved and the number of TV stations involved.

The cost parameters for the Multiplexing model have already been tabled on the public record as part of the Guild evidence and testimony in this proceeding. The cost of the Digital Converter Box required to receive digital television signals on an analogue TV set is \$60. This cost is assumed for every household in the study, although it should be noted that households with a digital television set equipped with ATSC receiver will not require a converter box as they can receive the digital television signal directly. The cost to upgrade a single analogue transmitter including a multiplexer is estimated to be \$156,000, which was the average cost per site, presented in the Guild evidence for all of Canada.

In their evidence Bell TV indicated the cost of a satellite terminal to receive Freesat would be \$500 including installation. There would be \$1million to \$2 million set up costs in the first year. In total, the annual cost for the satellite capacity and other operating costs to support this service were estimated by Bell at \$5 million annually assuming 80,000 subscribers took the Freesat service. Bell TV also indicated that each Broadcaster would be responsible for the cost of the backhaul to the Bell TV Toronto uplink.

Bell TV also indicated in their evidence they expected 30 to 40 TV Stations might participate in the Freesat program. For purpose of this cost comparison we are assuming that 30 TV stations participate and they are evenly distributed across the country. That assumption provides the baseline to estimate the cost of backhaul of local signals to Toronto.

As specific locations were not identified and time was short, supplier quotes for each individual backhaul was not feasible. However, based on typical fiber backhaul rates identified in other parts of our research, a costing approach using average costs from each Province to Toronto was deemed practical. This average costing for backhauls from each Province is shown in Table 1 – Provincial Costing Model for Fiber Backhauls to Toronto, as is the total annual cost for 30 TV stations. Not included in these costs are one-time installation charges that will be site specific for each TV station participating.

Table 1 – Provincial Costing Model for Fiber Backhauls to Toronto

	Monthly Cost per station for a Fiber Backhaul to Toronto	Annual Cost per station for a Fiber Backhaul to Toronto
Newfoundland	\$8,000	\$96,000
Nova Scotia	\$7,000	\$84,000
New Brunswick	\$6,500	\$78,000
Prince Edward Island	\$6,500	\$78,000
Quebec	\$6,000	\$72,000
Ontario	\$5,500	\$66,000
Manitoba	\$6,500	\$78,000
Saskatchewan	\$7,000	\$84,000
Alberta	\$8,000	\$96,000
British Columbia	\$9,000	\$108,000
Total Cost for 10 TV Stations	\$70,000	\$840,000
Total Cost for 30 TV Stations	\$210,000	\$2,520,000

The number of households involved was also an important variable in determining the one-time costs for consumers. For this element of the comparison, the Bell estimate of 80,000 households has been assumed. The total incremental costs for each proposal are compared on a one-year and a five-year basis in Table 2 – Cost Comparison based on 80, 000 Households.

Table 2 – Cost Comparison based on 80, 000 Households

80,000 Households 1 & 5 Year Costs				
	Freesat	Multiplexing	Multiplexing Annualized	Notes
Consumer	\$40,000,000	\$4,800,000	\$4,800,000	Note 1
Broadcasters	\$2,520,000	\$4,680,000	\$234,000	Note 2
Bell TV- One-time	\$1,000,000			Note 3
Bell TV Annual	\$5,000,000			Note 4
Total in Year 1	\$43,520,039	\$9,480,000	\$5,034,000	
Subtotal of broadcaster costs for 5 years:	\$12,600,000	\$4,680,000	\$1,170,000	
Total for 5 years	\$78,600,000	\$28,200,000	\$5,970,000	

Notes:

Note 1. The consumer expenditures in both plans are one-time only costs

Note 2. The backhaul costs shown in the Table are annual costs and the Transmitter upgrade costs are one-time capital costs. To make these more comparable and follow general accepted accounting principles, the capital cost would normally be reflected on an annual basis as a recurring depreciation charge. If we assume a straight-line depreciation over 20 years (estimated depreciation period for transmitters as noted in the Spectrum Expert Report), the one-year charge against earnings from operations for the transmitter upgrades would be \$234,000. The column titled Multiplexed Annualized reflects this methodology.

Note 3. Bell TV estimated the one-time set up costs at \$1 to \$2 Million. In this comparison \$1 million has been assumed. These costs would be paid for from the Bell contributions to the LPIF. It was not clear what type of capital expenditure the set-up costs represent, so we did not assign an average depreciation charge against these costs.

Note 4. Bell TV is only allocating \$1 million per year against the Ka-band space segment used to support this service as it is already in space and a sunk cost for them. With the normal satellite replacement 12 or so years from now, the annual

cost to be recovered could rise significantly. Bell also identified an annual support cost per subscriber of \$50. Based on 80,000 subscribers this would total \$4 million annually. These costs would be subtracted from the annual Bell TV contributions to the LPIF.

From the cost comparison, we draw the conclusion that the Multiplex alternative is the lowest overall cost solution for all the parties involved. Other levels of household participation both higher and lower than those above were also reviewed and the answer was the same in each case: the Multiplex option is lower cost. The main variable driving this difference between the two proposals is the cost to the consumer, the television viewing public.

Undertaking C CRTC 2009-113

Combining multiplexing and free satellite service to ensure no one is left behind in the transition to digital TV

The CRTC heard two proposals for providing local television to the communities slated to be left behind by the digital transition: the Canadian Media Guild's terrestrial "Multiplex" proposal and the Bell TV "Freesat" proposal.

The Canadian Media Guild has absolutely no commercial interest in either proposal. However, we think perhaps the concepts could work well together to ensure that no Canadians are left behind after the transition to digital television.

The Canadian Media Guild's Multiplex proposal involves the use of a single digital transmitter and frequency to provide up to six signals for free over the air. That means that up to six broadcasters could share the cost of installing and maintaining a single transmitter to cover a given community. Current technology allows a single digital transmitter to transmit up to two HD signals and up to six SD signals.

In our research, we estimate that 977 communities that currently have at least one analogue OTA signal are at risk of being left behind by the broadcasters' so-called hybrid plan for the transition to digital television.

Of those 977 communities, 418 currently have more than one OTA broadcaster. In 80% of those 418 communities, OTA broadcasters already share a transmitter location. Some of these broadcasters have an originating station in the community, while others provide repeaters of a nearby station.

We contend that those 418 communities are good candidates for the multiplexing solution because there is already more than one broadcaster present to establish the multiplex and share the infrastructure. The existing broadcasters could then invite other broadcasters in the province to rebroadcast their regional or provincial signal, thereby reducing the shared cost to each.

In the case of Kamloops, for example, there is one local station, owned by Pattison and affiliated to Canwest's E! network. In addition, Radio-Canada and Global repeat their BC signals over the air. The three existing broadcasters could establish a multiplex group and invite CBC, CTV and Knowledge Network to join, thereby providing additional new OTA signals into the community.

Assuming there was full participation by broadcasters in the local multiplex group, viewers would have improved choice of free TV signals. We do not know of any research on the potential take-up, beyond those who currently watch TV over the air in smaller

markets, for an improved OTA service. However, we believe such research would be valuable in informing the digital transition in Canada.

If there was an increase to local OTA viewing, all of the participating stations would benefit, most especially the local station or stations who sell local advertising.

As it became economically feasible to do so, the multiplex group could install additional transmitters to enable an upgrade of the signals from SD to HD, or to accommodate new participants. Furthermore, the multiplex could install repeaters to reach additional communities.

The best way to check the viability of the model is to test it in one or several relevant smaller markets.

Under the Multiplexing-Freesat service combination, local broadcasters would continue to reach their viewers with an over-the-air signal and therefore also with a priority placement on their local cable system in the 418 communities.

The remaining 559 communities to be left behind each only have a single OTA signal and no originating station. The “freesat” model would work best for these single-transmitter locations, providing five or six conventional stations already available via satellite in their province.

A freesat service would therefore be targeted to those, generally more remote, viewers who are not close to a local TV station. It would make sense for such a service to include OTA broadcasters from each province that satellite providers must carry under the new BDU regulations. The satellite provider would already have access to the necessary signals and local broadcasters would be spared the additional \$66,000 to \$108,000 in annual terrestrial backhaul costs related to Bell TV’s Freesat proposal. (These cost estimates are outlined in CMG’s undertaking B.)

In addition, there would be satellite capacity on Freesat for the provincial educational services, which we understand would otherwise be left out of the Bell TV Freesat model. Given the importance of over-the-air viewing for TVO, for example, we believe it’s a priority to ensure the provincial broadcasters are available in their home province to those who currently rely on OTA TV.

A final note on the Bell TV Freesat proposal as a stand-alone solution to the broadcasters’ hybrid plan: we find the estimate of 80,000 for the number of participating households to be low, given that somewhere between 377,000 and 528,000 households stand to be cut off by the broadcasters’ hybrid plan. (See our Undertaking A).

If the Bell TV estimate of 80,000 households is low, the aggregate consumer and administrative costs are underestimated. And if that’s the case, any additional take-up of Bell TV Freesat beyond that estimate will draw even more money out of the Local Programming Improvement Fund and further undermine the original purpose of the Fund.