

Canada needs a spectrum reserve for innovation in the 700 MHz band

Response to Industry Canada Paper Entitled:

*Consultation on a Policy and Technical Framework for the
700 MHz Band and Aspects Related to Commercial Mobile Spectrum*

as published in the

Canada Gazette, Part I

(reference number SMSE-018-10),

on November 30, 2010.

Attention: Manager, Mobile Technology and Services, DGEPS,

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February 28, 2011

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1. Executive Summary

Thank you for the opportunity to provide our views on the specifications for auctioning the 700 MHz band of spectrum. This submission has been prepared by Brendan Howley of Stratford, ON N5A 4C5, a former CBC journalist and now a software/mobile application developer and co-founder of www.thinkstate.com, home of Ubiquid.us. Ubiquid.us is a collective intelligence engine/adaptive focus group for mobile and desktop, designed to provide structured/contextualized business and consumer marketing intelligence to for-profit and non-profit enterprise alike.

2. Spectrum is a scarce public resource that should be used to meet public policy objectives. With that in mind, we make the following recommendations:

- Reserve from auction a band of no less than 2 contiguous 5 MHz in the 700 MHz band for Canadian innovation and to ensure public policy objectives are met.
- Set aside one-quarter of the remaining spectrum in the band for auction to carriers with less than 5% of market share in order to enable the development of more carriers and more consumer choice.
- Prevent new entrants/small carriers who acquire spectrum through the set-aside from transferring or leasing, dividing among, or exchanging that spectrum with an incumbent. Set a lease term of no more than 10 years on all spectrum to be auctioned, and require licensees to pay a portion of the lease fees yearly.
- Establish usage-based criteria for the auction, requiring would-be spectrum users to make both a business case that clearly demonstrates the public value of the services that will be offered with the spectrum, as well as meet a minimum dollar bid for that spectrum.
- Impose a use-it-or-lose-it clause that requires the successful bidder to launch the planned service within three years, or give up the spectrum.

3. Introduction: spectrum is a public resource

Radio frequency spectrum is a scarce public resource. It has a growing number of uses serving both commercial and social ends, notably increasing peoples' access to digital communications and content.

4. The 700 MHz band of spectrum has been called the "gold standard." We recognize that this spectrum is a valuable resource both to telecommunications companies wanting to expand or launch their wireless businesses in Canada and to the federal government as a source of auction revenue.

5. In addition, this spectrum is a valuable resource for citizen communications and new media innovation. Like the water we drink, a public good that can be bottled and sold to us for commercial gain or provided as a public service in our taps, radio frequencies should not be reduced to their monetary and commercial value.

6. Canadian laws that govern the use of our radio frequencies spell out the public policy imperatives. Section 7 of the *Telecommunications Act* affirms that “telecommunications performs an essential role in the maintenance of Canada’s identity and sovereignty.” Among the policy objectives:
 - (a) to facilitate the orderly development throughout Canada of a telecommunications system that serves to safeguard, enrich and strengthen the social and economic fabric of Canada and its regions;
 - (b) to render reliable and affordable telecommunications services of high quality accessible to Canadians in both urban and rural areas in all regions of Canada;
 - (...)
 - (g) to stimulate research and development in Canada in the field of telecommunications and to encourage innovation in the provision of telecommunications services;
 - (h) to respond to the economic and social requirements of users of telecommunications services.
7. Section 3 of the *Broadcasting Act* states that “the Canadian broadcasting system ... makes use of radio frequencies that are public property and provides, through its programming, a public service essential to the maintenance and enhancement of national identity and cultural sovereignty.”
8. If there is a genuine need and wish to consume and share ever-richer data streams, the capacity cannot be delivered endlessly from a finite resource. Instead, the capacity will come from technological development and innovation. Since it is a public resource, that innovation must include new and better ways to improve communications among Canadians.

Key recommendations

9. With the public policy goals in mind for the use of Canada’s scarce public spectrum, we recommend the following for the 700 MHz spectrum band:
 - Reserve from auction a band of no less than 2 contiguous 5 MHz in the 700 MHz band for Canadian innovation and to ensure public policy objectives are met.
 - Set aside one-quarter of the remaining spectrum in the band for auction to carriers with less than 5% of market share in order to enable the development of more carriers and more consumer choice.
 - Prevent new entrants/small carriers who acquire spectrum through the set-aside from transferring or leasing, dividing among, or exchanging that spectrum with an incumbent. Set a lease term of no more than 10 years on all spectrum to be auctioned, and require licensees to pay a portion of the lease fees yearly.
 - Establish usage-based criteria for the auction, requiring would-be spectrum users to make both a business case that clearly demonstrates the public value of the services that will be offered with the spectrum, as well as meet a minimum dollar bid for that spectrum.

- Impose a use-it-or-lose-it clause that requires the successful bidder to launch the planned service within three years, or give up the spectrum.

10. Create a spectrum reserve for Canadian innovation

We propose that 10 MHz (a pair of contiguous 5 MHz blocks) of the spectrum in the “gold standard” 700 MHz band be left out of the auction and reserved for communications and multi-media innovation by a variety of educational, research-based and citizen-based initiatives that would not be in a position to compete in a spectrum auction. It would be grossly inefficient from a public and economic perspective to require such initiatives to “buy back” spectrum on a competitive basis from private entities.¹

11. The innovation projects would be expected to meet public policy objectives, including:
- Research and development on telecommunications and the efficient use of spectrum over the long term
 - Meeting economic and social requirements of Canadians; for example, by offering affordable service in underserved rural and remote areas
 - Providing relevant programming in communities that are currently underserved to ensure the objectives of the *Broadcasting Act* are achieved.

12. I am developing three local nonprofit projects for Stratford and the outlying communities of St Marys and Perth South, which devolve around affordable media bandwidth in a rural jurisdiction. Moreover, those projects mesh with the University of Waterloo’s Stratford Institute, itself a marriage of IT and community capital-building in a small community. In my view—and I have developed both strategy and creative work on multiple mobile “cause marketing” projects for Canadian nonprofits and microproducers here—the prospects for “transitioning” a rural economy from commodity-only to value-add are heavily dependent on “frictionless” telecom. That Stratford has bet a goodly portion of its economic future on digital innovation in the shape of the Stratford Institute only amplifies the argument.

13. The idea of a national spectrum reserve is analogous to our system of National Parks, which is an acknowledgement that private land holdings alone cannot meet public needs. The public spectrum reserve we are recommending for the 700 MHz band would be a laboratory of innovation, which – history tells us – tends to begin at the edges.

14. The 700 MHz band is well-suited to both broadcasting and wireless broadband applications since it travels well across distance and through buildings. It is also suited to ATSC standards and there will be a widespread availability of consumer devices compatible with it.

¹ For example, in order to develop municipal wireless infrastructure, which has generated many spinoff communications projects and services, the City of Timmins had to seek government grants and engage in extensive fundraising to “buy back” spectrum from Bell. See NeoNet.

15. 10 MHz is a base amount to experiment with both telecommunications and broadcasting functions; it would allow for two broadcast streams at high definition or a basic wireless telecommunications service (with capacity for transmit and reception functions). In addition, it could be used to experiment with dual telecom and broadcast functions in an increasingly converged media environment.
16. While the particular 10 MHz need not be the same country-wide, it would simplify the sharing of innovative applications and technologies that are developed in one place with initiatives in other places.
17. The innovative projects the reserve could support include educational projects, research projects, community multimedia projects and community-based service initiatives. These are the kinds of incubators that have brought the world the Internet's revolutionary one-to-one data sharing structure, where no one user or entity is in control. This innovation did not come from the commercial sector, which was fully invested in the one-to-many hierarchical model of broadcasting. Facebook and Wikipedia are more recent examples of communications innovations that emerged from non-commercial projects.
18. These projects could also find efficient ways to provide broadly accessible and desired multimedia content (ie. local news or community information unavailable anywhere else) and affordable digital connectivity in smaller and remote communities that the broadcasting and telecommunications markets cannot serve efficiently.
19. In preparing our response to this notice, we have identified the following users requesting access to spectrum outside of an auction mechanism: public safety; publicly-owned telecommunications companies that tend to serve remote areas not served by commercial entities; municipally-owned telecommunications providers (eg. Fredericton's Fred-eZone) set up for economic development and citizen connectivity purposes; multi-media producers that provide original broad-based content (eg. local news) not offered by traditional and/or commercial media sources; school boards; universities; and, non-emergency municipal services such as libraries, school bus dispatch, and snow removal. The spectrum reserve we recommend could be shared among a number of such users.
20. We hesitate to be too prescriptive about the uses for the reserve. It should be used not only for the innovative uses we can imagine today but also to stimulate and generate new applications that we cannot yet imagine.
21. Set aside Spectrum for new entrants and small carriers
We advocate setting aside 25% of the remaining available spectrum, once the preserved spectrum has been removed, for an auction among new telecommunications service providers and to carriers with less than 5% of current market share. The current tri-opoly system (Bell, Rogers, Telus) in much of the country does not provide the competition necessary to lower commercial rates for telecommunications services. (We note that lack of commercial competition is one reason the City of Fredericton offers a municipal wireless service.) A set-

aside for new entrants and small carriers, similar to the set-aside in the Advanced Wireless Services Auction, is therefore warranted for the auction of the 700 MHz band.

22. Successful bidders on the set-aside spectrum should not be allowed to lease, transfer, exchange or share this spectrum with an incumbent carrier for the lease term.
23. Limit lease terms to 10 years, and require payment in annual increments
In the rapidly changing environment that is telecommunications, ten years is a lifetime. There are likely to be technological changes that improve spectrum efficiency over the next decade, as well as new uses for radio frequencies that are impossible to envision today. We therefore recommend that lease terms be limited to 10 years, as they were in the Advanced Wireless Services Auction.
24. Furthermore, we recommend that the lease be paid in annual increments, so that:
 - revenue accrues to the federal government on a regular basis, not in a lump sum
 - revenues accrue to successive governments. Due to the size of payments, motivating any one government to undertake spectrum auctions (i.e. sell a public resource which is difficult to recall) as an exclusive means of raising revenue should be discouraged
 - leasers are discouraged from sitting on idle spectrum, since it will cost them incrementally to do so year after year
 - the government has greater power to adjust the market direction, if either the market or technological advances do not go in expected or desirable directions.
25. Establish usage-based criteria for the auction
To qualify, would-be bidders should present a business plan that demonstrates the public value of the services that will be offered using the spectrum, in addition to the minimum dollar bid. The auction should not simply grant spectrum to the highest bidder.
26. This particular band of spectrum is being shifted from broadcasting, where usage and content is regulated, to a system designed to reward the highest bidder regardless of what the winning bidder plans to do with the public resource. Given the current market and existing demand for video content, it is likely that a significant amount of “TV” service and consumption will shift from a regulated environment to an unregulated one. Given the various policy objectives related to the use of spectrum, it is important for Canadians to know at the outset of the auction what we can expect in return, aside from funds for public coffers, for giving up this regulated broadcast spectrum.
27. Impose a use-it-or-lose-it clause in leases
Bell, Rogers and Telus – the largest wireless service providers in Canada – hold a combined total of 55% of the Advanced Wireless Spectrum. However, at the time of writing this paper they have not launched any consumer services related to that spectrum. In our view, it is not an efficient use of spectrum to allow a company with deep pockets to simply buy access to spectrum in order to prevent others from using it.

26. We therefore propose that a successful bidder must launch services according to the business plan presented at auction within three years (or five years for a new entrant/small carrier) of acquiring the spectrum. Bidders who miss this deadline would return spectrum, at which time their lease payment would be discontinued.
27. The best way to administer this kind of rule would be to require annual reporting from successful bidders on spectrum utilization.

Answers to selected questions posed in SMSE-018-10

28. **5-1.** *Which of the four band plan options should be adopted in Canada?*
We are in favour of the plan that makes the most efficient use of spectrum. This appears to be Option 3, the APT plan. Block sizes should be 5 MHz, which are adequate blocks to provide a range of quality wireless services. Smaller blocks are better for new entrants and smaller players. Larger blocks are more likely to go to large and established players, which will not encourage new competition in consumer services.
29. **5-2.** *Should the Department auction the guardbands?*
No. The guardbands could be reserved to stop interference.
30. **6-2.** *The department seeks comments on the spectrum utilization policy proposed.*
We note that the utilization envisaged for the 700 MHz band represents a shift from broadcasting uses in which content is regulated and mechanisms exist to support the development of Canadian content, to telecommunications uses in which content is not a consideration at all. The mechanism of the auction assumes that use with the most value attached to it will be determined through bidding. However, that only applies to monetary value. As we have suggested, radio frequencies are also a public good that provide a range of tangible and less tangible benefits. Because of the shift away from regulated content, we believe it is appropriate to require would-be bidders in this case to qualify by providing a business plan that outlines how they plan to meet public policy objectives on the use of the spectrum available for auction.
31. **7-3.** *In light of the current conditions in the Canadian wireless market market(s), is there a need for specific measures in the 700 MHz auction to increase or sustain competition?*
Canadians in most urban regions continue to have only three or four companies from which to purchase wireless services and Canadians in small towns and rural areas have fewer than that. Meanwhile, an ideal competitive situation would involve five competitors. We therefore believe measures to increase and sustain commercial competition are necessary.
32. Roaming with soft handover, allowing a call continue when the user travels between networks, must be enforced. In addition, infrastructure sharing among carriers must be enforced so that new entrants can establish networks quickly and efficiently.

33. As well, we believe that non-commercial entities that do not have the means to participate in an auction, might also provide essential “competition” in terms of innovative and unique content and service that Canadians – and especially those in smaller or remote communities – do not get from commercial operators. It is partly for this reason that we have proposed that a Spectrum Reserve for Canadian Innovation be created prior to designing the auction for the remaining spectrum.

34. **7-5.** *What mechanism is appropriate to promote competition?*

We propose that the Department set aside 25% of the spectrum to be auctioned for smaller players and new entrants, in 5 MHz blocks. If approximately 80 MHz are available for auction, this would mean setting aside a two pairs of 5MHz blocks – a total of 20MHz – for auction to new entrants. This would provide options for bidders to enter the market; a cap is intended only to prevent certain would-be bidders from accumulating spectrum.

35. In addition we propose that leases be limited to 10-year terms and that leases be terminated if the bidder has not launched its business on the acquired spectrum within three years. This will ensure that deep-pocketed bidders are not able to accumulate spectrum they don’t intend to use simply to keep competitors from accessing it.

36. **7-6 b) i)** *Who should be entitled to bid in the set-aside block(s)?*

New entrants and small players should be allowed to bid on the set-aside blocks. New entrants are entities that don’t currently provide commercial wireless services. Small players are those with less than 5% of commercial wireless market share.

ii) *How much spectrum should be set aside and which blocks?*

As noted above, we believe no less than 20 MHz be set aside in two paired blocks of 5 MHz each. It is not necessary for the two blocks to be contiguous.

37. **7-7** *Are there other mechanisms that should be considered?*

As noted above, we believe the creation of a Spectrum Reserve for Canadian Innovation should be created in advance of the auction. This mechanism would create a non-commercial stream of uses that might provide some competition to commercial providers in underserved markets. This innovative use may also generate new and more efficient uses of spectrum that meet Canadian policy related to the use of spectrum.

38. **8-1 to 8-3.** *Specific problems affecting deployment of broadband mobile services to low-density rural and remote areas and measures to facilitate this.*

The Spectrum Reserve for Canadian Innovation would offer the possibility of non-commercial service provision in areas where the market cannot meet the needs. These include the North and low-density rural areas. More initiatives are needed from the government to encourage digital advancement; the Spectrum Reserve is one public measure to improve service in these areas.

39. **10-1.** *Co-ordination of 700 MHz and 2500 MHz auctions.*

The auctions should be held separately so that new entrants with more limited resources have a chance to bid.