

Research in Brief

Public Alerting in Canada: Renewing the Emergency Broadcasting System

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Abstract: In February 2007, the CRTC released a set of decisions that constitute part of an emerging policy framework for a national *all hazards, all media* public alerting system in Canada. This most recent development can be seen as part of a wider effort on the part of the federal government and others to establish a next-generation emergency broadcasting system under the CANALERT initiative. For its part, the CRTC has had to negotiate the imperatives of competition policy as well as those of its role as guardian of the public good. Despite making some progress, the recent regulatory decisions represent a narrow intervention strategy that will not resolve many of the uncertainties that have delayed progress in this area. Further policy research is needed to contribute to a more extensive policy framework for public alerting in Canada.

Résumé: En février 2007, le CRTC a émis toute une série de décisions faisant partie d'un cadre réglementaire émergent pour un système national d'alerte publique au Canada intitulé *all hazards, all media*. Ces récents développements peuvent être conçus comme faisant partie d'un effort plus vaste de la part du gouvernement fédéral et d'autres parties impliquées visant à établir une nouvelle génération de système de radiotélédiffusion d'urgence sous l'initiative CANALERT. De son côté, le CRTC a dû négocier les impératifs d'une réglementation compétitive en plus de ceux associés à son rôle de gardien du Bien public. Les décisions réglementaires récentes, bien qu'elles offrent des progrès, représentent une stratégie d'intervention limitée qui n'aura pas pour effet de résoudre les multiples incertitudes ayant retardé les avancées dans ce domaine. Davantage de recherches en politiques et réglementations sont nécessaires afin de contribuer à la création d'un cadre de réglementation plus complet en ce qui concerne l'alerte publique au Canada.

Keywords: Disaster and emergency communications; Broadcasting policy; Telecommunications policy; Regulation/CRTC

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The Indian Ocean tsunami in December 2004 raised global awareness of the importance of having an effective emergency broadcasting capability. One of the unforgivable tragedies of that disaster was that information about the threat was available on the Internet an hour or more before the waves washed ashore in countries such as Sri Lanka, yet people were still not warned. The quarter-million lives lost in that event underscore, among other things, an insidious form of digital divide in the global information infrastructure, which governments are obliged to address (Samarajiva, 2005).

In Canada, where we might think this is less of an issue, similar concerns have been raised about this kind of digital divide and the ability to provide timely warnings to significant parts of the population. For example, a key finding in a report on British Columbia's tsunami warning system (Anderson & Gow, 2004)—released several months before the Indian Ocean tsunami—is that despite the apparent advances made in communications technology, the ability to issue real-time warnings to members of the public along the BC West Coast, including tourists and Aboriginal communities, is in many cases uncertain and may be seriously constrained by current regulatory and institutional arrangements.

In early 2007, however, an important step was taken toward addressing some of these regulatory constraints as part of a larger effort to renew Canada's emergency broadcasting system. In February, the Canadian Radio-television and Telecommunications Commission (CRTC) issued a set of important decisions regarding public alerting in Canada that remove a number of barriers that have impeded the development of next-generation public alerting technologies. The practical significance of these decisions will ultimately depend on the voluntary actions of numerous stakeholders in the coming years, but the importance of the decisions from a communications-policy standpoint is that together they constitute part of an emerging framework for a national "all hazards, all media" public alerting system in this country.

No such framework has ever existed in Canada, and in making its decisions the CRTC has had to negotiate the imperatives of competition policy as well as those of its role as guardian of the public good. On the one hand, a national public alerting policy cannot be seen to favour one or more industry players in a converging communications sector; on the other hand, the Commission clearly recognizes that such a system is in the public interest and must decide to what extent regulatory intervention is necessary to advance its development. However, the recent CRTC decisions represent a narrow intervention strategy that will not resolve many of the uncertainties that have delayed progress in establishing a next-generation national public alerting capability in Canada.

This paper reports on a continuing study that forms part of a larger research program on communications technology and public safety at the University of Alberta. In the coming years, that program will be leading various projects to examine the impact of new information and communications technologies on public-safety services, including emergency broadcasting and alerting. This paper reports on recent developments in public alerting and draws from primary source documents associated with two recent CRTC Public Notices and Decisions on "emergency alert services" as well as a range of Industry Canada documents on

public alerting. Additional background information and perspective is derived from the author's first-hand experience as member of two Industry Canada working groups on public alerting as well as his field work on community-based hazard warning in Sri Lanka.

First-generation emergency broadcasting

From the mid-1950s until the early 1990s, the CBC, in conjunction with the federal government's Department of Communications, had responsibility for ensuring that an emergency broadcasting system was in place to warn the Canadian population in case of a national emergency. This arrangement was designed to complement the National Attack Warning Siren (NAWS) system, which provided an infrastructure of some 1700 air-raid sirens installed in urban centres across Canada (Canada, 1993).

NAWS was developed in the 1950s with the explicit role of notifying the population of an impending nuclear attack. The system remained officially operational until the early 1990s, when concerns over the nuclear threat abated with the ending of the Cold War. At that time it was estimated that 1300 sirens remained operational, of which only 30% could likely have been activated in time to meet the prescribed five-minute alert window. The system had essentially fallen into a state of disrepair (see Figure 1). Moreover, by this time NAWS was regarded as a technically outdated system of limited value because it was dedicated solely to providing nationwide warnings concerned with a single catastrophic event (a nuclear attack). NAWS' capability was also restricted to generating a siren blast, so it also only really fulfilled what might be termed the "alert" function of a warning system, rather than the more extended "notification" function that would provide additional information about the activation.



Figure 1: Public alerting past. This is a photo taken from eBay, where someone was selling old air-raid sirens of the type once used in Canada's National Attack Warning System.

Source: <http://www.civildefensemuseum.com/sirens/canada/> (uncredited).

The CBC's supporting role in NAWS was to provide the "notification" function through its national broadcast network. It was expected that sirens would alert the public, who would then turn to the public broadcaster for government-issued information concerning activation of the NAWS and, presumably, for any additional government instructions and updates following a nuclear attack. At present, however, we know very few details of this historical relationship between the public broadcaster, the Department of National Defence, and NAWS during the Cold War. Further work will be needed to examine this history, and it presents an interesting opportunity for communication scholars to pursue the topic further as a contribution to Canadian communications history.

When NAWS was being retired, the federal Department of Communications (DoC) undertook a survey of emergency managers in Canada and prepared a report to consider options for the next generation of national public alerting system. Among other things, the report noted the importance of the commercial media as a means of extending the reach of such a system across the country:

In Canada, more than 99 per cent of the population may be reached via public or privately owned broadcast radio stations There is no doubt that commercial broadcasting stations and networks could deliver warning messages to listeners or viewers, provided that people have their receivers turned on and tuned to participating broadcast stations or cable services

In view of this, established broadcasting networks could be considered an appropriate means of warning and providing information to the public, provided a formal management agreement is developed. (Canada, 1993, p. 18)

The report prefigures the growing role of commercial service providers in next-generation public alerting, while understating the difficult challenge of establishing a "formal management agreement" across converging sectors that involve both old and new media. Interestingly, while the DoC report did mention cable television as a possible distribution channel for alerts, it did not mention telecommunications networks as an existing resource for public alerting, highlighting the "two solitudes" that once characterized the broadcasting and telecommunications policy worlds. It is important to note that this report was released in 1993—a time of a major government re-organization that replaced the DoC with the Spectrum and Telecommunications Branch of Industry Canada—but there is little evidence of any further progress toward a next-generation national public alerting system in Canada until several years later, in the autumn of 2002, when Industry Canada launched its "new public alerting initiative" and issued a call for "unique proposals for the demonstration and evaluation of new public alerting technologies or products" (Industry Canada, 2005).

Yet local and regional efforts in public alerting were not in stasis during this intervening period. Across the country, a number of provinces and municipalities were in fact introducing their own systems. For example, the Edmonton tornado of 1987 had prompted the Province of Alberta to introduce its Emergency Public Warning System using the once government-owned CKUA broadcast network.

Today that system remains operational and is tested regularly; it is even activated from time to time. The challenge for Emergency Management Alberta, the provincial department in charge of public alerting, is that the system relies on the voluntary participation of CKUA (no longer government owned) and other broadcasters in Alberta to reach the public (Alberta Government, 2006).

At the municipal level, a number of communities, including Strathcona County, Alberta, and Sarnia, Ontario, have introduced a telephone-based Community Notification System (CNS) to provide public alerting on a local scale. CNS is sometimes referred to as “reverse 9-1-1” and is essentially a computerized system that will initiate a mass call-out to all of the telephone numbers located in a prescribed geographic area. CNS systems are often established by local authorities in areas prone to industrial accidents such as chemical releases, but they can also be used for a variety of notification purposes, including Amber Alert, crime watch, or other forms of urgent public information.

An area of concern with respect to CNS-system administration is the need to maintain an up to date and complete database of telephone numbers. This has become particularly difficult with the advent of local-number portability and with the growing quantity of mobile and IP-based telephone subscribers, both of which have presented serious problems related to public safety—and 9-1-1 service in particular (see, for example, Canadian Radio-television and Telecommunications Commission, 2005; Gow, 2005). Another concern for both the telephone companies and public officials is the issue of network congestion during an emergency. A CNS system, if not well designed, could quickly overwhelm a local telephone network when mass numbers of calls are initiated, thereby interfering with incoming 9-1-1 calls or other urgent communications.

In addition to these systems, Environment Canada has operated since 1977 its national *Weatheradio* network. This service is based on the United States National Weather Service Weather Radio network, using similar frequencies, technologies, and protocols. The Weatheradio network consists of 180 transmitters located across Canada and provides 24/7 weather information, targeted for local areas, in both official languages (Meteorological Service of Canada, 2005). However, it operates in the VHF band and requires a special radio receiver to listen to the broadcast. Specialized weather radios are available commercially, and it is increasingly common to see the VHF channels included as a standard feature on the popular range of Family Radio Service walkie-talkies now on the market. Nonetheless, it is not clear how many Canadians actually tune in to the broadcasts, let alone how many are aware that Weatheradio also functions as an “all-hazards” public alerting service.

Next-generation emergency broadcasting

With the demise of NAWS in the late 1980s, Canada was left with a minimal national warning capability. On the one hand, the case for such a capability has weakened with the upheaval in global geopolitics that followed the end of the Cold War. On the other hand, that upheaval and the events of September 11, 2001, have also led to changes in the perceived security threat to Canadians. Concerns over terrorism have largely displaced the nuclear-annihilation scenario, and there have been indications from government officials during the past few years that

public alerting is once again a priority within Canada's emergency-management framework (Canadian Intergovernmental Conference Secretariat, 2007).

Further evidence of this renewed interest in public alerting takes the form of a national initiative under Industry Canada known as "CANALERT." Under the existing *Federal Policy for Emergencies*, Industry Canada is responsible for working with the CBC and private service providers to co-ordinate a national emergency broadcasting capability. The CANALERT initiative is an effort to advance the prospects of next-generation public alerting in Canada. Launched in 2002 with the first of several forums on public alerting, it has continued with several working groups involving broadcasters, telecommunications providers, and emergency-management officials:

Canada needs to develop its ability to alert its citizens and share critical information. Most industrialized countries already have a nation-wide public alerting system. That is why Industry Canada is working closely with experts from provincial, territorial and municipal agencies, and the broadcasting and telecommunications industry, to develop CANALERT—a Canada-wide public alerting system.

CANALERT will allow emergency management agencies to deliver brief public alerts over radio, TV, cell phones and the Internet. Alerts will include instructions and advice on where to find any new information that becomes available. CANALERT is a key part of our national emergency management system. (Industry Canada, 2006)

Despite important progress on several operational fronts, CANALERT remains without substantial funding from the federal government and therefore might be best described—at least for the time being—as a normative design concept for next-generation emergency broadcasting. In this capacity, it serves up a vision of an "all-hazards, all-media" public alerting system of national scope—a vision conceived in heady dreams of technological convergence, but one that is awakening slowly to the hard realities and unrelenting forces of constitutional politics and contemporary communications policy.

The CANALERT vision is that of an interoperable "system of systems" extending seamlessly across the reach of emergency officials through every available communications medium. The technologies involved include not only the traditional domains of terrestrial broadcast radio and TV, but now also, as indicated above, digital media, including mobile phones, Internet, and satellite broadcasters, which offer tantalizing prospects. The deeper impulses and contradictions at work in this field might be linked to the wider socio-historical trends characterized by Beniger's "control revolution" (Beniger, 1989) or the "simultaneous dispersion and concentration of advanced services" in Castell's space of flows (Castells, 2000, p. 379).

The hard reality is that of federal-provincial relations, where jurisdiction over emergencies is almost always local, and where funding for building and maintaining alerting systems is almost always inadequate. From a communications-policy standpoint, the challenge is to maintain regulatory parity across the diverse range of commercial service providers needed to achieve the stated aims

for convergence. Indeed, the CANALERT vision touches upon many of the wider issues related to the public good, social regulation, and competition policy now playing out in the cross-cutting domains of broadcasting, telecommunications, and Internet.

Marc Raboy, for instance, observes that in today's environment of converging media, it is not scarcity that is at issue, but rather the need to regulate under conditions of profound information abundance. As such, he notes that a different paradigm must be adopted "based on a new set of premises, around how to organize and make meaningful the mass of information that technology has made available, for the people who want to use it" (Raboy, 2006, p. 298). Public alerting faces similar challenges, as information can now arrive by multiple channels linked to servers around the world. And yet, despite the apparent surfeit of supply, we need only reflect on the unbelievable communications failure in the Indian Ocean basin in December 2004 to see there is a clear need for effective regulatory oversight.

To complicate matters further, there has been no coherent communications-policy framework under which CANALERT could be expected to operate. As a result, it has been unclear how a next-generation national system might be created and governed, and in what manner it would involve the commitment of commercial communications service providers in each of the primary sectors. Public alerting is a classic "public good" in the sense that the contents of a warning message tend to be non-excludable and non-rival (Melody, 2005). As such, a reliable "supply" of alerting services to the public tends to require some form of direct intervention on the part of the government. The very fact that Canada has yet to establish a clear framework for such intervention creates a serious gap in public-safety policy.

However, in February 2007 some initial, albeit modest, steps toward such a framework were taken when the CRTC issued a set of three Broadcasting Decisions, two Broadcasting Public Notices, and one Telecom Decision—all concerned with the next generation of public alerting capabilities in Canada (Canadian Radio-television and Telecommunications Commission, 2007c). The aim of this paper is to provide an overview of these decisions, to highlight their significance for future developments, to generate discussion, and to draw attention to the importance of public safety as a core policy issue within the media and communications sector.

The broadcasting decisions

The Broadcasting Decisions stem from a Public Notice issued in April 2005, when Pelmorex Communications Inc. (parent company of The Weather Network/Météomédia), the CBC, and Bell ExpressVu each presented applications to establish national emergency alert service capabilities. This was in fact Pelmorex's second application, the first having been denied by the CRTC in 2001.

The applicants each proposed their own concept for an all-channel alert service. The CBC proposed a publicly funded initiative that would incorporate an existing protocol and technology to relay public alerts from its National Alarm Centre in Ottawa to its network of transmitter sites by satellite uplink. According

to this approach, based on the Emergency Alert System (EAS) developed in the United States, the CBC would install EAS decoder devices at each transmitter site. Messages would be sent to all transmitters but would be filtered at the local site to broadcast only those designated for the geographic area served by the transmitter. In addition, the CBC would permit cable television and direct-to-home (DTH) satellite providers to link voluntarily with their system by installing decoders at their head-ends. Furthermore, the CBC indicated that it would provide alerts in both official languages when available and could extend its capability to include Inuktitut if funding were made available to do so. It proposed a five-year implementation period for the system.

Bell ExpressVu presented a concept for an all-channel alert service based on its DTH satellite service. In its application, ExpressVu stated that it would enable its DTH service to relay alerts from authorized sources by “force tuning” subscribers’ television sets, using the existing set-top-box technology, to display an alphanumeric crawl with an audio message of the warning. While the application indicated that no fee would be imposed on ExpressVu subscribers to fund this service, Bell also indicated that the service would be limited to its own subscriber base, estimated at approximately 1.7 million Canadians. ExpressVu did state that it would also consider extending the service capability to its mobile phone, Internet, and telephone affiliates but did not provide an implementation time-frame for any portion of the system.

The application submitted by Pelmorex was the most ambitious of the three, in the sense that it asked the Commission to approve a mandatory system that would include all of the major cable TV and DTH satellite operators and impose a fee on them for its implementation. Moreover, the concept included the installation of proprietary equipment at the network head-ends of the participating operators:

Once an authorized agency provided Pelmorex with the text of an emergency message and identified the affected area, Pelmorex would validate the authenticity of the message and send a valid, location-encoded alert to be decoded by its ACA propriety equipment located at all BDUs within the affected area. The ACA equipment would automatically select and insert the message, in its original form, on all television channels distributed to subscribers in the affected area. (Canadian Radio-television and Telecommunications Commission, 2007a, para. 11)

In order to effect this service, Pelmorex requested that the Commission issue a distribution order pursuant to section 9(1)(h) of the *Broadcasting Act* that would compel all Class 1 broadcasting distribution undertakings (BDUs) to distribute the all-channel alert (ACA) service when made available to them. In the case of smaller BDUs, it would remain an optional service. Pelmorex also requested an amendment to its licence to raise its maximum wholesale rate to the BDUs by 34% to cover the cost of the service wherever provided.¹ If all items were approved by the Commission, Pelmorex estimated that the system would reach approximately 9 million Canadian homes within the first three years of operation.

While each approach to all-channel alerting was unique in certain respects, all three applications identified the same need for an amendment to the

Broadcasting Distribution Regulations regarding the insertion of emergency alert messages into the broadcasting stream. In effect, the currently proposed amendment would relax the requirements for cable TV or DTH satellite operators to obtain prior agreement from broadcasters to disrupt programming for a public warning. The potential concerns regarding this proposed amendment are discussed in more detail below.

Another common factor among the applications was the apparent assumption of a reliable supply of warning messages from authorized government agencies. In each application, the proposed alert service was predicated not only on the idea that warnings would be made available, but that they could be simply relayed to subscribers, with minimal need for the applicants to touch the contents of those messages. For instance, much discussion during the May 2006 CRTC Public Hearing on All Channel Alert referred uncritically to Industry Canada's CANALERT initiative as a reliable source of public warning messages. This is a problem because, as noted above, there is no such thing as CANALERT. Or, to be more precise, CANALERT is a design concept, without a budget, and without an operational presence of any kind so far. So while it was convenient for ExpressVu and CBC to indicate that they would obtain warnings from CANALERT and then relay these on to the public, the reality is that there is no national point-source for public warnings in Canada. It is surprising that this fundamental gap in capability remained largely unchallenged in the CRTC proceedings.

Another point of discussion, and one that received considerably more attention than the problematic supply of warnings, was whether an alert system should be established on a voluntary or a mandatory basis. The CBC and ExpressVu applications called for a voluntary system, while Pelmorex presented a mandatory system based on proprietary equipment. Just as one might expect, the various stakeholders took sides in this debate that matched their role in the proposed systems. The BDU operators and broadcasters were opposed to a mandatory alert system, claiming that "as good corporate citizens" they would need no further incentive to implement an emergency alert system on a voluntary basis. By contrast, alert service providers such as Environment Canada called for a mandatory system, as did emergency-management organizations such as the Ontario Association of Emergency Managers, which argued that "the voluntary nature of the present system of media-based public alerting has regularly proven to be unreliable given that it is left to the whim of media owners" (Canadian Radio-television and Telecommunications Commission, 2007a, para. 48).

Opposition to a mandatory all-channel alert system raised some interesting points in the deliberations. One interesting question raised by the BDU operators concerned the nature of the proposed emergency alert messages and whether they in fact would constitute a "programming undertaking" and would require the originators to hold some form of broadcasting licence. Broadcasters were opposed to any mandatory system that would threaten their control over broadcasting signals, citing journalistic integrity and independence as key principles (Canadian Radio-television and Telecommunications Commission, 2007a). Others noted problems with Pelmorex's application with regard to the digital migration policy framework in Canada and the issue of stranded investments in

analogue equipment that cable TV providers and others might be required to install under a mandatory regime. Yet others were opposed to any mandatory system, such as that proposed by Pelmorex, that would be based on proprietary technology imposed on BDU operators and financed through a for-profit or fee-based model.

For its part, the Commission weighed the evidence and decided that public alerting will remain a voluntary undertaking for the time being. A number of points were raised to support its determinations in this regard. First, that the public is best served by a system that promotes an “all-media” approach to public alerting. The CRTC quoted the CBC directly on this point: “Universal access by the public to alert messages can only be realized through [a] multiplatform approach” (Canadian Radio-television and Telecommunications Commission, 2007a, para. 74). As a core principle in this policy framework, then, it is perhaps no surprise to see that the Commission found the Pelmorex proposal for a mandatory, proprietary, and BDU-based system funded by a monthly fee to be “unduly intrusive” (para. 78). Moreover, the regulator expressed its concern about the impact of a mandatory system on innovation in this area and, in particular, on research and development activities that might support a multiplatform approach using alternative technologies for public alerting.

While it was not willing to support a mandatory service, the Commission did note an inherent public interest in enabling timely access to emergency alerts. In response it has issued Broadcasting Public Notice 2007-21, a call for comments on proposed amendments to the *Broadcasting Distribution Regulations*. At first glance the proposed amendments appear to be small changes, but they could in fact raise significant concerns for the broadcasting industry and other stakeholders. The first, as I have already noted, is a proposed amendment to section 7(d) of the regulations that would mean that cable TV or DTH satellite service providers, for example, “would no longer have to obtain the prior agreement of the operator of a programming service, or network responsible for the service, before inserting an emergency alert message.” (CRTC 2007b, para. 2) Current regulations require that BDU operators obtain prior agreements with each of the programming services they carry if they wish to “force tune” any or all of their channels to display an emergency alert message.

As the Commission has noted, broadcasters are concerned with this proposed amendment because it raises the spectre of a national emergency warning system that “could be put to an ever-expanding menu of potential uses” (CRTC, 2007b para. 83), meaning in effect that the licensees might effectively lose control of their programming content. In response to this concern, the CRTC has offered something of a concession to the broadcasters, in the form of a narrowing of the definition of “emergency alert message” in the regulations.

The current definition of “emergency alert” refers to a message with content that conveys information about an “imminent or unfolding danger to life or property.” The proposed amendment simply removes the reference to property. In the Commission’s view this measure

will serve to attenuate the concerns expressed by broadcasters and also bring the definition more in line with CANALERT’s proposed definition,

which encapsulates only the most urgent emergencies and limits the airing of alerts to situations that represent an imminent danger to life and health. (Canadian Radio-television and Telecommunications Commission, 2007a, para. 87)

It should be noted also that the definition does not distinguish between an alert message consisting of primarily alphanumeric text (e.g., a screen crawl) and a more conventional broadcast involving what might be considered programming service. The implications of such a distinction, as noted by a number of interested parties in the CRTC hearing, could be significant in terms of the CRTC's jurisdiction over this matter.

The CRTC has invited comments on the proposed amendments with Broadcasting Public Notice 2007-21. While broadcasters will likely appreciate the effort to constrain the definition of "emergency alert message," this may not be enough of a measure to offset their reluctance to lose control of their programming. For example, the proposed amendment fails to specify by whom or by what means a BDU operator or emergency-management organization will determine when a situation meets the conditions of the definition. The Commission might have chosen to adopt the definition proposed in the CBC application, using the phrase "*authorized* emergency alert message" (CRTC 2007a, para. 20), but even with this wording, the question would have remained: *authorized by whom?* At present, there is considerable uncertainty among all stakeholders as to who would be authorized to activate a national alerting system and what kinds of accountability measures would need to be put in place to assure broadcasters and others of the integrity of such arrangements.

The proposed measure also says nothing about placing limits on the number of messages that might interrupt programming during an emergency (e.g., critical updates and cancellations), which could cut into and possibly contradict live on-air reports from local broadcasters. Moreover, the current framework sets the stage for a kind of "two-tier" public alerting system, in the sense that only a very narrow range of emergency situations will likely qualify for all-channel alert activation. The priority level for most cases of local severe-weather events or even hazardous-material spills might be such that emergency managers would hesitate to activate an all-channel system and instead simply notify local broadcasters through existing channels. Not only could this lead to public confusion about where to turn for warning information, but it would limit BDU operators to such a narrow mandate that it might discourage them from participating in the system altogether.²

For example, it is understandable that a BDU operator might decline participation in a voluntary national public alerting system after having weighed the costs of network upgrades and the potential legal liability against the extremely limited conditions under which the system might be put to use—despite the potential public benefit. In fact, it is entirely conceivable that under the proposed definition of "emergency alert message" the system would be underutilized or would perhaps never be activated in certain parts of Canada, in part because of hesitation or reluctance by the local emergency manager or the BDU operator to commit to such a serious action.

The end result of the Public Notice and CRTC decisions is that they represent a modest advance in the development of next-generation national public alerting in Canada. The Commission has approved in part the Pelmorex application by agreeing to amend its condition of licence to permit it to carry emergency messages on the Weather Network and Météomédia. However, under the decision Pelmorex may offer its ACA service to BDU operators on a voluntary basis only. In the case of CBC and ExpressVu, the Commission's proposed amendments to section 7(d) of the regulations will allow their proposed systems to go forward, also on a voluntary basis, but the decisions set no definitive timeline or milestones in terms of making the service available to Canadians.

The Commission does make it clear that all stakeholders should continue to work together to establish some form of national public alerting system. For instance, the CRTC "strongly expects" that BDU operators will voluntarily carry alert messages provided to them by either CBC or Pelmorex, or alternatively that they will adopt their own systems. In addition, the Commission wants to see that efforts are made to provide alerts in both official languages, as well as other languages where and when appropriate; furthermore, it expects "to be updated on such efforts at each license renewal" (CRTC, para. 103). The Commission also spoke to concerns about providing alerts to both the deaf and visually impaired communities related to interference with closed captioning and the provision of simultaneous audio alerts.

The telecom decision

On the same day as the broadcasting decisions, the CRTC also released Telecom Decision 2007-13. "Use of information for the purpose of providing an enhanced community notification service" (CRTC 2007d). The significance of this decision is that incumbent local exchange carriers (ILECs) are now permitted to provide information from their 9-1-1 databases to local authorities in order to improve local public alerting using community notification services.

In effect this decision provides the Commission's final response to an application pursuant to *CRTC Telecommunications Rules of Procedure* Part VII filed jointly in 2005 by various public-safety agencies and municipalities on the matter of community notification services. In light of the difficulty in maintaining up to date lists of local telephone subscribers, the local authorities were seeking access to a source of information that would be more accurate and current than traditional methods (e.g., telephone directory listings). As it happens, the ILECs maintain special databases to provide 9-1-1 operators with caller-ID and location information during emergency calls. These databases are updated frequently and have special filters that detect errors in the address field, which makes them extremely reliable sources of information on telephone subscribers.

The Part VII application filed by the local authorities—a formal process for asking the Commission to take specific action on an issue—was necessary because of regulatory restrictions placed on the ILECs that provide access to 9-1-1 databases. Similarly to the case with the Broadcast Decisions, there were concerns raised about the overuse of an enhanced CNS system and the subsequent desensitization of subscribers to it, and the Commission declared it inappropriate to include a reference to property as part of a definition of emergency. However, its

definition for CNS is slightly more expansive than that proposed for the *Broadcasting Distribution Regulations*:

the Commission defines emergency for enhanced CNS as “an imminent or unfolding danger that threatens the life, health or security of an individual.” (CRTC 2007d, para. 72)

In this case the definition is intended to restrict disclosure of private customer information, rather than to address a concern with unnecessary disruption to a broadcasting signal. In fact, the primary issue of concern in the enhanced-CNS proceeding was personal privacy rights in relation to public safety. Unlike broadcasting, which reaches a largely unknown and unknowable audience at any given moment, CNS is an addressable alerting system that requires some knowledge of the individual recipients in order to deliver the messages. A mass outbound calling system, after all, requires access to a mass database of telephone numbers.

More specifically, the CRTC’s deliberations on this matter focused on the terms and conditions by which subscriber information held by the ILEC can be provided to public authorities to facilitate a public alert. Currently there is an exemption in the Terms of Service that permits some disclosure of confidential customer information in the event of an emergency. However, the current wording places the onus on the ILEC to make that determination, so the Commission has proposed revised wording that would make it clear that the public authority will make the determination as to the threat and the need for such information.

The Commission also referred to “safeguards for enhanced CNS” intended to balance the three elements of accountability, privacy rights, and public-safety considerations. In this regard, the Decision established a policy of implied consent with no opt-out provisions for telephone subscribers. In other words, on the side of public safety, the Commission agreed with various stakeholders that the public interest is best served by a system that includes all subscribers and that a regime of prior notification through statement in a telephone company’s Terms of Service would suffice as a consent mechanism.

On the side of privacy rights, the Commission determined that both ILECs and public authorities must abide by limits on disclosure of customer information. In this regard, there are provisions in place for limiting access to information, as well as reporting and auditing requirements when an enhanced CNS system is activated, as well as a requirement to destroy subscriber information immediately after activation. With regard to the question of so-called “database enrichment” that could provide public authorities with additional personal information about subscribers—information going beyond telephone number and street address—the Commission determined that this was beyond the necessary scope of enhanced CNS and refused to permit its inclusion.

The privacy issues seem to have been addressed to the satisfaction of the Commission as well as privacy-rights advocates such as the federal privacy commissioner. However, work will continue in the enhanced-CNS area. The Decision directs the CRTC’s Interconnection Steering Committee (CISC) to develop and report on specific guidelines to address operational and technical issues associated with this public alerting service. For scholars interested in the more intimate deliberations on communications policy and the social shaping of information

and communications technology, the CISC proceedings may prove an interesting case study, particularly as stakeholders try to make sense of the CNS decision within the broader aims of CANALERT.

Renewing Canada's emergency broadcasting system

A renewed emergency broadcasting system of national scope, and in particular one that can effectively reach into rural and remote communities, is probably a worthy effort. With today's digital and networked communications technologies, as well as the participation of commercial providers in each of the communications sectors, it is possible to put in place a flexible and cost effective system that will save lives (see Figure 2)—whether the emergency is a tsunami on the West or East Coast, a tornado on the Prairies, or a hazardous-material spill in the industrial areas of Ontario and Quebec.

The image shows a screenshot of the IPAS website and an alert notification window. The website header includes the IPAS logo and navigation links: Home, News, What is IPAS?, Field Trials, Downloads, Surveys, Partners, FAQs, Contact Us. The main content area features a quote: "Effective Alerting for the 21st Century" and a paragraph stating: "Solana Networks, in conjunction with Sombra Labs, has developed an innovative, web-based, alerting system codenamed IPAS." Below this, there is a section titled "IPAS Applications" with a list of checked items: Municipal/Provincial, Government, Defense, Hospital/Healthcare, and Police/Fire Depts. A "Click Here for info about:" link is followed by a list: Pricing, Availability, and Free Demo. A "Privacy Policy" link and "©2004 Solana Networks" are at the bottom left. The alert notification window, titled "Alert Received! Incoming Alert!", displays the following information: Received on: Jul 11, 2005 11:24:22 AM; Sent by: Don Bennett; Organisation: Solana Networks; Region: Canada; Alert Type: SECURITY ALERT; Alert Level: Level 5. The alert message reads: "Please do not act on this message. This message is only for the trials of the IPAS system. The United States Government raised the threat level to Code Orange for the financial services sector in northern New Jersey. Federal officials have been sent to work with local law enforcement." An "OK" button is at the bottom right of the alert window.

Figure 2: A next-generation alerting system developed by Solana Networks in Ottawa, Canada. Solana will soon be extending its system to reach mobile devices such as cell phones and PDAs. Source: <http://alert.solananetworks.com>.

The recent CRTC decisions are integral to a larger effort on the part of federal, provincial, and territorial governments in Canada to initiate a next-generation national emergency broadcasting/public alerting system. For communications policy research in Canada, this commitment and the various activities surrounding it should be seen as part of the wider debate concerning the need to balance effective social regulation in the media and communications sector within a context of growing information abundance and rapid technological change.

Although the CRTC has established the contours of a more coherent policy framework in this area, public authorities will continue to struggle to maintain

and operate local and regional public alerting systems—a struggle complicated by the lingering political and institutional uncertainties within which these systems have co-existed.

Important questions remain to be answered. Will the CRTC's insistence on a voluntary public alerting regime be enough to compel the participation of broadcasters, BDUs, and telephone companies? Is it possible to establish national standards and guidelines for public alerting given the jurisdictional constraints associated with the emergency-management policy framework in this country? Will the work being undertaken by the CRTC's Interconnection Steering Committee become bogged down in unresolved technical details related to enhanced CNS?

Moreover, will third-party application developers—some with innovative ideas based on cell broadcasting and IP-based alerting technologies—be permitted reasonable access to the incumbents' network facilities to offer their services to the public? Or should the Commission take a stronger position on public alerting, seeing it as a clear matter for direct regulation related to universal access and essential services?

Whatever comes of the decisions in the short term, it is clear that the Canadian government and policymakers have made a commitment to renew Canada's emergency broadcasting system. For policymakers and researchers alike, this process of renewal should be seen as part of a wider study in communications technology and public safety. Research at the University of Alberta, for example, will include policy-related studies in areas such as locative media, public safety, and social surveillance; the future of 9-1-1 emergency service; and the role of open source software development in supporting the communications needs of emergency-aid agencies during disasters. Central to this research is the need to understand the evolution of Canada's communications system in an effort to promote appropriate intervention strategies that will balance commercial imperatives with the important public interest in safety and security.

Readers should also note that considerable activity is now taking place in the realm of public-safety communications both in Canada and internationally. In the United States, the Federal Communications Commission is looking at the use of mobile phones for public alerting with its Commercial Mobile Service Alert Advisory Committee (Federal Communications Commission, 2006). The European Commission is funding a multiyear project on public-safety communications that will have an impact on international policymaking (European Commission, 2007), and the International Telecommunications Union is engaged in a number of initiatives to improve hazard warning and emergency communications in the developing world (International Telecommunications Union, 2007).

Despite these important efforts, much of the work is confined at the moment to participants from industry and government. There are significant opportunities for greater involvement from policy researchers and communications scholars to add a critical voice to the discussion and to expand the range of vision within which these issues are currently being debated. Emergency broadcasting is one of several areas in which researchers and scholars can become engaged with policy-

making and make an important contribution to the public good and quality of life in Canada and elsewhere.

Notes

1. Pelmorex's application called for an increase of \$0.08 per subscriber, raising the current maximum charged to BDUs from \$0.23 per subscriber to \$0.31 per subscriber. A more detailed discussion of reasons for the proposed increase and costing methodology can be found in the transcript of the CRTC ACA Public Hearing from May 2006 (Canadian Radio-television and Telecommunications, 2006).
2. A two-tier system could impose additional costs in terms of public awareness campaigns. Members of the public would need to know that different kinds of public alerts are available over different channels and that they should not ignore a message because the warning is not an "all-channel alert." A local boil-water advisory, for instance, might not meet the proposed definition in section 7(d), but it is nevertheless life-critical information, and the public would need to be made aware of the various sources for these kinds of "orange" alerts. This raises the question of whether there might be value in developing a national portal for alert and notification messages, which could use RSS feeds, SMS, and other means to deliver customized notifications to subscribers.

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