**VANCOUVER EMERGENCY**
**COMMUNITY TELECOMMUNICATIONS ORGANIZATION**
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Industry Canada
Delivered via Email DGSE-BPL@ic.gc.ca

**RE: Gazette notice SMSE-005-05, July 2005**
**Consultation Paper on Broadband over Power Line (BPL) Communication Systems**

To whom it may concern,

I am writing on behalf of the Board of Directors and membership of the Vancouver Emergency Community Telecommunications Organization (VECTOR) to indicate our concern that Broadband over Powerline (BPL) licenses may be granted, and if granted, that efforts to eliminate the resulting interference to Amateur Radio and other services will be difficult to eliminate.

The Vancouver Emergency Community Telecommunications Organization (VECTOR) is a non-profit, volunteer-based registered society of federally licensed Amateur Radio operators. VECTOR's mandate is to provide community-based alternative emergency telecommunications services for the City of Vancouver and all other partner and emergency service agencies when required.

VECTOR's membership includes approximately 125 radio amateurs. They are from all walks of life and include professionals, blue collar workers, students, retirees and others with various levels of interest in the hobby. Some of our members use Amateur Radio strictly for the assurance of having a failsafe communications alternative while others are thoroughly immersed in the hobby, making daily contacts around the globe. What VECTOR members have in common is a desire to serve their community by donating their time and expertise to provide emergency communications services. In 2004 VECTOR Members did just that, logging a total of 3,717 hours at community events and exercises in preparation for an emergency that we hope will never come. VECTOR has been recognized by both the agencies it serves and by the media for its community service.

VECTOR has been designated as the primary emergency radio communications provider for the City of Vancouver Emergency Social Services Program and its affiliates. In time of need, VECTOR volunteers will provide a communications link

from the Vancouver Emergency Operations Centre to the various Emergency Reception Centres and neighbourhoods in Vancouver, and provide general back-up communications to the Vancouver Emergency Operations Centre located at the E-Comm[i] building.

Amateur Radio is an example of how leisure activities contribute substantially to the improvement of products and services and the standard of living in our many world cultures. Amateur Radio operators have frequently found practical on-the-job applications of ideas learned through their study of electronics and communications, and they continue to do so. Operators have been on the forefront of significant developments including Voice over Internet Protocol (VoIP), data transfer and cellular telephony. I invite you to read "Amateur Radio and Innovation in Telecommunications Technology"[ii] for examples of these contributions.

Amateur Radio has a proud history of assistance of service during emergencies. Because it is widespread and non-centralized there are countless examples of Amateur Radio's ability to communicate when commercial systems have failed. Recent Canadian examples include the Eastern Ice Storms, Winnipeg Flood, and B.C. Wildfires. In the United States Amateur Radio provided critical communications after the 9/11 attacks, the Colorado Wildfires, in the aftermath of Hurricane Katrina and in many other emergencies. Amateur Radio was one of the few links to the areas devastated by the Tsunami on December 26, 2004.

Victor Goonetilleke, 4S7VK, president of the Radio Society of Sri Lanka, reported that "uncomplicated short wave" radio saved lives. Sri Lanka's prime minister had no contact with the outside world until Amateur Radio operators stepped in and set up a control center inside the prime minister's official house in his "operational room". Goonetilleke reports that even satellite phones failed, and only the Amateur Radio HF link remained open.

VECTOR members are proud to be part of this service and many see it as a means to contribute back to the community for the privilege of having protected spectrum in various bands. Ensuring that man-made interference does not negatively impact the hobby is the responsibility of Industry Canada. It is therefore a matter of concern that a spectrum-polluting technology such as BPL is being considered as a licensed provider of Internet services. Two organizations, Radio Amateurs of Canada (RAC) and the American Radio Relay League (ARRL) in the United States, have examined BPL technology in detail and have expressed grave concern over its impact on Amateur Radio and other wireless services through the generation of interference.

Because power lines are not designed to prevent radiation of radio frequency energy, BPL represents a significant potential interference source for all radio services using this frequency range, including the Amateur Radio Service. Overhead electrical power lines and residential wiring act as antennas that unintentionally radiate the broadband signals as radio signals throughout entire neighbourhoods and along roadsides. In tests, interference has been observed nearly one mile from the nearest BPL source. Because BPL is being tested in a number of locations in the

United States, the ARRL in particular has many documented instances of interference on file and has filed notices of objection with the U.S. Federal Communications Commission (FCC), the regulating body. In some instances the interference is so severe that it has entirely eliminated the ability to use some High Frequency (HF) Amateur Radio bands.

From a regulatory standpoint, BPL is an unlicensed, unintentional emitter of RF energy and therefore is interference. The ARRL laboratory has made observations of BPL radiation at a number of the trial areas. The lab's findings of interference and related information, including video and audio recordings of actual interference, are available on the Web[iii]. These and other observations of radio frequency interference at BPL test sites in the United States are a matter of public record in U.S. Federal Communications Commission files.

An April 27, 2004 report released by the independent U.S. National Telecommunications and Information Administration[iv] (NTIA) acknowledges that BPL signals "unintentionally radiate" from power lines. The NTIA also said then-current measurement techniques may "significantly underestimate" peak BPL field strength and that "interference risks are high under existing rules." Although BPL proponents dispute claims of interference to licensed services, they have provided little in the way of calculations or measurements of BPL radiation levels – and what they have provided has been flawed by technical errors. This is not surprising as it is not in their best interest to accurately document the serious interference their technology creates.

Research has shown that it is not only Amateur Radio that is at risk. Others at risk include:

- The "short waves" – the only part of the radio spectrum that supports long-distance, intercontinental radio communication. The short waves are used for international broadcasting, aeronautical, maritime, disaster relief, and other services including the military;
- The "low-band VHF" frequency range that is heavily used by volunteer fire departments, and other first responders;
- Depending on their distance from a BPL system, some public safety and federal government radio systems could also receive harmful interference.

Radio amateurs are not opposed to broadband services. In fact, they tend to be early adopters of new technology. However, there are ways such as fibre, cable, DSL, and wireless technologies that deliver broadband which do not pollute the radio spectrum as BPL does.

My membership is alarmed at the prospect of not only losing their ability to practice their hobby, but also the certainty that communications will be negatively affected by BPL interference in an emergency. We believe that BPL providers must conform to the same rules as all other spectrum users in that no amount of interference that

affects others will be tolerated. Therefore we strongly urge that no Broadband over Powerlines licenses to operate be issued until the technology has matured to the extent that interference is not generated.

Sincerely,

John Schouten, VE7VPU
President – VECTOR

cc. Ms. Trish Doge, Director of Risk and Emergency Management Division, City of Vancouver
Mr. Ron Martin, Emergency Planner - City of Vancouver, Risk and Emergency Management Division
Ms. Natalia Skapski, Vancouver Police Department, Emergency and Operational Planning Section
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Mr. Rod Tulett, Security & Emergency Management Coordinator, Greater vancouver Regional District
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Mr. Murray Day, Director – Emergency Preparedness Academy, Justice Institute of B.C.
Mr. Ed Frazer, Director - Radio Amateurs of Canada, B.C./Yukon Region
VECTOR Board of Directors

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[i] E-Comm 9-1-1, Emergency Communications for Southwest British Columbia, www.ecomm.bc.ca

[ii] McQuiggin, Kevin *Amateur Radio and Innovation in Telecommunications Technology* 2001, National Library of Canada, ISBN 0612818934, http://highgate.comm.sfu.ca/thesis/mcquiggin.pdf

[iii] The American Radio Relay League, www.arrl.org/bpl

[iv] The National Telecommunications and Information Administration, http://www.ntia.doc.gov/reports.html