

# EXHIBIT 3

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December 6, 2016.

The Honourable Deborah Schulte, M.P.,  
Chair, Standing Committee on Environment & Sustainable Development,  
House of Commons, Ottawa, ON, K1A 0A6  
By Email: [ENVI@parl.gc.ca](mailto:ENVI@parl.gc.ca)

## **Re: Canadian Environmental Protection Act (CEPA) Review** *Briefing: Electrosmog<sup>1</sup> Effects on Biota*

Dear Ms Schulte,

I am a professor and research scientist at Trent University and this Briefing Note is from me and not my university or my program.

For the past 20 years I have studied the biological effects of electromagnetic pollution and have come to the following conclusions:

1. The various forms of electromagnetic frequencies from low frequency electric and magnetic fields (associated with power generation, transmission and distribution); radio frequency radiation (generated by broadcast antennas); and microwave radiation (produced by cell phone antennas, radar, smart meters) are adversely affecting both plants and animals.
2. Adverse biological effects occur well below existing guidelines provide by
  - a. Health Canada (Safety Code 6) and enforced by Industry Canada; and by
  - b. Provincial Ministries of Energy/Environment for ground current pollution.
3. No one seems to be taking any leadership in this area as the focus has been primarily on chemical pollutants and not on electromagnetic pollutants when it comes to toxins in the environment.
4. Levels of exposure to electrosmog (non-ionizing electromagnetic pollution) are increasing exponentially and will continue to increase until steps are taken to lower the guidelines to levels that do not endanger biota or public health.

**Recommendation:** That CEPA examine the research related to the harmful effects of electromagnetic pollutants on biota and provide recommendations to other agencies responsible for their protection.

Sincerely,  
Magda Havas

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<sup>1</sup> Electrosmog refers to electromagnetic pollution that ranges includes extremely low frequency electric and magnetic fields (less than 300 Hz); intermediate frequencies (kHz range); radio frequencies (up to 300 GHz) that also includes microwave radiation (300 MHz to 300 GHz).

**Re: Canadian Environmental Protection Act (CEPA) Review**  
*Briefing: Electrosmog Effects on Biota*

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*Overview:*

An increasing number of publications have appeared during the past few years on the effects of non-ionizing radiation (NIR) on plants and animals. These studies include pollution that flows through the air, along wires, and along the ground commonly referred to as *electrosmog*. These studies include effects on biota living under natural conditions and recently exposed to electromagnetic pollution; as well as effects on various species exposed to electrosmog in controlled laboratory experiments. There are now hundreds of such studies available (Balmori 2006; Warnke 2009; Expert Group 2010; Hillman et al. 2013; Halgamuge 2016; Manville 2016). This briefing note is intended to provide an *overview* that highlights some key research in this area.

Electrosmog in the form of power frequency (50/60 Hz) electric and magnetic fields; dirty electricity (kHz); radio frequency and microwave radiation (kHz to GHz) has been associated with adverse health and reproductive effects in animals and with adverse effects on plants (Figure 1). The effects include the following:

1. Bees: aggressive behavior, reduced productivity, swarming, abandonment of hive (colony collapse disorder);
2. Birds: impaired reproduction, aggressive behavior, interference with migratory behavior, bird deaths;
3. Mammals like dairy cows: reduced milk yield, altered milk quality, reduced fertility and impaired reproduction, miscarriages and deformities in offspring, infections that won't heal with antibiotics, behavioral changes, sudden death; other farm animals are also affected.
4. Amphibians: deformities, population decline;
5. Plants: reduced growth, stunted roots, reduced yield, increased infections.