



Conclusions regarding electric and magnetic fields (EMF) exposure

Conclusions regarding extremely low frequency (ELF) and radio frequency (RF) electric and magnetic fields (EMF) exposure

The Canadian Electricity Association (CEA) finds that there is domestic and international scientific consensus that causation has not been established between ELF or RF EMF exposure via power lines or Smart Meters and any chronic health effects. Therefore, CEA's position is that: Scientific evidence to date has not established adverse health effects resulting from exposure to power-frequency EMF, or smart meter RF EMF, at levels normally encountered in homes, schools and offices.

Relevant ELF EMF exposure guidelines

The International Commission on Non-Ionizing Radiation Protection (ICNIRP), and earlier the ICNIRP in coordination with the Institute of Electrical and Electronics Engineers (IEEE), have developed international exposure guidelines aimed at preventing some known immediate biological effects of ELF EMF exposure. It is stressed that immediate biological effects should not be confused with chronic health effects.

Known immediate biological effects of exposure to ELF EMF include: stimulation of nerves and muscles, functional changes in the nervous system, stimulation of hair and other tissues, shocks, burns, and elevated tissue temperatures. However, it is important to note that the exposure levels that these effects are known to occur at are generally not encountered in any publicly-accessible areas. This includes near electrical transmission and distribution equipment or in high-exposure occupational environments.¹

¹ Exponent, "Research on Extremely Low Frequency Electric and Magnetic Fields from Alternating Current Transmission Lines – Summary Evaluation of the Evidence" Prepared for Manitoba Hydro (May 15, 2015):23.





Typical Canadian exposures fall well below these international guidelines:

- The International Commission on Non-Ionizing Radiation Protection (ICNIRP) published: [“Guidelines for Limiting Exposure to Time-Varying Electric and Magnetic Fields \(1 Hz-100 kHz\)”](#) in 2010.

- and -

[“Guidelines for Limiting Exposure to Time Varying Electric, Magnetic, and Electromagnetic Fields \(up to 300 GHz\)”](#) in April 1998.

- The Institute of Electrical and Electronics Engineers, Inc. (IEEE) produced [“C95.6-2002 IEEE Standard for Safety Levels with Respect to Human Exposure to Electromagnetic Fields 0 to 3 kHz 2002”](#). This technical document is available free of charge online via the preceding hyperlink.

RF exposure guidelines

Similar to ELF EMF, there are no exposure guidelines for RF waves in regards to preventing chronic health effects. This is due to the fact that no scientific correlation has been established between the two.

However, there are guidelines to prevent the known immediate non-chronic biological effects of RF wave exposure but, like ELF EMF, these only pertain to immediate biological effects such as tissue heating and nerve stimulation. The following safety code was established by Health Canada to avoid these immediate biological effects. It should be noted that the Safety Code 6 threshold for exposure to RF EMF is far above exposure levels associated with Smart Meter.

- Health Canada released the following: [“Safety Code 6 – Limits of Human Exposure to Radiofrequency Electromagnetic Energy in the Frequency Range from 3 kHz to 300 GHz”](#)

