

5 PROTECTING CANADIANS FROM HEALTH HAZARDS ASSOCIATED WITH EXPOSURE TO ELECTRO-MAGNETIC FIELDS FROM HIGH VOLTAGE OVERHEAD POWER LINES

Proposed by CFUW South Delta, BC

RESOLVED, That the Canadian Federation of University Women (CFUW) urge the Government of Canada and provincial, territorial and municipal governments to protect the health of Canadians from harm created by exposure to electro-magnetic fields from high voltage overhead power lines by:

1. Requiring that the Precautionary Principle be enforced and policy and regulations developed to protect Canadians from harm from high voltage overhead power lines;
2. Requiring that new overhead power lines be placed underground or at distances from homes, schools, or places of work or study determined to be safe by European Union member states and other countries implementing the precautionary principle;
3. Establishing an independent monitoring body that includes citizen involvement and makes regular public reports on emerging research and on existing and proposed installations of new high voltage overhead power lines;
4. Promoting public awareness and education, and support the development and use of safe alternatives to overhead power lines.

INTRODUCTION

*"A clean environment is essential for human health and well-being. However, the interactions between the environment and human health are highly complex and difficult to assess. This makes the use of the precautionary principle particularly useful."*¹ European Environment Agency

*"Electromagnetic fields of all frequencies represent one of the most common and fastest growing environmental influences, about which anxiety and speculation are spreading. All populations are now exposed to varying degrees of EMF, and the levels will continue to increase as technology advances."*² World Health Organization

For most of the last four decades scientists have been conducting research into the potential for harm to human health from exposure to Electro Magnetic Fields ("EMFs") from overhead power lines. An early and continuing focus of the research was on childhood leukemia in children living near overhead power lines. International scientists and health agencies such as the World Health Organization (WHO) and the European Commission (as we discuss below) now agree that the research shows that there is a relationship between chronic exposure to overhead power lines and an increased incidence of childhood leukemia.

¹ European Environment Agency. *Environment and health*. n.d. <http://www.eea.europa.eu/themes/human>. Retrieved 2/02/2010

² WHO. *Electromagnetic Fields (EMF)*. 2009-2010. <http://www.who.int/peh-emf/en/> Retrieved 2/02/2010

The research on chronic exposure from EMFs from high voltage overhead power lines is now expanding to include other areas of human health but is currently considered to be inconclusive. Nevertheless, almost all developed countries with the notable exception of Canada have decided that the evidence is sufficient for them to incorporate the “precautionary principle” in their legislation and regulations respecting EMFs.

This background paper provides a working definition of the precautionary principle, an overview of recent, publicly available information on the views of the WHO, the European Commission of the European Union, a group of independent scientists, and Health Canada on harm to human health from EMFs from overhead power lines.

The Precautionary Principle

Several definitions of the precautionary principle were reviewed by the UNESCO expert group on the Precautionary Principle in March 2005. They agreed on the following working definition of the principle:

“When human activities may lead to morally unacceptable harm that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm. *Morally unacceptable harm* refers to harm to humans or the environment that is

- ◆ threatening to human life or health, or
- ◆ serious and effectively irreversible, or
- ◆ inequitable to present or future generations, or
- ◆ imposed without adequate consideration of the human rights of those affected.”³

THE OPINION OF THE WORLD HEALTH ORGANIZATION EMF TASK FORCE

The World Health Organization (WHO) established the *International EMF Project* in 1996 to “assess the scientific evidence of possible health effects of EMFs in the frequency range of 0-300 GHz.”⁴ Much of the research they assess looks at whether exposure to EMFs increases the risk of childhood leukaemia since the bodies of young children are particularly vulnerable to harm from environmental pollutants.⁵

The most recent WHO report, a monograph published in 2007, on exposure to extremely low frequency (ELF) EMFs is based on meetings of scientists between 2002 and 2005 to assess their published findings on EMFs. The monograph focuses on research findings by experts in neurodegenerative disorders, cardiovascular disorders, childhood leukaemia, and protective measures. The report found that the scientific evidence of an increase in the risk of childhood leukemia from EMFs is strong though only a small number of children are likely to be affected and the Task Force is of the opinion that EMFs are likely carcinogenic. The report then

³ UNESCO. *The Precautionary Principle. Report of UNESCO’s expert group on the Precautionary Principle, adopted by COMEST at the fourth session (March 2005).* http://portal.unesco.org/shs/en/ev.php-URL_ID=8050&URL_DO=DO_TOPIC&URL_S Retrieved 04/02/2010

⁴ WHO. *Electromagnetic Fields.* <http://www.who.int/peh-emf/en/> Retrieved 01/02/2010

⁵ WHO Children’s Health and the Environment: Developing Action plans. P.5.

concludes in a section entitled *Protective Measures* that “The use of precautionary measures is warranted.”⁶

The WHO EMF Task Force committee chair commenting on the monograph’s findings cautions the Task Force scientists that “The WHO recommendations target the whole world” and also later reminded them that “WHO’s recommendations must be applicable to all countries alike --- poor and developing countries as well as wealthy ones --- among which the willingness or ability to pay for precautionary measures varies widely.”⁷ These concerns are not relevant to rich developed countries such as Canada.

THE EUROPEAN COMMISSION OF THE EUROPEAN UNION

The European Union uses the precautionary principle. All member states have now implemented a protective framework at least equivalent to the EU recommendation, 1999/519/EC, which asks member states to implement a framework of basic restrictions and reference levels, to ensure that adequate health protection measures are taken and to ensure that the general public is adequately informed.⁸

The Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR) of the European Commission (an institution of the European Union), meeting about “Possible Effects of Electromagnetic Fields (EMFs) on Human Health” adopted the following opinion in January 2009: “the few new epidemiological and animal studies that have addressed the ELF exposure and cancer do not change the previous assessment that ELF magnetic fields are a possible carcinogen.”⁹ In 2009, the SCENIHR also adopted the opinion of its experts that further epidemiological and experimental investigations of the apparent association between ELF and Alzheimer’s disease should be given priority.¹⁰

In assessing the exposure of the general population to high voltage transmission lines the Committee notes that the degree of exposure due to magnetic flux depends on the actual current in the line [i.e. it will vary with the demand daily and seasonally] the distance from the line and length of time of the exposure. They note that studies of co-exposures suggest a possible interaction of magnetic fields with other agents.

BIOINITIATIVE WORKING GROUP REPORT

The most authoritative opinions on EMFs and human health and recommendations for policy currently come from the cautious assessments of the evidence by scientists aligned with the WHO and the European Union. However, the BioInitiative Report, prepared by an independent

⁶ WHO. 2007. *WHO workshop on Developing and implementing protective measures for ELF EMF, 20-21 June, 2007, Geneva Switzerland*.p.12. http://www.who.int/peh-emf/meeting/el-emf_workshop_2007/en/index.html

⁷ Ibid. *Rapporteur’s Report*. p.5.

⁸ European Commission, Health and Consumer Protection Directorate General. *The Current Precautionary approach on EMF: Council Recommendation 1999/519/EC*. Presentation by Laurent Bontoux, European Commission. Brussels, 11-12 February 2009.

⁹ European Commission, SCENIHR. *Health Effects of Exposure to EMF*. Brussels. 19 January 2009. p4. http://ec.europa.eu/health/ph_risk/risk/committee/04_scenihr_o_022pdf

¹⁰ Ibid. p.64.

group of international scientists argues strongly that EMFs have been linked to a variety of adverse health outcomes and, they note, that EMFs have been shown to cause cells to generate stress proteins, a universal sign of distress in animal and human cells. These scientists also express concerns that vested interests shape the public health debate and advise that: "Prudent corporate policies should be expected to address and avoid future risks and liabilities. Otherwise, there is no market incentive to produce safe (and safer) products. We can no longer afford business as usual the report concludes. It is no longer acceptable, they say, to build new power lines and electric facilities that place people in EMF environments that have been determined to be risky."¹¹

THE CANADIAN GOVERNMENT POSITION ON EMFS

The Canadian government has enshrined the following Precautionary Principle in the 1999 Canadian Environmental Protection Act (CEPA 1999): "Whereas the Government of Canada is committed to implementing the precautionary principle that, where there are threats of serious or irreversible damage, lack of scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."¹²

The current Health Canada on EMFs is articulated in a brief statement issued on November 8, 2008. The statement concludes: "it is the opinion of the Federal-Provincial-Territorial Radiation Protection Committee (FPTRPC) that there is insufficient scientific evidence showing exposure to EMFs from power lines can cause [emphasis added] adverse health effects such as cancer. Therefore, a warning to the public to avoid living near or spending time in proximity to power lines is not required...Any precautionary measures to be taken ...should favour low cost or no cost options".¹³ With regard to the international agencies' assessments of the risk of childhood leukemia, the statement is quite dismissive, commenting that "Based on the weak epidemiological evidence from childhood leukaemia studies, the International Agency for Research on Cancer (IARC) has classified power-frequency magnetic fields as "possibly carcinogenic to humans." The same classification, the Health Canada statement comments, is applied to, for example, "coffee and pickled vegetables."¹⁴

CONCLUSION

Today, with the exception of Canada and the U.S., as our table below shows, all developed countries now have national policies about public exposure to Electro-Magnetic Fields (EMFs) from overhead power lines. Canada is unique in that it is a developed country that stands together with Kazakhstan, Mongolia, India, Thailand, and Uzbekistan and other developing countries in refusing to take any precautionary actions to protect its citizens from possible threats to their health from their growing exposure to EMFs.

¹¹ Ibid.p.16

¹² Minister of Justice. Canadian Environmental Protection Act, 1999,c.33 . p.1-2. <http://laws-loi.justice.gc.ca/pdf/Statute/C/C-15.2/pdf>

¹³ Health Canada, *Response Statement to Public Concerns Regarding Electric and Magnetic Fields (EMFs) from Electrical Power Transmission and Distribution Lines. Issued on November 8, 2008.* <http://hc-sc.gc.ca/ewh-semt/radiation/fpt-radprotect/emf-cem-eng.php>

¹⁴ Ibid.

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Minister of Justice. Canadian Environmental Protection Act, 1999, c.33 . p.1-2. <http://laws-loi.justice.gc.ca/pdf/Statute/C/C-15.2/pdf>

INTERNATIONAL EMF STANDARDS

EMF standards of a number of countries were compiled for a WHO Committee on EMFs.

<i>Policy</i>	<i>Countries (non exhaustive)</i>
No Policy	Armenia, Bahrain, Belgium*, Canada, India, Kazakhstan, Malaysia, Mongolia, Thailand, USA, Uzbekistan, others. [Belgium now follows ICNIRP Guidelines].
ICNIRP – voluntary (International Commission on Non-Ionizing Radiation Protection)	Australia, Brazil, Denmark, France, Ireland, Latvia, Luxemburg, Malta, Netherlands, New Zealand, Singapore, South Africa, South Korea, Spain, Sweden, Taiwan, United Kingdom, Venezuela.
ICNIRP – legislation	Austria, Finland, Czech Republic, Croatia, Estonia, Greece, Hungary, Norway, Portugal.
Stricter limits than ICNIRP	Argentina, China, Japan, Poland, Russia.

WHO. Kandel, Shaiela, *WHO workshop on Developing and implementing protective measures for ELF EMF, 20-21 June, 2007, Geneva Switzerland* http://www.who.int/peh-emf/meeting/elf-emf_workshop_2007/en/index.html