FAQs

What evidence does AltaLink use to make its decisions about EMF?

AltaLink relies on the consensus of national and international scientific and health agencies including organizations such as Health Canada and the World Health Organization. These organizations provide guidance based on thorough reviews of the literature on EMF and health. The organizations systematically evaluate published studies on EMF and health and various biological responses using a rigorous scientific approach, taking into account the overall weight of evidence (e.g., quality of each study), to develop an overall consensus.

What is the position of Health Canada?

Health Canada regularly monitors EMF literature and has concluded "…the vast majority of scientific research to date does not support a link between ELF magnetic field exposure and human cancers." In 2012, they stated "Health Canada does not consider that any precautionary measures are needed regarding daily exposures to EMFs at ELFs. There is no conclusive evidence of any harm caused by exposures at levels found in Canadian homes and schools, including those located just outside the boundaries of power line corridors."

These statements can be found at:
http://healthycanadians.gc.ca/environment-environnement/home-maison/emf-cem-eng.php

This conclusion is consistent with that reached in November 2008 by the Federal-Provincial-Territorial-Radiation-Protection-Committee.

Visit: ***http://www.hc-sc.gc.ca/ewh-semt/radiation/fpt-radprotect/emf-cem-eng.php***

What do other scientific agencies say?

Many national and international organizations responsible for public health have convened groups of scientists to review existing EMF research. Such organizations include the U.S. National Institute of Environmental Health Sciences (NIEHS), the International Agency for Research on Cancer (IARC), the Health Protection Agency (HPA) of Great Britain, the Health Council of the Netherlands (HCN), the Swedish Radiation Safety Authority (SSM), and the World Health Organization (WHO).

The WHO, for example:

- concludes there is no association between exposure to magnetic fields and breast cancer or heart disease;
- concludes there is little evidence suggesting exposure to magnetic fields is associated with adverse health effects, including most forms of adult and childhood cancers, Alzheimer's disease, depression, and reproductive effects;
- advises that some epidemiological studies reported a statistical association between high average exposures to magnetic fields and childhood leukemia, but conclude that factors other than exposure to magnetic fields could explain the association;
- states that the laboratory research does not support a causal relationship between magnetic fields and cancer, including childhood leukemia; and,
- have not concluded that EMF causes any disease; and have not recommended exposure limits or other measures to reduce exposure at levels associated with sources in our communities.

For more information go to ***http://www.who.int/peh-emf/en***
The conclusions of the other health agencies mentioned are similar to those of the WHO.

Why did IARC classify ELF magnetic fields as possibly carcinogenic in 2002?

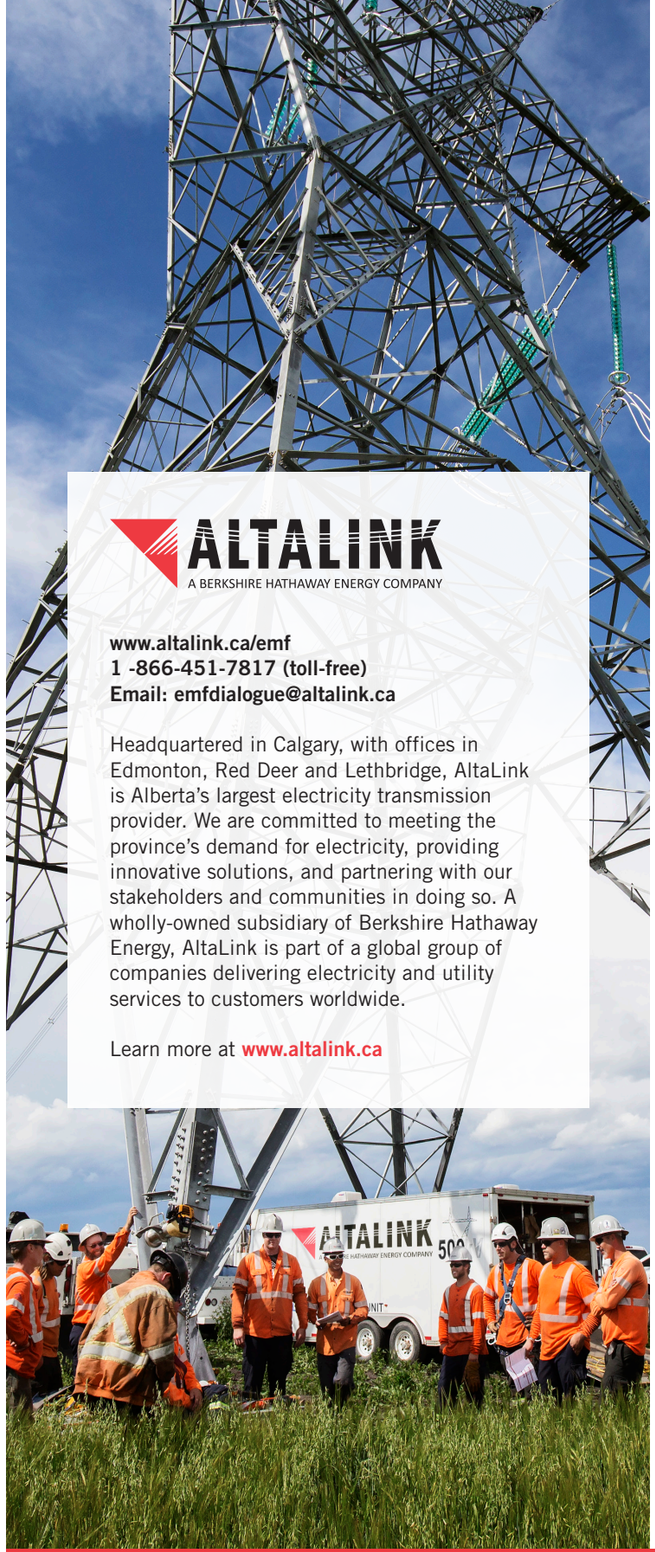
The classification of ELF magnetic fields as "possibly carcinogenic to humans" was based on evidence from some childhood leukemia studies that suggested a weak statistical association with childhood leukemia. The association was considered credible, but other explanations could not be ruled out. In this case, possible explanations for the statistical association include selection bias, chance, and confounding. This classification does not mean that a causal relationship has been established but that more research is needed to understand the basis for this association.

Can you totally eliminate power line EMF by burying the lines underground?

No. The ground will block the electric field, but the magnetic field will still be present near the line.

Should I take steps to reduce my exposure to EMF?

No health agency has suggested that your health would benefit from reducing your exposure. AltaLink can be contacted for more information about sources of EMF and you can request measurements at your home to identify sources if you wish.



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Headquartered in Calgary, with offices in Edmonton, Red Deer and Lethbridge, AltaLink is Alberta's largest electricity transmission provider. We are committed to meeting the province's demand for electricity, providing innovative solutions, and partnering with our stakeholders and communities in doing so. A wholly-owned subsidiary of Berkshire Hathaway Energy, AltaLink is part of a global group of companies delivering electricity and utility services to customers worldwide.

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A DIALOGUE ON ELECTRIC AND MAGNETIC FIELDS

ALTALINK
A BERKSHIRE HATHAWAY ENERGY COMPANY

LET'S TALK EMF

At AltaLink, we recognize that people are concerned about exposure to electric and magnetic fields (EMF). Electric and magnetic fields are encountered everywhere electricity is used in our modern society, not just near transmission lines, so all of us have an interest in learning more about EMF.

EMF Research

Scientific research on EMF and potential related health effects has been conducted and reviewed for more than forty years. Most research studies have focused on magnetic field exposure, since electric fields are easily shielded. Some studies have suggested that people with certain diseases may have had higher exposures to EMF, specifically magnetic fields, compared to people without these diseases. Other studies have not reported such associations with magnetic field exposure. None of the studies have shown that exposure to EMF actually caused the disease.

National and international health organizations have conducted thorough reviews of the scientific literature published over the past 40 years and have not concluded that EMF, such as that related to power lines, is the cause of any disease. They have found there is not enough evidence to support guidelines to limit long-term exposure to low levels of EMF. Health Canada, for example, has recommended the general public does not need to take action to limit their daily exposures to EMF. The World Health Organization states that given the weakness of the scientific evidence suggesting adverse effects, the benefits of EMF exposure reduction are unclear.

If you are concerned about EMF, we can suggest reliable scientific sources that have evaluated the potential relevance of EMF to human health as well as provide you with information about ways you can minimize your exposure to EMF.

ABOUT EMF

Electric and magnetic fields exist everywhere there is electricity and include the 60 Hertz (Hz) fields generated by household wiring, power lines, and electrical appliances. EMF at frequencies below 300 Hz is referred to as extremely low frequency (ELF). ELF EMF is different than higher frequency electromagnetic waves, such as radio waves, visible light, ultraviolet light, and X-rays. Exposure to ELF EMF, at levels we may encounter in our environment, cannot damage cells or heat tissue, because ELF EMF has too little energy to break apart molecules or to heat cells.

Electric Fields

Electric fields are created by the voltage on a wire and are produced whether a current is flowing in the wire or not. For example, a hair dryer that is plugged in produces an electric field, even if it is turned off. Electric fields are easily blocked by objects and materials, such as trees, buildings, and vegetation. High levels of power line electric fields can result in nuisance shocks, so guidelines have been established to limit exposure to avoid these effects. High electric fields at the surface of transmission line conductors also can produce low levels of audible noise and radio interference. Regulations are in place to ensure noise and interference are within acceptable levels.

Magnetic Fields

Magnetic fields are generated only when a current is flowing in a wire. Using the previous example, when the hair dryer is switched off, there is no magnetic field present. When it is turned on, a magnetic field is produced. At a higher setting, the hair dryer draws more current and produces a stronger magnetic field than when operating on a lower setting. Unlike electric fields, magnetic fields pass through most objects and materials and cannot be easily shielded. Exposure to very high magnetic fields can result in acute (immediate) stimulation of nerves and muscles, so guidelines have also been established to limit exposure to avoid these effects. These acute effects occur at magnetic field levels much higher than those near transmission lines.

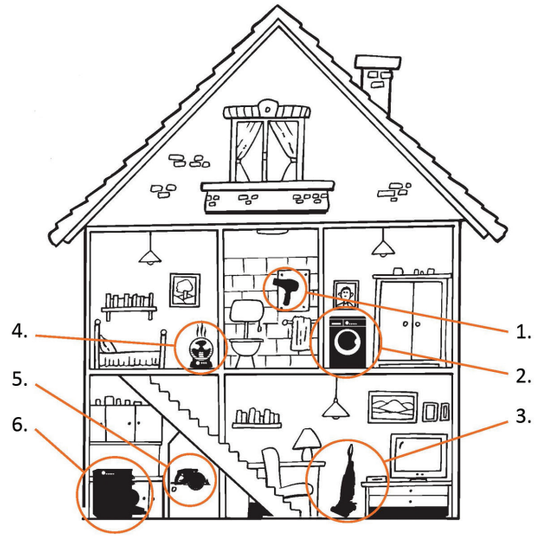
Field Strength

The strength of both electric and magnetic fields decreases quickly as you move away from the source. For example, at a distance of 20 metres (65 feet) from a transmission line, the fields may be only one-quarter as strong as directly under the line. Beyond 200 metres (650 feet), the field strength is usually too low to distinguish it from other sources of EMF.

The strength of electric and magnetic fields from electrical appliances also diminishes quickly with distance. At one to one and a half metres (3 to 5 feet) from the source, these fields are typically reduced to very low levels and indistinguishable from background levels. The illustration below shows typical magnetic field exposure levels near common household electrical appliances, taken at 15 cm from the appliance. The average level of 1 mG was taken from a Canadian Electricity Association report representing measurements taken in Canadian homes at the centre of each room.

Typical magnetic field levels in the home at 15 cm away*

*Source is 2002 NIEHS EMF Q&A booklet



Typical Canadian Household **1 mG** (milligauss)

1. Hairdryer 300 mG
2. Washing machine 20 mG
3. Vacuum 300 mG
4. Portable heater 100 mG
5. Power saw 200 mG
6. Dishwasher 20 mG

THE BOTTOM LINE

Everyone in our society is exposed to ELF EMF from many sources, including electrical wiring in buildings, power lines, and electrical appliances. While questions have been raised whether some aspect of ELF EMF exposure might possibly be harmful, the body of scientific evidence does not support a cause and effect relationship between ELF EMF and any health outcome, including cancer. Large numbers of scientific studies of animals, humans, and cells have been conducted over the past 40 years. Research efforts over the years led to stronger and more informative studies that are better able to assess exposure and potential risk. These studies have failed to find convincing scientific evidence that ELF EMF is the cause of any disease, and national and international health agencies that have conducted thorough reviews of the literature on ELF EMF and health have not recommended that the public limit their everyday exposures to ELF EMF.