Appendix D. EMF Factsheet

Health & Safety

Health & safety background

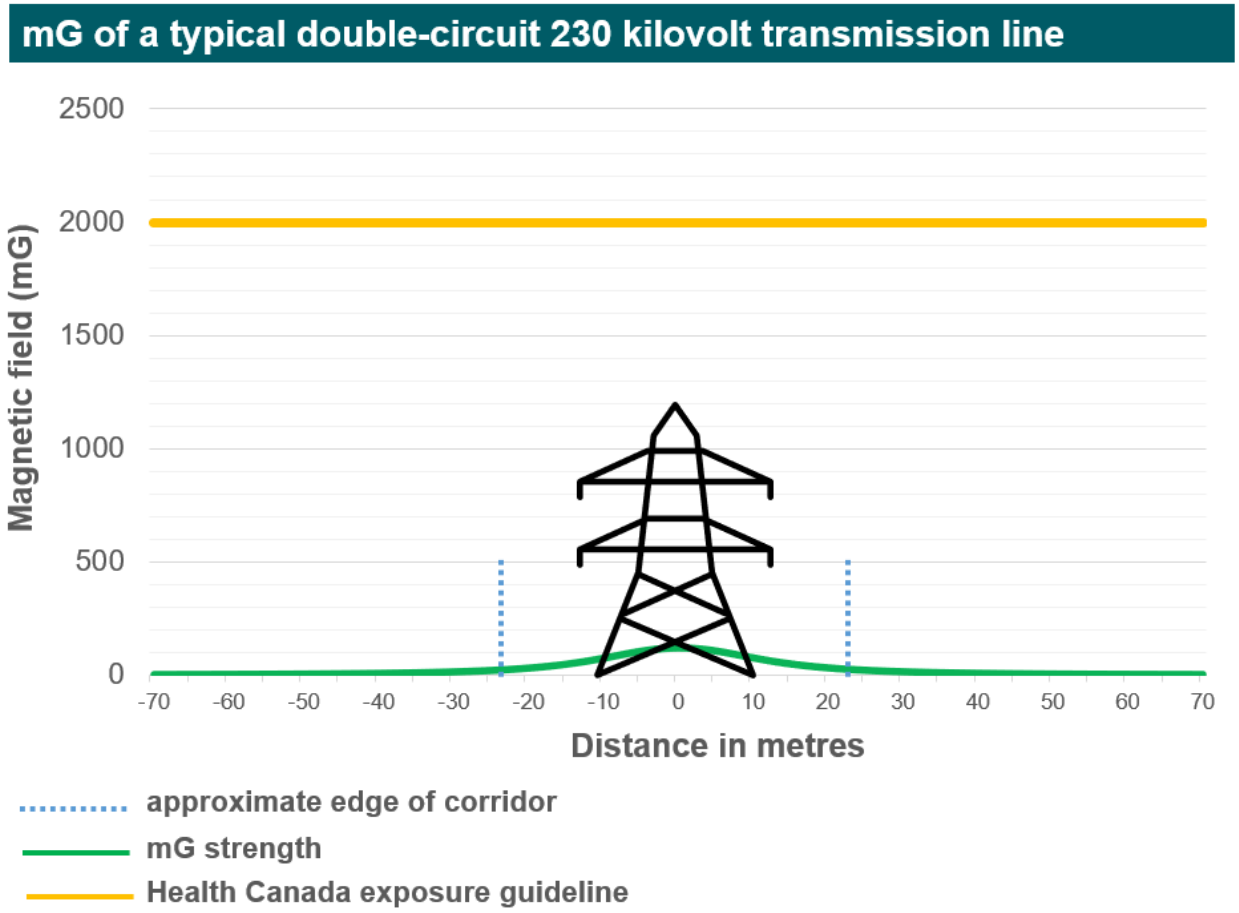
- Everything is rooted in safety at Hydro One.
- Hydro One has a dedicated team that regularly monitors global studies around electric and magnetic fields (EMF) and ensures that our infrastructure is built and maintained following best practices and industry standards.
- We look to **Health Canada**, the **World Health Organization** and the **International Commission on Non-Ionizing Radiation Protection** (ICNIRP), for guidance on EMF and our approach.
- Based on global studies which have and continue to be regularly monitored, these organizations indicate that members of the public do not need to take precautions to protect from fields produced by extremely low frequencies such as transmission lines.

Key facts

- Electricity produces fields which are referred to as EMFs. **EMFs are invisible forces found everywhere electricity is used** including household appliances, power cords, and wires.
- They are strongest when close to their source. As you move away from the source, the **strength of the fields fades rapidly**.
- In North America, all electricity including transmission lines, operate at 60 hertz, which is considered to be extremely low frequency.
- World Health Organization (WHO) states that “despite extensive research, to date there is **no evidence** to conclude that exposure to low level electromagnetic fields is harmful to human health.”
- Health Canada states that members of the public do not need to take precautions to protect from fields produced by electricity (extremely low frequency) because exposures are far below the limits recommended by the ICNIRP guidelines (The International Commission on Non-Ionizing Radiation Protection)
- ICNIRP’s guidelines indicate that general exposure at low frequency, such as transmission lines, should **not exceed a level of 2000 milligauss** (mG).
- To help further put this into context, household appliances such as a **vacuum operates at 300 mG**, a microwave at 200 mG and a washing machine at 20 mG.

Below is an example chart that shows a double-circuit 230kV transmission line. The green line represents magnetic field modelling as it extends from under the wires and to the edge of the right-of-way. This modelling is compared against Health Canada's recommended limit of 2000 mG (yellow horizontal line). The tower represents the middle of the transmission line.

The St. Thomas transmission line project consists of a 230kV double-circuit transmission line.



Common household sources of magnetic fields

Appliance	Median mG
Electric Ovens	9 mG at 6 inches
Coffee Makers	7 mG at 6 inches
Refrigerators	2 mG at 6 inches
Vacuum Cleaner	300 mG at 6 inches
Microwave	200 mG at 6 inches
Portable Heater	100 mG at 6 inches
Washing Machines	20 mG at 6 inches

EMF and the Natural Environment

The World Health Organization has studied EMF effects on species and the natural environment.

Their findings include:

- **little or no evidence** of significant environmental impact to aquatic ecosystems
- **no effects** to plants at the levels normally found in the environment, nor even at field levels directly under power lines up to 765 kV
- **no adverse effects** found on cattle grazing below power lines

Additional resources

- https://www.hydroone.com/power-outages-and-safety/corporate-health-and-safety/electric-and-magnetic-fields
- https://www.canada.ca/en/health-canada/services/health-risks-safety/radiation/everyday-things-emit-radiation/power-lines-electrical-appliances.html
- https://www.who.int/news-room/questions-and-answers/item/radiation-electromagnetic-fields
- https://www.jeic-emf.jp/assets/files/Fact%20Sheets/facrt_sheet_Effects%20of%20EMF%20on%20the%20environment.pdf
- https://www.icnirp.org/cms/upload/publications/ICNIRPLFgdl.pdf

We are committed to understanding and addressing any health concerns individuals may have. In the meantime, if you have any questions, please contact Hydro One's Community Relation's team:

1-877-345-6799
Community.Relations@HydroOne.com
HydroOne.com/StThomasLine