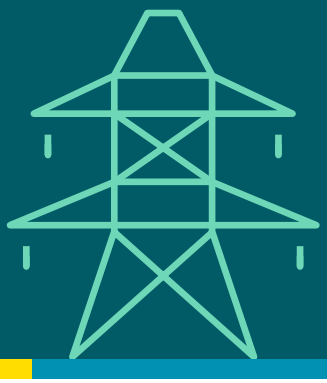
Microshocks on electricity transmission corridors



Hydro One owns and operates a 29,000-kilometre high-voltage electricity transmission network (from 115 kilovolts to 500 kilovolts) that delivers electricity to local distribution companies and large industrial customers across Ontario. Ownership of transmission corridor lands is diverse including Hydro One, the Province of Ontario, municipalities, First Nations and Métis communities, and private property owners.

While the primary purpose of corridor lands is for the transmission and distribution of electricity, the Ontario government's Provincial Secondary Land Use Program allows for the licensing of provincially-owned corridor lands to government agencies, municipalities, and commercial entities for a variety of uses ranging from parks and sports fields to parking lots. Hydro One manages provincially-owned corridor lands on behalf of Infrastructure Ontario (representing the province), and works with parties to ensure their proposed use of the corridor lands is compatible with safety and operational requirements for Hydro One's transmission facilities.

On occasion and under certain conditions, it is possible for individuals on electricity transmission corridors to receive a small electrical shock called a microshock. The purpose of this fact sheet is to explain what microshocks are and why they might occur, and to assure people that they are not harmful.

What is a microshock?

Low level electric fields are present in the environment near electric power transmission lines. These electric fields can extend down to the ground to induce a small electric charge in conductive objects such as vehicles, buildings, people or animals. When this charge is transferred to objects, it can produce a very small shock or "microshock".

The potential for microshocks and their strength is determined by several factors:

- The smaller the distance between the power line and the object, the more likely the chance of microshocks.
- Larger objects under a power line will pick up more charge.
- Higher line voltages will cause more induction, increasing the potential for microshocks.

How do microshocks occur?

Microshocks occur in two different ways:

1. When a person is under and adjacent to a high-voltage transmission line, a small induced charge from the surrounding electric field can build up. This electric charge remains on the surface of the skin until an object with a lower charge is touched and the excess electricity leaves the surface of the skin, causing a small shock. This can occur when skin touches grass or other vegetation.
2. Microshocks can also occur when someone touches an object that has a small charge built up on it. In this case, a small spark jumps to the person from the object, for example when someone touches the door handle of a vehicle that has been parked under a transmission line.

What does a microshock feel like?

The sensation of a microshock is similar to a static electrical shock you might experience when contacting a door handle after walking across a carpet in dry conditions. Although not dangerous, an unexpected microshock can be startling, unpleasant, and annoying.

People vary in their experience and reaction to contact with electric currents. Reactions are largely dependent on body size, with larger individuals generally experiencing more of a sensation.

Are microshocks harmful?

Microshocks last for only a short time (a few milliseconds) and the energy levels are very low. Since the discharge of excess energy occurs only at the surface of the skin, microshocks do not affect any internal parts of the body and are not considered to have harmful effects on health.

How can the potential for microshocks be minimized?

Hydro One transmission lines are designed to meet or exceed all applicable industry and regulatory standards for safety. Clearances between the ground and overhead power lines are designed to minimize the possibility of microshocks.

For more information, please contact:
Hydro One's toll-free electric and magnetic field (EMF) information line:
1-800-728-9533