



## The Hertel–New York interconnection line and electric and magnetic fields (EMFs)

An underground direct current (DC) line does not generate an electric field because each of the line conductors is insulated and encased in a metal sheath, completely blocking the electric field it contains.

The Earth's magnetic field is generated by electric currents induced by the motion of molten metal in the Earth's core. Depending on where we are on the planet, the magnitude of the magnetic field can be as much as 70  $\mu\text{T}$ . In the region of the interconnection line, it is about 50  $\mu\text{T}$ . The International Commission on Non-Ionizing Radiation Protection (ICNIRP) recommends that exposure of the general public not exceed 400,000  $\mu\text{T}$ .

The strength of a magnetic field is expressed in microteslas ( $\mu\text{T}$ ).

**Given the configuration of the Hertel–New York DC interconnection line, its magnetic field emissions will not exceed 90  $\mu\text{T}$ . Within a few metres on either side of the cables, the magnitude of the magnetic field will be about the same as that of Earth's magnetic field. In other words, there will be no public health impacts as the field will be far below the exposure limit.**

*Health Canada does not consider that any precautionary measures are needed regarding daily exposures to electric and magnetic fields at extremely low frequencies. 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. – Health Canada.*

# The Hertel–New York interconnection line and stray voltage

## Zero reported cases of stray voltage from DC transmission lines

To date, not a single case of stray voltage from a DC transmission line like the proposed line has been reported. Though much of the 450-kV Radisson–Nicolet–Des Cantons DC line runs through farmland, there have been no complaints of stray voltage since the line was commissioned back in 1986.

## Understanding stray voltage

Stray voltage is defined as the voltage difference between any two points that an animal might touch simultaneously, which can cause a current to flow through the animal that can affect its behavior. An example would be the voltage difference between the earth and electrically grounded farm equipment such as feeders.

## Rare cases related to Hydro-Québec's distribution lines

Hydro-Québec collaborates with the Union des producteurs agricoles (UPA) and the Ministère de l'Agriculture des pêcheries et de l'alimentation and has introduced a procedure for handling possible cases of stray voltage. Of the 100 cases reported, 80 were unrelated to an electrical phenomenon, 15 stemmed from the customer's electrical installation on the farm, and fewer than 5 were attributable to Hydro-Québec's distribution system.

## For more information

<https://www.hydroquebec.com/data/administrations-municipales/pdf/amr-tension-parasite.pdf>  
(in French only)

Original text written in French.  
*Ce document est également publié en français.*