

Hydro's transmission system moves electricity from generating stations to distribution substations, where it is transformed to lower voltages for distribution to customers.

Transmission lines are a critical component of delivering electricity from the generating source to communities. On the island of Newfoundland, electricity is generated in facilities located in western and central regions, while the majority of electricity consumers are located in the eastern region of the province. Hydro owns and operates two main 230 kV transmission lines which span the island to facilitate power delivery and meet reliability requirements for the provincial electricity system.

Hydro owns and operates one 138 kV transmission line in Labrador which runs from the Churchill Falls Generating Station to provide electricity to customers in the Happy Valley-Goose Bay area. The remainder of the transmission system in Labrador is owned and operated by the Churchill Falls Generating Station.

Hydro's transmission system consists of:

- Over 3,700 km of transmission lines
- 26,000 wood poles which are 50-75 feet long and have up to a 50-year life span
- 54 high-voltage terminal stations
- 3,996 steel towers

The transmission grid in Newfoundland and Labrador operates at voltages from 69 kilovolt (kV) to 230 kV and is the backbone of the province's electricity grid.

- 1,608 kms of 230 kV lines
- 1,500 kms of 138 kV lines
- 634 kms of 69 kV lines

Hydro ensures that our transmission system is planned, operated and maintained in a safe, reliable and cost-effective manner. Our crews monitor sections of its transmission lines throughout the year to ensure system reliability.

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## DEFINITIONS

- **CURRENT:** The number of electrons in motion is called the amperage or current.
- **GRID:** A network of transmission lines.
- **KILOVOLT (kV):** One thousand volts.
- **TERMINAL STATION:** Building in fenced-in area that contain switches, transformers and other electrical equipment that increases voltage of electricity.
- **TRANSMISSION:** The transportation or conveyance of electricity in bulk, usually at voltages over 69 kilovolts.
- **TRANSMISSION SYSTEM:** Electrical infrastructure used to transmit electricity over long distances, usually at voltages greater than 69 kilovolts (kV).
- **VOLTAGE AND VOLTS:** The pressure pushing a number of electrons (current) along a transmission or distribution line is called the voltage, which is measured in volts.
- **ELECTRICITY LOSS:** As electrons travel across a conductor, there is resistance caused by the material of the conductor (usually copper or aluminum), which means voltage is loss as it travels over distances.



Hydro carries out many maintenance and capital projects annually, including the Wood Pole Line Management Program. This program involves identifying poles and other components that require repair or replacement, and taking actions to ensure that unplanned outages are kept to a minimum level. Under this program, transmission lines and poles are inspected each year and recommendations are made for necessary refurbishment and/or replacement of line components.



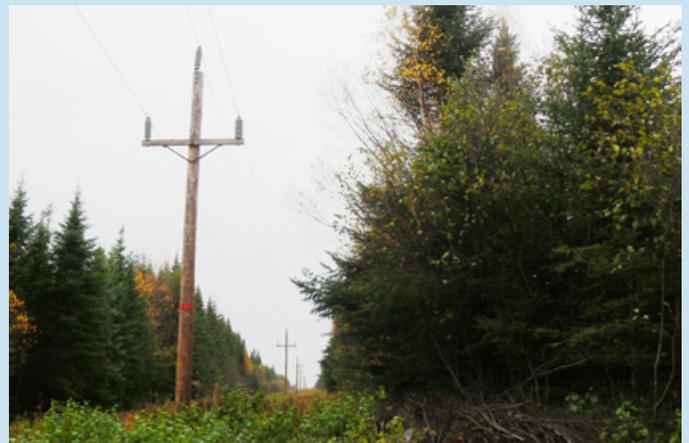
An example of a wood pole.



An example of 230 kV lines.



An example of 138 kV lines.



An example of 69 kV lines.

