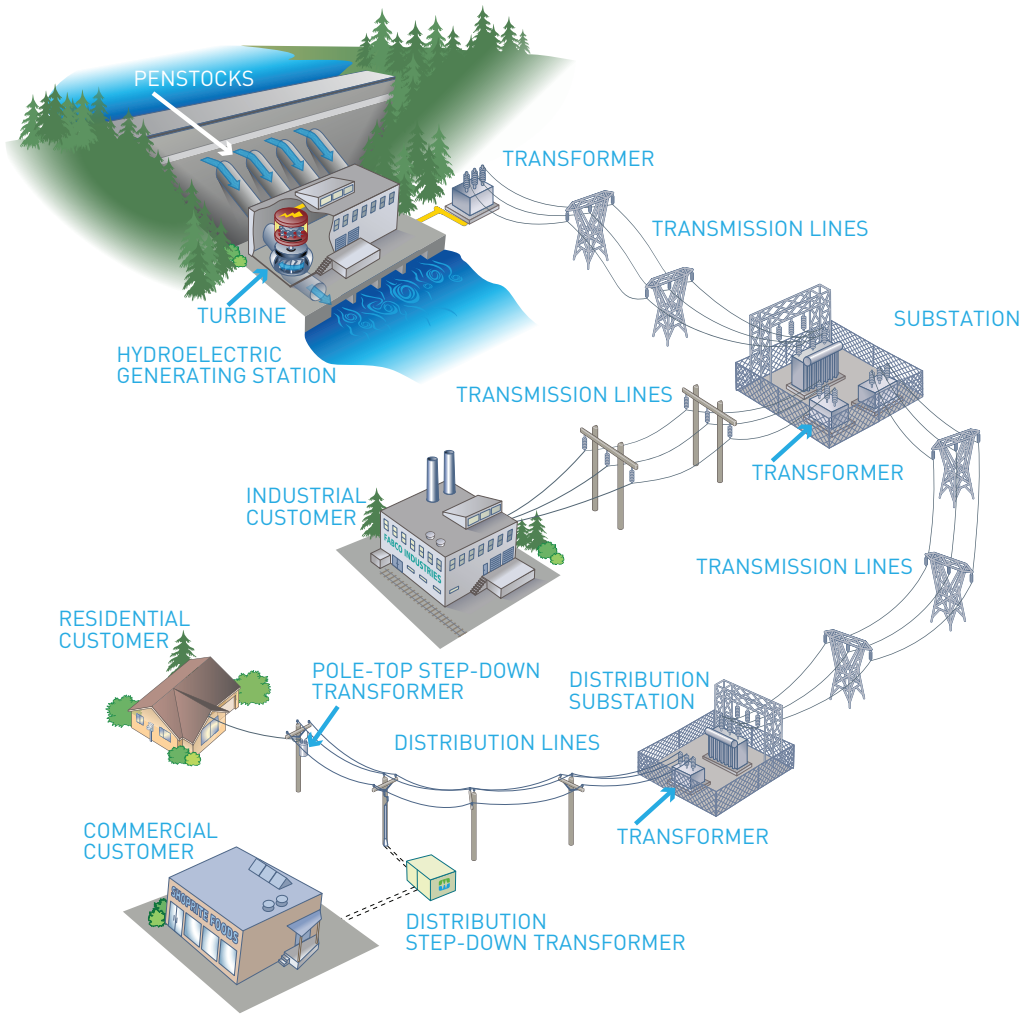
BC HYDRO-ELECTRICITY INFRASTRUCTURE 101

BC Hydro's electrical system crosses over 5,000 hectares of land and is made up of over 75,000 kilometres of transmission and distribution lines. There are more than 900,000 utility poles and over 300 substations.



HYDROELECTRIC GENERATING STATION

BC Hydro's electricity system serves approximately 1.9 million residential, commercial and industrial customers across B.C. Most of our power is generated at hydroelectric generating stations. Water flows through the dam's penstocks (tunnels that bring water from the reservoir through the generating station) and causes the turbine's blades to spin. This drives a generator that converts the mechanical rotational energy into electric energy.

TRANSMISSION LINES

Around 80 per cent of B.C.'s electricity is generated in the Peace and Columbia regions, and 70 to 80 per cent of it is used in the Lower Mainland and on Vancouver Island. Transmission lines, the big lines strung between large metal towers and wood poles, move power across the long distance between where electricity is generated and where it is used. One of the big differences between transmission lines and distribution lines is voltage.

SUBSTATIONS

Substations are usually located in open-air sites, but are sometimes housed within buildings. Transformers in those substations are used to "step-up" or "step-down" voltage to ensure power is delivered efficiently. Voltage is increased when delivering power over long distances to minimize energy losses and decreased for distribution lines to deliver electricity at lower voltages.

DISTRIBUTION LINES

Distribution lines, the smaller power lines, take power from local substations to customers. The voltage of distribution lines is lower than high-voltage transmission lines.

DISTRIBUTION STEP-DOWN TRANSFORMERS

Before the power reaches customers' homes and businesses, it must be stepped down again. Pole-top step-down transformers are used to step-down voltage for overhead distribution lines and enclosed ground-level step-down transformers are used for underground distribution lines.

BC hydro
FOR GENERATIONS