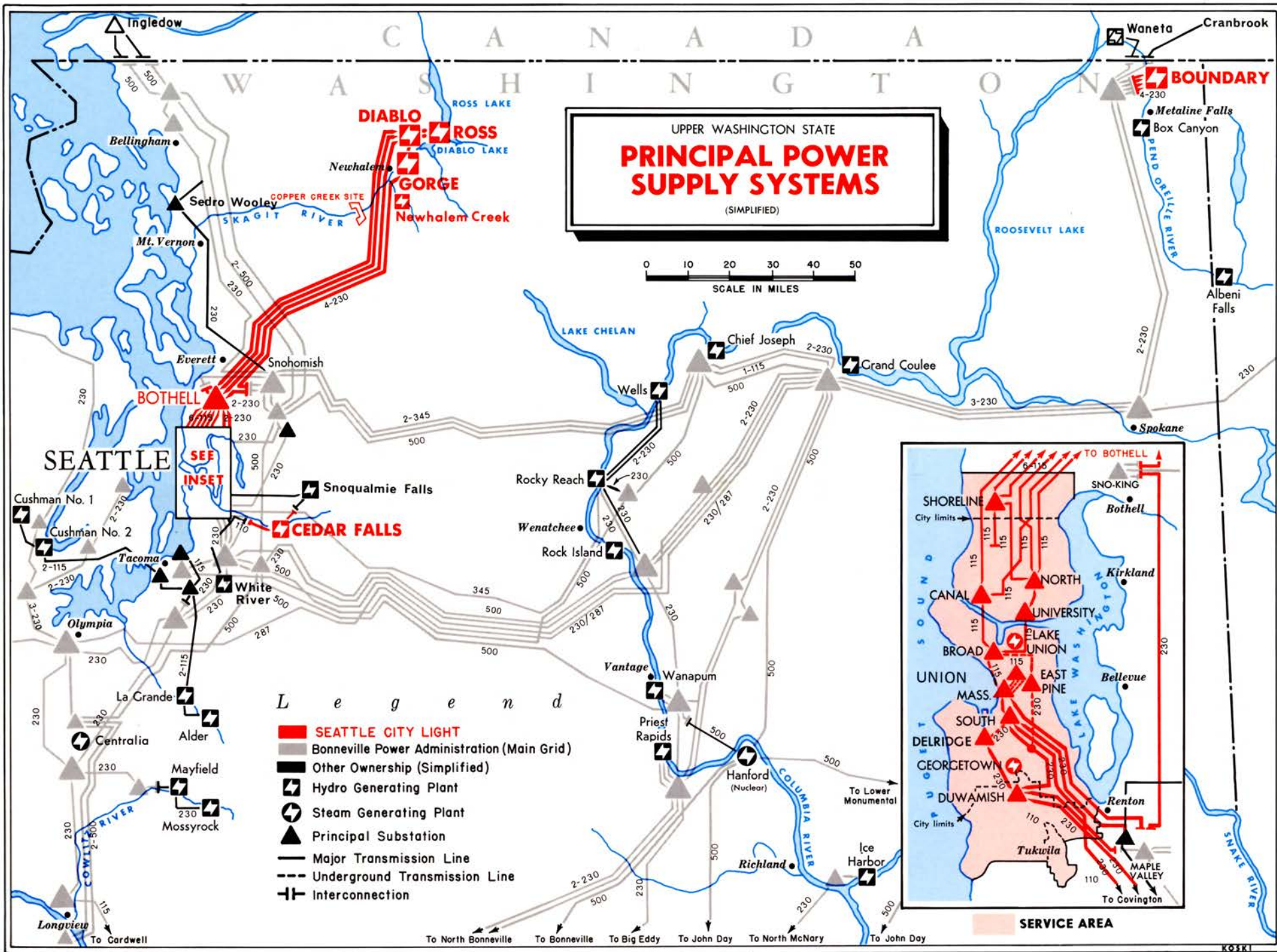
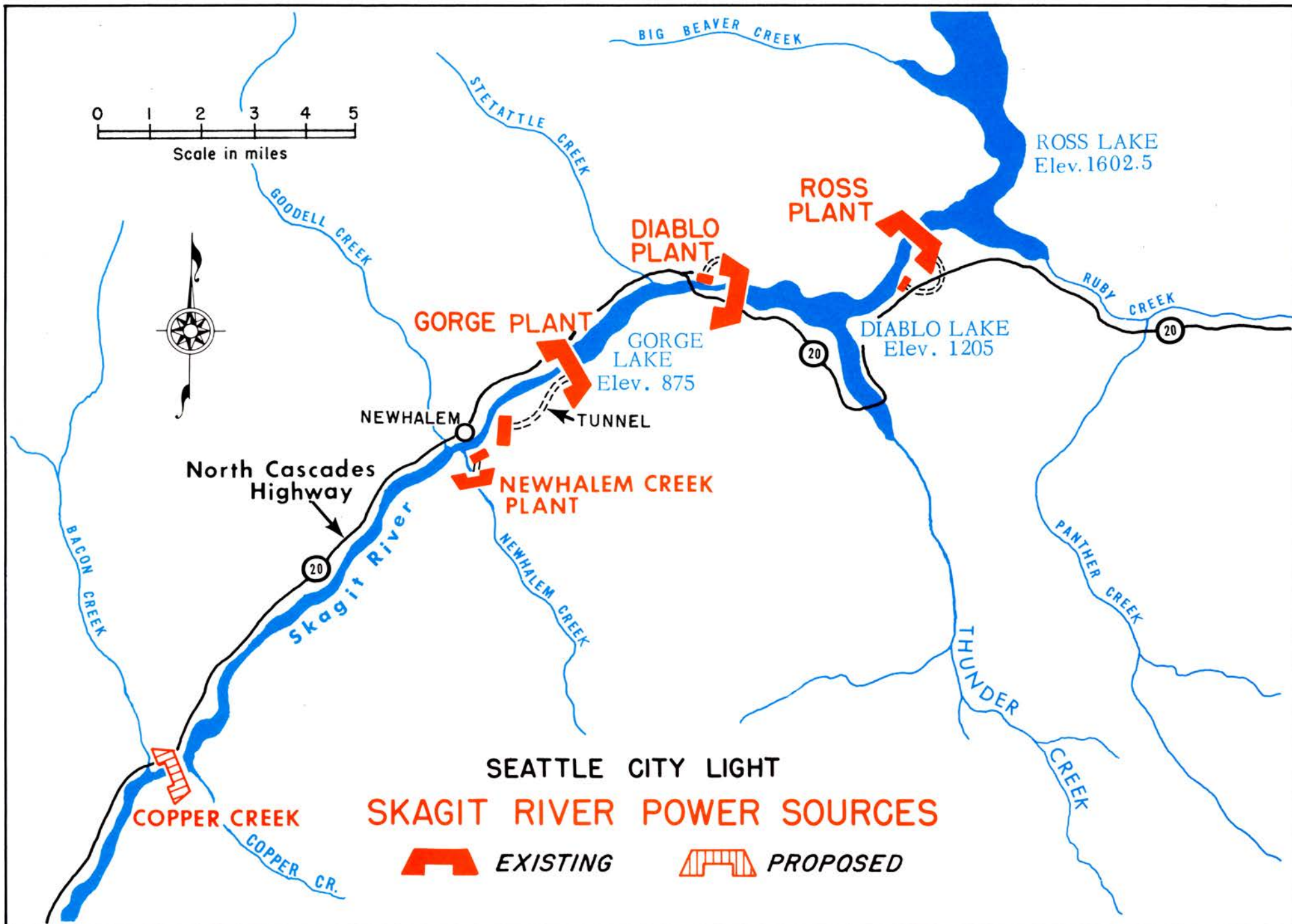
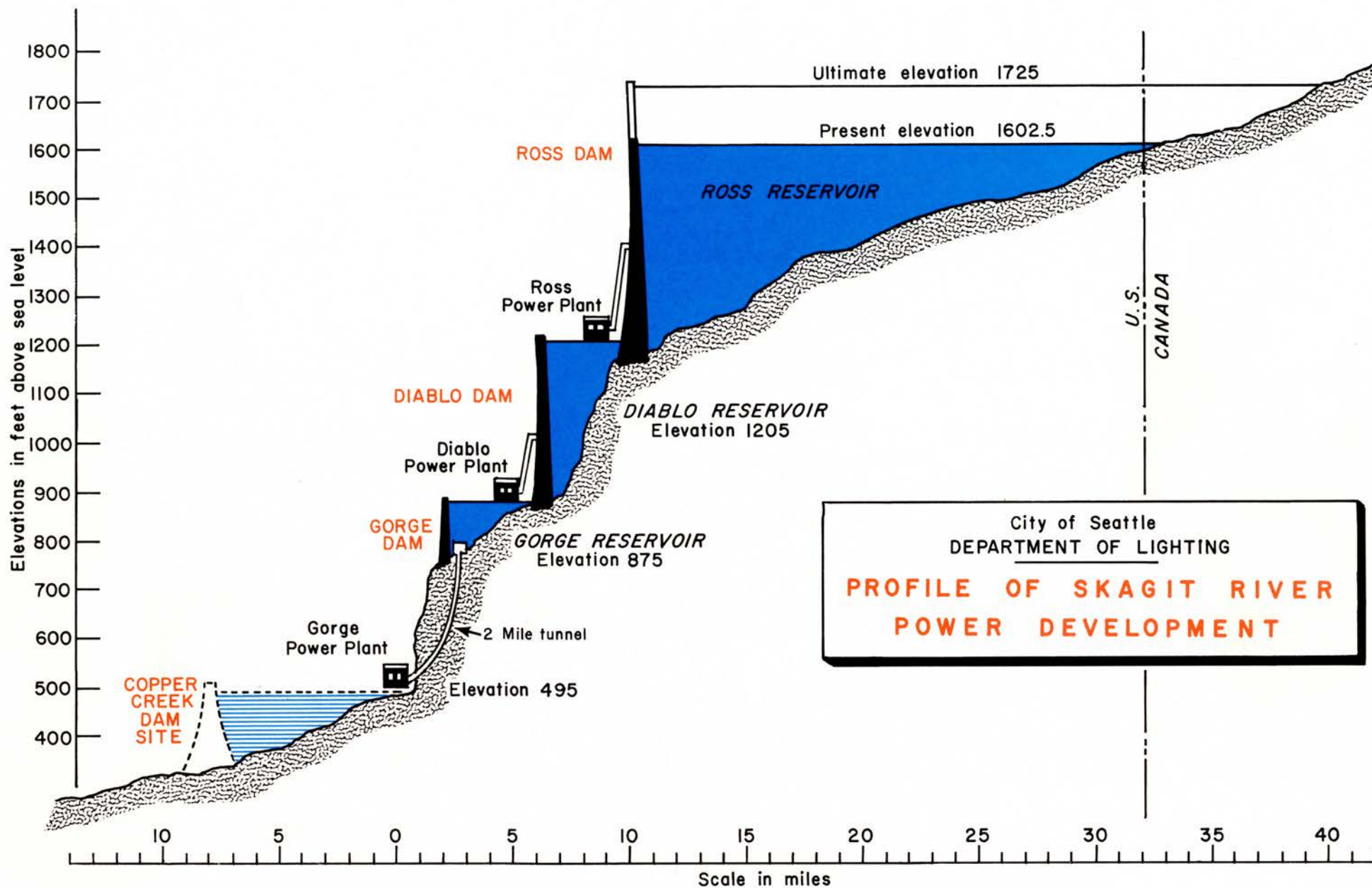
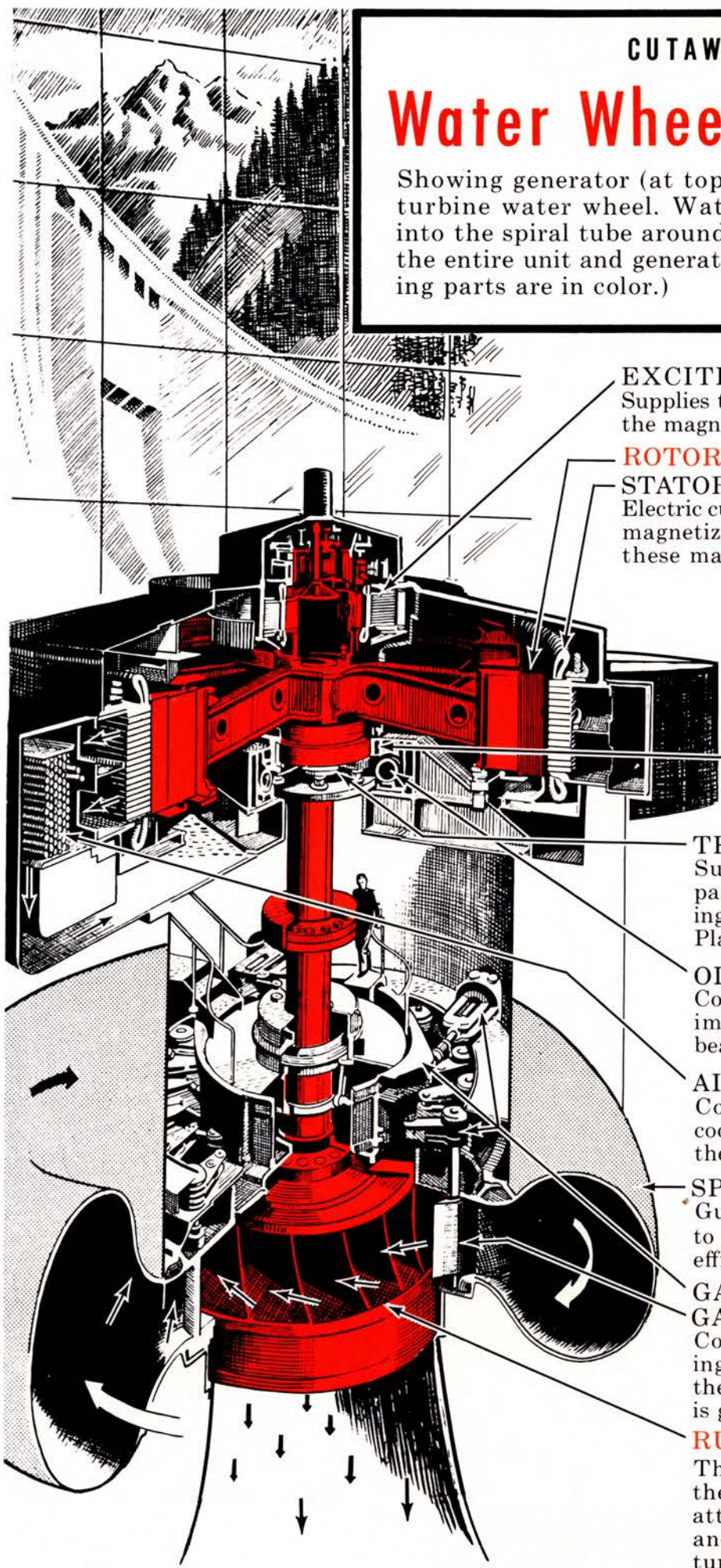










CUTAWAY OF Water Wheel Generator

Showing generator (at top) and connecting shaft to turbine water wheel. Water flows at high pressure into the spiral tube around the water wheel, turning the entire unit and generating electricity. (The rotating parts are in color.)

EXCITER

Supplies the electric current used to produce the magnetic field in the rotor field coils.

ROTOR FIELD COILS

STATOR WINDINGS

Electric current flowing through the field coils magnetizes the iron cores or field poles. As these magnetic fields are rotated past the wires in the stator windings, it causes alternating current to flow in them. This is the power that is sent out to the consumer. (The rotor and the stator together make up the generator.)

GUIDE BEARING

Keeps the rotor in line.

THRUST BEARING

Supports the weight of the rotating parts. (Rotor and turbine of generating units at Seattle City Light's Ross Plant weigh 460 tons.)

OIL COOLER

Cold water is run through copper pipes immersed in the oil surrounding the bearings to keep the bearings cool.

AIR COOLER

Cold water is run through pipes to cool the air which is circulated through the machine to cool the windings.

SPIRAL CASING

Guides the water from the penstock to the runner to achieve the most efficient use of its force.

GATE MECHANISM

GATES

Controls the amount of water entering to the runner or water wheel and thereby the amount of power the unit is generating.

RUNNER (WATER WHEEL)

The force of the falling water turns the runner and the generator rotor attached to it. (The gates, the runner and the spiral casing make up the turbine.)