

# Electron Hydroelectric Project

Producing clean energy for more than a century

PSE.COM



Electron powerhouse, along the Puyallup River in East Pierce County

Puget Sound Energy strives to ensure reliable electric service at a reasonable cost by acquiring power supplies from a variety of different sources, both PSE-generated and purchased from other suppliers. These sources primarily are hydropower, wind power, natural gas-fired generation, and coal-fired power from Montana. This diversified-portfolio strategy minimizes risk – and costs – in the event an unforeseen circumstance (a drought, for example) causes regional shortages in one form of power and, in turn, drives up wholesale power prices. Hydroelectricity comprises the single largest share of PSE's total power-supply mix. Some of the utility's hydropower resources come from three PSE-owned generating facilities, including the Electron Hydroelectric Project in Pierce County, Wash.\*

## Power Output

- 22 megawatts maximum operating capacity
- Output is sufficient to meet the peak electricity needs of about 17,000 households

## Location

The Electron Hydroelectric Project is located in the western foothills of Mount Rainier, about 42 miles southeast of Seattle along the Puyallup River, near Kapowsin, Pierce County.

## Facility Profile

The Electron Hydroelectric Project, one of Washington state's oldest hydropower facilities, began generating electricity in 1904. Since then, its turbine generators and other infrastructure have undergone numerous upgrades. The project draws water from the Puyallup River and funnels it 10 miles downstream to the Electron powerhouse via a wooden flume running high along the Puyallup River's steep, winding valley. The 10-mile wooden flume feeds water – up to 400 cubic feet per second – to Electron's man-made reservoir, which is capable of storing 120 acre-feet of water. The small rail line that sits atop the flume uses "speeder cars" to shuttle maintenance workers and equipment, and is known as "the crookedest railway in the world."

## Hydro Project Features

- Four generating units: three have a 5.5-MW generating capacity, one has a 7.8-MW capacity
- The Puyallup River watershed upstream from the Electron diversion dam drains 91 square miles of water from the Puyallup and Mowich glaciers, and the river's headwaters on the northwest slope of Mount Rainier



Electron flume: "Crookedest railway in the world"



## **Fish Passage**

A downstream fish-passage system, consisting of a barrier net and trap-and-haul facility located in the storage reservoir's forebay, safely captures migrating juvenile salmon that inadvertently enter the Electron water-diversion flume so that the fish can be placed back in the Puyallup River. An upstream fish-passage facility, featuring a concrete, 300-foot-long fish ladder built alongside PSE's wooden diversion dam opposite the flume intake, aids the upstream migration of spawning adult salmon and steelhead.

## **Personnel**

About twenty full-time PSE employees operate and maintain the Electron Hydroelectric Project.

## **Tax Benefits to Public**

Property taxes levied on PSE's Pierce County facilities, including the Electron Hydroelectric Project, provide significant revenues for local schools, county roads, and other public services.



*Electron powerhouse*

*\* The other two PSE hydropower plants are the Baker River Hydroelectric Project in Whatcom and Skagit counties, and the Snoqualmie Falls Hydroelectric Project in King County.*