



# 2016 NORTHWEST HYDRO FORUM

Physical Security

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# Service area and energy resources



- ### Energy Resources
- Owned Hydro
  - ◆ Long-term Hydro Contracts
  - ◇ Treaty Rights from British Columbia
  - Other Long-term Contracts

**Boundary Dam**



**Ross Dam**



**Diablo Dam**



**Gorge Dam**



**Stateline Wind Project**



- **Boundary Dam**

- Located on the Pend Oreille River in the northeastern corner of Washington State one mile south of the Canadian Border, 14 miles west of the Idaho border and approximately 10 miles north of Metaline Falls, Washington, in Pend Oreille County.
- Construction on the Boundary Project began on June 24, 1963. The first generator went into operation on August 23, 1967, and the remaining three units went into operation the first part of 1968.
- The dam is a double curvature, thin arch dam approximately 340 feet high. It is 8 feet thick at the top and 32 feet thick at the base. Total length of crest including spillways is 740 feet.



- **Ross Dam**

- Located on Diablo Lake in Skagit River, Whatcom County, Washington.
- Construction began in September 1937. The third step of the dam was completed on June 30, 1949, and accepted by the City on August 18, 1949. The dam is a concrete, arch type, 540 feet high from bedrock to surface of the roadway.





- **Diablo Dam**

- Located on the Skagit River, Whatcom County, Washington
- Construction began in 1927. The dam was completed on November 14, 1929. The first unit went into regular service on October 20, 1936. Unattended operation with supervisory control began in 1974.
- The concrete arch dam is 389 feet high, 1180 feet long at the rest, and 146 feet thick at the base.





- **Gorge Dam**

- Located on the Skagit River, Whatcom County, Washington
- Federal construction permit issued December 21, 1918. Construction began in 1919. First generator in operation was on September 27, 1924
- The original crib dam was replaced by a concrete structure in 1950. The concrete diversion dam was replaced in December 1960 with the present Gorge High Dam, a combination concrete thin arch and gravity dam 300 feet high and 670 feet long.
- Tunnel and Penstocks
- The length of the tunnel is approximately 11,000 feet. At the Powerhouse, the four penstocks branching off from the tunnel have a total length of approximately 1600 feet. The tunnel is concrete lined and has an internal diameter of 20½ feet.





- **Cedar Falls Plant**

- The plant is located approximately 4 miles south of North Bend, Washington on the Cedar River.
- Construction started on the present plant in 1912 and was completed in 1914.
- The dam is a gravity type, 215 feet high, of cyclopean concrete construction. Length of roadway is 1000 feet.





- **South Fork Tolt River Plant**
- Located in North Bend, Washington
- The plant is located approximately 10 miles northeast of Carnation, Washington on the South Fork Tolt River. Construction started on the plant in 1993 and was completed in 1995.
- The dam is a gravity type, about 200 feet high, of earth and rock fill construction.







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