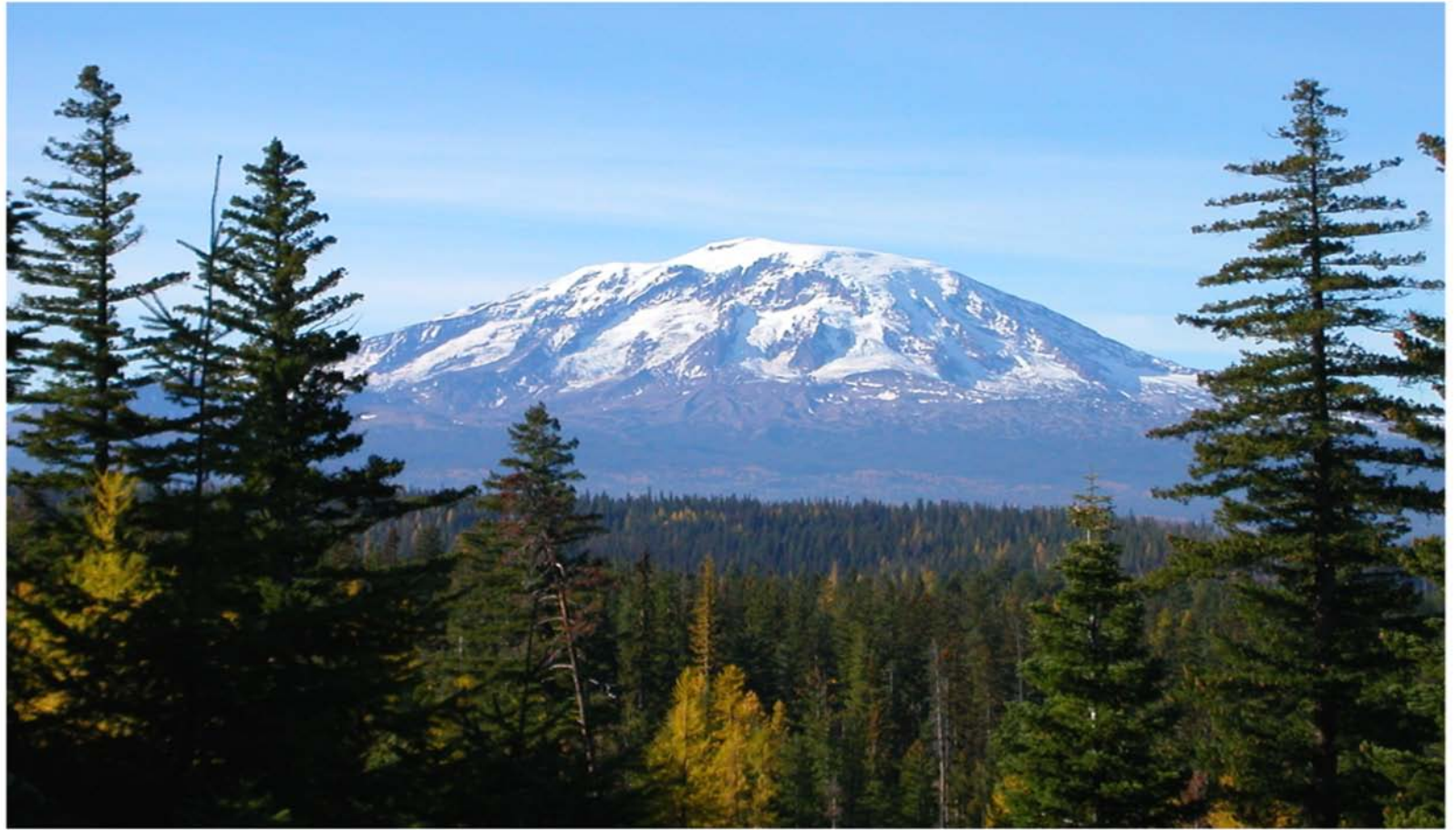
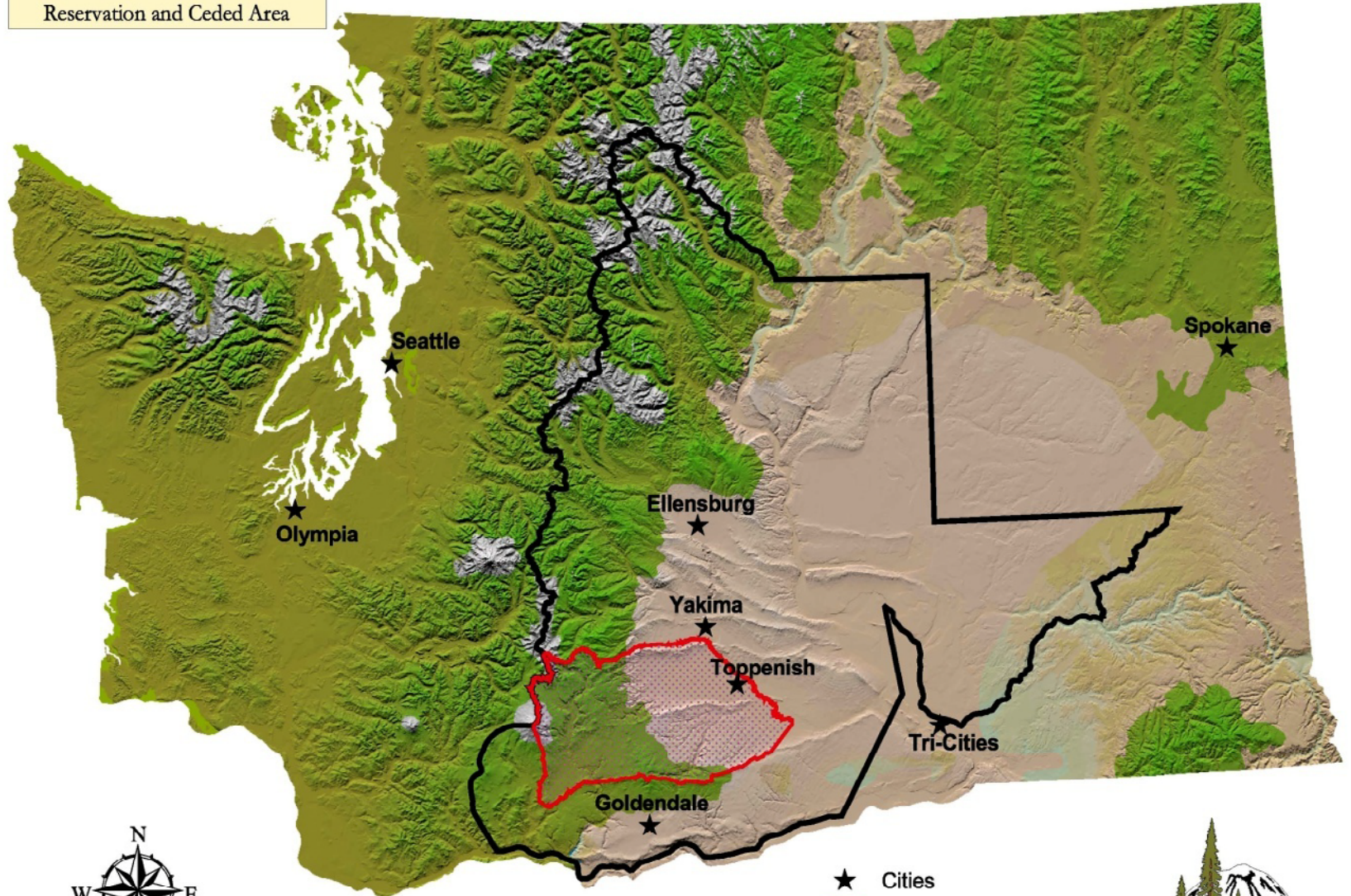


Yakama Nation Hydropower Project



Yakama Nation

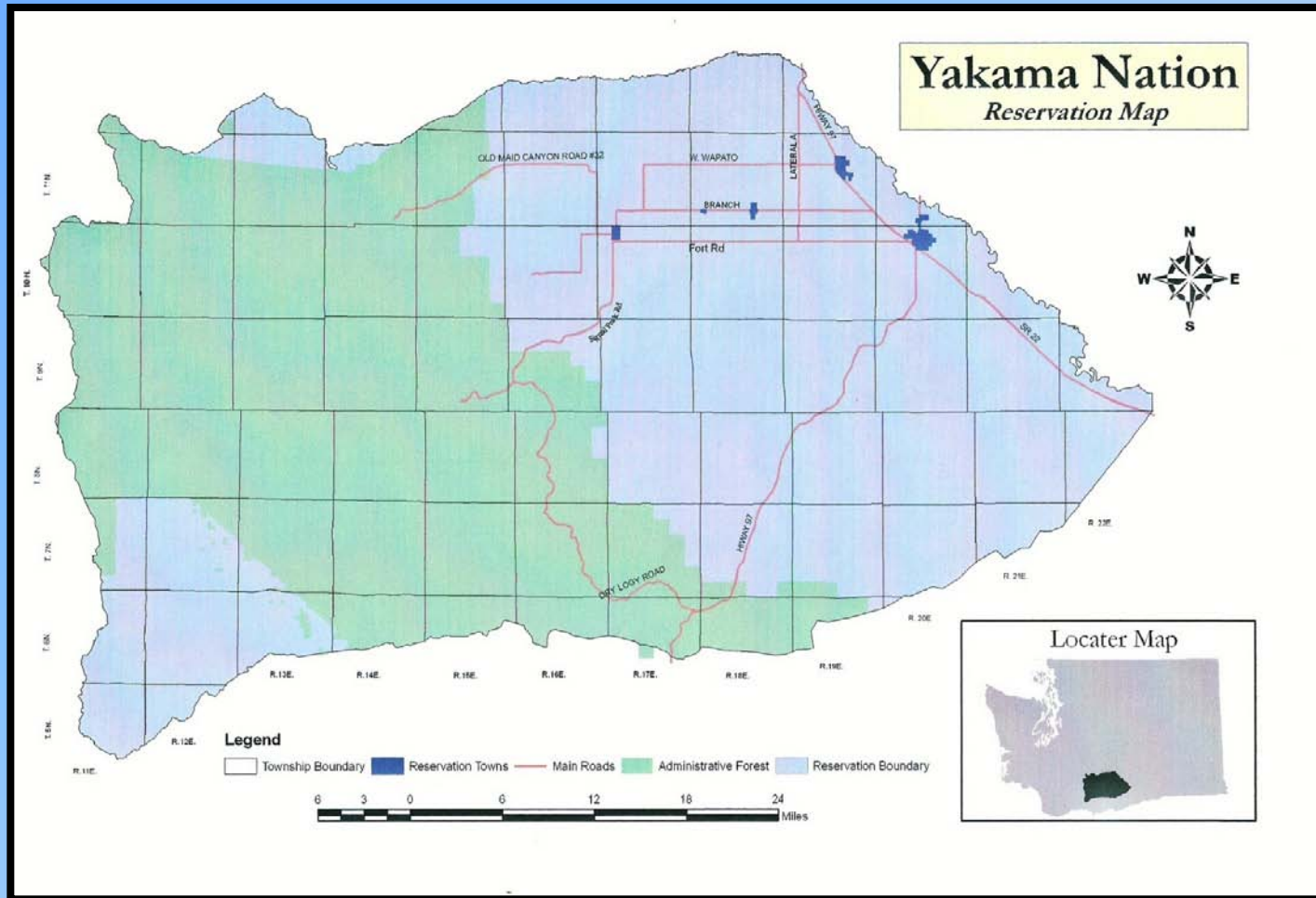
Reservation and Ceded Area



- ★ Cities
- ▤ Reservation Boundary
- ▭ Ceded Boundary



1.4 Million Acres In South Central Washington State



Yakama Nation Demographics:

- Established by Treaty of 1855
- 10,190 Enrolled Members; Descendents of the 14 Tribes and Bands of the Yakama Nation
- Governed by a 14 Member Tribal Council; 3 Member General Council Executive Board

Tribal Utility Background Information

- General Council membership resolution GC-04-98, directed Tribal Council to research the opportunity of a tribal utility
- Established tribal utility in 2006; Yakama Power,
- Current Yakama Power load is 2.5 megawatts, services tribal operations

Background Information

- Yakama Power Board of Directors consists of 7 Tribal Council members;
- Received a relicensing settlement from Grant Public Utility District in 2007 which is supporting our utility start up expenses.
- Partnership with Grant PUD: the settlement agreement includes a “right of first refusal” on all renewable energy development projects.

Wapato Irrigation Project

- Built and maintained by Bureau of Indian Affairs for seasonal irrigation; April through October, with 1,100 miles of canals
- Irrigates 176,00 acres on Yakama Reservation for tribal and non-tribal farmers and ranchers.
- Budget for operation and maintenance comes from WIP customers.
- Federal funding for capital repairs is unavailable due to historical mismanagement.

Wapato Irrigation Project

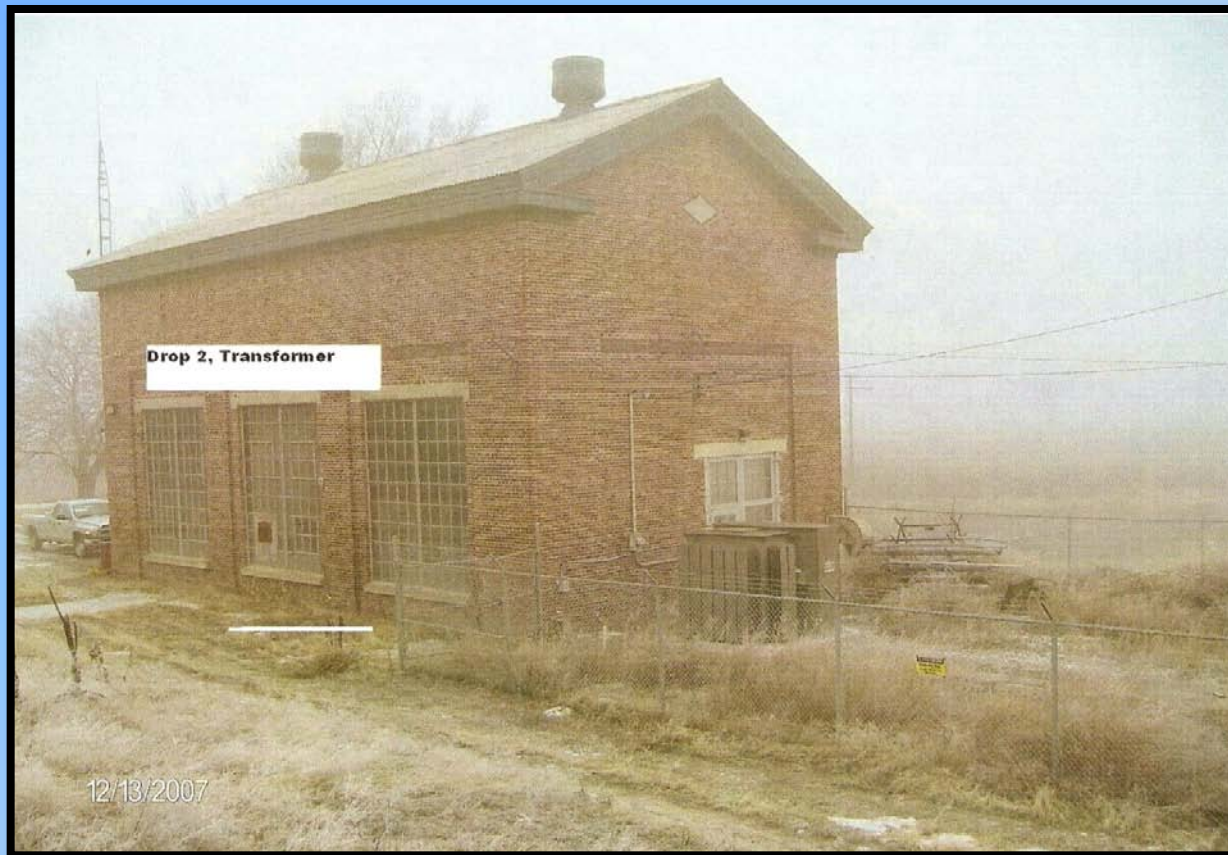
- Yakama received a transfer of vintage electrical equipment only from BIA in February 2008 including:
 - Transformers, generators, control systems, from Drops 2 & 3, and the 34.5 kV transmission line
- The buildings at both drop sites are Leased from Bureau of Indian Affairs
- Power Sales Agreement signed with Bonneville Power Administration

Drop 2 Generation Plant

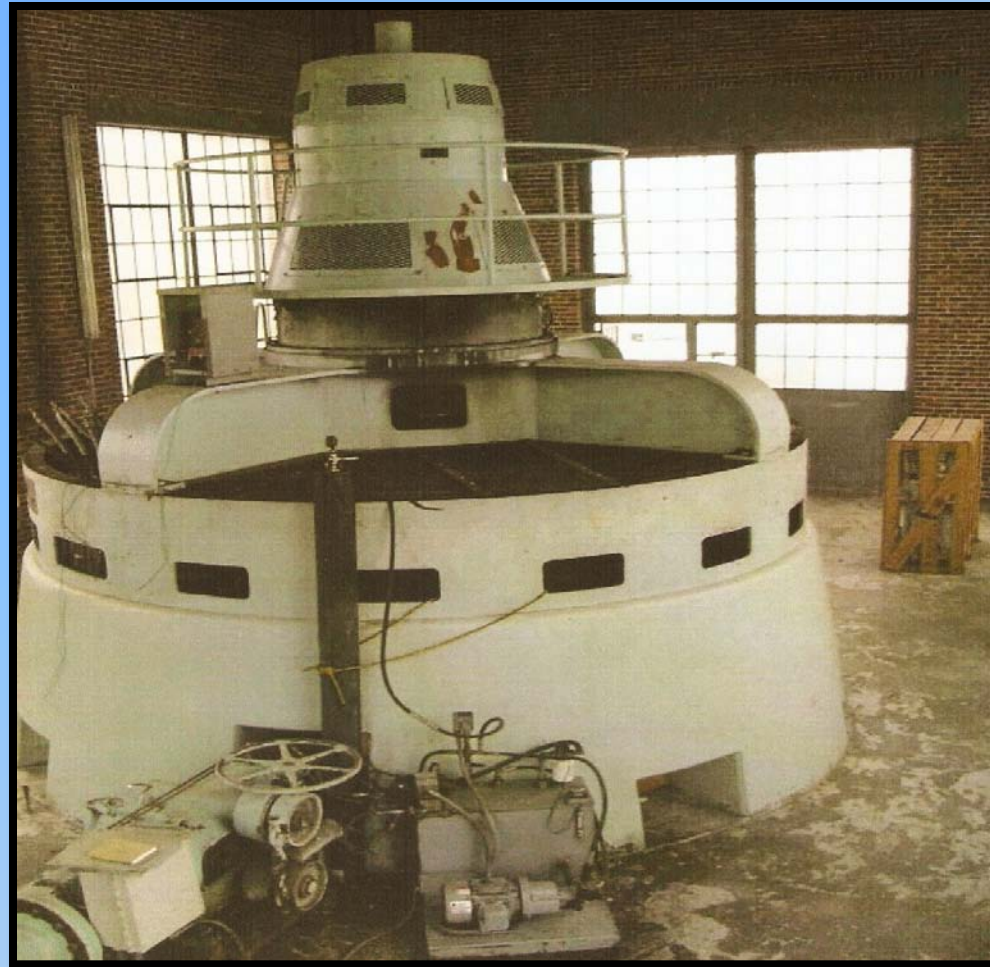
Background

- Concrete and brick building constructed in 1940
- Westinghouse Generator, 2400 voltage
- Custom built generator and wicket control system
- Currently being refurbished by Yakama Power
- March 2009 target to test power generation

Project Overview: Supplement power generation at Drop 2 with inflow water turbines by 1 megawatt



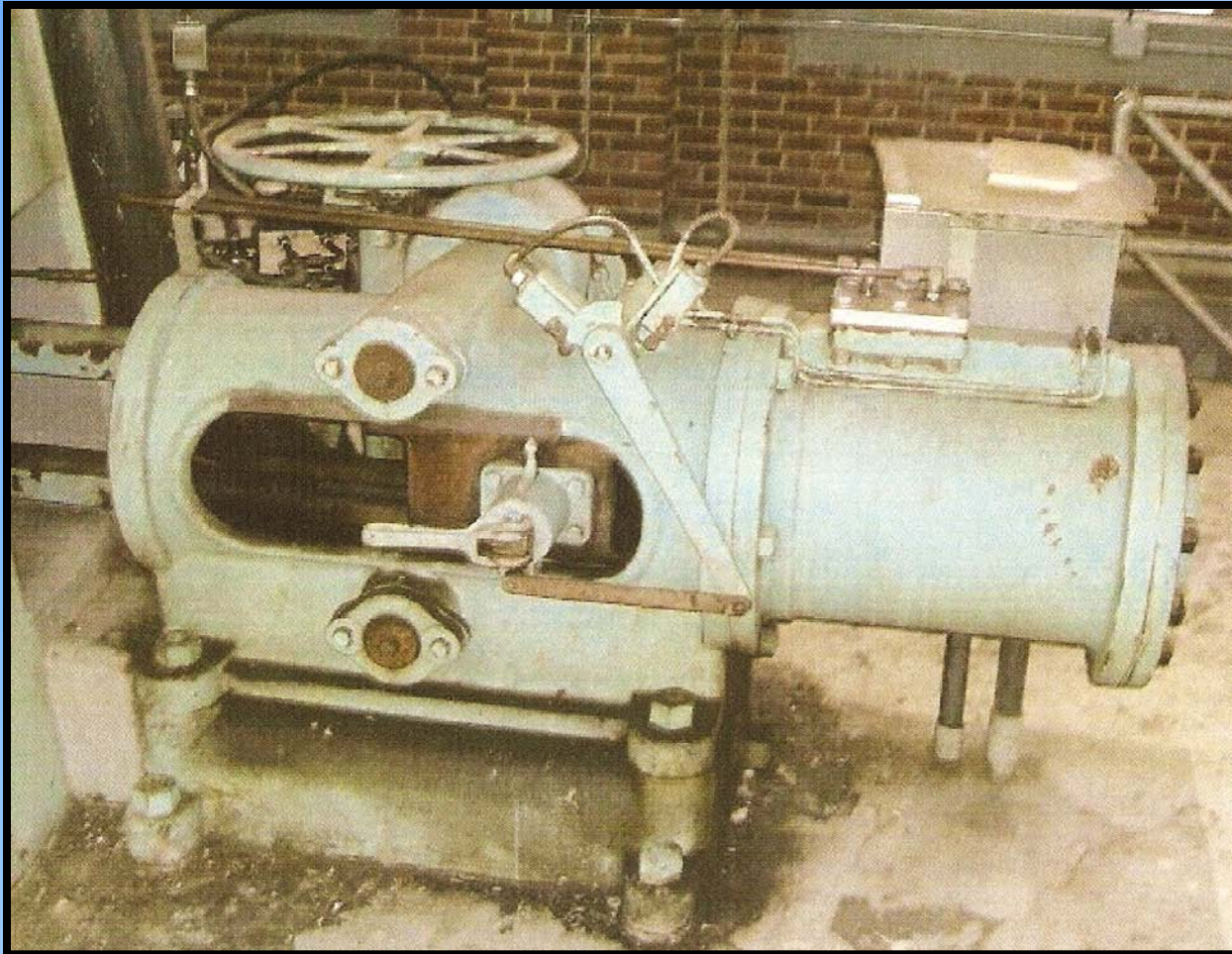
Wapato Irrigation Project, Drop 2



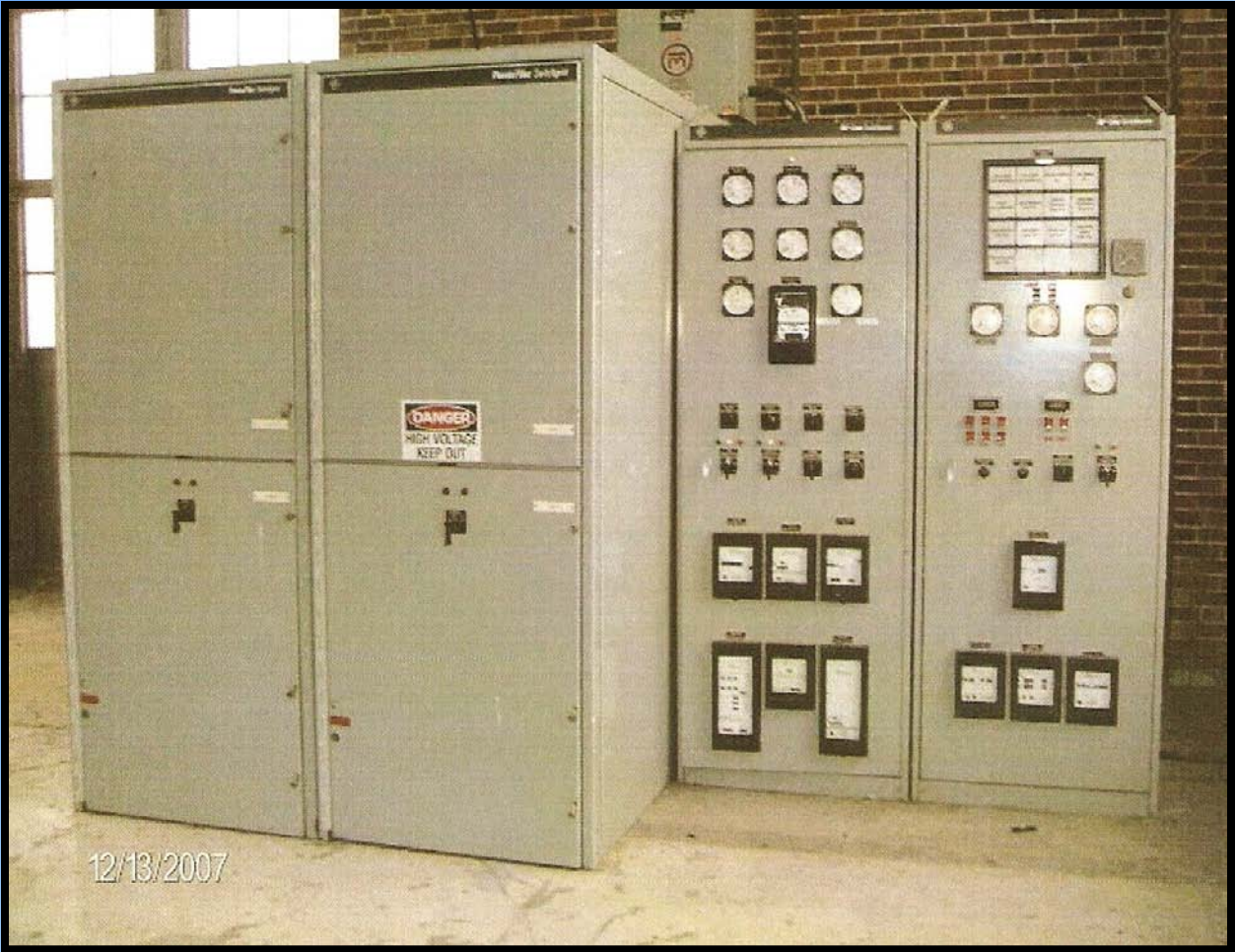
Drop 2 Water Turbine



Custom Built Hydraulic Wicket Control System



Custom Built Generator Control System





Project Objectives:

- Purchase Inflow water turbines
 - Possible Units:
 - Pelton Vertical Turbine, 1-50 kW
 - Pelton Horizontal Turbine, 1-30 kW
 - Compact Units: Kaplan runner, 8 to 35 kW or 8 to 50 kW
- Manufacturer from Austria

Project Objective (continued)

- Hydro kinetic turbines from Free Flow Power Corp-Required a confidentiality disclaimer for which YN is not willing to sign.
- Verdant Power Hydro kinetics

Project Participants

- YN Department of Natural Resources;
- YN Tribal Council including oversight Committees
- Yakama Power
- Wapato Irrigation Project, BIA
- Grant Public Utility District

Requested Technical Support

- Received on-site technical support to begin a renewable energy plan for NREL's Tribal Energy Program
- Draft Energy Vision Established:

Draft Vision Statement:

- *“The Yakama Nation will research and develop energy efficiency and renewable energy through a diverse portfolio of renewable energy projects and programs to become increasingly self-sufficient and energy independent, to reduce costs and enhance tribal economic opportunities and minimize impacts of climate change.*
- *The Yakama Nation will promote sustainable energy project while preserving and enhancing the cultural, traditional and environmental resources and protecting the rights as outlined in the Treaty of 1855.”*

Future Plans

- More Micro-Hydropower Projects on WIP
Drop 1, Drop 3, Drop 4, Satus Drop,
- Extend Distribution Power Lines to rural W.S.
- Complete Draft Energy Plan
- Additional Renewable Projects in Woody Biomass, Wind and Solar

Thank You, Questions?

