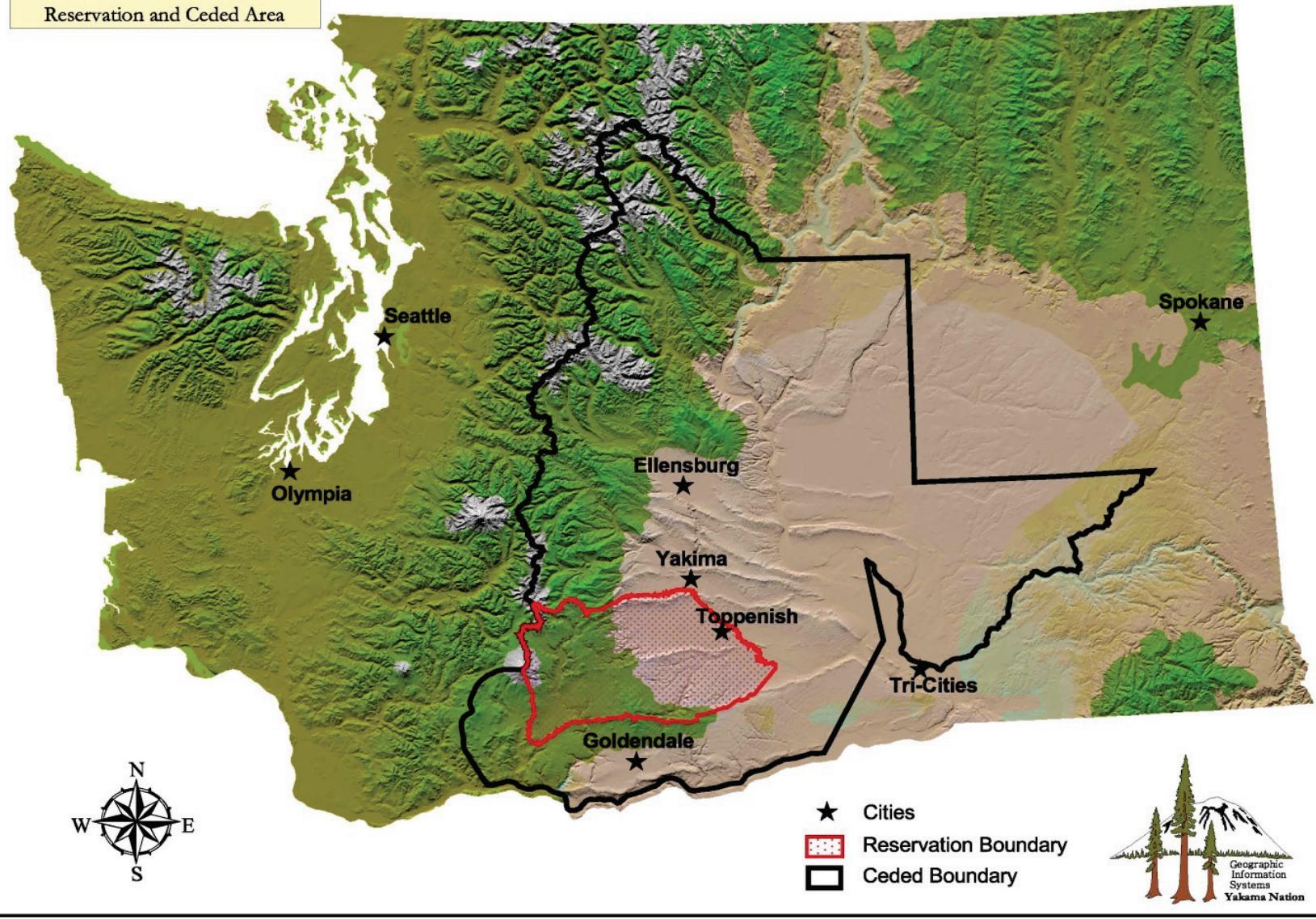


Yakama Nation Hydropower Projects

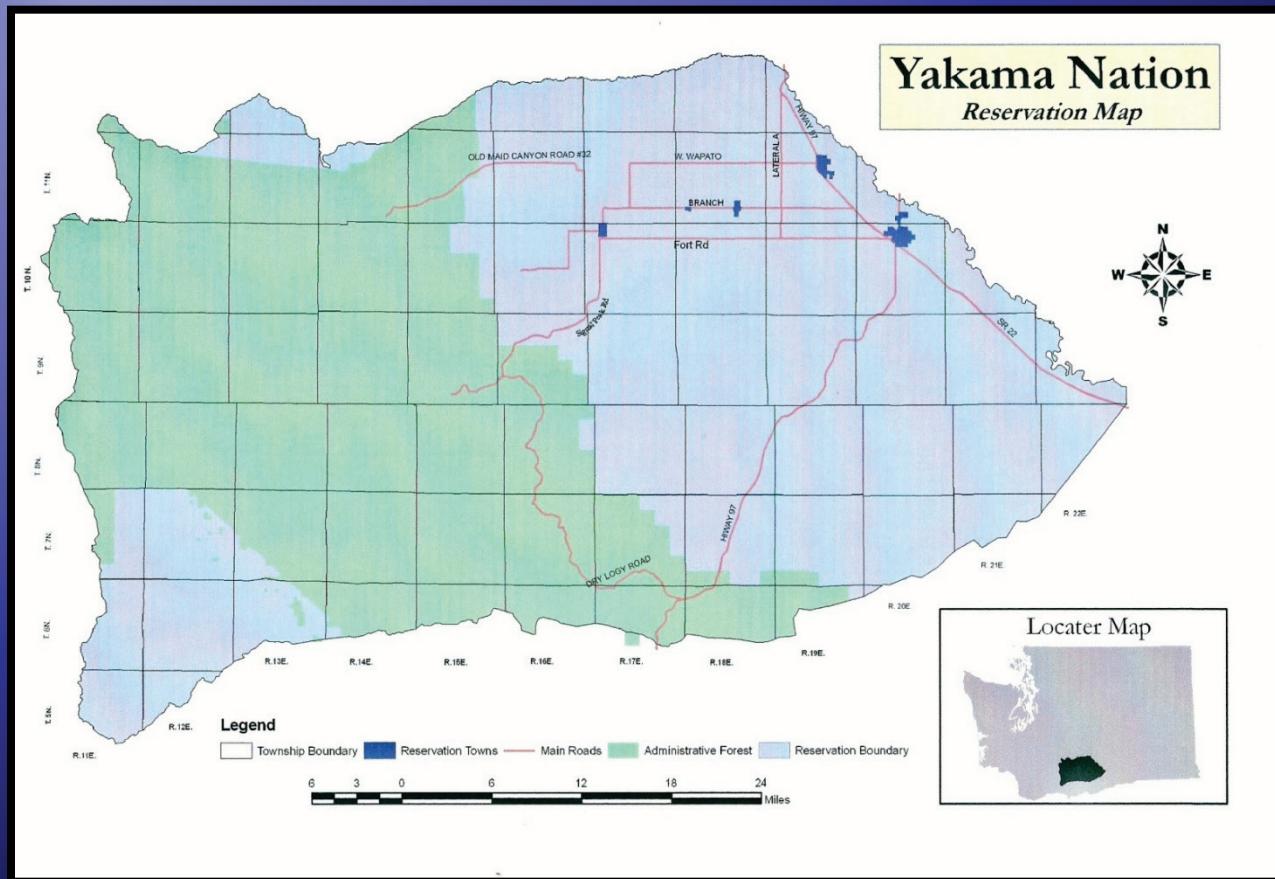


Yakama Nation

Reservation and Ceded Area



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.

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 projects while preserving and enhancing the cultural, traditional and environmental resources and protecting the rights as outlined in the Treaty of 1855."*

Wapato Irrigation Project

- ◆ Originally built in 1868, maintained by BIA 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.
- ◆ WIP is self-funded; budget for operation and maintenance comes from WIP customers.
- ◆ Federal funding for capital repairs is unavailable due to historical BIA mismanagement.

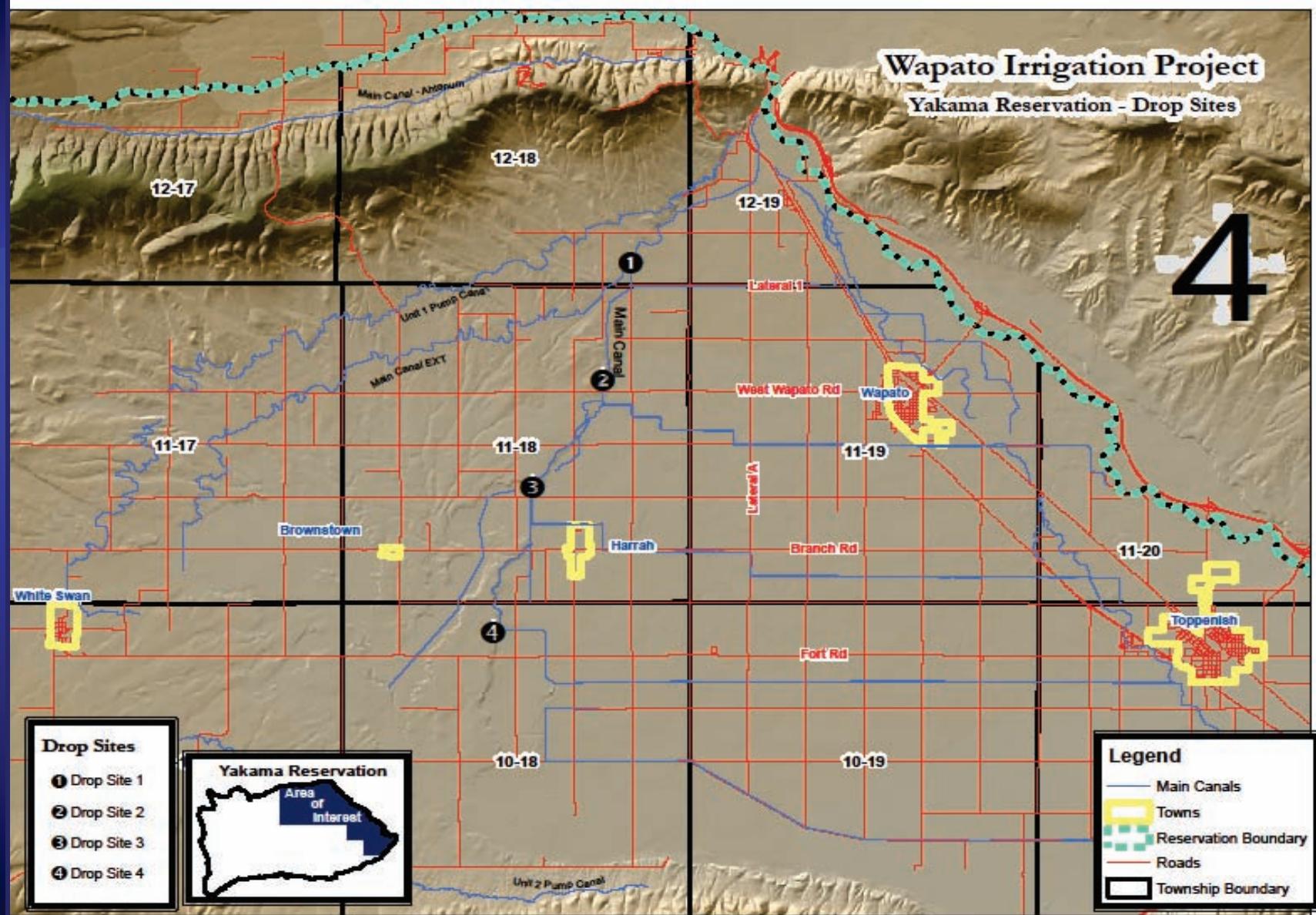
WIP

- ◆ 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

Wapato Irrigation Project

Yakama Reservation - Drop Sites

4



Drop 2 Generation Plant

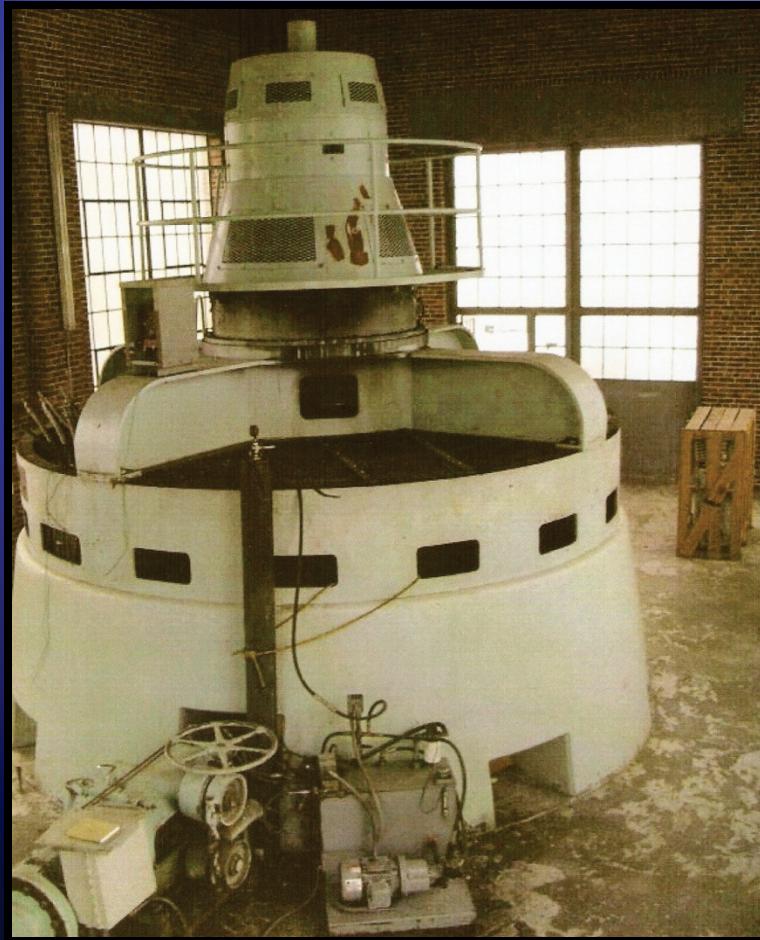
Background

- ◆ Concrete and brick building constructed in 1940
- ◆ Westinghouse Generator, 2400 voltage
- ◆ Custom built generator and wicket control system
- ◆ Refurbished by Yakama Nation
- ◆ July 2009 at 2 MW power generation, 1.7 MW maximum prior to rebuild.

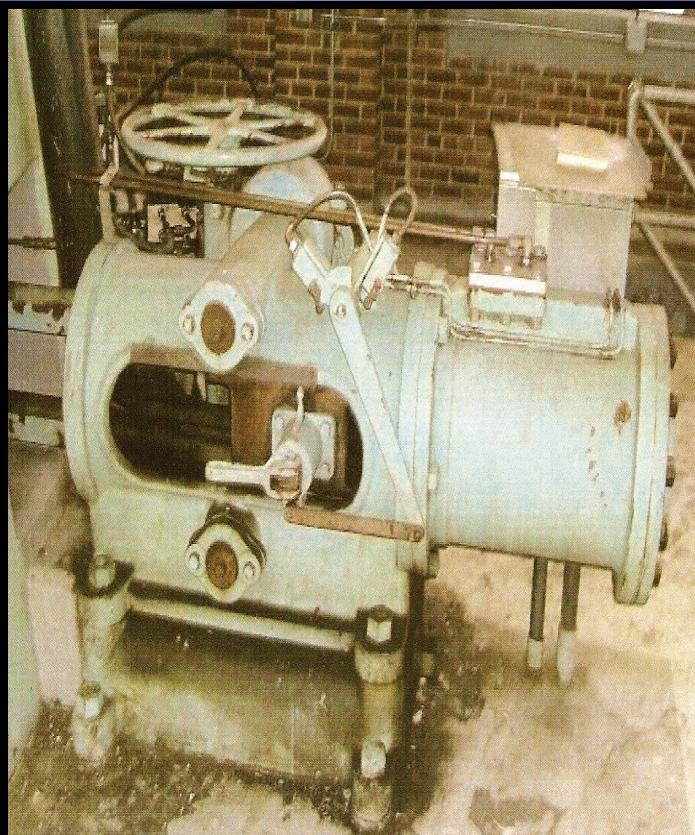
Drop 2, Wapato Irrigation Project



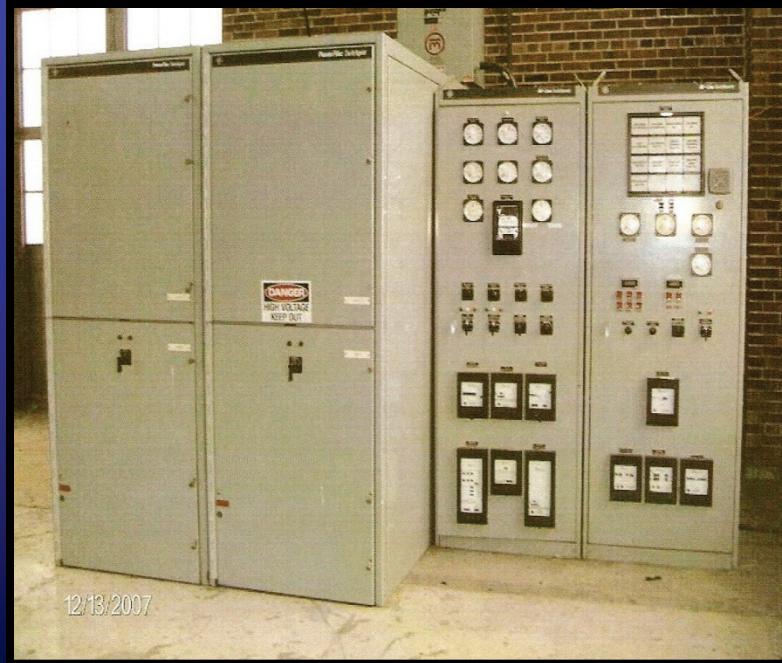
Wapato Irrigation Project, Drop 2



Custom Built Hydraulic Wicket Control System



Custom Built Generator Control System



Project Overview:

- ◆ Original intent: Supplement power generation at Drop 2 with inflow water turbines by one megawatt
- ◆ Revised Goal: Supplement power generation at Drop 4 on WIP by one megawatt.

WIP, Drop 4



Drop 4, Plant Summary

- ◆ Rated Power 970 kW
- ◆ Estimated Annual Energy 2,836,000 kWhrs
(based on 6 month irrigation season)
- ◆ Penstock 600 cfs, 7 feet diameter, 10 feet long,
tailrace 30 feet

Project Participants

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

Future Plans

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

Thank You, Questions?

