Cooperation & Collaboration

How a Little Central Oregon Irrigation District Got to See a Miracle Happen

Marc Thalacker
Three Sisters Irrigation District
* Ditch Loss
* Pollution
* Flood Damage
* Safety
* Maintenance Nightmares
* Operating Inefficiency

Open Ditch Liabilities
Old Aging Infrastructure
Newer Aging Infrastructure
* You have to find collaborative partners
  * Conservancies
  * Watershed Councils
  * Soil and Water Conservation Districts
* Consensus is Difficult
* Water Conservation
* Energy Conservation
* Carbon Footprint Reduction
* Sustainable Agriculture
* Anadromous Re-introduction
* Stream Restoration
* Made Possible by Statute

Cooperative Partnership Goals

[Logos of various organizations]
* 1998 first started piping
* 2001 Cloverdale Project
* 2005 McKenzie Canyon Project
* 2009 Whychus Creek Diversion and Fish Screen
* 2010 Watson to McKenzie Main Canal Pipeline
* 2014 Watson Hydroelectric Facility
* 2018 Watson Net Metering Micro-Hydro Demonstration Project
* 2018 McKenzie Reservoir Hydroelectric Facility
* 2018 Completion of the piping of all 31.5 miles of District canals
* 2020 Completion of the piping of all 28 miles of private lateral canals
* 2021 TSID has a Carbon Neutral Footprint

Making a difference
Screening and Passage
Penstock in Phases
Hydro

Eat the Elephant
One Bite at a Time
Stream Restoration
Headwall for Fish Screen
Restoration Construction
How it Works
No Moving Parts or Power
Trucks Arrive with HDPE
Double S Turn
Obstacles
ODOT Retires Bridge Over Canal
Penstock
Penstock at Powerhouse Site
Z-Pipe
Electrical Controls
* Water Conservation - Elimination of existing canal seepage and evaporation. On Farm deliveries increased by 25% when water was short.
* Augmented in-stream flows in Whychus Creek benefits Redband and Bull Trout, Chinook and Steelhead. Completion brings 35 cfs of protected flow.
* Fish Conservation. State of the art Farmer’s Conservation Fish Screen.
* Improved control of water in conveyance and delivery system. All 193 farms will be metered.
* Reduction of operational losses and safety issues. (Canal Breeching)
* Pressurization of delivery to irrigators.
* Electrical power conservation. Over 9 million kWh conserved annually.
* Three Hydro facilities generating clean, green, renewable energy, generating 4 million kWh annually.
* Increased economic inputs into the local community. Currently TSID’s farmers are spending an additional $1-2 million dollars annually with delivery of pressurized water on farm.
* As of 2020 TSID will be carbon neutral with the energy generation, conservation and crops grown.

Benefits
Net Meter / Micro-Hydro Demonstration Project

Conceptual Project Design
Net Meter/Micro Hydro Demonstration Project
Project Funding
150 kW Horizontal Francis Turbine
* 22.38 kW Vertical Francis Turbine
14 kW Reverse Pump
11.19 kW 2 Nozzle Tangential Impulse Pelton
McKenzie Reservoir
300 kW Hydro
Oregon Department of Environmental Quality
Clean Water Investment

TSID WATSON-MCKENZIE MAIN CANAL PIPELINE & MCKENZIE RESERVOIR HYDRO ELECTRIC PROJECT
Projects #R91413 & R91414
Total Project Cost $10,673,717
Oregon State Revolving Fund Loan $2,400,000

Partnership & Funding