Irrigation Modernization In Oregon

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Fresh Water Use in Oregon

OREGON FRESH WATER WITHDRAWALS

% Irrigation, 79.1

% Public Water Supplies, 7.3
% Aquaculture, 9.5
% Domestic Water Supplies, 1.1
% Thermoelectric power, 0.1
% Industrial, 2.4
% Mining, 0.2
% Livestock, 0.2

Source: "Estimated Use of Water in the United States, 2005", USGS Publication
Why Irrigation Modernization is Important

Irrigated Agriculture is an energy and water intensive industry. Water/energy conservation through modernization will help the industry continue to thrive in the future.

Oregon’s top agricultural products include: milk, nursery stock, hops, cattle and calves, berries, pears, potatoes, eggs, onions, peppermint, wine grapes, cherries, hay and sweet corn.

The agriculture industry contributes more than $8 billion to our state’s economy each year.

Competition for water will increase in the western states as populations increase, and weather patterns change.
Updating/Replacing Irrigation Diversions and Fish-Debris Screens

• Meet regulatory screening requirements for fish

• Stop debris from entering enclosed pipelines

• Insure reliable irrigation deliveries
Piping of Open Canal Conveyance Systems

-- Eliminate Water Losses
-- Capture Gravity Pressure

* Up to 50% of water can be lost in irrigation conveyance systems
On-Farm Irrigation Upgrades to Pressurized Systems

- Lower pressure irrigation systems require smaller pumps—Less energy consumed.
Take Advantage of Pipeline Pressure

- Generate renewable hydropower
- Remove/reduce the need for pumps
- Energy Generation and conservation
Replace Energy Wasting Pressure Reducing Valves With Inline Hydro turbines
THE FUTURE OF IRRIGATED AGRICULTURE WILL BE….?

• Systems that control the water from the point of diversion at natural water bodies to the application of on-farm water through nozzles or emitters. Piped systems that resemble municipal water systems.

• Controlling the water will allow for:
  ✓ Maximum irrigation efficiencies
  ✓ Eliminate operational spills and reduce runoff/return flows
  ✓ Allow for renewable energy generation/reduced pumping energy costs
  ✓ Reduce the O+M costs associated with open canals and flood systems
  ✓ Reduce the liability associated with open canal flood systems
  ✓ Reduce labor costs-Automation of irrigation systems
  ✓ Reduce risks of regulatory actions
  ✓ Increase crop yields with proper management
  ✓ Increased instream flows for fish and wildlife
Financing and Support Organizations

Irrigation Modernization

- Private, non-profit conservation groups, consultants, and industries
- State Of Oregon--Oregon Water Resources Department, https://www.oregon.gov/OWRD/programs/FundingOpportunities/WaterProjectGrantsAndLoans/Pages/default.aspx
- Energy Trust of Oregon—https://www.energytrust.org/
- Farmers Conservation Alliance, https://fcasolutions.org/
- In-Kind Services by Irrigation Districts/water organizations
Consult with Irrigation organizations that have already installed successful projects. Tour installed projects. Learn from past successes and failures.

Define your organizations modernization goals.

Determine how much it is going to cost, feasibility level engineering.

Form a coalition of support for the project. Political, regulatory, government, technical, and public support will be required.

Be prepared for long term multi year projects with many construction phases.