FARMERS CONSERVATION ALLIANCE

The Case for Collaboration

Irrigation Modernization in the West would not be progressing as efficiently or as quickly without the committed cooperation of multiple public and private entities. Through FCA's Irrigation Modernization Program, a broad coalition of agencies and nonprofits are working together on water solutions for the benefit of their communities.

KEY PARTNERS

- Energy Trust of Oregon
- Deschutes Basin Board of Control
- USDA Natural Resources Conservation Service

THE FOCUS

While past initiatives have focused on specific goals - such as water conservation, hydropower production, system efficiencies, and broader conservation benefits - there has been little progress in attracting large-scale investment in comprehensive, unifying solutions. Many irrigators need additional help to navigate the complexities of a modernization plan. Success requires a larger common vision that, in partnership with irrigators, unites policy-makers with private, philanthropic and public stakeholders and communities.

THE RESULTS

In 2015, Farmers Conservation Alliance and Energy Trust of Oregon developed the IMP to help irrigation districts and the farmers they serve revolutionize their infrastructure. This innovative program reduces the cost and time required for project planning and implementation, addresses key regulatory and institutional barriers, leverages funding, and demonstrates how modern agricultural water management can mitigate the impacts of long-term drought and other serious environmental and agricultural challenges.

FCA produces System Improvement and Watershed plans for each irrigation district participating in the program. In producing the plans, districts partner with their irrigators and appropriate agency and community stakeholder groups to identify the values and goals they want to achieve in the future, quantify potential modernization benefits, and develop strategies for funding and implementation.

EnergyTrust of Oregon

USDA United States Department of Agriculture
Natural Resources Conservation Service

Deschutes Basin Board of Control

IRRIGATION MODERNIZATION
fca

Irrigation Modernization Program

BUILDING RESILIENT AGRICULTURE AND RURAL COMMUNITIES

OVERVIEW

The Irrigation Modernization Program (IMP) is a comprehensive approach to helping farmers and irrigators repair and replace aging infrastructures. Irrigation modernization is one of the greatest agricultural, environmental, and local energy development opportunities in the western United States.

WHY MODERNIZATION MATTERS

Aging agricultural infrastructure, an expanding population, persistent droughts, and declining fish populations are stressing scarce water resources. Farmers in the western United States rely on irrigation to grow food. But the dams and canals that capture and convey this water from rivers to farms are inefficient. In many scenarios, farmers and rivers don't get the water they need. By replacing leaky, open canals with closed pipe systems, farmers can do much more with much less.

BY THE NUMBERS

DIVERSIONS IN WESTERN U.S.	DIVERSIONS FOR AGRICULTURE	AGE OF INFRASTRUCTURE	WATER LOSS VIA CANAL DELIVERY
1 Million	**80%**	**75-125 yrs**	**30-70%**

ABOUT THE IMP

With the support of Energy Trust of Oregon, FCA launched the Irrigation Modernization Program in 2015. The program designs optimal irrigation systems that utilize the best available technologies to provide reliable water, reduce operation and maintenance costs, and increase local energy generation. Through this work, FCA assists districts in navigating the complex world of agricultural priorities, regulatory requirements, funding, and environmental concerns. Each irrigation group is provided with a road map to implementation, including how to obtain public and private sector investment and navigate permitting requirements. In using a scalable, thoughtful approach, the Irrigation Modernization Program positions rural communities for long-term sustainability.

THE IMPACT

By addressing fundamental problems in aging water infrastructure, irrigation modernization provides unifying solutions for rural farming communities and the environment. Water saved from seepage below and evaporation above is then able to support both farms and wildlife conservation, while the gravity-pressured water eliminates the need for farmers to maintain costly pumps. In addition, the pressurized piped systems allow for the implementation of hydroelectric power, providing both a new clean energy source for rural communities and a new revenue source for irrigation districts, helping to mitigate costs. Irrigation modernization creates opportunities for communities to:

- **INCREASE WATER RELIABILITY**
- **DEVELOP LOCAL RENEWABLE ENERGY RESOURCES**
- **STRENGTHEN RURAL COMMUNITIES**
- **IMPROVE FISH AND WILDLIFE HABITAT**

Modernization is the solution to the societal and environmental challenges of food security, sustainable communities, and healthy rivers.

LEARN MORE

Farmers Conservation Alliance is a nonprofit organization focused on creating agricultural, environmental, and community benefits through the modernization of irrigation systems.

FCASOLUTIONS.ORG **541.716.6085** • info@fcasolutions.org

About the Process

IRRIGATION MODERNIZATION PROGRAM

FCA's Irrigation Modernization Program provides a one-stop shop to irrigators seeking to modernize their delivery systems. The program helps irrigators to create modernization strategies that reduce barriers to implementation while increasing opportunities for funding and support.

DEVELOP SYSTEM IMPROVEMENT PLAN

- Technical Analysis
- Energy Conservation & Generation
- Fish Screening & Passage
- System Infrastructure

CREATE MODERNIZATION STRATEGY

- Disaster Preparedness
- Agricultural Benefits
- Community Benefits
- Financial Analysis
- Strategic Partnerships

SECURE PERMITS AND FUNDING

- Develop NRCS Watershed Plans (NEPA)
- Secure Funding
- Loan and Grant Assistance
- Develop cross-cutter strategies between state and federal agencies

BUILD PROJECTS

- Board Approval
- Legal
- Contracting
- Construction

TO LEARN MORE

FCA works with irrigation districts to develop and implement modernization strategies.

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Projected Impact Analysis

IRRIGATION MODERNIZATION PROGRAM

Farmers Conservation Alliance is working to enable and accelerate the modernization of irrigation infrastructure with multiple irrigation districts in Oregon. Once modernized, the result of this work will be trillions of gallons of water conserved annually, thousands of miles of stream improved for fish, MWh of energy created as well as conserved, and millions of dollars in economic development. The following chart represents the potential collective impact of implementing these modernization projects.

IMPACT	ARNOLD IRRIGATION DISTRICT	CENTRAL OREGON IRRIGATION DISTRICT	EAST FORK IRRIGATION DISTRICT	LONE PINE IRRIGATION DISTRICT	NORTH UNIT IRRIGATION DISTRICT	OCHOCO IRRIGATION DISTRICT	SWALLEY IRRIGATION DISTRICT	TUMALO IRRIGATION DISTRICT	WALLOWA LAKE IRRIGATION DISTRICT	ROGUE RIVER IRRIGATION DISTRICT	23 PENDING IRRIGATION DISTRICTS	TOTAL
Water Saved *(cfs)*	46.0	156.0	13.0	8.8	205.4	72.2	20.1	48.0	17.4	*	*	557.0
Stream Miles Improved	118	118	22	118	107	75	45	169	40	*	*	208
Energy Conserved *(MWh/year)*	1,015	10,438	*	0	40,360	2,688	1,146	4,003	6,565	*	*	59,650
Renewable Energy Generated *(MW)*	0.0	9.7	1.5	0.0	25.8	0.0	0.2	0.9	0.8	*	*	38.0
Ag Land Protected *(acres)*	3,963	17,336	9,600	2,369	58,350	18,480	4,333	7,002	15,668	*	*	111,833
Landowners Benefited	646	1,855	1,100	19	961	606	668	667	146	*	*	5,422
Avoided Carbon Emissions *(tons CO_2)*	482	25,056	*	0	62,666	1,277	831	3,334	*	*	*	93,646
Economic Development ($)	27.3M	166.5M	*	4M	558.9M	114.4M	8.8M	23.9M	*	*	*	903.9M
Jobs Supported *(short-term)*	590	3,600	*	110	14,760	3,020	190	520	*	*	*	22,790
Canals Converted *(miles)*	39	74	*	14	258	108	17	69	44	*	*	579
Improved Water Quality										*	*	
Threatened or Endangered Species										*	*	
Project Costs ($)	46.8M	284.9M	*	9.8M	1.3B	276.4M	15M	40.9M	78.5M	*	*	2B

All numbers accurate as of April 2018
**Data collection still underway*

TO LEARN MORE

FCA's Irrigation Modernization Program works with irrigation districts to develop and implement modernization strategies.

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Active & Anticipated Conservation Projects

As of December 2018

	PROJECT	TOTAL COST	PL 83-566 FUNDING[1]	OTHER FUNDS	APPROX. PIPE	WATER SAVED	EST. COMPLETION
CENTRAL OREGON	Smith Rock-King Way 1A[2]	$22M	$16.8M	$5.2M	35,480 ft	13.6 cfs	March 2021
	Smith Rock-King Way 1B	$11.2M	$8.2M	$3M	8,450 ft	17.4 cfs	March 2022
SWALLEY	Rogers Lateral	$2.6M	$1.5M	$1.1M	19,892 ft	3.8 cfs	March 2020
	Elder Lateral	$0.9M	$0.7M	$0.2M	10,057 ft	2.6 cfs	March 2021
	Riley Lateral	$1.4M	$1.0M	$0.4M	13,895 ft	1.0 cfs	March 2022
TUMALO	Tumalo Feed Canal VB	$6.9M	$5.2M	$1.7M	11,300 ft	7.3 cfs	March 2019
	Project Group 2	$7.2M	$4.5M	$2.7M	81,596 ft	7.3 cfs	March 2021
	Project Group 3	$4M	$3M	$1M	25,519 ft	4.2 cfs	March 2022
NORTH UNIT	Feather Drive	$10.7M	$8M	$2.7M	48,425 ft	4.0 cfs	March 2021
LONE PINE	Entire District	$10.3M	$7.7M	$2.6M	59,396 ft	8.8 cfs	March 2023
ARNOLD	Main Canal	$4M	$3M	$1M	11,317 ft	7.6 cfs	March 2021
OCHOCO	Crooked River Group 1	$15.5M	$10M	$5.5M	77,230 ft	15.4 cfs	March 2021
TOTALS		$96.7M	$70.6M	$26.1M	402,417 ft	93.8 cfs	

[2]*Concurrent with this project, Central Oregon will be working with private landowners on the G-4 Lateral to improve on-farm efficiencies*
[1]*Some project funding includes allowable non-construction technical assistance*

INFO
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