



Accelerating the District of the Future

NEED: DEMONSTRATION PROJECT

Develop a District of the Future demonstration project in Hood River County to showcase the value of community renewables (in-conduit, solar, battery) in providing for critical services and community resilience during grid failure and natural disasters

FCA's Role:

- Coordinate with Hood River County, the Hood River Energy Council, Energy Trust of Oregon, agencies, and utilities in the development of strategies to provide power from current and new renewable projects to critical services
- Support Hood River County and other stakeholders in the implementation of strategies to help power critical services
- Develop communication, methodology, and support tools to transfer lessons learned, needs, and opportunities to replicate and scale proven solutions with other communities
- Leverage current funding and partnerships (including Energy Trust of Oregon and NRCS) to meet a twenty-four month implementation timeline

Potential WPTO/Labs Role:

- Lead in developing solutions that power critical community services in times of grid failure and natural disasters
- Provide technical assistance to understand how to optimize in-conduit, solar, and batteries to provide blackout services in Hood River County
- Provide technical assistance to understand, from an engineering/planning perspective, how to move forward in creating an islanding project in Hood River County
- Provide funding for demonstration project(s) in Hood River County
- Develop a funding challenge for other communities to replicate and provide for critical services in their communities



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NEED: MODULAR ENERGY SYSTEM DEVELOPMENT

Develop modular energy systems that allow communities to use renewable energy sources for critical services

FCA's Role

- Create an inventory of districts, communities, and sites that are well-positioned for the use of renewable energy to support critical services
- Identify specific technology R&D needs in the design and implementation of District of Future and community resilience efforts

Potential WPTO/Labs Role

- Develop modular systems that optimize and integrate existing energy technologies for communities, including, but not limited to, pumped storage, in-conduit hydropower, microgrid controllers, solar, battery storage, and buried transmission
- Support development and deployment of irrigation district-based microgrid systems capable of islanding and integrating hydropower, energy storage, solar and electric vehicle charging to support emergency operations
- Develop a tool to assess the integration of renewable energy systems that complement hydropower

NEED: INCREASE PUBLIC AWARENESS

Increase the public's awareness of irrigation infrastructure modernization and its role in providing energy and water resiliency to rural communities

FCA's Role

- Implement a public outreach campaign to educate the public, stakeholders, and decision-makers about the benefits of the District of the Future, including its ability to support communities during grid failures and natural disasters
- Develop an interactive digital platform to demonstrate a vision of the District of the Future and the potential of irrigation modernization to provide energy, agricultural, environmental, and rural community benefits

Potential WPTO/Labs Role

- Invest in and partner on a public outreach campaign to educate the public, stakeholders, and decision-makers about the benefits of the District of the Future and its ability to support communities during grid failures and natural disasters



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NEED: REDUCE TIME AND COST FOR EVALUATIONS

Reduce the time and cost to evaluate potential renewable energy projects in water conveyance systems

FCA's Role

- Develop digital platforms to automate irrigation modernization assessments, including renewable energy evaluations for irrigation districts
- Integrate digital platforms and DOE tools into Irrigation Modernization assessments
- Increase the pace of irrigation modernization assessments throughout the western United States

Potential WPTO/Labs Role

- Develop a framework/tools to automate renewable energy assessments associated with irrigation modernization efforts
- Support FCA in digital platform development for irrigation modernization assessments
- Create model/tool/calculator to assess the financial impacts of communities' using renewable energy to provide for critical services
- Develop spatial data set to compile data relevant to water use efficiency, irrigation modernization, and hydropower
- Aggregate data related to irrigation efficiency, climate change, renewable energy, and groundwater recharge
- Accelerate the development of in-conduit hydropower that meets LIHI standards and, at the same time, does not prevent irrigation modernization or increase withdrawals from critical habitat

NEED: IRRIGATION MODERNIZATION ASSESSMENTS

Provide irrigation modernization assessments to water districts throughout the Western United States to understand the agricultural, environmental, economic and energy impacts and to set the foundation for implementation at scale

FCA's Role

- Expand and tailor FCA's irrigation modernization assessments to water districts throughout the Western United States
- Provide comprehensive assessment of potential renewable projects in context of agricultural, community, and environmental needs
- Provide renewable energy developers with ready-to-implement projects informed by community needs and with community support
- Incorporate in-conduit hydropower and other renewables into larger infrastructure packages to reduce costs, facilitate implementation, and maximize co-benefits



Accelerating the District of the Future

- Develop opportunities to co-locate transmission lines with agricultural infrastructure to increase the value of and opportunities for renewable energy projects
- Articulate the collective and individual impacts of modernization within each water district for the community-at-large
- Increase the scale and pace of renewable energy projects across the western United States

Potential WPTO/Labs Role

- Invest in irrigation modernization assessments for irrigators, irrigation districts and communities across the West, helping to scale FCA's proven approach (generally \$250,000-\$500,000 per district depending on district size)

NEED: IMPROVED RESPONSE TIME

Improve pace and response time of regulatory entities to meet critical service needs

FCA's Role

- Build broad awareness of and relationships around the opportunities and values of the District of the Future to provide community resiliency, agricultural security, social justice, disaster prevention, and environmental benefits
- Identify key partners from each agency to support this effort

Potential WPTO/Labs Role

- Champion District of the Future efforts at federal level
- Provide a venue for FCA to develop broader awareness around and mobilize resources for irrigation modernization efforts within the U.S. Department of Energy and the National Labs
- Support in developing a strategic partnership across DOE, NRCS, USDA Rural Development, EPA, FEMA, USDA Forest Service and other agencies to accelerate the co-location of renewable energy and modernized irrigation infrastructure at scale