

Unlocking Grid Resilience: Microgrids for Oregon Cities



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Building Microgrids for Communities

Development and Integration Support

- Ameresco is an energy infrastructure solution provider specializing in public sector energy projects, offering EPC and other delivery models
- We work with a myriad of partners to build microgrids for communities across the region
- Excited to share local stories from projects here in WA and OR!



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Senior Project Developer
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What is a Microgrid?

Microgrid:

A local, self-contained and intelligent energy system that can operate with or without the main utility grid, built for long duration independence and resiliency especially during critical grid events such as black outs and brown outs, poor power quality events, and high-rate periods

Types:

Off-grid, Grid-tied, Hybrid, and Community

Goal: Resiliency, Grid Independence, Self-Reliance, Cost Savings

A True Microgrid: The Components



Onsite energy generation

Most commonly solar panels and diesel or natural gas generators, but also small wind systems, microhydro systems, and fuel cells.



Onsite energy storage

Grid forming capabilities accompanied with all the necessary switch gear to physically close connection to the grid for true grid isolation.



Microgrid controller

The “brain” that decides how energy flows between the various onsite energy components.

Microgrid Controls Unlock The Benefits



Cost savings opportunities

Peak shaving
TOU load shifting
Demand response



Longer off grid durations

Saving excess solar, wind, biogas energy for later use
Optimize use of generators to extend fuel use
Predictive weather and loads analysis



Improved power quality

Clean battery power for longer equipment life
Islanding during frequency issues on the grid



Revenue through grid services

Utility programs offering financial incentives to discharge the battery to serve the grid

Best Applications



Critical and lifesaving infrastructure



Water treatment, data centers, medical, emergency centers



Facilities where downtime is not an option



Systems with or without existing back up generators



Sites vulnerable to earthquakes, forest fires, planned brown outs, heat waves

How Do We Fund Our Microgrid?

- Microgrids can be funded up to 100% by a variety of grants, incentives, and programs
- Find a partner to help you find and apply for grants
- Start somewhere!
- Work with available funding to phase a project





SUSTAINABLE NORTHWEST

MISSION

Natural resource solutions that work for people and nature.

FOCUS

Sustainable Northwest brings entrepreneurial solutions to natural resources challenges to keep lands healthy and provide economic and community benefits. We believe a healthy economy, environment, and community are indivisible, and that all are strengthened by wise partnerships, policies, and investments.

Sustainable Northwest's Clean Energy Program



Our approach is to rapidly advance a **resilient, clean energy economy** through partnerships, market-based strategies, and smart policy to drive progress across the region.

Programs:

- Making Energy Work Coalition (MEW)
- Community Energy Development Assistance (CEDA)
- E-Farms



Community Energy Resilience (*ODOE definition*)

“The **ability of a specific community to maintain** the availability of **energy** needed **to support** the provision of energy-dependent **critical public services** to the community **following non-routine disruptions** of severe impact or duration to the state’s broader energy systems.”

Why Energy Resilience?

Increasing severity and frequency of grid disruptions caused by natural disasters and rising energy demand across PNW

- Wildfire
- Extreme weather events
- Earthquakes
- Tsunami and Flooding
- Drought



Photo: ODOT



Mar 7, 2019 | When Disaster Struck, This Tiny Oregon Town Was Out On Its Own

“...it will take millions of dollars to repair the sewer and water systems for this town [Elkton] of 200 people. And the local utility company, Douglas Electric Cooperative, is looking at about \$6 million in damages. Nine days after the storm, about 4,600 of its customers didn't have electricity.”

Wildfire Risk & Utility Exposure

Regional Reality

- Pacific Gas and Electric Company bankruptcy after wildfire liabilities
- Transmission lines cross high-risk wildfire zones

Impact on Energy Development

- Greater risk aversion from utilities
- Public Safety Power Shutoffs (PSPS) increasing

→ PSPS is a precautionary measure taken by electric utilities to proactively turn off power in specific areas at high risk of wildfire.



Transmission is Hard to Build

Barriers

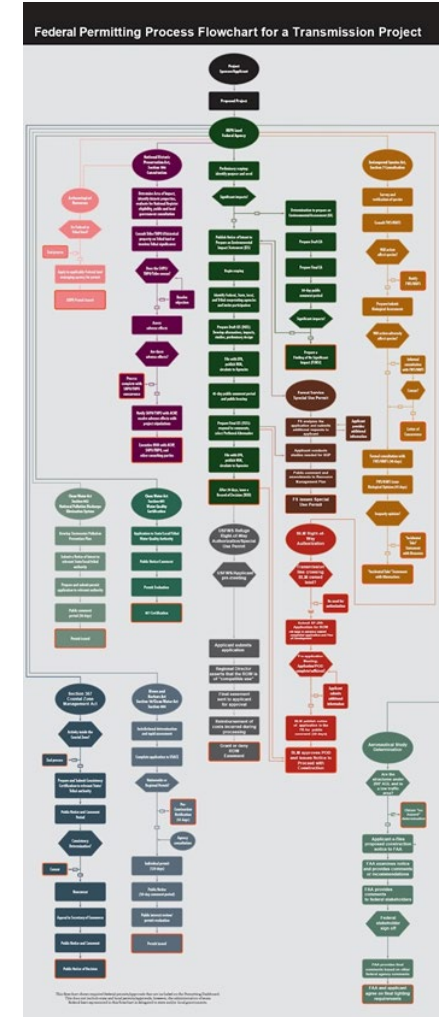
- Multi-state permitting complexity
- Environmental review
- Local opposition (NIMBYism)
- Cost allocation disputes

Result

- 10+ year development timelines
- Congestion and renewable curtailment
- Multiyear interconnection queues

The power interconnection process is the required, multi-step procedure for connecting new electricity generators (like solar, wind, or storage) to the utility grid.

Renewable curtailment is the intentional, temporary reduction of output from renewable sources to prevent oversupply or transmission bottlenecks.



Project Example: Wallowa County

Goal: The Wallowa County Microgrid Resiliency Corridor Project's overall goal would be completing a microgrid project resulting in County Critical Infrastructure being supported by Community-Based Renewable Energy (CBRE) projects during long-term outages

Background (Summer 2024):

Energy security and independence, as well as more control over decision-making and energy bills.

- 31 Public Safety Power Shutoffs
- 2024 wildfires in neighboring counties
- Inadequate public alerts (if any)
- Business disruptions / damages (especially refrigeration and freezer units)
- Critical infrastructure disruptions
- Damage to older electrical wiring and equipment throughout the county
- Aging electrical infrastructure
- Over 120 miles of power lines for 7,000 pop.



PARTNERS

The partners section features seven logos arranged in three rows. The first row includes the Wallowa County Oregon logo (a green map outline) and the Wallowa Lake Irrigation District logo (a circular emblem with a mountain and water). The second row features EnergyTrust of Oregon (with a sunburst icon) and ENDEAVOUR INSPIRED INFRASTRUCTURE (with a blue mountain icon). The third row includes FLEET DEVELOPMENT (with a stylized 'F' and 'E' logo) and ProtoGen ENERGY ALIGNED (with a hexagonal logo containing a gear and a leaf). At the bottom center is the SUSTAINABLE NORTHWEST logo (with a tree icon).

Project Context

- **The Need:** As a community that is at the “end-of-line” and with vulnerabilities such as remoteness and extreme weather conditions, prolonged power outages become a real concern for critical infrastructures
- **The Solution:** 3 proposed scenarios, from single behind-the-meter facility level microgrid to district-level, multiple facility front-of-meter community microgrid corridor

Policy - not technology - remains the limiting factor for microgrid commercialization



JOSEPH



ENTERPRISE



WALLOWA



SNW's Microgrid Goals



• **Advance microgrids and community resilience solutions in every county in the state of Oregon.**

- This will look different depending on location, needs, and energy planning process.
- “If you’ve seen one microgrid, you’ve seen one microgrid...”

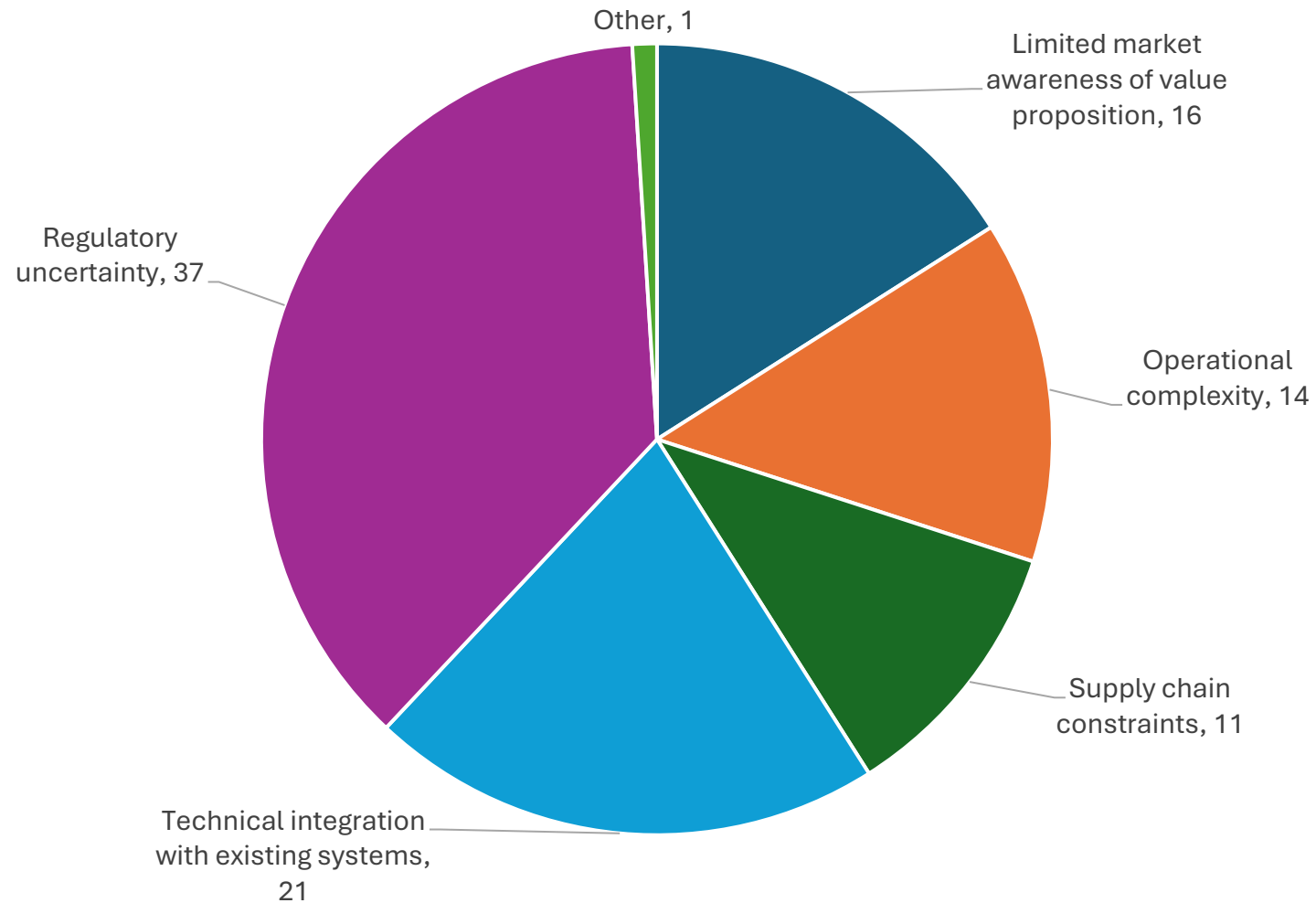
• **Help urban, suburban, rural, and Tribal communities facing power outages, smoke events, and extreme heat/cold.**

- Resilience (physical, energy, and economic)

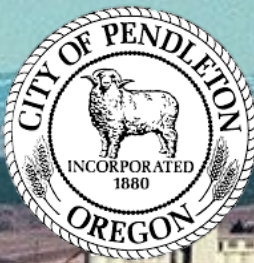
• **What does progress look like today?**

- HB 2065 and 2066 (AR 681)

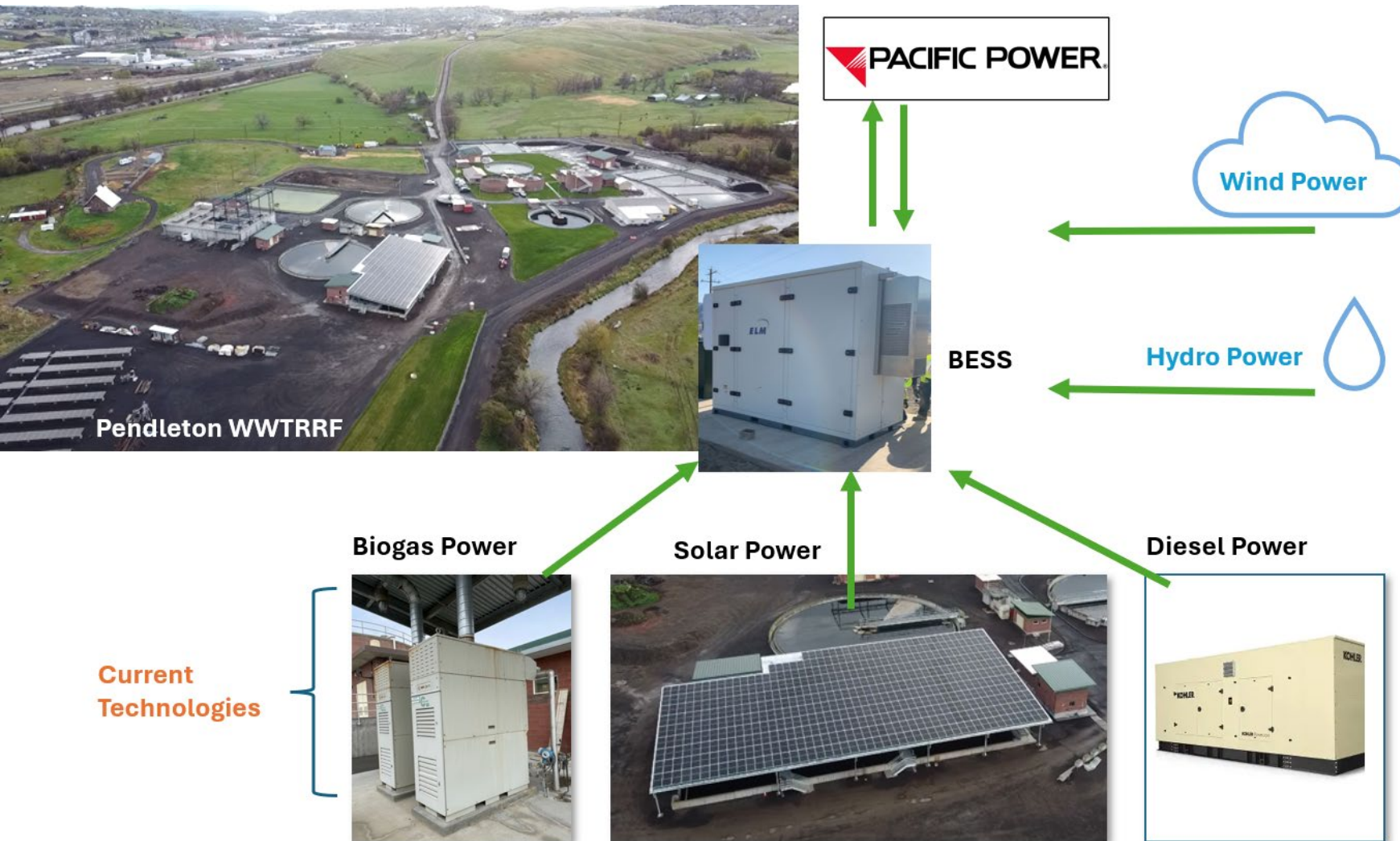
Key Challenges Facing Microgrid Market Development



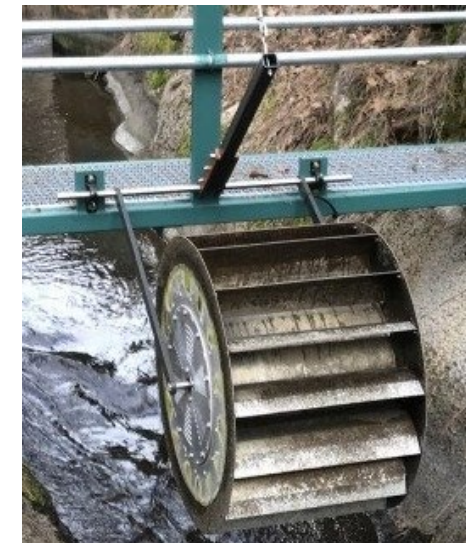
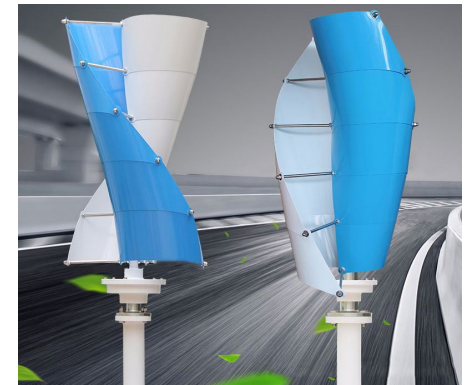
City of Pendleton, OR



Pendleton WWTRRF Microgrid



Phase 4 Plan 2027-2028



Pendleton ASR + BESS: Project 2



Funding Stack



Oregon Dept of Energy Community Renewable Energy Program Grant



Energy Trust of Oregon (ETO) Incentive



Investment Tax Credit



Pacific Power BESS Incentive



Federal ITAC Grant



Federal Earmark (Wind/Hydro)

Klickitat Valley Health



Klickitat Valley Health Project



Scope:

- Solar carports
- Ground source heat pumps
- BESS
- Microgrid controls
- EV charging

Funding Stack



FEMA Building Resilient Infrastructure and Communities (BRIC) and Washington State Military Department Hazard Mitigation Grant



Washington State Match for the BRIC Grant



Washington State Dept of Commerce Community Decarbonization Grant



Washington State Dept of Commerce Clean Energy Grant

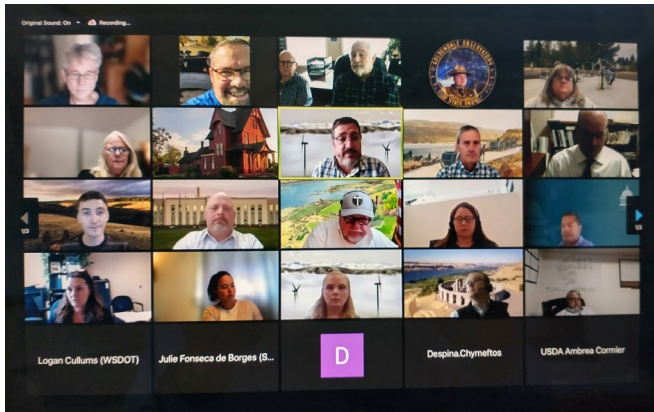


Investment Tax Credit



Washington State Dept of Ecology EV Chargers

Klickitat Valley Health Community Building



You are invited To a Special Showing of NEW ECONOMICAL

ZENITH

FARM RADIOS Operated by Freepower from the air!

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WINCHARGER

—And the Genuine 6-Volt DeLuxe

WINCHARGER

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•

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•

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Only \$1500
with new 6-Volt Zenith Farm Radio

A detailed illustration of a Zenith Wincharger tower and antenna system. The tower is a tall, lattice-structured steel tower. At the top, there is a horizontal arm with a propeller-like structure. A banner-like shape is attached to the side of the tower, containing the text 'DeLUXE WINCHARGER'.

———— Thank You for Joining Us! ————

Any Questions?

