



Long-Duration Energy Storage Demonstrations Program – Rural Energy Viability for Integrated Vital Energy

The Long-Duration Energy Storage (LDES) Demonstrations Program, managed by the U.S. Department of Energy's (DOE) Office of Clean Energy Demonstrations (OCED), aims to validate new energy storage technologies and enhance the capabilities of customers and communities to integrate grid storage more effectively. As part of this program, OCED sought applications for LDES projects from a range of different technologies intended to overcome technical and institutional barriers to full-scale deployment of LDES systems in diverse geographies. OCED selected nine projects to begin award negotiations for a total of up to \$286 million. Following negotiations, in November 2024, OCED awarded the Rural Energy Viability for Integrated Vital Energy (REVIVE) project with more than \$3 million to begin activities in Phase 1. The REVIVE project would be located in Frentress Lake, IL; Waukon, IA; and Wyeville, WI.



Awardee Fact Sheet LDES Demonstrations Program: Rural Energy Viability for Integrated Vital Energy

Project at a Glance

- » **Total OCED Cost Share:** Up to \$29.7 million
- » **Phase 1 Total Project Amount:** \$6,113,575*
- » **Phase 1 OCED Award Amount:** \$3,056,788**
- » **Phase 1 Scope of Work:** Detailed project planning and engineering design, community and labor engagement, workforce development, permitting and interconnection activities, and other development activities
- » **Phase 1 Timeline:** 18–24 months
- » **Recipient:** Dairyland Power Cooperative is a generation and transmission cooperative serving a territory across Minnesota, Wisconsin, Iowa, and Illinois
- » **Project Locations:** Frentress Lake, IL; Waukon, IA; and Wyeville, WI
- » **Start Date:** November 2024

*Represents the total project cost for Phase 1.

**Represents OCED's cost share for Phase 1. Additional funding for this project is subject to future award negotiations at the end of each project phase.

About This Project

The Dairyland Power Cooperative (DPC) plans to develop three behind-the-meter battery energy storage systems using a vanadium flow battery (VFB) system supplied by proposed technology provider Invinity Energy Systems. Each system would be installed at Dairyland-owned distribution centers and would provide up to 700 kW of power for up to 10 hours for rural communities in Illinois, Iowa, and Wisconsin. The VFB poses no fire risk, does not degrade, and has an operational life of 25 years.

DPC plans to collaborate with distribution cooperatives providing electricity at each location, including Allamakee Clayton Electric Cooperative, Jo-Carroll Electric Cooperative, and Oakdale Electric Cooperative. These sites provide

geographic diversity and would expose LDES and VRB technologies to three different distribution cooperatives to improve grid resiliency, reliability, and provide backup power to the distribution network served by the project sites.

In November 2024, OCED awarded the REVIVE project more than \$3 million to conduct Phase 1, which is expected to last 18–24 months. During Phase 1, DPC and the project team will conduct detailed project planning and engineering design, community and labor engagement, workforce development, permitting and interconnection activities, and other development activities.

Rural Energy Viability for Integrated Vital Energy

Project Fact Sheet

Project Site

The REVIVE project would be installed behind three substations in Waukon, IA; Frenress Lake, IL; and Wyeville, WI. These installations would provide increased energy resiliency and reliability to rural communities, including a disadvantaged community in Wisconsin and energy communities in Illinois and Iowa where coal plants once stood and were recently retired.

Community Benefits Commitments

Community benefits commitments are a key component of the REVIVE project. The commitments are informed and developed in consultation with local communities to mitigate potential negative impacts of this project and maximize local community benefits. The REVIVE project plans to implement these commitments through:

- Continuing its **labor agreements** with the International Brotherhood of Electrical Workers (IBEW) Local 953, which include apprenticeship opportunities.
- Leveraging its established partnership with the University of Wisconsin-Madison **Clean Energy Community Initiative** to support **two-way engagement** with contractors, host communities, and other stakeholders to collaboratively shape the project.
- Identifying **community ambassador liaisons at each project site** to support local outreach and education and serve as a channel for community feedback.
- Engaging in **workforce training** to support workforce opportunities for local workers at each project site.

More details on the REVIVE project's community benefits commitments can be found in the [Community Benefits Commitments Fact Sheet](#).



Rendering of a 14.4 MWh Invinity Energy Systems vanadium flow battery system

Rural Energy Viability for Integrated Vital Energy

Project Fact Sheet

LDES Demonstrations Program Goals

More than 335 million residents in the United States depend on our energy grid to reliably generate an average of 4 trillion kilowatt hours of power annually. During times of high demand, especially during inclement weather when it's more difficult to generate power, it's essential to have energy stored that can be deployed to meet demand, keep prices down, and ensure the lights stay on. Long-duration energy storage is one key option, storing energy that can be discharged over long periods of time that's ready for dispatch when needed. DOE defines LDES as systems capable of delivering electricity for 10 or more hours. The LDES Demonstrations Program features projects with a range of intraday (10 to 36 hours) and multiday (36 to 160+ hours) storage solutions, which can minimize the frequency and length of power interruptions caused by events such as severe weather or cyberattacks on the grid. These projects will help effectively demonstrate the commercial viability of innovative LDES technologies and facilitate wider commercial adoption. Through these projects, OCED envisions the technology eventually being replicated all over the country, providing flexibility and reliability to the power system without creating emissions, supporting a more renewable-heavy future.



Employees completing final assembly at Invinity Energy Systems factory

Contact

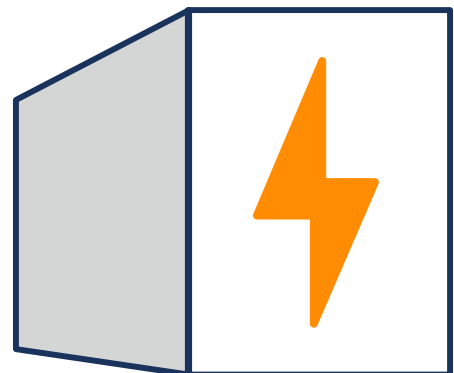
Program Email: OCED_LDES@hq.doe.gov

OCED Media Email: OCEDNewsroom@hq.doe.gov

More Resources

Website: energy.gov/oced/LDES

Office of Clean Energy Demonstrations: energy.gov/oced



The U.S. Department of Energy established OCED to help scale the emerging technologies needed to tackle our most pressing climate challenges and achieve net-zero emissions by 2050. OCED's mission is to deliver clean energy demonstration projects at scale in partnership with the private sector to accelerate deployment, market adoption, and the equitable transition to a decarbonized energy system.