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Office of Clean Energy Demonstrations Distributed Energy Systems Demonstrations Selected Projec..

Distributed Energy Systems Demonstrations Selected Projects

DISTRIBUTED ENERGY SYSTEMS DEMONSTRATION PROGRAM SELECTION SNAPSHOT

~\$50 MILLION
in funding to be distributed

OCED
Office of Clean Energy Demonstrations

Boosting workforce development opportunities across **3** states

- Colorado
- Massachusetts
- Virginia

5 types of distributed energy resources

- Solar
- Smart Thermostats
- Electric Vehicles
- Battery Energy Storage Systems
- Microgrids

Selected Projects

Project Name: GRid Integration and Demonstration of FLEXible Energy Resources (GRID-FLEXER)

Federal Cost Share: Up to \$16.8 million

Location: Suffolk, VA

Selectee: Virginia Electric and Power Company (dba Dominion Energy Virginia)

Project Summary: The GRid and Integration Demonstration of FLEXible Energy Resources (GRID-FLEXER) project—led by Virginia Electric and Power Company (dba Dominion Energy Virginia)—plans to demonstrate a distributed energy resource management system (DERMS) in Virginia’s southeastern region. This project aims to coordinate the area’s current distributed energy resources (DERs)—from solar panels and battery storage to electric vehicles and smart appliances—with control software. Leveraging these DERs, Dominion Energy Virginia would optimize and manage the 150MW of clean energy derived from these resources to provide real-time safe, reliable, and affordable grid support and capacity, particularly during high demand and peak load events, all without costly grid upgrades. By successfully demonstrating this approach, Dominion Energy Virginia hopes to pave the way for wider implementation across its service territory, ensure consistent power delivery and cost-effective clean energy integration, and ultimately provide a replicable model for future implementation across utility providers and diverse service territories.

Dominion Energy Virginia would develop community benefits commitments to help maximize local benefits. The project team plans to create a community advisory board to ensure the project aligns with residents’ needs and provides opportunities for engagement, workforce development, and energy equity for disadvantaged communities.

Project Name: Outer Cape Microgrid Optimization (OCMO)

Federal Cost Share: Up to \$19.5 million

Location: Orleans, MA to Provincetown, MA

Selectee: NSTAR Electric Company (dba Eversource Energy)

Project Summary: The Outer Cape Microgrid Optimization (OCMO) project—led by NSTAR Electric Company (dba Eversource Energy)—aims to implement a distributed energy resource management system (DERMS) to improve regional energy reliability and resiliency in the Cape Cod, MA area. Surrounded by water on three sides, Cape Cod customers are especially vulnerable to power outages caused by New England’s increasingly frequent and extreme weather. The DERMS would coordinate customer-owned distributed energy resources (DERs)—like solar panels, smart thermostats, or batteries—with an existing 24.9 MW battery energy storage system owned by Eversource that serves as the main resource for the current microgrid in the area. The project would enhance the existing regional microgrid with a DERMS that is capable of dispatching customer-owned clean energy to extend the duration it can operate for customer resilience.

Eversource plans to engage with the community throughout the life of the project, using an inclusive and participatory process to hear their needs and integrate their feedback into future project plans. The team also plans to create an advisory board, ensuring the project continues to align with community’s needs, while providing opportunities for engagement, workforce development, and energy parity for residents living on Cape Cod year-round—especially environmental justice and tribal communities. Project outcomes and lessons will be shared throughout the project via webinars, reports, and working groups to accelerate similar efforts across the U.S.

Project Name: Prime Time Virtual Power Plant

Federal Cost Share: Up to \$12.7 million

Location: Boulder, CO

Selectee: Xcel Energy Services, Inc.

Project Summary: The Prime Time Virtual Power Plant project—led by Xcel Energy Services Inc. (Xcel Energy)—would develop and integrate a virtual power plant (VPP) in the Boulder, CO area. Boulder is home to several federally funded research labs, the University of Colorado Boulder, and a concentration of advanced technology companies. These highly electrified sectors, combined with a rapid electrification of customer end uses are drivers that compel the company to utilize VPP strategies. This project would deliver clean energy to customers—without building new power plants or transmission lines—by aggregating the distributed energy resources (DERs) of participating consumers and using it to balance, optimize, and shift electrical loads, minimizing upgrades and costs for customers. The project could help Boulder, CO reach its 100% renewable electricity goals by 2030. The implementation of the proposed VPP offers a scalable solution that can be applied to the rest of Xcel Energy’s multi-state grid, providing operational flexibility to enable the power system to respond efficiently to changes in supply and demand that could be further replicated across the industry.

Xcel Energy and its partners will develop a community engagement plan for the Prime Time Virtual Power Plant project. Planned engagement activities include education and outreach on renewable energy project opportunities, open forums for stakeholders to share input and voice concerns, and workforce development. Once operational, the National Renewable Energy Laboratory plans to complete an equity study to analyze VPP impact on customers and propose solutions to mitigate any disparity and improve energy justice.

DOE's selection of an application for award negotiations is not a commitment by DOE to issue an award or provide funding. DOE and

each selectee will negotiate a cooperative agreement, and any DOE funding would be provided only after negotiations are complete and DOE's Contracting Officer executes the funding agreement. Before a funding agreement is executed, DOE may cancel award negotiations and rescind the selection for any reason.

What are distributed energy resources?

Electricity demand is expected to continue to increase through 2050, driven by electrification of sectors including building sector heating, cooling and cooking; EVs and associated charging infrastructure; industrial processes; and more. Meanwhile, distributed energy resources (DERs)—like solar panels, battery storage, EVs and charging infrastructure, and smart appliances—make up the majority of the new distributed capacity in generation, storage, and flexible demand. DERs are modular, electricity generation and energy storage technologies located near the point of use, reducing the need to pull from the larger power grid.

By utilizing a distributed energy resources management system (DERMS), utilities can combine the established energy generation resources of participating consumers, then optimize and manage their use in real-time to support safe, reliable, and affordable grid operations. As more sectors turn to electrification to decarbonize, the ability to manage a more diverse set of grid assets will add much needed energy resilience in a time of increasing grid strain and disruptions due to severe weather events.

Why is DOE investing in distributed energy systems?

DES is a critical component of DOE's strategy to decarbonize the nation's power system by boosting the integration of renewable energy and enhancing grid reliability. Scaling distributed energy systems provides the ability to effectively deliver clean, reliable power to more communities, reducing electricity losses along transmission and distribution lines, and increasing grid resiliency. OCED's DES Demonstrations Program is focused on demonstrating a range of technologies with regional diversity and at different scales to help them achieve commercial liftoff.

How many projects have been selected and how much funding is DOE providing?

In September 2024, OCED announced up to \$50 million for three projects that have been selected for award negotiations under the [DES Funding Opportunity](#). The projects plan to develop DES systems in Colorado, Massachusetts, and Virginia.

How were the DES projects selected?

Selectees for the DES Demonstrations Program were evaluated through a rigorous technical and merit review process following criteria set forth in the [Funding Opportunity Announcement](#). These criteria included an evaluation of each proposal's technical approach and impact, financial and market viability, management and organization, workplan, and community benefits plan.

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