Business & Technology Advisory

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DOE Issues Funding Opportunity for Grid-interactive Efficient Buildings and Connected Communities

Key Highlights

- The U.S. Department of Energy's (DOE's) Building Technology Office (BTO) has announced its "Connected Communities" funding opportunity announcement (FOA) to expand grid-interactive efficient building communities nationwide.
- The overall objective of this FOA is to demonstrate, through a portfolio of diverse projects, the ability of groups of buildings and Distributed Energy Resources (DER) to provide cost effective grid services through demand flexibility and efficiency that maximize use of renewable resources and reduce emissions, while maintaining or enhancing occupant satisfaction and productivity.
- A total of approximately $65 million of federal funding will be available for 6-8 awards under this FOA. Individual awards may vary between $3 million and $7 million, and project duration may range from 30 to 60 months.
- The minimum required amount of cost share to be provided by award recipients is 30%.
- Cooperatives may be interested in applying for funds under the FOA.
- NRECA is evaluating submitting an application on behalf of a team consisting of small number of cooperatives, and other yet to be determined technology partners. Interested cooperatives are asked to contact Brian.Sloboda@nreca.coop **by November 16**.
- Concept papers are due to DOE by February 17, 2021. NRECA plans on submitting a concept paper well before the deadline.

What has changed?

The U.S. Department of Energy's (DOE) Building Technology Office (BTO) has issued its "Connected Communities" Funding Opportunity Announcement (FOA). This announcement is a solicitation for projects that will deploy Grid-interactive Efficient Buildings. The full funding announcement is available online.

This FOA encourages projects that combine several elements of distributed energy resources (DERs). Successful projects will most likely have a combination of technologies such as energy storage, distributed generation, electric vehicles, and thermal storage to interact with the utility grid. The DOE has indicated that they are looking for projects that include multiple partners, including utilities, home builders, clean cities coalitions, building owners and others.

According to the FOA, BTO has developed a Grid-interactive Efficient Buildings (GEB) strategy which aims to advance the role buildings can play in energy system design, operations and planning. This is achieved by optimizing energy consumption with an integrated approach to energy efficiency and flexibility. The GEB strategy recognizes that:

- Building end uses can be dynamically managed to reduce energy cost and consumption, help meet grid needs, and minimize electricity system costs, while meeting occupants' comfort and productivity requirements;
- Technologies, such as solar photovoltaics, storage, combined heat and power, electric vehicles and their charging infrastructure, other DERs, and microgrids, can be co-optimized with buildings to provide greater value and resiliency to both utility customers and the electricity system; and
- The value of energy efficiency, demand response, and other services provided by behind-the-meter DERs varies by building type, location, hour, season and year. A key part of this strategy includes utilizing efficient building design, operational strategies, and highly efficient, innovative building equipment coupled with smart technologies for building energy management. These are areas of core technological investment for BTO.

What is the impact on cooperatives?

Cooperatives may be interested in applying for funds under the FOA. The Department of Energy anticipates making approximately 6 to 8 awards under this FOA. Individual awards may vary between $3 million and $7 million.

DOE has identified eight (8) desired outcomes of this funding opportunity. Co-op staff should consider these outcomes when identifying possible projects. The primary outcome is defined by DOE as: *The overall desired outcome from this FOA is to demonstrate, through a portfolio of diverse projects, the ability of groups of buildings and DERs to provide cost effective grid services through demand flexibility and efficiency that maximize use of renewable resources and reduce emissions, while maintaining (if not enhancing) occupant satisfaction and productivity.* Specific outcomes within that priority are:

1. Data showing if, and how much, diverse groups of buildings can reliably and cost effectively serve as grid assets by strategically deploying efficiency and demand flexibility in conjunction with DERs, without sacrificing occupant comfort or productivity;
2. Analysis on the interaction between energy efficiency and demand flexibility measures and how GEBs improve energy affordability and grid reliability while offering environmental and community benefits;
3. Demonstration of how DERs, such as managed charging of electric vehicles, can contribute to overall building load management, grid services and reduced cost of DER ownership and operation;
4. Demonstration of proven pathways to install the hardware, software and communications necessary to make buildings grid interactive that decrease cost, set up time for installers and potential disruption to occupants;
5. Insights on occupant impact, including benefits, resulting from equipment with advanced sensing, controls and capabilities to modify and optimize operational sequencing to balance comfort and grid needs;
6. Perspective into the willingness and ability of the occupants to change the timing and/or duration of their energy use, and any necessary level of compensation to meet grid needs;

7. Demonstrate the value of how demand flexibility and DER integration across buildings will attract customers, utilities, and other key stakeholders; and
8. Public dissemination of case studies of each project, including technical requirements and specifications, synthesized best practices, businesses models, partnership approaches, lessons learned, required analyses (including the results of those analyses) and analytical tools used to conduct the design, operation and evaluation of successful connected communities.

Co-op staff should pay particular attention to pages 12-16 of the FOA. The table on these pages lists all of the items that proposed projects must have and those elements that they are encouraged to have.

What do cooperatives need to know or do about it?

The concept paper is due on or before February 17, 2021 and the full applications are due by March 3, 2021. DOE is accepting concept papers on a rolling basis with encourage/discourage determinations sent back to applicants by DOE within seven calendar days of submission. Applicants that submit concept papers encouraged by DOE can submit a full application for consideration.

NRECA is evaluating submitting an application on behalf of a team consisting of small number of cooperatives, and other yet to be determined technology partners. NRECA is well positioned to either lead an application as the Prime and/or join other co-op lead teams as a subcontractor. Services that NRECA can perform include overall project management, coordination with DOE, facilitating collaboration and coordination among various participants, market research, leveraging innovative load control technologies previously developed at NRECA such as GridBallast, modeling dynamic grid performance and buildings technology grid integration using the Open Modeling Framework grid analytics platform, NRECA's Essence situational awareness assessment and anomaly detection toolset, technology planning, program outreach and results dissemination.

Co-ops that have a program concept and/or would like to explore joining an NRECA-led effort are asked to contact Brian Sloboda by November 16.

Additional Resources

- DOE Connected Communities Funding Announcement
- DOE Reynolds Landing Connected Community Project
- Consumer Expectations of the Connected Home
- The Potential Role of the Co-op in Smart Home Technology
- Utility Connected Home: The Value to the Co-op
- The Utility Connected Home: A Primer

Contact for Questions

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