



REQUEST FOR INFORMATION

Flexible Distributed Energy Resources and Control Platforms

Supporting Vermont's Grid Evolution with \$5 Million

Date Issued: December 10, 2021
Information Deadline: January 12, 2022

Vermont Department of Public Service
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Overview

This Request for Information (RFI) is to inform the design and implementation of a program to support Vermont's capability to deploy and use grid-interactive flexible distributed energy resources (DERs). This includes technologies such as flexible loads, storage, and control platforms to manage and optimize those resources. Act 74¹ of the 2021-2022 legislative session instructs the Department of Public Service (Department, or PSD) to prepare a plan for the use of \$5 million of American Rescue Plan Act (ARPA) funds subject to approval by the Legislature during the 2022 legislative session. This RFI seeks stakeholder guidance on how those funds could support a more flexible and efficient electric grid and improve reliability, affordability, and sustainability.

Over the coming months, the Department will design a plan of action for the funds based on the responses to this RFI, independent research, public comments², and stakeholder communications. The Department's goal is to have the program design finalized in early 2022, and—pending legislative approval—implementation beginning in calendar year 2023.

This is one of a handful of simultaneous efforts by Vermont electricity system stakeholders to improve grid flexibility. Those projects—which range from live, in-progress pilots to conceptual programs awaiting funding—focus on specific equipment types or data aggregation. **In this RFI, the Department seeks input on how to best structure the \$5 million program to optimize the use of grid-interactive flexible resources and control platforms, all while ensuring equity for small businesses, low-income Vermonters, and frontline/impacted communities, and while complying with ARPA guidance.**

Responses to this request for information can be sent via email or mail to the Department at the following addresses:

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112 State Street, 3rd Floor
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In order to best inform the plan, responses should be sent no later than **January 12, 2022**.

Background

Flexible Resource Benefits and Program Goals

The convergence of new electric loads with embedded sensors and controls, improved internet access, and rapid growth of both distributed renewable energy generation and battery storage—in combination with statewide emissions reductions mandates—makes the orchestration and optimization of grid resources a priority. It offers the potential to reduce ratepayer costs (both short-term and long-term), improve reliability and resilience, and lower both greenhouse gas

¹ [Act 74](#) of the 2021-22 legislative session was signed by Governor Scott on June 8, 2021.

² Relevant public comments on the Comprehensive Energy Plan will be considered in development of the proposal.

emissions and local air pollution. The program seeks to accelerate existing grid flexibility efforts, lay the groundwork for future funding (including competitive federal investments), and ensure that low- and moderate-income Vermonters can fully participate in the state's decarbonization and clean energy activities

Legislative Instruction to Create Plan for \$5 Million

Earlier this year, the General Assembly passed Act 74, also known as the “Big Bill” or budget bill. In it, the Legislature appropriated \$20 million to the Department for three purposes. \$10 million was allocated for the Affordable Community-Scale Renewable Energy Program to create renewable energy projects to benefit low-income Vermonters. \$5 million of American Rescue Plan Act³ funds were allocated for the Clean Energy Development Fund. And, lastly, the Department was instructed to develop a plan to use the remaining \$5 million pursuant to approval of the Legislature during the 2022 session. The resulting program must comply with requirements of the original funding source, the American Rescue Plan Act of 2021.

Other Ongoing and Proposed Flexible Resource Efforts

Many forms of demand side management are well-established in Vermont. Energy efficiency and event-based demand response controls have been deployed for decades. Flexible resources—as used in this RFI—encompass a wide range of strategies to shift, curtail, or otherwise manage electric load, or to orchestrate load with generation and storage, at various timescales. Motivations include reducing utility capacity obligations, reducing renewable generator curtailment, wholesale electricity arbitrage, increasing ratepayer value from distributed generation, deferring avoidable transmission and distribution system investment, and avoiding other regional market costs.

Existing Vermont flexible resource efforts include:

- Load controls paired with financial incentives and technical expertise offered to large commercial and industrial customers by energy efficiency utilities, distribution utilities, and third-party integrators
- Controls for water heaters, electric vehicle supply equipment, and air-source heat pumps to avoid peak periods; programs are managed by distribution utilities and/or aggregators
- Distributed storage resources directly managed as a “virtual power plant” to discharge during system peaks
- Rate-based approaches to incentive off-peak electricity consumption as offered by distribution utilities

The Public Utility Commission is currently conducting a proceeding (19-0856-RULE) to revise Rule 5.500, which addresses resources that interconnect with the grid. The proceeding aims, in part, to update the interconnection rule to maximize the use of storage resources, set communication protocols, and take advantage of advanced inverter functionality.

In addition, stakeholders such as distribution utilities, VELCO, and Efficiency Vermont are actively preparing for the adoption of various distributed energy resource management systems (DERMS). This work includes managing and collecting technical data about distribution resources and their resulting impact on the transmission system, building cybersecurity

³ Respondents are encouraged to familiarize themselves with the U.S. Treasury guidance on requirements for the use of ARPA funds, which is located online at: <https://home.treasury.gov/policy-issues/coronavirus/assistance-for-state-local-and-tribal-governments/state-and-local-fiscal-recovery-funds>.

protocols, and ensuring VELCO and its utility owners are equipped to integrate both platforms and controllable loads from multiple providers (thus avoiding vendor lock-in).

Request For Information

The Department is seeking information and comments to assist in the creation of a program to provide:

- Load-controllable equipment to end-users, especially low-income residents, and/or
- Adaptable platforms and systems to improve controllability by distribution utilities and third parties.

While the RFI is focused on the best application of \$5 million to be appropriated by the Legislature, the program should also prepare for future state or federal appropriations that could be used for flexible resources management implementation. This includes the Infrastructure Investment and Jobs Act enacted on November 15, 2021.

Please provide information on any or all of these questions, and *any other relevant topics*.

Program Goals, Management and Implementation

1. Are the program goals appropriate? Should the scope be narrowed or expanded?
 - The program goals are managing ratepayer costs, improving reliability and resilience, lower emissions, and ensuring that benefits prioritize low- and moderate-income Vermonters.
2. Describe the ideal pathway(s) and activities to accomplish the program goals.
3. Which entities should manage and implement various aspects of the program, and why?
 - “Various aspects” include soliciting and implementing approvals, offering and advertising incentives for load-controllable equipment, and selecting and implementing management platforms
 - These could include the PSD, distribution utilities, VELCO, a consultant, etc.
4. What is a feasible schedule for these activities? Is deployment within 2 years of funding allocation possible?
5. How should the program prepare for and leverage greater funding available in the future, either from federal, state, or PUC-approved ratepayer sources?

Technologies and Platforms

1. What technologies, end-use loads, or other equipment or software should be included or excluded from receiving funds as part of this funding?
2. How should incentives be structured? Should incentives be offered to utilities, third-parties, customers, or other entities? Why? What form should they take (e.g. upfront cash incentives or rebates, electricity rate advantages, etc.)?
3. Many small utilities lack the resources to implement DER management software in an affordable manner, or feature economies of scale that deter them from investing in DERMS. Would all utilities—and by extension, all ratepayers—benefit from shared development and implementation of DER control platforms? Why?

Funding Grid Optimization

1. How should the program be designed to leverage additional funding or financing?

2. Should the program be structured to support business models? Which? How?
3. What elements or design considerations will attract investment or innovative offerings by third parties?
4. What elements or design considerations will maximize utility-managed offerings, especially related to:
 - a. The default disposition of new customer resources (opt-in versus opt-out)
 - b. Innovative rates, leases, or other financing
 - c. Financing commercial building measures for efficiency and flexible resources
 - d. Storage focused on over-generation and reducing curtailment impacts

Program Equity and Evaluation Metrics

1. How should the program design reflect the State's equity goals,⁴ especially related to maximizing benefits for low-income electric customers, small businesses, and frontline/impacted communities?
2. Which evaluation metrics should be used to track program success?
3. Which are the most important evaluation metrics of success for this program?
 - a. For example:
 - i. Count of installation and use of flexible load equipment, including controllable heat pumps, water heaters, and electric vehicle supply equipment
 - ii. Count of integration of load control platforms for the benefit of ratepayers of utilities that do not currently employ such platforms.
 - iii. Financial savings, by utility, achieved through demand flexibility of load management strategies, including reductions in annual capacity obligation, monthly RNS (transmission) values, and reductions of high-cost spot market purchases
4. How should the program be designed to collect the data needed for the evaluation metrics?
5. How should the program identify and encourage participation of low-income Vermonters, under-served and under-resourced communities, of Vermonters that are Black, Indigenous, or people of color?

The Department appreciates your response to these questions and any other topics you deem valuable to supporting an affordable, reliable, and resilient low-carbon electric grid.

⁴ See resources at <https://racialequity.vermont.gov/resources> and [https://outside.vermont.gov/agency/anr/climatecouncil/Shared%20Documents/\(7\)%20Building%20Equity%20into%20the%20CAP%20-%20CLEAN%20-%2010-19-21.pdf](https://outside.vermont.gov/agency/anr/climatecouncil/Shared%20Documents/(7)%20Building%20Equity%20into%20the%20CAP%20-%20CLEAN%20-%2010-19-21.pdf).