



PUBLIC SERVICE DEPARTMENT

VERMONT CLEAN ENERGY DEVELOPMENT FUND

REQUEST FOR PROPOSALS

August 22, 2013

Electrical Energy Storage Demonstration Program

INTRODUCTION

The Vermont Public Service Department's (PSD's) Clean Energy Development Fund (CEDF) is seeking proposals from Vermont electric utilities or entities partnered with Vermont electric utilities for demonstrations of grid-scale electrical energy storage that serves primarily to integrate renewable energy into the grid and that provides analysis and learning opportunities for the State, for other electric utilities within Vermont, and for relevant stakeholders, such as renewable energy developers and the state transmission provider. It is anticipated that the energy storage system rating will be >200 kW and 400 kWh. The system will be located in Vermont and will be utilized to integrate with either a new or existing renewable energy installation to support the electrical grid. This RFP is for the engineering, design, procurement, installation, and start-up/commissioning of the energy storage system and other components necessary to meet the intent of the solicitation.

Proposals are due by 4:00 P.M. on Friday, September 20, 2013 with the goal of finalizing a contract before October 25, 2013. The contract period will run through October 2015. The CEDF has budgeted \$50,000 for the project, and is working in concert with the U.S. Department of Energy-Office of Electricity (DOE) and Sandia National Laboratories (SNL), who will assist CEDF with project review and selection, provide technical assistance to the selected project or projects, and potentially contribute up to \$235,000 toward engineering design and monitoring/analysis for the selected project(s). Proposals should therefore be based upon a potential total federal-state combined contribution of up to \$285,000, and must demonstrate applicant match of at least 50% of the total project cost (i.e., a minimum of \$285,000 in match by the applicant toward a project with a total cost of \$570,000). All match up to 50% of the project cost must be cash match; in-kind match is allowed for match beyond 50%.

Applicants mailing proposals should allow adequate time to ensure receipt of their proposal(s) by the deadline. Proposals are limited to 15 pages (not counting resumes and the budget worksheet), with no less than a 12-point font and one-inch margins. One original signed hard copy, three additional hard copies, and an electronic copy of the proposal must be delivered to Anne Margolis, Vermont Public Service Department. Proposals and questions should be addressed to:

Anne Margolis
Vermont Public Service Department
112 State Street
Montpelier, VT 05620-2601
Phone: (802) 828-3058
Email: anne.margolis@state.vt.us

BACKGROUND

Industry, utilities, and regulators recognize that energy storage may play an important role in solving present and anticipated future issues with an evolving electricity grid. For instance:

- Energy storage is being evaluated as a mechanism to support the grid as the penetration of renewable energy increases to meet state goals, including for smoothing of intermittency and firming of renewable generators to render them dispatchable;
- Energy storage is being assessed for enhancing existing—and aging—electric system capital assets, thereby increasing the reliability of electricity transmission and distribution, as well as for deferring investments in transmission and distribution that would otherwise be required to meet peak load conditions;
- Smart Grid deployment may require wide-scale energy storage in order to achieve its full potential and deliver on its value proposition;
- Energy storage may be needed to support the electrification of the transportation sector; and,
- Energy storage has the potential to provide short-term backup power for critical facilities during outage conditions.

The grid energy storage market is poised to grow to over \$30 billion by 2022¹. Key to building out the deployment of storage is achieving cost reductions. The U.S. Department of Energy has set a target of reducing the cost of energy storage by 30% by 2015² through three main strategies: research, demonstrations, and systems analysis.

The Clean Energy Development Board (Board) recently allocated \$50,000 toward an energy storage program, designed to incentivize the installation of one or more grid-scale electrical energy storage demonstration projects with the main purpose of integrating renewable energy with the grid (either short-term or long-term storage) and sharing lessons learned with regulators, utilities, and other relevant stakeholders within Vermont. The CEDF funding is expected to leverage up to \$235,000 from DOE, which will be awarded to the selected project(s) and is to be used for system engineering and monitoring or other agreed upon project tasks. The State and DOE/SNL expect to work closely with the selected project(s) to assist with project design, execution, monitoring, and analysis.

Types of projects eligible to receive funding include grid-scale, electrical energy storage projects with the main function of integrating renewable energy with the grid. It is anticipated that energy storage systems receiving funding under this RFP will be a minimum of 200 kW/400 kWh in size. Applicants are encouraged to incorporate and monetize other benefits of storage, provided they improve a project's economics and/or benefits to Vermonters and do not diminish renewable energy integration benefits. Energy storage functions can be categorized as follows:

¹ <http://www.navigantresearch.com/newsroom/energy-storage-on-the-grid-will-surpass-30-billion-in-annual-market-value-by-2022>

²

http://energy.gov/sites/prod/files/oeprod/DocumentsandMedia/OE_Energy_Storage_Program_Plan_February_2011v3.pdf

| Value Chain | <u>APPLICATION</u> | | <u>DESCRIPTION</u> |
|--|--------------------|--|---|
| Generation & System-Level Applications | <u>1</u> | <u>Wholesale Energy Services</u> | Utility-scale storage systems for bidding into energy, capacity and ancillary services markets |
| | <u>2</u> | <u>Renewables Integration</u> | Utility-scale storage providing renewables time shifting, load and ancillary services for grid integration |
| T&D System Applications | <u>3</u> | <u>Stationary Storage for T&D Support</u> | Systems for T&D system support, improving T&D system utilization factor, and T&D capital deferral |
| | <u>4</u> | <u>Transportable Storage for T&D Support</u> | Transportable storage systems for T&D system support and T&D deferral at multiple sites as needed |
| | <u>5</u> | <u>Distributed Energy Storage Systems</u> | Centrally managed modular systems providing increased customer reliability, grid T&D support and potentially ancillary services |
| | <u>6</u> | <u>ESCO Aggregated Systems</u> | Residential-customer-sited storage aggregated and centrally managed to provide distribution system benefits |
| | <u>7</u> | <u>C&I Power Quality and Reliability</u> | Systems to provide power quality and reliability to commercial and industrial customers |
| | <u>8</u> | <u>C&I Energy Management</u> | Systems to reduce TOU energy charges and demand charges for C&I customers |
| End-User Applications | <u>9</u> | <u>Home Energy Management</u> | Systems to shift retail load to reduce TOU energy and demand charges |
| | <u>10</u> | <u>Home Backup</u> | Systems for backup power for home offices with high reliability value |

T&D = Transmission and Distribution; C&I = Commercial and Industrial; ESCO = Energy Services Company; TOU = Time of Use
 Source: Electricity Energy Storage Options: A White Paper Primer on Applications, Costs & Benefits. EPRI, 2010. http://my.epri.com/portal/server.pt?Abstract_id=000000000001020676

The primary purpose of proposed projects should fall squarely under (2) *Renewables Integration*, but additional, secondary, applications from other categories above are encouraged.

Eligible technologies include advanced batteries, flywheels, supercapacitors, and site-anywhere compressed air energy storage. Descriptions of these technologies may be found in the *DOE/EPRI 2013 Electricity Storage Handbook in Collaboration with NRECA*³. Applicants are

³ <http://www.sandia.gov/ess/publications/SAND2013-5131.pdf>



encouraged to propose novel applications of commercialized technologies, or proven applications using near-commercial technologies (Technology Readiness Levels 7-9⁴) that have been supported through the Department of Energy's American Recovery and Reinvestment Act⁵ and Advanced Research Project Agency-Energy (ARPA-E) energy storage programs⁶. Other valuable information to applicants in designing projects may include the DOE International Energy Storage Database⁷ and DOE's ES-Select Storage Selection Tool⁸, which helps users compare different electrical energy storage technologies and their feasibility for intended applications.

INFORMATION REQUIRED FROM APPLICANTS

Proposals should be prepared simply and economically, providing a straightforward, concise description of the applicant's ability to meet the requirements of the RFP. Fancy bindings, colored displays, promotional materials, and so forth, are not desired. Emphasis should be on completeness and clarity of content. Information in the applicant's proposal which should be held confidential must be clearly marked as confidential and comply with an exemption from public inspection as per 1 V.S.A. § 317(c).

Grant proposals should be no longer than 15 pages, with no less than a 12-point font and one-inch margins (resumes and the Budget Worksheet **do not** count toward the 15-page limit) and must include at minimum the following information:

1. Project Title

Provide a descriptive title for the project.

2. Project Summary

Provide a short paragraph describing the essential elements of your project, and including a concise statement of the specific objectives of the proposed project.

3. Identification of Organization

State the full name and address of the organization and, if applicable, other partners and/or subcontractors that will perform, or assist in performing, the work. Include the organization's federal identification number.

4. Authorized Negotiators

Include the names, email addresses, and phone numbers of personnel authorized to negotiate the proposed contract with the State. All proposals must be signed by a duly authorized representative of the party (or parties) submitting the proposal.

5. Personnel

Each organization submitting a proposal under this RFP shall have demonstrable knowledge, skills, and experience as it relates to the required work. The proposal must identify all persons

⁴ <http://www1.eere.energy.gov/manufacturing/financial/trls.html>

⁵ http://www.sandia.gov/ess/docs/ARRA_Storage_Projects_4-9-13.pdf

⁶ <http://arpa-e.energy.gov/?q=arpa-e-programs/grids>

⁷ <http://www.energystorageexchange.org/>

⁸ <http://www.sandia.gov/ess/esselect.html>

who will be employed in the proposed work by skill and qualifications. Identify key personnel by name and title and provide a resume for each (resumes **do not** count toward the 15-page limit). Subcontractors must be listed, including the firm name and address, contact person, and complete description of work to be subcontracted. Include descriptive information concerning subcontractor's organization and abilities.

6. Detailed Project Description

Describe, in detail, the essential characteristics and goals of the proposed project, including:

- Objectives
- Location and ownership control
- Size (including any potential for later expansion)
- Equipment description (to the extent vendors have been identified, and/or anticipated process for technology selection)
- Applications (referencing the functional chart on page 3 of this RFP)
- Potential impact (benefits, outcomes); including environmental, economic, and societal impacts
- Role of any participants/partners

7. Work Plan

Describe in narrative form the plan for accomplishing the work. Indicate the number of hours allocated to each task and which staff member(s) will complete the tasks. Include a description of key elements of the project and a timeline for completion. The work plan should also include:

- A plan for project oversight, quality assurance measures, and financial management, indicating which staff member(s) will have this responsibility. Quality assurance measures should include a construction acceptance, start-up/commissioning, and functional acceptance testing plan.
- A list of all permitting requirements for the project and whether any of the permits have been obtained.
- Identification of any pre-development activities, including feasibility studies, that have been completed for the project.
- A plan for coordination with SNL in the planning, execution, Data Acquisition System (DAS) - metering, monitoring/data collection, and evaluation stages of the project
- A plan for information sharing with the State, DOE, SNL, and relevant stakeholders, including other utilities
- Estimated project life, either from the equipment warranty information or a reasonable estimation based upon similar installations

8. Budget Considerations

Applicants must submit a proposed budget for this project (see separate **Budget Worksheet**) and include narrative explanations. The budget should explain:

- Total project cost
- Total State funds requested (up to \$50K) and a description of how they will be allocated
- How DOE funds of up to \$235K for project design/engineering and monitoring or other project tasks would be applied
- Estimated payback time in years, both with and without State and DOE funding
- Proof of matching funds from the applicant and/or its partners of at least 50% of the project's total cost (in-kind match is only allowable beyond the 50% match requirement).



It should be noted that >50% cost share is preferred. The following cost elements should be included:

Personnel (position, rate, hours)

Fringe Rate

Capital Costs (supplies & materials, including major equipment purchases and identifying vendors where possible)

Subcontractor Services

Travel (include mileage rate, etc.)

Other (specify)

Total Direct Costs

Indirect Cost Rate

BUDGET TOTAL

9. Additional Information and Comments

Include any other information that is believed to be pertinent, but not specifically requested elsewhere in this RFP.

SELECTION CRITERIA

The CEDF will evaluate all proposals received utilizing a “best value approach” based upon reasonableness of cost, completeness and quality of the proposal, size (kW/kWh), qualifications of the individuals proposed to perform the work, relevance of previous experience, extent of cost share, and any other criteria it deems relevant. Acceptance or rejection of any or all proposals will be determined by the exercise of the CEDF's sole discretion.

All proposals are subject to an evaluation by the CEDF, the PSD, DOE/ SNL, and/or other reviewers. The CEDF and PSD reserve the right (but in no way are obligated) to interview the top prospective candidates to aid in the selection process.

The decision whether to award a grant or not will be made based upon the information provided in the grant application. The applications will be scored by multiple reviewers to provide a basis for judging how a project application matches up against the evaluation criteria listed below. Points will be assigned to the criteria as follows:

Maximum Points Possible = 100

1. (40 points)

- **Project supports the CEDF's primary goal of maximizing cost-effective and environmentally sustainable clean energy generation**
- **Project supports one or more other CEDF goals**
 - Accelerate economic development for the clean energy sector in Vermont
 - Jobs retained and created
 - Creation of new businesses
 - Increase of business revenue that will cycle within VT
 - Support and/or development of the clean energy industry/sector
 - Leverage funding for clean energy development in Vermont
 - Contribute to the knowledge base and infrastructure for a clean energy future in Vermont
 - Project includes a robust plan for sharing learning with PSD, CEDF, other utilities, and relevant stakeholders
 - Education and training of sector workforce
 - Potential for public visibility/education and plan for promoting the site/project
 - Promote the development of new energy efficient technologies

2. (25 points)

- **Work Plan and Budget**
 - Clarity and reasonableness of work plan, including definition and timeliness of tasks to be performed (including overall schedule and reasonableness to meet targets)
 - Plan and capacity for project control and financial management are clear and reasonable (including a strategy to implement, operate, monitor, and evaluate the project)
 - Budget line items and amounts are sufficiently described and justified to explain the necessity of each item
 - Costs are reasonable and competitive

- The need for financial assistance is well established/justified
3. (25 Points)
- **Project Characteristics**
 - Suitability of the site for the proposed project(s)
 - Project solves a renewable energy integration problem
 - Project is located in a constrained area, as identified by the Vermont System Planning Committee
 - Project risks (for ex. permitting) are relative to similar proposed projects
 - Project utilizes a novel technology in a proven application or a proven technology in a novel application
 - Potential for replicability (the degree to which the project provides lessons/improvements applicable to other projects)
 - Extent to which project involves using any technical expertise offered by DOE and SNL
 - Extent to which project maximizes other benefit streams (but not to the detriment of its renewable energy integration services)
4. (10 Points)
- **Experience & Qualifications**
 - Knowledge and experience in the relevant project area, including successful experience with similar projects
 - Demonstrated ability to complete project on time and on budget
 - Adequate capacity/staffing for the described work and reporting requirements, if applicable
 - Previous experience with state and/or federal grants/contracts.

QUESTIONS

All questions concerning this RFP should be directed to:

Anne Margolis
Vermont Public Service Department
112 State Street
Montpelier, VT 05620-2601
Email: anne.margolis@state.vt.us

Questions should be submitted in writing, preferably by email, with the subject line, "Energy Storage RFP Question." Questions are due by 4 p.m. September 9, 2013 and will be answered in a comprehensive Q&A document that will be posted at <http://publicservice.vermont.gov/announcements/rfps> alongside this RFP by 4 p.m. September 13, 2013.

GENERAL TERMS AND CONDITIONS

1. The CEDF reserves the right to reject any and all proposals received as a result of this RFP for any reason, to waive minor irregularities in any proposals received, and to



negotiate with any party in any manner deemed necessary to best serve the interests of the State.

2. The CEDF shall not be responsible for any costs incurred by any party in preparation of any proposal submitted in response to this RFP.
3. The CEDF reserves the right to amend or cancel this RFP at any time if the best interest of the State requires such action.
4. News releases pertaining to this RFP, contract award, or the project shall not be made without prior written approval from the CEDF.
5. The CEDF will pay for actual work performed and expenses incurred under this project up to the specified contract amount. Specific payment provisions will be arrived at upon mutual agreement of the parties. All payments will require the submission of an itemized billing of work performed to date in sufficient detail to justify payment.
6. All parties submitting proposals shall be Equal Opportunity Employers. During the duration of the performance of this contract, the contractor will be expected to comply with all federal, state, and local laws respecting non-discrimination in employment.
7. All deliverables submitted by the selected contractor shall become the property of the State.
8. Funds for this program are State funds and the selected contractor shall be responsible to meet all restrictions and reporting requirements required by the State of Vermont.
9. The CEDF and the PSD assume no liability in any fashion with respect to this RFP or any matters related thereto. All prospective contractors and their subcontractors or successors, by their participation in the RFP process, shall indemnify, save and hold the CEDF, the PSD, and their employees and agents free and harmless from all lawsuits, causes of action, debts, rights, judgments, claims, demands, damages, losses and expenses or whatsoever kind in law or equity, known and unknown, foreseen and unforeseen, arising from or out of this RFP and/or any subsequent acts related thereto, including but not limited to the recommendation of a contractor and any action brought by an unsuccessful applicant.