



Procurement Guidance for Energy Storage Projects: Help with RFIs, RFQs and RFPs

April 20, 2016

**Hosted by Todd Olinsky-Paul
Project Director
Clean Energy Group/
Clean Energy States Alliance**



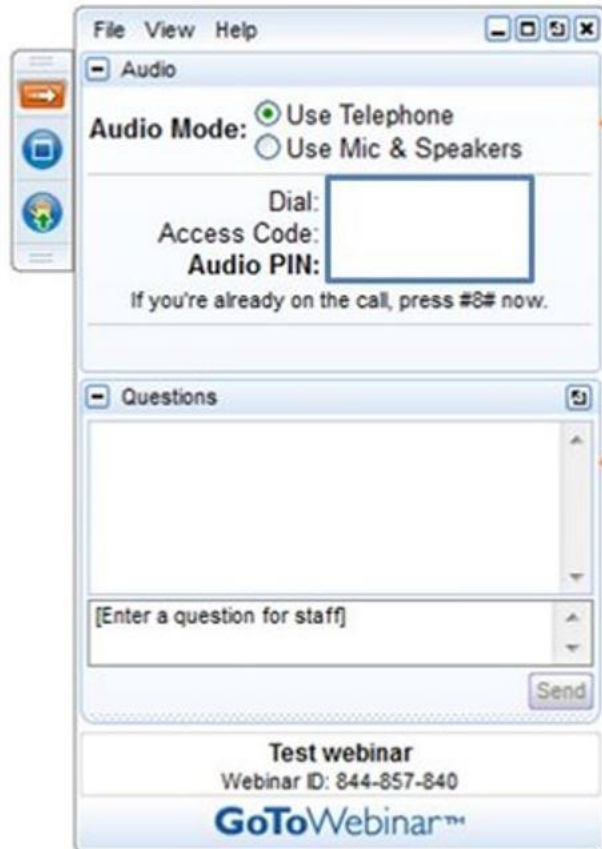
**U.S. DEPARTMENT OF
ENERGY**



**Sandia
National
Laboratories**

BRIGHT POWER

Housekeeping



All participants are in “Listen-Only” mode. Select “Use Mic & Speakers” to avoid toll charges and use your computer’s VOIP capabilities. Or select “Use Telephone” and enter your PIN onto your phone key pad.

Submit your questions at any time by typing in the Question Box and hitting Send.

This webinar is being recorded.

You will find a recording of this webinar, as well as all previous CESA webcasts, archived on the CESA website at

www.cesa.org/webinars

State & Federal Energy Storage Technology Advancement Partnership (ESTAP)

Todd Olinsky-Paul

Project Director

Clean Energy States Alliance (CESA)



Thank You:

Dr. Imre Gyuk

U.S. Department of Energy,
Office of Electricity Delivery and
Energy Reliability

Dan Borneo

Sandia National Laboratories



ESTAP is a project of CESA

Clean Energy States Alliance (CESA) is a non-profit organization providing a forum for states to work together to implement effective clean energy policies & programs:

State & Federal Energy Storage Technology Advancement Partnership (ESTAP) is conducted under contract with Sandia National Laboratories, with funding from US DOE.

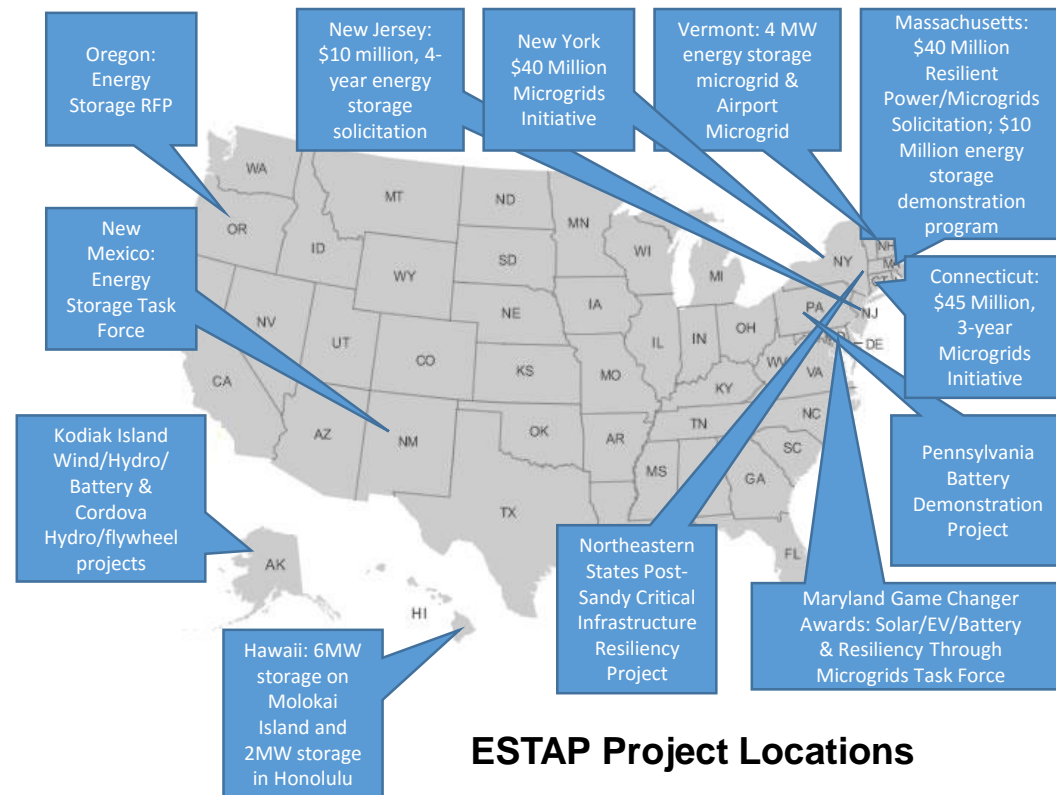
ESTAP Key Activities:

1. Disseminate information to stakeholders

- ESTAP listserv >3,000 members
- Webinars, conferences, information updates, surveys.

2. Facilitate public/private partnerships to support joint federal/state energy storage demonstration project deployment

3. Support state energy storage efforts with technical, policy and program assistance



ESTAP Project Locations



Energy Storage Technology Advancement Partnership

[More CESA Projects](#)

Overview

[ESTAP Resource Library](#)[ESTAP Webinars](#)[ESTAP News](#)[ESTAP Listserv Signup](#)

ESTAP

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The Energy Storage Technology Advancement Partnership (ESTAP) is a federal-state funding and information sharing project, managed by CESA, that aims to accelerate the deployment of electrical energy storage technologies in the U.S.

The project's objective is to accelerate the pace of deployment of energy storage technologies in the United States through the creation of technical assistance and co-funding partnerships between states and the U.S. Department of Energy.

ESTAP conducts two key activities:

1) Disseminate information to stakeholders through:

- The ESTAP listserv (>2,000 members)
- Webinars, conferences, information updates



NEW RESOURCES

October 14, 2015
[Resilience for Free: How Solar+Storage Could Protect Multifamily Affordable Housing from Power Outages at Little or No Net Cost](#)
By Clean Energy Group

September 30, 2015
[Webinar Slides: Energy Storage Market Updates, 9.30.15](#)

UPCOMING EVENTS

December 16, 2015
[ESTAP Webinar: State of the U.S. Energy Storage Industry,](#)

[More Events](#)

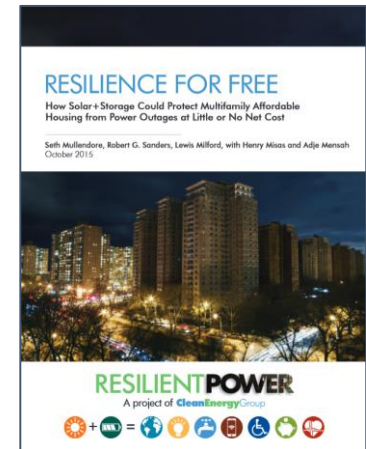
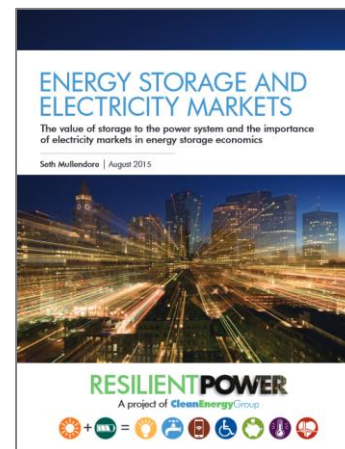
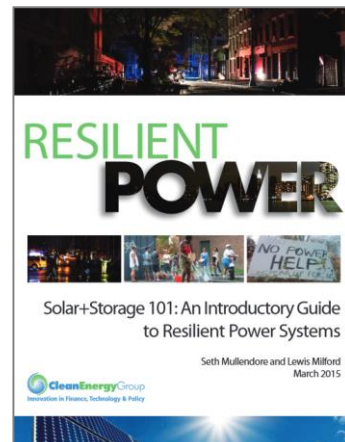
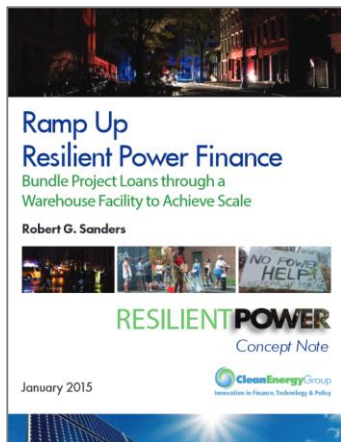
LATEST NEWS

November 30, 2015
[Massachusetts Takes the Lead on Resilient](#)

RESILIENT POWER

A project of **CleanEnergyGroup**

- Increase public/private investment in clean, resilient power systems
- Engage city officials to develop resilient power policies/programs
- Protect low-income and vulnerable communities
- Focus on affordable housing and critical public facilities
- Advocate for state and federal supportive policies and programs
- Technical assistance for pre-development costs to help agencies/project developers get deals done
- See www.resilient-power.org for reports, newsletters, webinar recordings



Resilient Power Project

You are here: [Home](#) / [Projects](#) / [Resilient Power Project](#)



RESILIENT POWER PROJECT

To reduce impacts and dangers of power outages in communities now and in the future, the Resilient Power Project works to provide technology and policy solutions to address three challenges: Community Resiliency, Climate Adaptation, and Climate Mitigation.

[Overview](#) | [Publications](#) | [Webinars](#) | [Blog](#) | [Newsletters](#) | [FAQs](#) | [Project Map](#) | [Featured Installations](#)



Sign Up for the Resilient Power
Project Mailing List

CONTACT

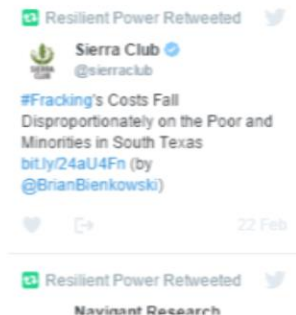
Seth Mullendore
Project Manager
seth@cleanegroup.org

With the Resilient Power Project, Clean Energy Group and [Meridian Institute](#) are working to accelerate market development of clean energy technologies for resilient power applications that serve low-income communities and vulnerable populations during disasters and power disruptions, and to address climate adaptation and mitigation goals through expansion of reliable renewable energy deployment. To reduce impacts and dangers of power outages in communities now and in the future, the Resilient Power Project works to provide technology and policy solutions to address three challenges facing the country: Community Resiliency, Climate Adaptation, and Climate Mitigation.

Clean Energy Group's role in this process is to help inform, coordinate, and support federal, state, and local officials, policy makers and developers with the goal of deploying resilient power projects in communities across the country. In addition to providing program guidance to policy makers and limited technical assistance funding for project development, we also prepare reports and analysis on resilient power

Follow the Resilient Power Project on Twitter

Tweets by [@Resilient_Power](#)



Today's Guest Speakers

- **Dan Borneo**, Engineering Project Manager, Sandia National Laboratories
- **Nick Turchak**, Energy Engineer, Bright Power



Sandia National Laboratories Energy Storage Team

Daniel Borneo, P.E.
Sandia National Laboratories

CESA Webinar
April 20, 2016



*Exceptional
service
in the
national
interest*



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SAND Document SAND2016-1742 C

Five Sandia Thrust Areas to Meet Grid Challenges



U.S. DEPARTMENT OF
ENERGY



Sandia
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■ **Materials and Systems Development**

- Leading the **development** of next-generation technologies
- Improving current **technology** (flow batteries, flywheels, etc.)

■ **Power Electronics**

- **Developing** and testing new wide-bandgap power-electronic devices

■ ***ES Systems Demonstrations and Testing***

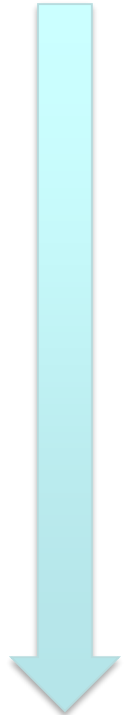
- *Laboratory testing and analysis from individual cells to 1MW systems*
- *Field deployments*
- *State-Initiated Demonstration Project Development*

■ **Grid Analytics and Policy**

- Providing **assessments** of the impact of storage placement

- **Outreach** - Leading publications and meetings to **help** educate the Grid Energy community

Nanoscopic



Macroscopic



Energy Storage System Project Technical Support

- Conduct analysis, perform modeling and provide data on applications, ES sizing and technologies that best solve the client's problem.
- Assist in developing and reviewing a client's request for Information and Proposals (RFI & RFP).
- Assist in the design, procurement specifications, and construction of ESS'.
- Assist in the design of Data Acquisition Systems (DAS).
- Assist in developing the ESS commissioning plan.
- Analyze operational test data and develop system optimization algorithms.

SNL Industry Acceptance Capabilities (Contd.)



ES Testing and Analysis

- Cell and module analysis, up to 48 VDC 2000 A within a controlled environment (chamber)
- Spectral impedance measurement
- Test ESS up to 1.0 MW 480 V 3-phase AC
- On-site (Vendor) acceptance testing support
- Safety evaluations
- Provide third party independent ES system evaluations, analysis, and reports

Industry Outreach

- <http://www.cesa.org/webinars/>

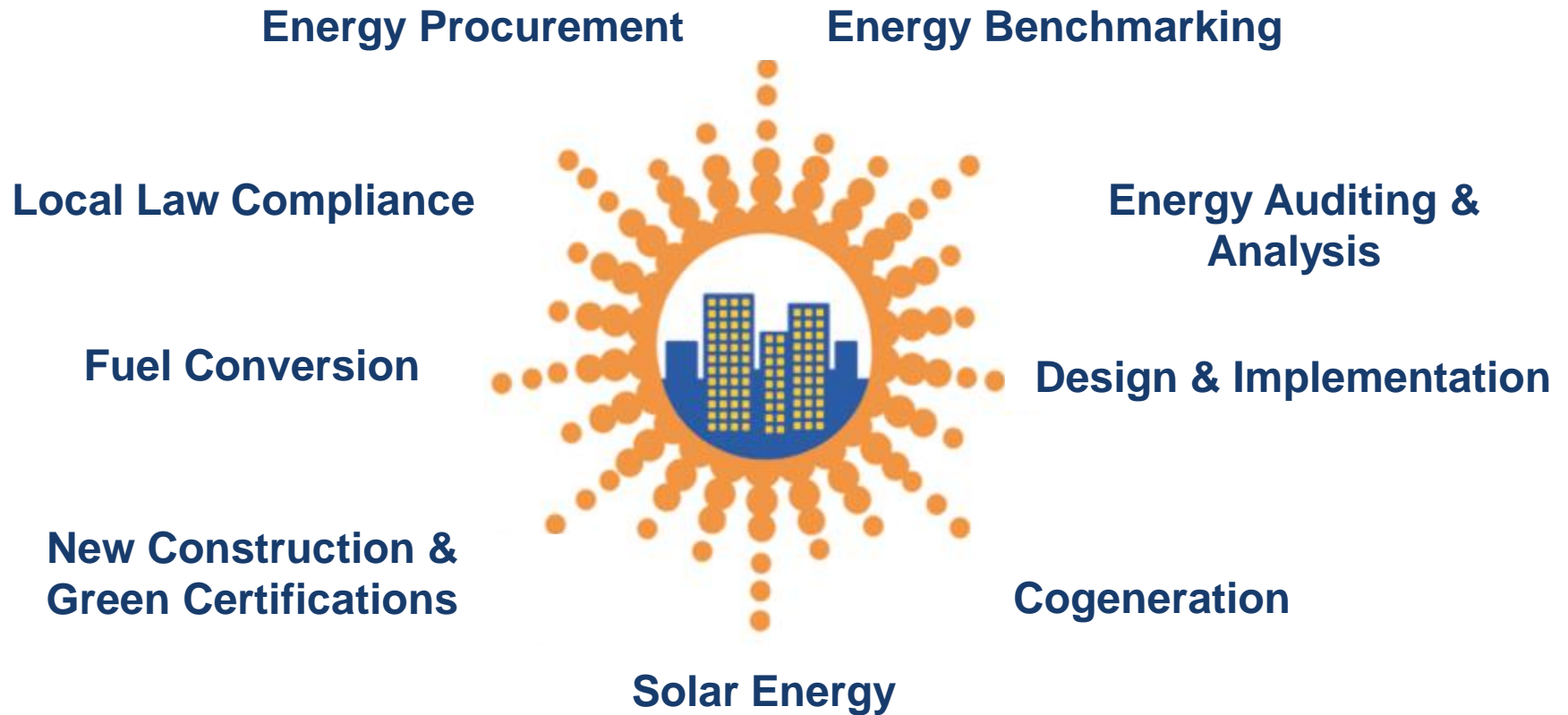
Nick Turchak

Energy Engineer, Bright Power

nturchak@brightpower.com



About Bright Power - Energy Management Partners



Via Verde – Solar + Storage Retrofit (Bronx)

- Traditional Resiliency:

150 kW Stand-By Gas Generator

- Hybrid Energy Approach:

Solar PV + Energy Storage

- Resilient Building Microgrid

- 66 kW Solar PV

- 30 kW / 200 kWh Energy Storage (Lead Acid)

- Critical Load

- Domestic Water Booster Pumps

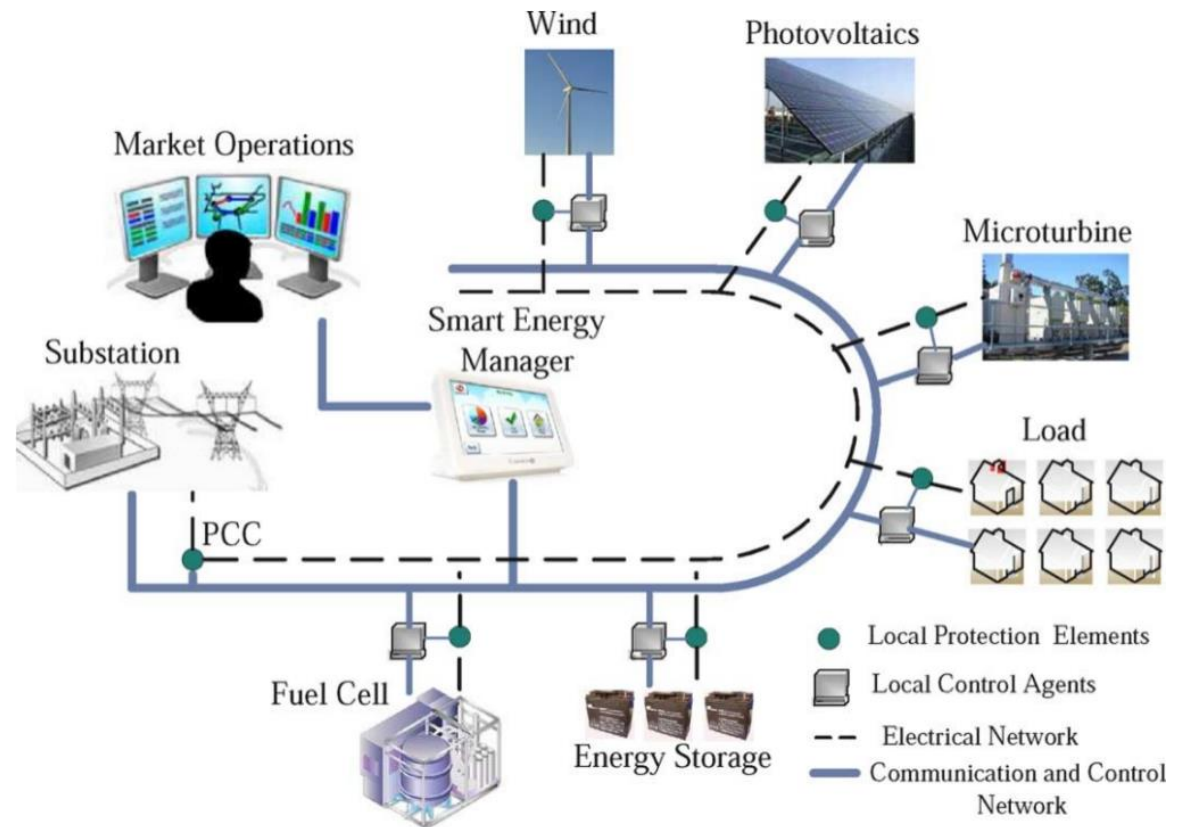


Water Booster Pumps

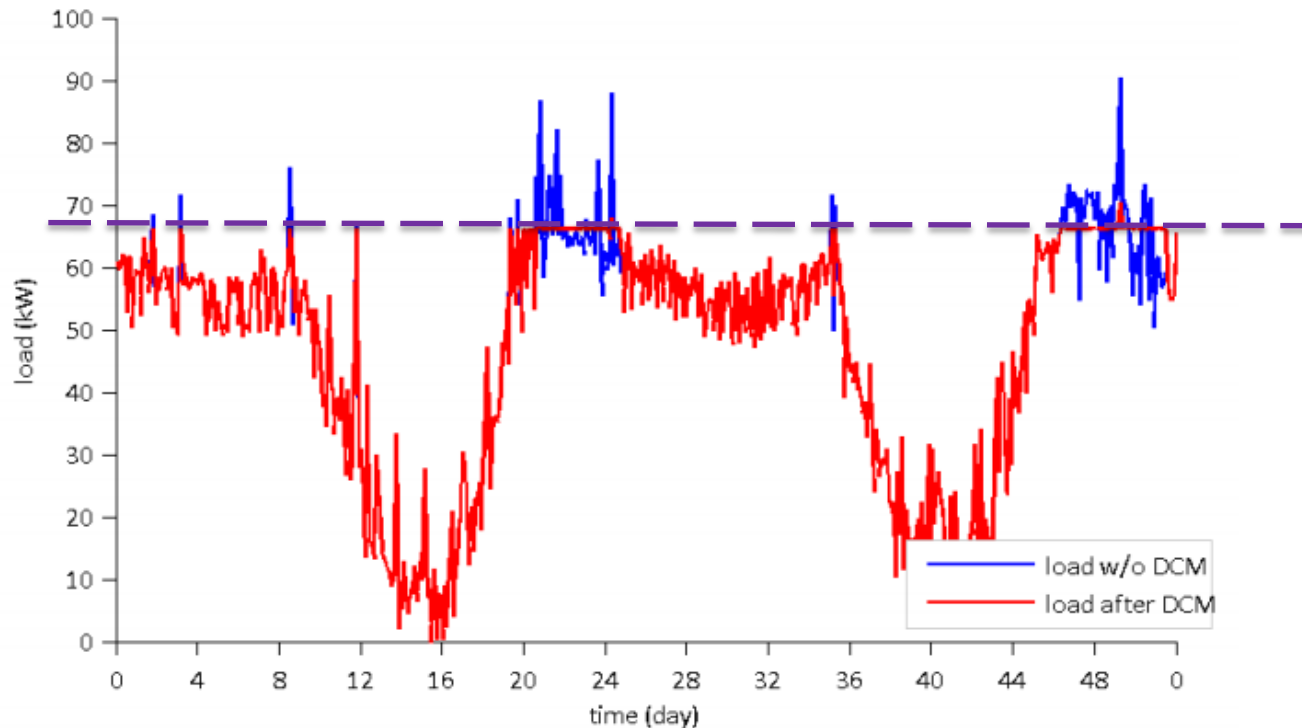
Grid Connection

Technology – Integration and Smart Controls

- Managing various modes of operation
- Grid-tied vs Island modes
- Reliability and Redundancy
- Flexibility
- Ongoing Optimization



Energy Storage – Peak Shaving



- Sizing the energy storage system requires data from smart meters
- Every building has a different load profile
- Intelligent software controls are necessary

Grid-Tied Energy Storage Solutions - Microgrid Building Block



100 kW / 400 kWh
Joule.System
Demand Energy Networks

Energy Storage Procurement Template

Section Topic	Section Sub-Topic	Information the Initiator should provide or ask for in RFP	Questions the Bidder should answer in proposal
Who		<p>Provide: Details about who is initiating project. Background of initiating organization and project.</p> <p>Ask: Who is applicant, including subcontractors/partners</p>	Company and partners, contact information, details of experience of key participants, roles and responsibilities of all partners, resumes of principle project team.
What	Project description	<p>Provide: Project description. Describe the problem that needs to be solved; include power and energy minimums throughout project (if known).</p> <p>Ask: How will applicant solve the problem? What are the specifications of proposed system? How will proposed system meet the requirements of the project?</p>	What is the solution to the problem? What are the specifications of the system? Operating conditions – cycle life. How will the system meet the specifications and requirements set forth by the owner?
	Scope of work	<p>Provide: Detailed Statement/Scope of Work (SOW). Scope should delineate who will do what and when. Include timelines, milestones, roles, what applicant will be responsible for and what applicant will NOT be responsible for.</p> <p>Ask: How will applicant satisfy the SOW?</p>	How does applicant propose to implement scope of work and meet project requirements?
	Operational Specifications	<p>Provide: Operational specifications – Load data, predetermined or required ramp rates, charge and discharge profiles and cycles, applications to be served and modes of operation. Control and monitoring requirements.</p> <p>Ask: How will applicant’s proposed system meet these operational requirements?</p>	How does applicant propose to meet all operational specifications? Are there any ways in which applicant’s proposed system would not meet or would exceed operational specifications?

Section Topic	Section Sub-Topic	Information the Initiator should provide or ask for in RFP	Questions the Bidder should answer in proposal
	System Specifications	<p>Provide: System requirements – System size in both power (KW) and energy (KWh), round trip efficiency, Type of energy storage technology, if need to be specified (not recommended), cycle life and project life required based on operational specifications. Operating temperatures required, disposal requirements.</p> <p>Ask: How will applicant’s system meet all required system specifications? If applicant’s proposed system meets operational specifications but diverges from system specifications, what are the relative costs and benefits of applicant’s proposed system? Can bidder provide testing data?</p>	<p>How does applicant propose to meet all required system specifications? Can applicant’s system meet all operational specifications if diverging from system specifications? If so, what are the relative costs and benefits of applicant’s system, compared with the prescribed system specifications? Provide detailed specification of all equipment. Include any system testing and performance data and how it was acquired.</p> <p>NOTE: It is recommended that system specifications not be defined in an RFP or other solicitation unless absolutely necessary. Applicants should be free to propose any system that meets the operational and other project requirements, to provide for competition and allow innovative solutions to come to the fore.</p>
	Design Requirements	<p>Provide: Design requirements and system/equipment parameters not covered in operational and/or system specifications. If possible, provide design package including standards and specifications for procurement and installation as required.</p> <p>Ask: How does applicant propose to meet all design requirements?</p>	<p>How does applicant propose to meet all design requirements? Provide shop drawings and/or schematic drawings, as necessary.</p>
Where		<p>Provide: The location of the work and factors such as emissions or other regulations that may be imposed upon the bidder.</p>	<p>How to install project at the specified location, especially if there are any constraints?</p>
When		<p>Provide: The project timeline and completion deadline. Include RFP process, RFP review, interview, bidder selection, project timeframe including any post-commissioning period of data collection and monitoring.</p>	<p>Provide detailed schedule starting at award date. Include design, permitting, procurement (long lead items), construction, commissioning (DV, OAT, startup, FAT, shakedown), closeout, warranty period</p>

Section Topic	Section Sub-Topic	Information the Initiator should provide or ask for in RFP	Questions the Bidder should answer in proposal
Why		<p>Provide: Describe the overall goal of the project. Detail if the project fits within a larger state or municipal context; for example, state if the goal is emissions reduction, renewables integration, or resiliency.</p> <p>Ask: How will applicant's proposed project solve the problem or help to reach the goal(s) of the project? How will it fit within the larger context?</p>	<p>How does your project provide the best solution? What are the most compelling features of the system? How does the project solve the problem, meet the goal, or fit within the larger context?</p>
How		<p>Provide: Define project deliverables and expectations. Address how the bidder be selected, i.e., selection criteria including grading system. Detail the contracting strategy and timeframe. Include expectations for project team's experience, testing and commissioning, training, operational support and warranty. Warranty should include needed maintenance service, spare parts for project lifetime.</p>	<p>How will you conduct project construction strategy, procurement strategy, detailed schedule, org chart including partners with detailed roles and responsibilities. Provide maintenance, spare parts and warranty information.</p>
How Much		<p>Provide: Include details about any budget requirements, cost share. Include WBS breakdown worksheet for bid evaluation and comparison.</p> <p>Ask: What are the total costs for the proposed system or services, including cost breakdown for components, subcontracting, etc? What matching/outside funds are included? Is any part of the project to be financed? If so, does the bidder have a commitment from a financier or bank?</p>	<p>Cost of total project using provided WBS; include any replacement needed to meet project deliverable. In addition, provide levelized cost of energy (LCOE) for life of project. List any and all exclusion, assumptions, risk of cost overruns. List any matching funds, outside funds, or other resources included in the bid. If financing is included, show evidence that the project is financeable.</p>
Boiler Plate		<p>Provide: All the terms and conditions that are required to be met. Certifications required. Bond requirements. Warranty requirements. ES systems installed and business bankability requirements, independent testing requirements for ES system.</p> <p>Ask: How will applicant meet these requirements?</p>	<p>Provide detail as to how company will meet boilerplate requirements.</p>

Q&A

Host: Todd Olinsky-Paul, Project Director,
Clean Energy States Alliance

- **Dan Borneo**, Engineering Project Manager,
Sandia National Laboratories
- **Nick Turchak**, Energy Engineer, Bright
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Upcoming ESTAP Webinar

- **Energy Storage Market Updates and Focus on Modeling for System Design**, Thursday, April 21, 12-1pm ET

More information at www.cesa.org/webinars

