
(This is a Request for Information only - Complete Pages 1 and 2 for each initiative)

Title of Proposed Initiative: Commercialization of a Dual Purpose inverter for Solar PV and Energy Storage

Investment Areas (Check one or more) – *For definitions, see First Triennial Investment Plan, page 12:*

- Applied Research and Development
- Technology Demonstration and Deployment
- Market Facilitation

Electricity System Value Chain (Check only one): *See CPUC Decision 12-05-037, Ordering Paragraph*

12.a. http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/167664.PDF.

- Grid operations/market design
- Generation
- Transmission
- Distribution
- Demand-side management



Issues and Barriers:

Describe the issues and barriers that are impeding full market adoption of the proposed clean energy technology or strategy (such as cost, integration, or lack of information).

Currently when we combine a solar system with battery storage we need to install 2 different inverters for each system. This impacts the cost, efficiency, reliability, and interconnection process of both systems. Currently they are only small residential UL listed inverters that perform this function.

Initiative Description and Purpose:

How will this technology or strategy help address the issue/issues? Describe knowledge to be advanced to overcome critical barriers. Include the recommended funding level (minimum and maximum) for each project under this initiative.

Currently there is a gap for the type of technology in the commercial sector. By utilizing a single inverter from both solar and energy storage systems we get better software controls, 20 to 30 cents a watt lower costs points, and increased system efficiencies of 2-6%. In addition to savings space and the ability to directly mitigate ramp rates we will reduce the resistance from utilities by in the interconnection process. We are looking for a 35% match from the EPIC program to complete this project.

Stakeholders:

Identify the stakeholders who support the initiative.

Today we are getting support from solar developers, integrators and distributors, utilities and energy storage providers. The overall cost declines will make solar and storage more attractive to non-residential customers.

Background and the State-of-the-Art:

What research development and demonstration has been done or is currently being done to advance this technology or strategy (cite past research as applicable)?

We have been working on prototypes with our inverter partners and are looking for addition matching funds to install 10 pilot systems in California.

Describe any public and/or private successes and failures the technology or strategy has encountered in its path through the energy innovation pipeline: lab-scale testing, pilot-scale testing, pre-commercial demonstration, commercial scale deployment, market research, workforce development.

We are utilizing a standard inverter architecture that is being commercially deployed separately for both solar and energy storage. Our goal is to combine these systems into a single unit at a lower cost.

Identify other related programs and initiatives that deal with the proposed technology or strategy, such as state and federal programs or funding initiatives (DOE, ARPA-E, etc.).

We have not seen funding for developing this type integrated solution.

Justification:

Describe how this technology or strategy will provide California IOU electric ratepayer benefits and provide any estimates of quantified annual savings/benefits in California, including:

Name of sector and estimated size and energy use. This solution could be made available to any non-residential utility customer at a lower cost and better efficiency than what is available today. This will increase the adoption of both solar and energy storage.

Quantifiable performance improvements for the proposed technology/strategy. 20-40 cents per watt cost reductions and 2-6% improved system efficiency.

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Questionnaire**

Maximum market potential, if successful.

The market potential is very large in California with the 1,000's of MW being installed over the next decade.

Number of direct jobs created in California. This number is difficult to determine for the entire solar and energy storage industry in CA. We would expect this to be in the thousands of new jobs created.

Why this research is appropriate for public funding.

The research and deployment will help increase the adoption and integration of energy storage and solar at a reduced cost and increased efficiency. This will benefit all Californians with less expensive and more reliability energy.

Ratepayer Benefits (Check one or more):

- Promote greater reliability
- Potential energy and cost savings
- Increased safety
- Societal benefits
- Environmental benefits – specify (lower CO₂, less transmission, etc)
- GHG emissions mitigation/adaptation in the electricity sector at the lowest possible cost
- Low emission vehicles/transportation
- Waste reduction
- Economic development

Describe specific benefits (qualitative and quantitative) of the proposed initiative

We are faced with many challenges in reducing costs and increasing efficiencies with both solar and energy storage. In addition it will simplify the installation, interconnection and software controls for both systems. By creating this dual purpose inverter we will be able to achieve both and increase the number of systems installed and jobs created for the California solar and energy storage markets.

Public Utilities Code Sections 740.1 and 8360:

Please describe how this technology or strategy addresses the principles articulated in California

Public Utilities Code Sections 740.1 and 8360. The California