C S I R D & D P r o g r a m

Innovative Business Models

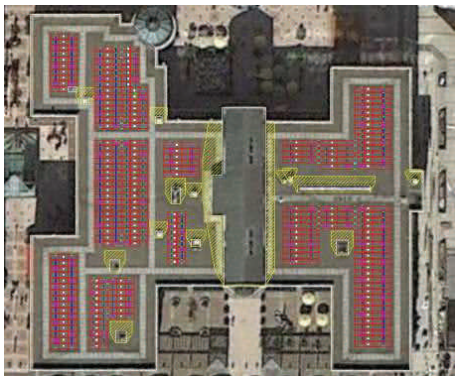
The Innovative Business Model focus area includes projects that provide support to build the market for solar energy. Successful deployment of new business models is required to meet the goals and objectives of the CSI Program. Testing and demonstration of innovative business models will help support expansion of cost-competitive solar technologies by reducing costs or increasing value of the solar system to owners or utilities. The program supports activities that enhance the competitiveness of new technologies, or to help reach a 'tipping point' to widespread commercialization. This can include projects that involve testing of technologies or measures that enable streamlining of regulatory processes or standards in ways that allow new products to come to market more quickly and at lower costs.

Reducing California PV Balance of System Costs by Automating Array Design, Engineering and Component Delivery

SunLink

Partners: Rutherford and Chekene, Pacific Earthquake Engineering Research Center (UC Berkeley)

This project focused on decreasing the time spent on engineering system layout to final package including appropriate documentation for permitting purposes. The project developed an automated string layout tool (an AutoCAD plugin) for the solar industry to efficiently and cost effectively engineer smaller PV systems; this enables a wider range of contractors who can potentially deliver fully-engineered PV system installations. Additionally, SunLink demonstrated time efficiency in using an automated documentation management system from project approval through system installation and also developed an online solar permitting documentation database for over 1000 jurisdictions in the state which allows for efficient look up of information. The team conducted seismic and wind testing for ballasted systems which may result in structural code changes for roof mounted PV systems, allowing more cost and time efficient designs. This project was completed in December 2012.

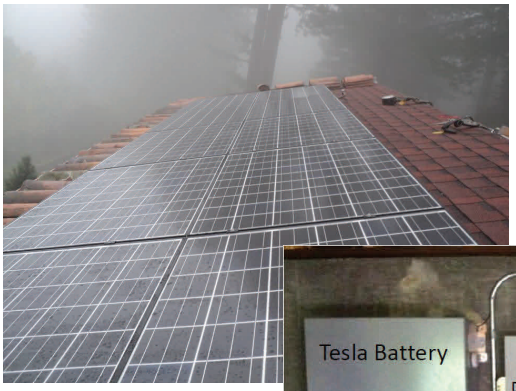


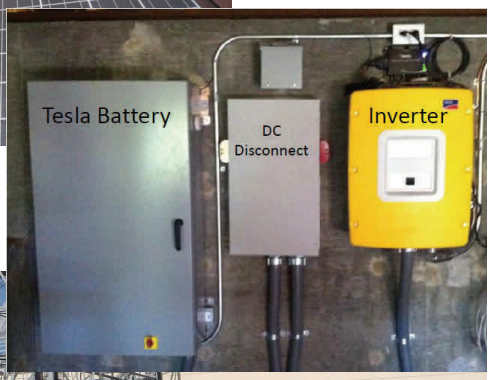
Advanced Grid-Interactive Distributed PV and Storage

SolarCity

Partners: Tesla Motors, UC Berkeley, PG&E

The ability to firm intermittent renewable resources can result in peak demand reductions and system-wide grid network benefits. This project builds upon an operational FirmPV installation in San Francisco, which is a combination of Tesla Motors vehicle battery system with SolarCity's SolarGuard dispatch and monitoring platform. The team is conducting demonstrations at 9 sites to assess system performance along with assessing the economic, reliability and carbon reduction impacts of large-scale deployment of a FirmPV product. The team is conducting analysis to determine an optimal tariff product or rate plan that will provide the benefits of FirmPV at the lowest overall cost, along with exploring a range of financing mechanisms that will best enable FirmPV deployment.





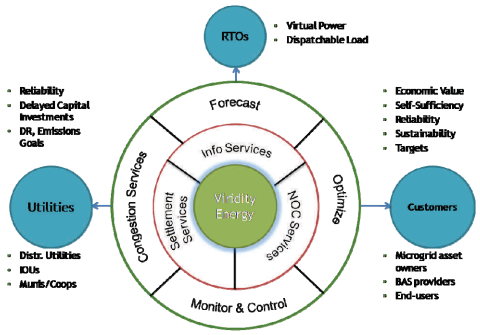
Innovative Business Models

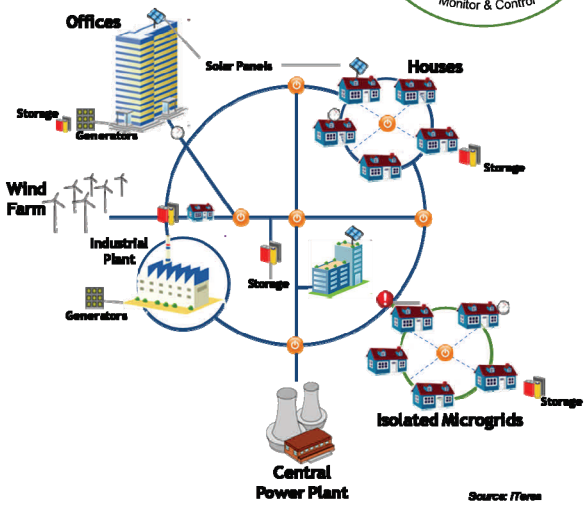
Innovative Business Models, Rates and Incentives that Promote Integration of High Penetration PV with Real-Time Management of Customer Sited Distributed Energy Resources

Viridity Energy

Partner: UC San Diego, E3, SDG&E

Viridity Energy demonstrated its VPower software at the University of California, San Diego (UCSD) campus. The software consolidates diverse microgrid assets to allow for comprehensive decision making. VPower allows a microgrid operator to balance supply and demand to maximize costs and benefits in real time. New business models were identified for integrating up to 1,000 MW of high penetration PV with distributed energy resources (DER) at UCSD. Additionally, new tariffs and incentives scenarios were developed and vetted with SDG&E and the California Independent System Operator (CAISO) and tested on the UCSD Microgrid. Lastly, the team performed an integrated cost-benefit analysis of the business models and management strategies and recommended rates and incentives that balance the costs and benefits from the utility, customer and ratepayer perspectives. This research provided valuable information to support both utility operations and the CAISO. The project completed in February 2013.



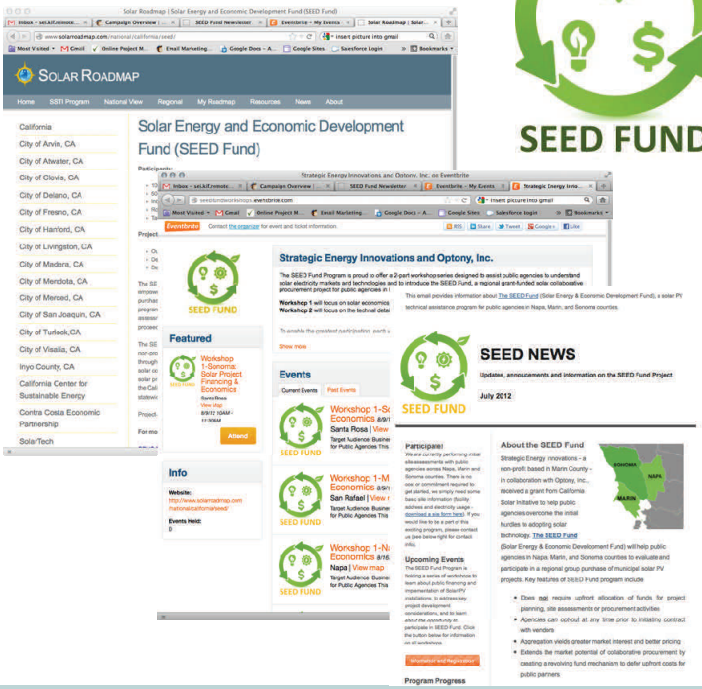


Solar Energy & Economic Development Fund (SEED Fund)

Strategic Energy Innovations, Inc.

Partner: Optony, Inc.

Strategic Energy Innovations and Optony are using the SEED Fund Project to demonstrate an innovative solar procurement business model that utilizes a public-private revolving fund mechanism to support public entities (municipalities and schools) in adopting solar technologies. Public entities are motivated to adopt PV; however the upfront costs and lack of technical capabilities serve as barriers to adoption. The SEED Project will demonstrate that a 1-2% upfront investment in collaboration results in a 10-12% project cost savings, lower project risks with higher returns, reduced transaction costs and reduced administrative efforts. In addition to the revolving fund mechanism, the SEED team will provide expert technical support. The initial project procurement activities will involve 15 public partners with up to 100 potential sites resulting in a minimum of 5 MW of solar contracts. The revolving fund will be replenished through a modest fee on projects moving forward with the idea that the fund will then be available for additional rounds of collaborative procurement. Project website: solarroadmap.com/seed



LEARN MORE:

One stop for all solar in California: GoSolarCalifornia.ca.gov

CSI RD&D website: calsolarresearch.ca.gov

PROGRAM CONTACT:

Ann Peterson (Ann.Peterson@itron.com)

Itron CSI RD&D Program Manager