

The Regional Test Center Program:

*Supporting the U.S. PV Industry with Outdoor Technology Validation
in Multiple Climates*

Webinar for SunShot Incubator Awardees
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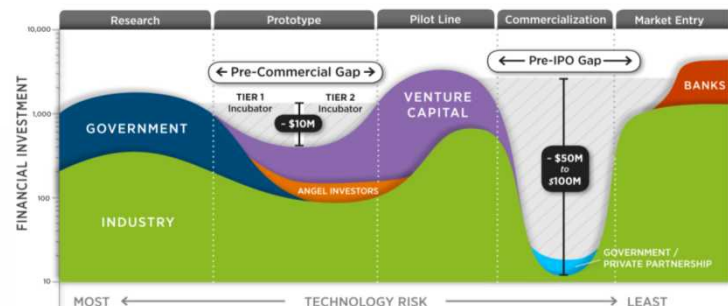
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Background

The RTCs meet an identified need...

DOE Workshop: *PV Validation and Bankability* (August 2011)

- Bankability a big concern for US PV industry
- System approach needed to validate new technologies in multiple climates.
- Focus should be on accelerating commercialization, not on R&D or early-stage technologies.
- Sandia and NREL should take a leadership role.

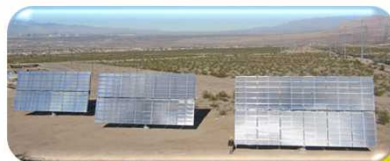


PV technology must be predictable to be “bankable” so that investors understand how the systems will function in a variety of environments and climates.

Five Regional Test Centers

- Outdoor technology validation for 3 years
- Test robustness in multiple climates, validating performance and initial reliability against predictive models
- Identical, state-of-the-art meteorological stations and baseline c-Si systems at each site
- High-fidelity, calibrated monitoring systems
- Can accommodate diverse technologies and systems ranging from <10kW to >1000kW.
- Sandia manages NM, FL, VT and NV; NREL manages CO

DENVER, CO



LAS VEGAS, NV



ALBUQUERQUE, NM



WILLISTON, VT



ORLANDO, FL



Rigorous Approach to Validation

- ◆ **Customized Validation Plan**
- ◆ **High-Fidelity Data Collection**

- **Meteorological Data**

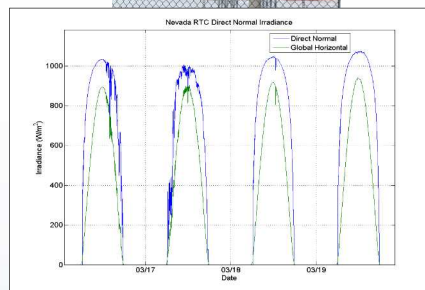
- Irradiance: DNI, GHI, DHI, POA, spectroradiometer
- Wind speed and direction
- Ambient temperature and relative humidity; precipitation

- **Module Characterization**

- Voc, Isc, FF, Pmax, Vmax, efficiency
- Imaging: IR, EL, optical

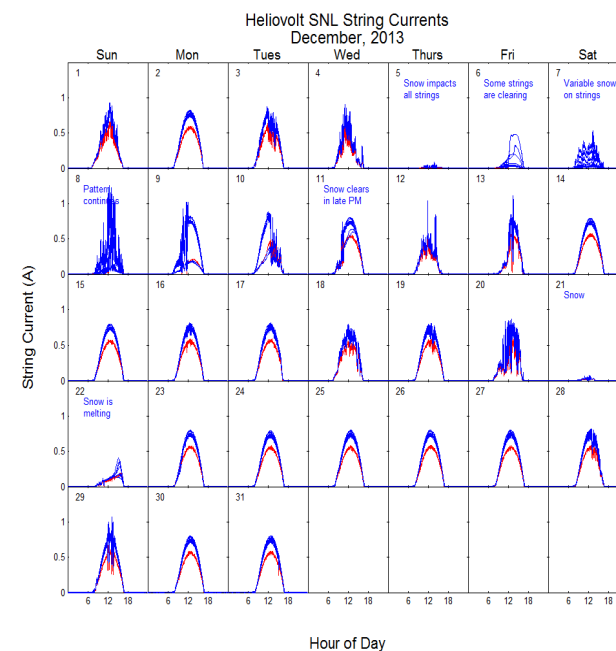
- **System Data**

- DC electrical (current and voltage)
- AC electrical (current, voltage, power, power factor, frequency)
- Module temperatures
- Additional data (tracking accuracy, inverter codes, heat-sink temperature...)



- ◆ **Detailed Performance Analysis**

- Matlab scripts automate performance analyses
- Monthly analysis
- Quarterly or semiannual reports to partners.



The RTCs Deliver Value

- Collect data to demonstrate that a technology performs as predicted over time and in multiple climates
- Bring national-laboratory expertise in PV testing and analysis, systems modeling and reliability to validation approach
- Work with industry partners to identify opportunities to improve specific technologies/approaches
- Develop new evaluation methodologies for emerging technologies
- Are building a foundation of field-based knowledge (including cross-climate performance data) to support bankability standards
- Support other DOE SunShot Initiatives

Opportunity to Partner



How to Apply:

4-5 page proposal (technical objectives, proposed system/study design, cost-sharing prospectus, background on company and key staff).

Submit to Josh Stein (jsstein@sandia.gov) or Laurie Burnham (lburnha@sandia.gov); inquiries welcome.

Selection Criteria:

Proposals are reviewed by the Sandia/NREL RTC team. Evaluated according to:

- Demonstrated need; i.e., anticipated technical or economic benefits.
- Market potential: innovative but technically feasible technology.
- Cost-sharing: willingness to provide financial and in-kind support.
- Willingness to collaborate on a validation plan and approach that meets both RTC and partner goals.

For more information:

rtc.sandia.gov



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Regional Test Centers

Differentiating PV Quality

rtc.sandia.gov

Questions?

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