Regional Test Centers
Differentiating PV Quality
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U.S. Department of Energy

Regional Test Centers for Photovoltaic Technologies

The U.S. Department of Energy (DOE) has established five Regional Test Centers (RTCs) across the United States to independently validate the performance and reliability of photovoltaic (PV) systems in different climates and settings.

These Centers, which are managed by Sandia National Laboratories and the National Renewable Energy Laboratory, support DOE's national effort to make electricity from solar energy cost-competitive with electricity from fossil fuels by 2020. This dramatic drop in costs will make America's abundant solar energy resources more affordable for its citizens, help grow the nation's solar industry and accelerate innovation in the nation's energy sector.

Driving PV Deployment

New PV technologies frequently lack the rigorous performance data needed to draw investment dollars and to cross the so-called pre-IPO-gap (see figure below) to reach full commercialization. The DOE Regional Test Centers are helping minimize this barrier by developing standardized processes to support the bankability (that is, the long-term profit-making potential) of prototype PV technologies.

A Rigorous Technical Approach

The five DOE Regional Test Centers conduct extensive field-testing to:

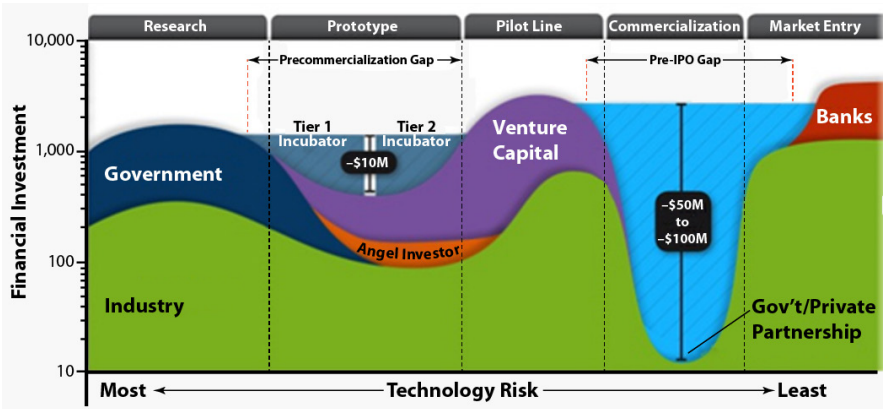
- Assess and validate the performance and reliability of new PV technologies and increase the confidence of manufacturers, integrators and the financial community in the bankability of those technologies.
- Better understand validation standards.
- Support the goals of the DOE SunShot Initiative by helping accelerate innovation in the solar sector.

More specifically, the Test Centers develop predictive performance models, collect detailed operations and maintenance data, and quantify performance in four areas:

- Design Evaluation and Baseline Testing
- Performance and System Monitoring
- Analysis and Modeling
- Reliability and Safety Key

Opportunity for Industry

The Regional Test Centers provide the land and electrical infrastructure to support and test PV systems as large as 300kW; and also the technical expertise to measure and analyze the performance of those systems. This technical assistance, which is



Without rigorous performance data, many new technologies cannot attract the investment dollars needed to cross the pre-IPO gap, also called the *Technological Valley of Death*, and reach full commercialization.

made available by DOE through a competitive selection process, requires that industry partners provide products for performance testing and data analysis and allow the results to inform bankability standards. Technologies eligible for testing may include PV and concentrating photovoltaic (CPV) systems, as well as inverters and other hardware.

Regional Test Centers for Photovoltaic Technologies:

Each of the following test center sites was chosen for its unique climatic profile, the expertise of its host institution, as well as investments already made at each site in PV testing, research, performance modeling and grid integration. Each site also represents an ongoing collaboration involving two or more institutions. Altogether, two DOE national laboratories, three academic research institutions, one public utility and a major corporation are working together to ensure the success of the RTCs.

Albuquerque, New Mexico

Sandia National Laboratories

Located at the National Solar Thermal Test Facility on Kirtland Airforce Base in Albuquerque and managed by Sandia National Laboratories, this site represents a hot, arid climate.

In Operation: Spring 2013

Orlando, Florida

FSEC

Managed by the Florida Solar Energy Center and located at the University of Central Florida, this RTC will test PV performance in a hot humid environment.

In Operation: Spring 2013

Denver, Colorado

NREL NATIONAL RENEWABLE ENERGY LABORATORY

Managed by the National Renewable Energy Laboratory (NREL), this RTC is located at the SolarTAC facility, which has a steppe (i.e., arid, high altitude) climate.

In Operation: Spring 2013

Williston, Vermont

IBM

Under the technical management of Sandia, this site is located on IBM property and will provide important data on PV performance under harsh, winter conditions.

To be Operational: Fall 2013

River Mountains, Nevada

Southern Nevada Water Authority

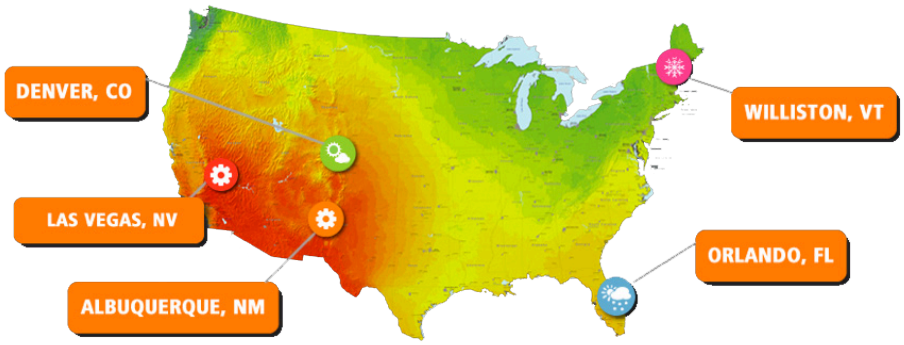
UNLV

Sandia is working with the Southern Nevada Water Authority and the Center for Energy Research at the University of Nevada, Las Vegas, to develop a site co-located with the River Mountains Water Treatment Facility. This site will provide performance data under subtropical, desert conditions.

To be Operational: Fall 2013

Validation is a process to better quantify the uncertainties within a PV system to appropriately calculate the value of risk.

The U.S. Department of Energy (DOE) SunShot Initiative is a collaborative national effort that aggressively drives innovation to make solar energy fully cost-competitive with traditional energy sources before the end of the decade. Through SunShot, DOE supports efforts by private companies, universities, and national laboratories to drive down the cost of solar electricity to $0.06 per kilowatt-hour. Learn more at http://www.energy.gov/sunshot.



Regional test centers across the U.S. will conduct rigorous performance testing of new PV technologies under different climatic conditions and at different latitudes.

For more information, please contact:

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