MARKET TRANSFORMATION: 2009 Solar Program Peer Review

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Key Barriers to Solar Commercialization

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- Lack of consumer awareness
- Inconsistent financial incentives
- Inexperience with proven financial approaches
- Complex permitting procedures
- Inadequate codes & standards
- Inconsistent interconnection rules
- Ineffective net-metering policies
- Inappropriate utility rate structures
- Limited solar experience in key building trades
- Shortage of trained technical personnel and installers

Market barriers increase the price of solar systems and the time before use.
Market transformation activities aim to reduce prices and time, resulting in widespread deployment.

DOE's Approach to Solar Market Transformation

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GOAL Reduce market barriers to, and promote market expansion of, solar energy technologies through non-R&D activities.

Sample Activities

- Solar America Board for Codes and Standards
- State Technical Outreach
- Utility Technical Outreach
- Solar America Showcases
- Solar America Cities

Solar America Board for Codes and Standards (Solar ABCs)

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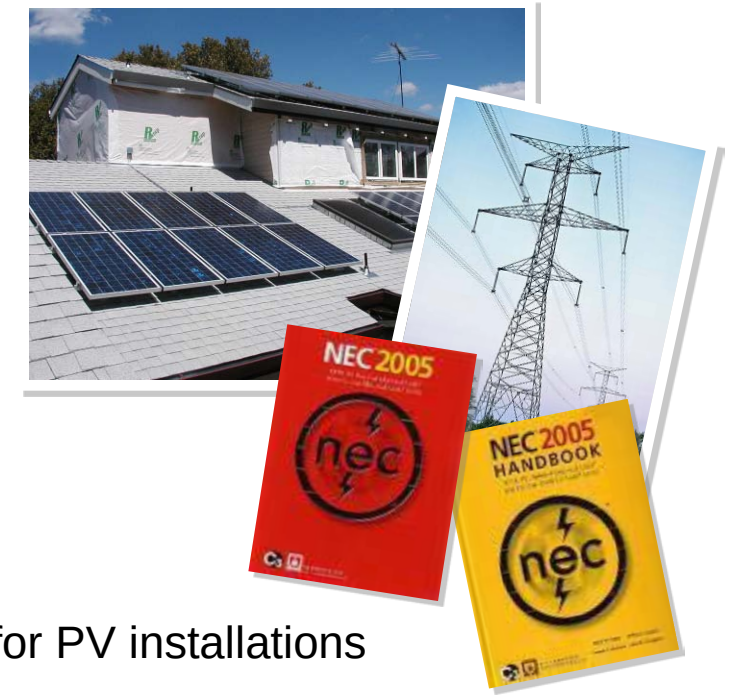
Performer: New Mexico State University (collaborative)

Activity Objectives:

- Improve the responsiveness, effectiveness, and accessibility of codes and standards in all markets (federal, state, local, utility).
- Codes and standards are the backbone of the success of SAI. Without consistent support for codes and standards development, solar cannot be deployed on a large-scale.



Sample FY 2009 Tasks:

- Draft guidebook to CA Fire Marshall Guidelines for PV installations
- Develop a simplified PV performance rating system
- Develop procedures of accelerated life testing of PV modules
- Develop a permit application checklist for small, medium, and large systems

Solar America Board for Codes and Standards

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PowerMark Corporation
Photovoltaic Module and Component Certification Program

SHERWOOD ASSOCIATES

IREC
Interstate Renewable Energy Council

Underwriters Laboratories

NM STATE

BEW ENGINEERING

ASU Arizona State University
POLYTECHNIC CAMPUS

FLORIDA SOLAR ENERGY CENTER
A RESEARCH INSTITUTE OF THE UNIVERSITY OF CENTRAL FLORIDA

Building and Electrical Codes
Article 690 Guidance

Product Safety
Reconcile UL1703/IEC61730, UL 1741/IEC32109

National Standards Coordination
Revise IEEE 1547

Interconnection, Net Metering
Create Model Local Codes

International Standards Coordination
Monitor International Codes and Standards; Centralize U.S. participation

5-yr Award = **$4,200,000**

State Technical Outreach

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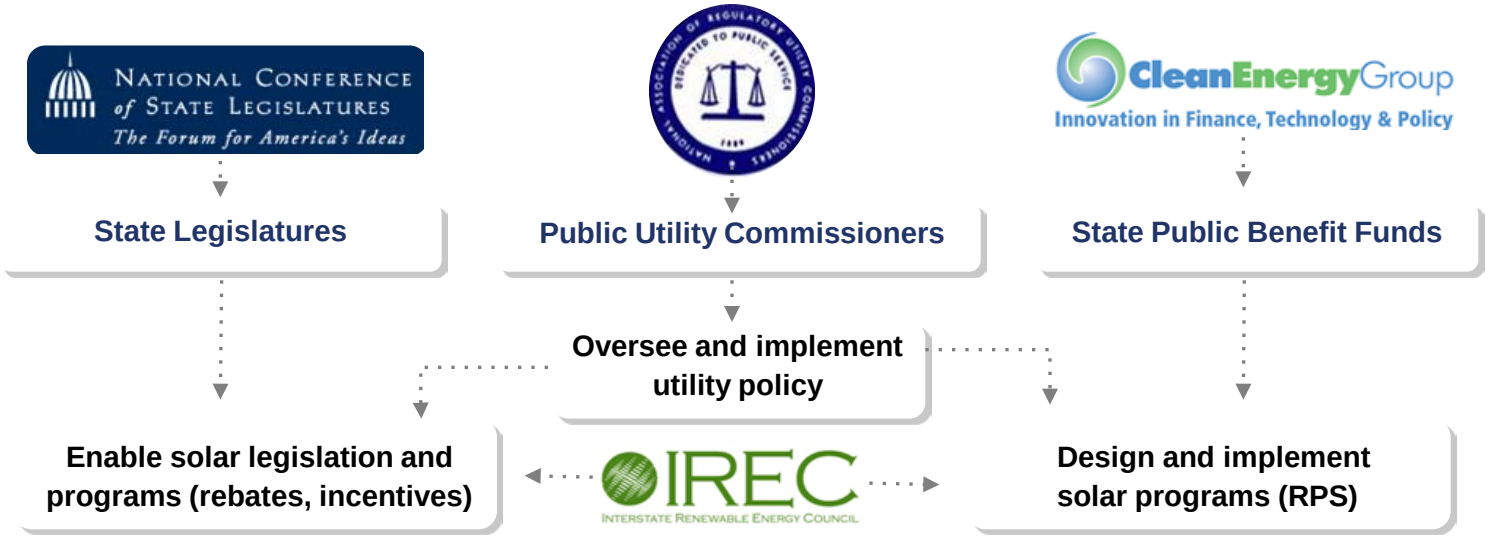
Performers: National Conference of State Legislatures (NCSL)
Clean Energy Group (CEG)
National Association of Regulatory Utility Commissioners (NARUC)
Interstate Renewable Energy Council (IREC)

Activity Objectives:

- Build relationships with State decision-makers responsible for enacting policies, programs, and plans that are key drivers for solar technology market transformation.
- Provide state policymakers with best practice and current data about solar technology, so they can make informed solar policy decisions.



3-yr and 5-yr Awards = **$7,000,000**

Utility Technical Outreach

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Performer: Solar Electric Power Association

Activity Objective:

- Deliver key technical and informational assistance to utilities to promote their acceptance and use of solar.

SEPA will assist their 175 member organizations and non-member utilities in the following ways:

Develop new business cases for solar

Provide current information on solar technologies

Disseminate innovative solar program design information to utilities

3-yr Award = **$990,000**

Solar America Showcases

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Activity Objective: Provide technical assistance to replicable, large-scale, high-visibility solar installation projects that showcase state-of-the-art solar technologies and applications.

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Washington, DC Public Schools

Forest City Military Communities, HI

Orange County Convention Center, FL

City of San Jose, CA

NE Denver Housing Center, CO

Mystic Seaport, CT

Mesa Del Sol, NM

Potential New Solar America Showcase Focus Areas

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Solar America Showcases has been a successful activity so far; going forward we may focus the effort in order to target particular Solar Program goals or needs:

System Size

- In 2009, we have increased the minimum size of the systems from 100kW to 250kW
- Larger system size requirements could result in higher-visibility projects
- Larger systems create greater “demand pull” for novel applications

Geography

- Stimulate certain areas of the Nation with burgeoning solar markets

Application

- PV systems used in new applications such as within micro-grids or zero energy homes

Technology

- Accelerate a type of PV (thin-film, concentrators), CSP or SWH.

Solar America Cities

GOAL Accelerate solar adoption in the nation's electricity load centers by supporting cities' innovative efforts.

Solar America Cities contribute to DOE's goal of making PV cost-competitive with conventional grid electricity by 2015.

2 yr awards - $11.25m

Solar America Cities

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SELECTION PROCESS

Competitive awards were made to incorporated areas with populations of 100,000 or more that demonstrated **commitment** to:

- achieving a sustainable solar infrastructure
- through a comprehensive, city-wide approach
- that facilitates mainstream adoption of solar
- and serves as a model for other cities to follow.

The 25 Solar America Cities

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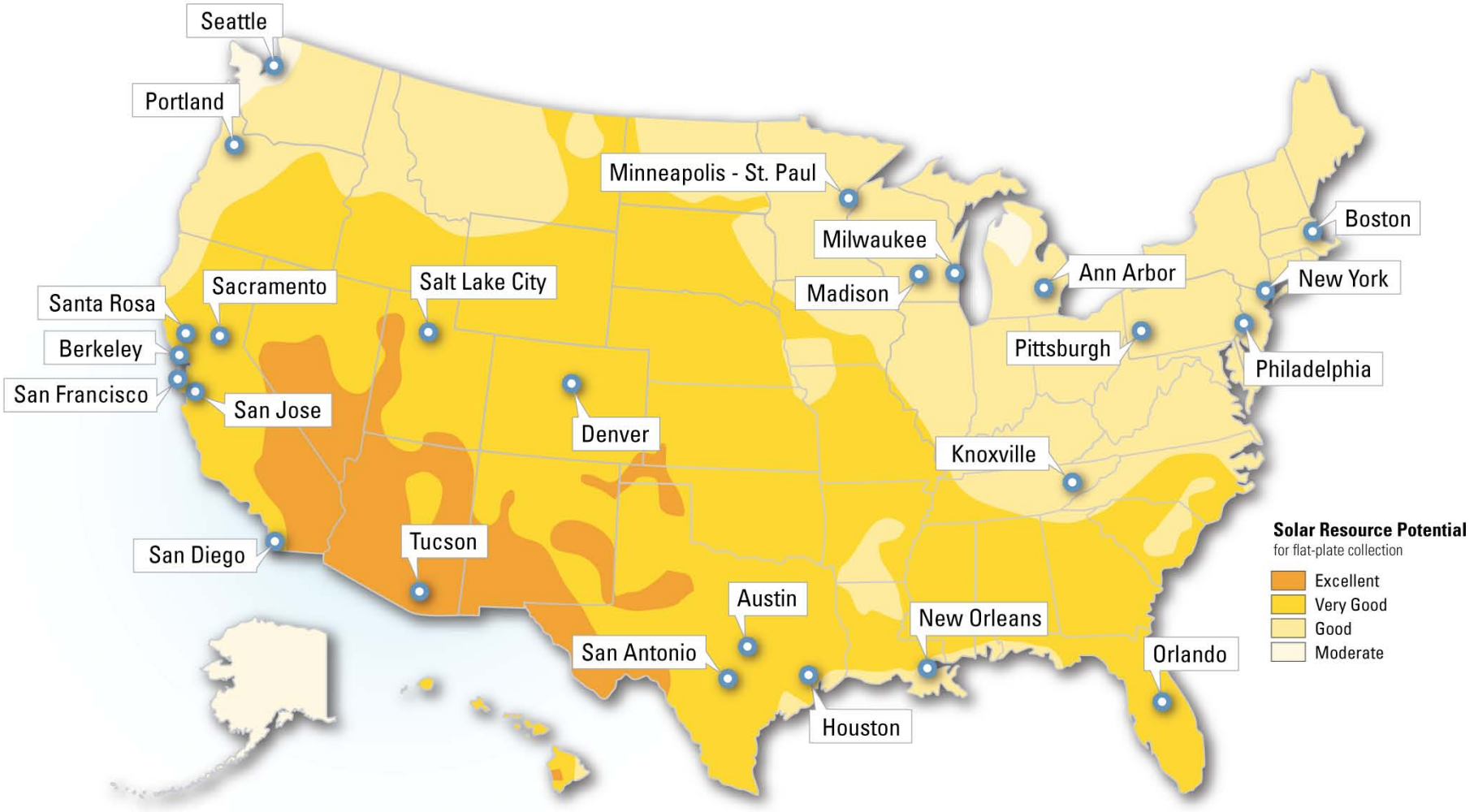

Solar America City Partnerships

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Multi-institutional "tiger teams" of solar experts provide tailored assistance based on city's needs

What Makes Solar America Cities Unique?

- Federal/city partnership
- Financial assistance and technical assistance to Cities
- Strong city network facilitates information sharing and replication potential.

Anticipated Focus Areas and Activities from SWOT Analysis and Feedback

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- Emphasize workforce development.
- Increase CSP and SWH activities in MT.
- Develop transparent, measurable metrics.
- Continue to emphasize financing solutions.
- Expand utility technical outreach.
- Develop activities to complement Solar America Cities.
- Work with industry to develop common messaging.
- Increase international efforts.

Thank You

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