

Final Scientific/Technical Report

Project Title:	Solar America Initiative State Working Group	
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Recipient:	National Association of Regulatory Utility Commissioners	
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Working Partners:	National Association of State Energy Officials	
Cost-Sharing Partners:	Colorado Public Utilities Commission (<i>Partnership- PS</i>) DC Public Service Commission (Solar States Working Group- SSWG) Energy Office, Arizona Dept. of Commerce (SSWG) Florida Public Service Commission (PS) Georgia Public Service Commission (PS) Hawaii Public Utilities Commission (SSWG) Idaho Public Utilities Commission (PS) Kentucky Public Service Commission (PS) Michigan Public Service Commission (PS) Missouri Public Service Commission (PS) Nevada Public Service Commission (SSWG) New Hampshire Public Utilities Commission (SSWG) New Jersey Board of Public Utilities (SSWG) New Mexico Public Regulatory Commission (PS) New York Public Service Commission (SSWG) North Carolina Energy Office (SSWG) Public Utilities Commission of Ohio (PS)	
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Executive Summary

Through the support from the Department of Energy, NARUC has educated thousands of stakeholders, including Public Utility Commissioners, commission staff, and State energy officials on solar energy technology, implementation, and policy. During the lifetime of this grant, NARUC staff engaged stakeholders in policy discussions, technical research, site visits, and educational meetings/webinars/materials that provided valuable education and coordination on solar energy technology and policy among the States. Primary research geared toward State decision-makers enabled stakeholders to be informed on current issues and created new solar energy leaders throughout the United States.

Publications including a Frequently Asked Questions guide on feed-in tariffs and a legal analysis of state implementation of feed-in tariffs gave NARUC members the capacity to understand

complex issues related to the economic impacts of policies supportive of solar energy, and potential paths for implementation of technology. Technical partnerships with the National Renewable Energy Laboratory (NREL) instructed NARUC members on feed-in tariff policy for four States and solar PV resource assessment in seven States, as well as economic impacts of solar energy implementation in those States. Because many of the States in these technical partnerships had negligible amounts of solar energy installed, this research gave them new capacity to understand how policies and implementation could impact their constituency. This original research produced new data now available, not only to decision-makers, but also to the public at-large including educational institutions, NGOs, consumer groups, and other citizens who have an interest in solar energy adoption in the US.

Under this grant, stakeholders engaged in several dialogs, including

- a renewable energy school and tour of solar power plants;
- an interactive game on renewable energy policy;
- technical workshops on solar energy; and
- the RPS Collaborative, in partnership with the Clean Energy States Alliance

These educational opportunities brought NARUC members and other stakeholders together several times each year, shared best practices with State decision-makers, fostered partnerships and relationships with solar energy experts, and aided in increasing the implementation of smart policies that will foster solar technology deployment. The support from the Department of Energy's Office of Energy Efficiency and Renewable Energy has created solar energy leaders in the States; leaders who will serve to be a continuing valuable resource as States consider adoption of new low-carbon and domestic energy supply to meet the energy needs of the United States.

Comparison of actual accomplishments with goals and objectives of the project

Task Objective	Actual Accomplishments
<p><i>General Outreach and Education for State Utility Commissions on Solar Technologies: Education for PUCs about different solar technologies available today and their economic, environmental, and societal value in language specific to state utility commissions. Examples of state policies that support these technologies will also be explored</i></p>	<ol style="list-style-type: none"> 1. Workshop held and reference guide distributed 11/2007. 2. Renewable Energy Retreat: Technical training school on renewable energy integration and Solar Energy Tour to CSP and PV plants in September 2010.
<p><i>Technical Best Practices: Investigate best practices used by PUCs across the nation, exploring areas such as net metering and interconnection standards, permitting and systems integration, and codes and standards for solar applications. The work will examine how lessons learned from solar implementation success can be leveraged and made more widespread, as well as looking at how successes in other energy technologies such as wind can be applied in the solar arena.</i></p>	<ol style="list-style-type: none"> 1. Regional Workshops held in April 2008 and June 2008. Renewables integration panel held in July 2008. 2. NREL Technical Partnership 2009-2010: assisting seven States with PV Resource Assessment and Economic Modeling and four States with Feed-in Tariff policy.
<p><i>Rates and Incentive Design: Study policy drivers that can be put into place to further solar technology deployment. Will look at potential and existing barriers (market, technical, and policy) to these drivers that may encourage or discourage the adoption of solar technologies.</i></p>	<ol style="list-style-type: none"> 1. Feed-in Tariff FAQ released in June 2010. 2. NARUC worked with DOE's Solar City to disseminate information to members and other stakeholders.
<p><i>Design and Implementation of Renewable Portfolios and Markets: Explore tools and discuss RPS markets and drivers for State implementation of renewable energy policy.</i></p>	<ol style="list-style-type: none"> 1. Active in RPS Collaborative work: advertising to NARUC members, facilitated NARUC member participation 2. Hosted webinar for State agencies on PV development in June 2011. 3. Planned and hosted RPS scenario game Oct 2011.
<p><i>NASEO meetings and outreach efforts: Outreach to State Energy Officials through collaboration with NASEO.</i></p>	<ol style="list-style-type: none"> 1. Workshops on Clean Energy Workforce Development at NASEO conferences. Completed in Spring 2010

Summary of Project Activities for Entire Funding Period

NARUC entered into a cooperative agreement with the Department of Energy with the following objective:

Project Objective: This project aims to help two key types of state agencies – state utility commissions and state energy offices - that can encourage the greater deployment and penetration of these technologies into the marketplace by helping them overcome regulatory and market barriers and harness emerging opportunities. In the near term this project attempts to foster dialogue among, and educate, State Officials and provide them with the resources and technical basis needed to effect changes to state policy and regulation. In the longer term, the goal is to increase the implementation of policies that foster solar technology deployment.

The approaches used to accomplish this objective were to be addressed through the following tasks:

1. Develop General Outreach and Education for State Utility Commissions on Solar Technologies
2. Updating the Renewable Portfolio Standard Guide
3. Developing and Promulgating Regulatory and Technical Best Practices
4. Coordinating Efforts with State Energy Offices and Others
5. Exploring Rates and Incentive Design to Encourage Solar Energy
6. Linking Solar Technology with Ancillary Service Markets, Peak Demand Management, and Demand Response Programs
7. Soliciting input from stakeholder groups as designated by DOE to gather input on needs and current issues
8. Developing a distribution plan to disseminate informational materials to membership groups and other stakeholder groups as designated by DOE.

The tasks were edited in the first year of the grant, and the new prioritized tasks included:

1. Develop General Outreach and Education for State Utility Commissions on Solar Technologies
2. Developing and Promulgating Regulatory and Technical Best Practices
3. Exploring Rates and Incentive Design for Solar Energy
4. Design and Implementation of Renewable Portfolios and Markets
5. Coordinating Efforts with State Energy Offices and Others

With a more narrow focus on specific solar energy issues, NARUC and its members and stakeholders achieved goals that went above and beyond the original scope of the project, enabling Commissions to gain an in-depth knowledge of solar energy technology and policy that will serve as an important resource now and in future decision-making. Under the five tasks outlined above, the following activities were performed:

1. Develop General Outreach and Education for State Utility Commissions on Solar Technologies
 - a. DOE presented an update to the Energy Resources and Environment Committee on solar activities at NARUC national meetings; NARUC, led by the Solar States Working Group, planned and hosted a kick-off meeting on solar energy efforts among PUCs and other State stakeholders; NARUC hosted a renewable energy technical school and solar tour for its members; and NARUC prepared a solar reference guide for its members and other stakeholders

2. Developing and Promulgating Regulatory and Technical Best Practices
 - a. NARUC, with the Solar States Working Group, hosted two regional workshops on solar energy for State decision-makers; NREL Technical Partnerships engaged eleven States in technical research including feed-in tariff policies and solar PV resource assessment and the National and State economic impact of solar PV on electricity rates.
3. Exploring Rates and Incentive Design for Solar Energy
 - a. NARUC authored an FAQ document on feed-in tariffs for State PUCs. This and other materials from the Solar City program was disseminated to State decision-makers and national and regional NARUC meetings.
4. Design and Implementation of Renewable Portfolios and Markets
 - a. NARUC staff hosted a webinar for State PUCs, State Energy Offices, State Legislators, and Governors Energy Offices. The webinar, "Sunny Days for PV: Streamlining Solar Development for the States" covered topics including interconnection, permitting, and application processes for solar energy.
 - b. NARUC was active in the RPS Collaborative efforts, led by the Clean Energy States Alliance. NARUC supported agenda development, member involvement and attendance, and informed stakeholders of educational opportunities, including annual meetings and quarterly webinars.
 - c. NARUC staff, with the assistance of several State PUC staff and NREL, developed and facilitated a renewable energy policy game-based scenario exercise. *The Grid Game: Renewable Edition* focused on different scenarios for RPS deployment, introducing complexities and policy modifiers with each round that required participants to engage in innovative and critical thinking to find solutions. Participants engaged in problem solving and critical thinking involving topics such as REC markets, interstate Commerce Clause issues, resource diversity, fluctuating electricity rates, and land-use issues.
5. Coordinating Efforts with State Energy Offices and Others
 - a. NASEO staff hosted several educational workshops at their national meetings on Clean Energy workforce development.
 - b. NASEO members were involved in the Solar States Working Group

Products Developed

- a) Publications:
 - a. Feed-in Tariffs: Frequently-Asked Questions for State Utility Commissioners
 - b. Renewable Energy Prices in State-Level Feed-in Tariffs: Federal Law Constraints and Possible Solutions
- b) Web site/other internet sites that reflect the results of this project
 - a. All resources developed are located at: www.naruc.org/solar
- c) Networks/collaborations fostered
 - a. National Renewable Energy Laboratory
 - b. Solar States Working Group: A group of a dozen State officials, including Commissioners, commission staff and State Energy Officials.
 - c. SEPA
 - d. NCSL
- d) Technologies/techniques
 - a. n/a
- e) Inventions/patent applications, licensing agreements
 - a. n/a
- f) Other products such as data or databases, physical collections, audio/video, etc.
 - a. n/a