

# Million Solar Roofs Partners Make Markets



## Executive Summary, Annual Partnership Update Report

July 10, 2004

PowerLight

The Million Solar Roofs Initiative is a unique public-private partnership, aimed at overcoming barriers to market entry for selected solar technologies. The goal of the Initiative is practical and market-driven: to facilitate the sale and installation of one million “solar roofs” by 2010. Eligible technologies include photovoltaics (PV), solar water heating, transpired solar collectors, solar space heating and cooling, and pool heating.

The Initiative works through a nationwide network of Partnerships and their local partners. Fifteen new Partnerships joined the Initiative this year, bringing the total to 89. Each has committed to facilitate the installation of a specified number of “solar roofs” through its local partners. Some 125 businesses, electricity providers, organizations or agencies joined Partnerships during the past year, bringing the total number of partners nationwide to 822.

The *Bay Area Solar Consortium* (CA), for example, consists of 62 partners typifying Partnerships across the country. They include the following: utilities and electricity providers; municipalities and associations; colleges, universities and science centers; school districts; government entities and agencies; solar manufacturers, distributors, retailers and contractors; non-profit organizations; citizens’ groups; chambers of commerce;

and business and trade associations, including labor organizations.

Some private-sector partners - builders, solar manufacturers, retailers, installers, electrical workers—earn their living in solar and ancillary industries. Others, increasingly, regard renewable energy technologies as part of their business plans. Their goal is to maximize profits by controlling the energy portion of their operating costs and hedging against future price volatility by diversifying their energy mix. Additionally, firms use “green” as a valued marketing device.

Four themes stand out in the annual reports submitted by Partnerships this year.

- Partnerships are helping solar technologies overcome barriers to market entry;
- Partnerships are using solar technologies to meet other important public policy goals;
- Partnerships are leveraging the modest Federal funds allocated for the Initiative. They are acquiring additional funding, expertise, in-kind resources, and access to rebates and other financial incentives; and
- Partnerships are educating the next generation of consumers by working with individual schools and districts to purchase solar technologies and, simultaneously, stimulate learning.



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## Toppling Market-Entry Barriers

Several barriers make it difficult for solar technologies to penetrate the established energy market. They include issues related to the electricity grid and utilities, general information, and initial capital costs. Utility practices and public policies and programs can mitigate the impact of these barriers. Consequently, a number of Initiative partners are tackling them. The U.S. Department of Energy (DOE), with support from its national laboratory partners (the National Renewable Energy Laboratory and Sandia National Laboratories) and the Interstate Renewable Energy Council, provide targeted information and technical assistance to the Partnerships as needed.

The following are examples of actions undertaken by Partnerships over the past year, as reported in their 2004 annual reports.

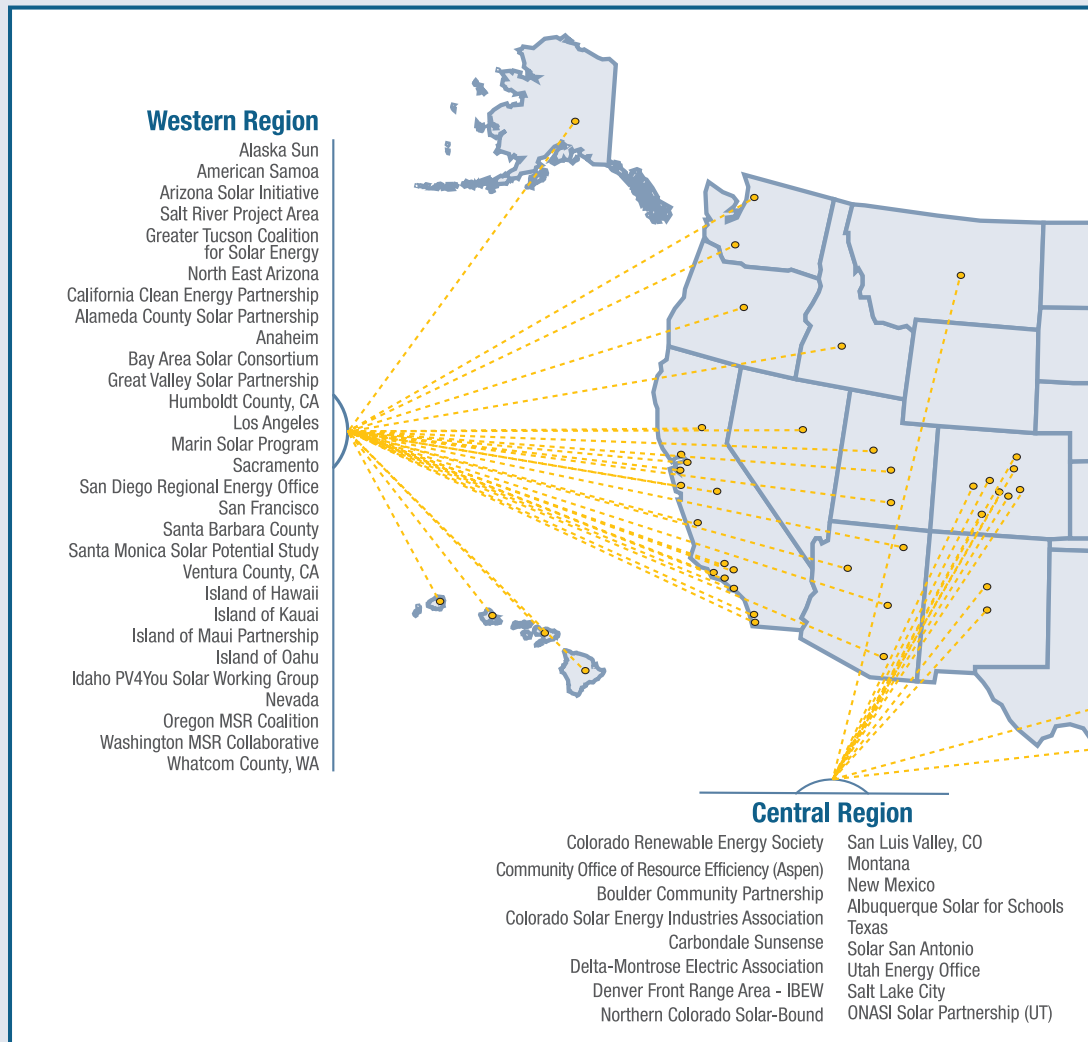
*Encourage production builders to incorporate solar in their developments, either voluntarily or through building codes.*

- San Diego (CA) Regional Energy Office
- Aspen (CO) Community Office for Resource Efficiency
- Greater Tucson (AZ) Coalition

*Explore changes to electric utility policies and practices that will accommodate solar technologies, thus opening the potentially large utility market. Measures include: enacting less burdensome interconnection standards, facilitating net metering, and creating System Benefits Funds to offset part of the capital costs of solar.*

- The Delaware Coalition collaborated with the State energy office and the municipal electric association to host a grid-interconnection workshop. The electric association plans to issue an RFP for 20 megawatts of clean energy.
- New Jersey credits the Initiative with helping the Partnership in its efforts to improve the State's net metering and interconnection standards.
- The Kentucky Partnership supported passage of a net metering bill this year.
- Wisconsin is working to integrate time-of-day rate benefits for PV systems.

*Create demand for solar in government and other public entities (e.g., the military and schools), both to expand the market and to inform consumers (and future consumers) about these technologies.*



- The Anaheim (CA) Partnership installed solar energy on carports for the City's fire department.
- Bay Area (CA) Solar Consortium addressed pre-certification of several solar system designs with the CA State Architect, for ease of adoption by schools.
- Oahu (HI) continued a successful effort to install solar water heating systems on military housing units.

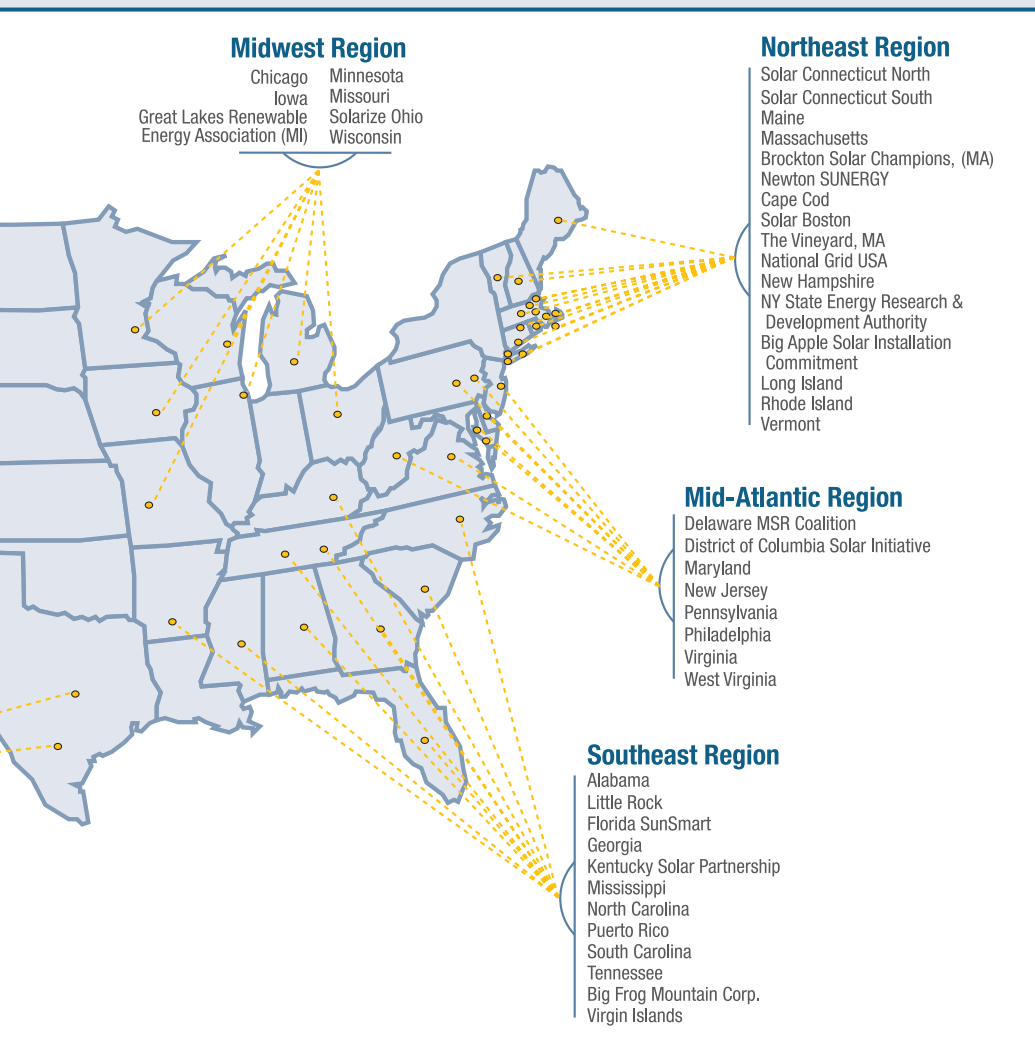
*Aggregate demand, to create a larger market expected to be more attractive to the solar industry.*

- Maine is investigating the possibility of forming a "Yankee Co-op," to aggregate purchases and seek funding to buy down the cost of solar in Maine.

*Provide information to the general public and "influencer" groups (e.g., utilities, regulators, architects, builders, electrical workers, code officials), to boost market demand.*

- Arizona produced an award-winning documentary film titled "Sunrise."
- Washington State encouraged utilities to adopt Chelan County Public Utility District's "Sustainable Natural Alternative Power (SNAP)" green power production incentive model.
- Delta-Montrose (CO) Electric Association is developing a program template for utility financing of solar.





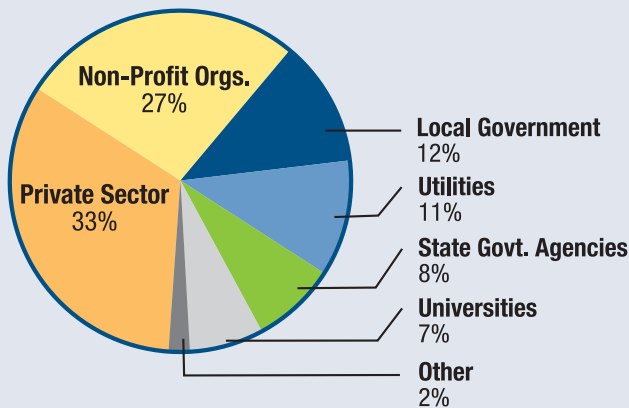
- Idaho supported the NABCEP certification process by encouraging testing and hosting test sites.
- Oregon launched a two-year degree in renewable energy in conjunction with the solar contractor apprenticeship program through the Lane Community College.

*Install solar on high-profile, high-traffic facilities.*

- Maryland is assisting the National Aquarium in designing and building a state-of-the-art green building on a brownfields site.
- San Francisco began installing PV systems on prominent city facilities, including the Moscone Convention Center.
- Philadelphia is helping staff at the Philadelphia Zoo in their consideration of a solar installation.

*Facilitate the development of third-party financing options.*

- Greater Tucson (AZ) Coalition is completing a pilot project to create a mechanism for third party financing of solar thermal technology.
- Solar San Antonio (TX) is collaborating with a local university to study the feasibility of a solar leasing program and the local infrastructure to support it.



- Salt Lake City participated in regulatory proceedings and is educating regulators on the value that PV brings to the electricity generation mix.

*Boost consumer confidence in solar products by helping develop industry infrastructure, including trained and certified solar installers.*

- New York State Energy Research and Development Authority is developing accredited PV installer training programs and institutions, and is helping installers obtain certification from the North American Board of Certified Energy Practitioners (NABCEP).

**Achieving Other Goals Through the Initiative.**

Solar technologies help achieve important energy-related goals such as peak load shaving, energy assurance (through on-site electricity generation), and price-hedging through energy diversity. In addition, investments in solar technologies can achieve goals that are not energy-related. Below are examples of several common public policy goals and some of the Partnerships that are using the Initiative as a means of achieving those goals.

**Affordable housing:** Mississippi; Aspen (CO) Community Center for Resource Efficiency

**Economic development:** Solar San Antonio (TX)

**Decreased peak load demand on conventional power plants; hedge against energy price volatility:** North Carolina; Salt Lake City

**Environmental quality:** Boulder (CO) Community Partnership; New Jersey

**Reduced oil imports:** Newton (MA) Sunergy

**Energy surety:** Greater Tucson Coalition



***Nantucket Elementary School uses this grid-connected PV system.***

### **Leveraging Additional Resources**

In FY2003, DOE invested a modest \$2.6 million in the Initiative, which leveraged almost \$7 million in monetary resources. This does not include the many and varied in-kind commitments of the Initiative's 822 partners. DOE's funding for activities under the Initiative also complimented more than \$100 million of State and utility incentives. Following are examples of different kinds of resources leveraged during the past year.

- Nevada leveraged "No Child Left Behind" funding and the State's Green Power program to introduce solar education into professional development for middle school teachers.
- Aspen (CO) received a grant from Home Depot and obtained financial support from the area's Renewable Energy Mitigation Program.
- Florida SunSmart Partnership leveraged almost \$2 million from State government programs.
- Several Partnerships are leveraging in-kind resources and expertise from DOE's Zero Energy Buildings program.
- Delaware is collaborating with electric utilities and Energy Star on a broad, "clean energy" focus.

- New Jersey's MSR activities have complemented the State Renewable Portfolio Standard (RPS) and State funds, which provided rebates totaling \$5 million this past year.
- Maryland leverages rebates from the Energy Administration, tax credits, RPS, and expertise and resources of the National Association of Homebuilders Research Center.
- Long Island leverages the resources of its many and varied partners, in particular the Long Island Power Authority, as well as rebates from its Solar Pioneer program.

### **Solar on Schools**

Our nation's schools constitute both a market for solar technologies and a partner in teaching tomorrow's consumers about renewable energy and energy efficiency. The Initiative is proud to have contributed to the growth of more than 450 "solar schools" to date. These schools invest in energy efficiency improvements and use the resulting utility bill savings to capitalize rooftop solar arrays. Not only do the solar installations generate electricity and produce hot water, they also provide "teachable moments." Some Partnerships and school districts are working with their states' education agencies to incorporate solar into statewide curricula.

- Anaheim (CA) implemented their "Sun Power for the Schools" program.
- Georgia promoted high-performance energy smart schools, including solar and a solar curriculum.

### **The Bottom Line**

Through its many partners across the country, the Million Solar Roofs Initiative is facilitating the sale and installation of solar systems in places where this might not otherwise have occurred. The Initiative helps to lower barriers through public-private collaborations and does not directly give grants or subsidies for solar equipment purchases. With a small expenditure, the Initiative has created extraordinary benefits across the country.

## **A Strong Energy Portfolio for a Strong America**

Energy efficiency and clean, renewable energy will mean a stronger economy, a cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.



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