

Become One In A Million

Partnership Updates

Million Solar Roofs &
Interstate Renewable Energy Council
Annual Meeting

Portland, Oregon
July 2004



U.S. Department of Energy
**Energy Efficiency
and Renewable Energy**

Bringing you a prosperous future where energy
is clean, abundant, reliable, and affordable



PowerLight

The Moscone Convention Center PV system (675kW) is the first in a pipeline of large municipal solar installations the San Francisco Public Utilities Commission (SFPUC) plans to install. The initiative results from strong voter support and two successive City administrations that have strongly supported clean distributed energy production. The Moscone center project also included a new energy efficient lighting fixture designed specifically for convention facilities. Future installations will include sites on water treatment facilities, at the San Francisco Port, and with other City departments. The SFPUC is also planning to install small demonstration systems on schools, libraries, and City health facilities.

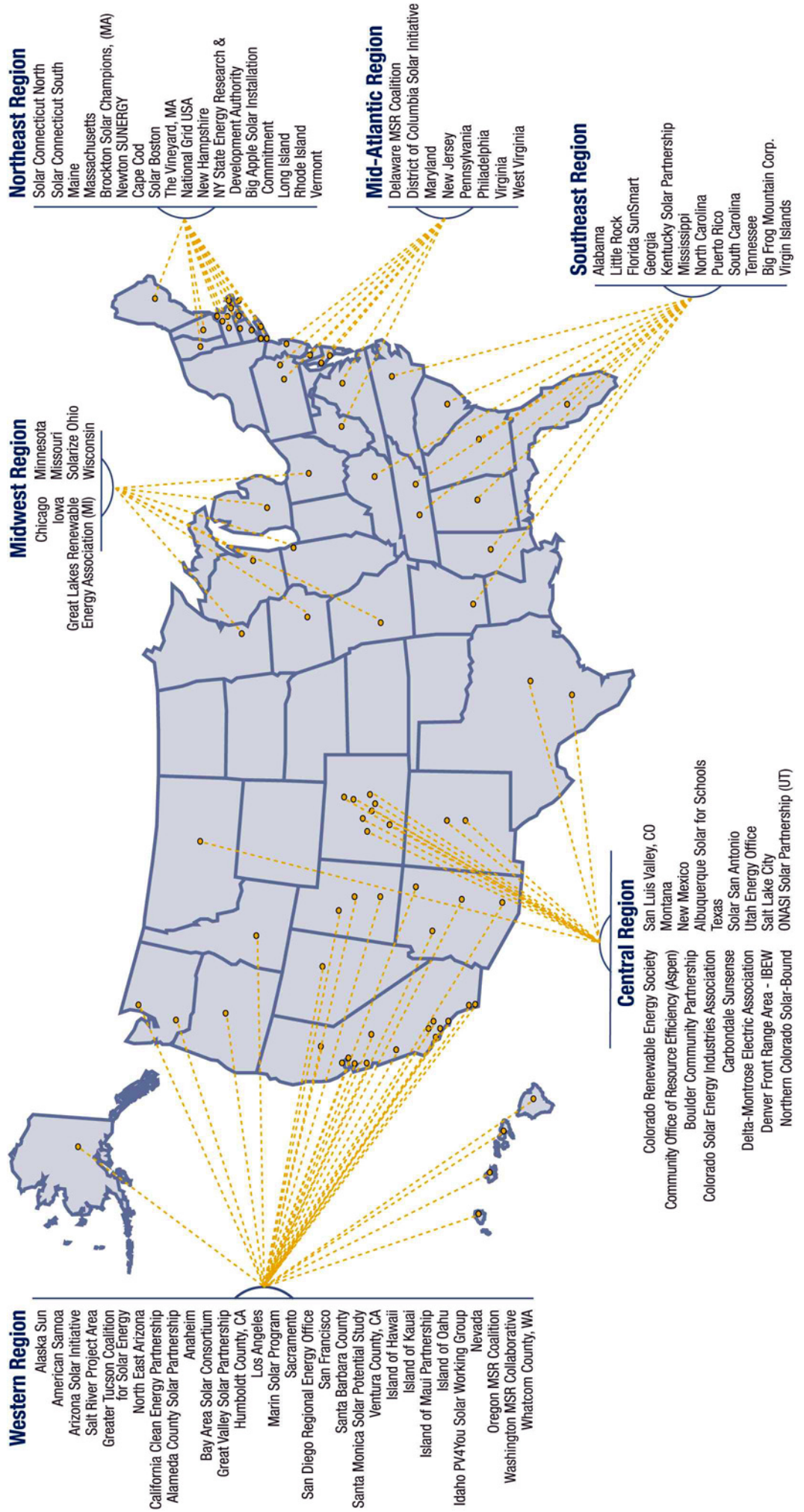


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PARTNERS MAKE MARKETS

Executive Summary
Annual Partnership Update Report

July 10, 2004

The Million Solar Roofs Initiative is a unique public-private partnership, aimed at overcoming barriers to market entry for selected solar technologies. As the name indicates, 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 officially designated 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 individual network of 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, who have met the Partnership’s original goal and now have increased it five-fold. The make-up of Consortium members typifies that of 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 reviewing the annual reports submitted by Partnerships this year. They are as follows:

- (1) Partnerships are helping to overcome barriers to market entry for solar technologies;
- (2) Partnerships are using solar technologies to meet other important public policy goals;
- (3) 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

- (4) Partnerships are educating the next generation of consumers by working with individual schools and districts to purchase solar technologies and, simultaneously, stimulate learning.

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 the following: 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. Marine Corps housing was a particular focus during the past year.
- ***Aggregate demand, to create a larger market that is 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 for Maine citizens.
- ***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. It is also educating its staff and other utilities about solar technologies.
 - *Salt Lake City* participated in regulatory proceedings and is educating regulators regarding 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).
 - *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, to educate the consuming public that solar is “real.”***
 - *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.

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

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 (under which owners of new structures that exceed the energy budget permitted under the local building code must pay into a renewable energy fund).
- *Florida SunSmart Partnership* leveraged almost \$2 million this year 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." Many "solar schools" have solar equipment and have integrated solar into their curriculum. 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.

Central Region

Regional Office Report

Colorado

Boulder Community Partnership
Community Office for Resource Efficiency
Colorado Renewable Energy Society
Delta-Montrose Electric Association
SolarBound (The MSR Initiative for Northern Colorado)

Montana

Montana MSR Partnership

New Mexico

Solar for Schools
State of New Mexico

Utah

Salt Lake City MSR Partnership

Texas

Solar San Antonio, Inc.
Texas MSR Partnership

The Solar Year in Review For the Central Regional Office

Prepared by the Central Regional Office

Activities, Advances & Accomplishments of Note

• General Comments

The Denver Region has seen significant growth in MSR partnerships in 2003-2004. We now have 17 partnerships and extensive interest and involvement from other States and communities. The current partnership per State includes:
9 MSR partners exist in Colorado; 2 in Texas; 2 in New Mexico; 1 in Montana; 3 in Utah.

All MSR partners in the region are working diligently to implement programs in their respective States and local communities. Significant activities and accomplishments have taken place, indicating widespread interest in solar and renewable energy applications in general.

Of particular interest are the following partnership activities and accomplishments:

Montana

National Center for Appropriate Technology (NCAT)

Achievements

- In 2003, NCAT accomplished 80 cumulative installations, (69 PV and 11 SDHW).
- Apart from MSR federal grant dollars, the Partnership raised additional financial support = \$803,000
- PV installations on 15 additional Montana homes and five additional schools. Through new projects, NCAT installed PV systems on six rural fire departments and solar water-heating systems on 11 homes.
- Members volunteered time and labor to install 10 grid-tied PH systems on energy-efficient Habitat

for Humanity Homes being built in Butte, MT.

Activities

- Development of a video presentation showing how solar technology is being applied in Montana.
- Ongoing Educational Seminars for electricians; speaking about renewable energy at numerous statewide events; producing publications on renewable energy topics.
- Providing renewable energy site assessments for Montana homeowners and business owners.
- Maintaining the MontanaGreenPower.com website
- Hosting test site for PV Installer Certification Exam – April 2004
- Participation in Sustainability Fair – Livingston, MT – July 2004

Colorado

Colorado Renewable Energy Society (CRES)

Achievements

- CRES conducted an all-day “Zero Energy Homes for Homebuyers Workshop” and tour of solar homes. 65 participants attended, while 30 registrants were placed on the waiting list – indicating wide public interest and local press coverage.
- Continued work with a production homebuilder to develop a prototype ZEH home.
- Generated increased participation by local builders in developing homes with ZEH attributes. The ultimate success of CRES’ efforts is measured by the actual construction of a production home by Aspen Homes, who broke ground on its first Zero Energy Home in March of 2004, with completion scheduled for mid-summer. (The home promises to be the most energy efficient production home built in Colorado, and will integrate solar thermal and PV to provide the remaining energy requirements to achieve net zero

- energy consumption on an annual basis).
- Millennium Energy, a CRES partner, has recently completed a simplified economic analysis tool to compare monthly and annual cash flows of mortgages for standard homes vs. Zero Energy Homes, and the associated utility bill savings.

Activities

- CRES has successfully transitioned from its former strategy of promoting individual solar technologies to a whole-building design strategy that incorporates passive solar design and energy efficiency measures with solar PV and solar thermal technologies. CRES believes the transition will improve the economics of solar technologies in a state with low energy rates and no incentives, but also hopes to move the homebuilder industry along the path of Zero Energy Homes.
- Due to the success of the pilot ZEH Workshop for Homebuyers, CRES and fellow MSR Partner N-CRES collaborated on the development of a ZEH Workshop Program, held in April 2004.

Colorado Office for Resource Efficiency (CORE)

Achievements

- 130 solar systems have been installed since the partnership was formed in 2002.
- CORE held an “Architects Teach Other Architects” workshop about solar technologies.
- CORE is working with DOE Building America to design and build two models and ZEH homes for affordable housing. NREL has agreed to test and monitor the two models. The City of Aspen will use the DOE Building America standard for an additional, large affordable housing subdivision of 300 homes.
-

- CORE has garnered additional financial support (\$50,000) from the Renewable Energy Mitigation Program (REMP) to increase the geographical scope for incentives -- \$1,000-\$2,000 for solar hot water and up to \$4,000 for solar electric.
- CORE obtained a \$25,000 Home Depot grant and \$20,000 REMF grant for solar, efficiency upgrades on the Building America and ZEH models for additional outreach and education.

Activities

- Finalizing the design of the ZEH model and Building America standards at the Blue Creek, Colorado development, with subsequent construction workshops scheduled. Integration of both solar hot water and PV into a “building integrated” design for Blue Creek.
- Solar installation at Basalt, CO Middle School, followed by Solar Fair in April 2004.

Utah

We welcome our newest partner in Utah – the Community of Park City. In 2001, OnSat, in partnership with the Bill and Melinda Gates Foundation, the Navajo Nation and the Solar Electric Light Fund (SELF - a 501c3 organization) provided computers and high-speed wireless Internet to 110 Navajo Chapter Houses (community centers), Native American business customers, schools, community access groups, distance learning institutions, religious organizations and other entities located in areas which are currently underserved by traditional wireline technologies. One of the Chapters - Kaibeto did not have enough electricity to power the computers so SELF provided the solar power for this site under a grant to the Navajo Nation.

The Kaibeto experience has again brought OnSat, the Navajo Nation and Solar Electric Light Fund together to create an MSR partnership for the

purpose of providing solar energy to the people of the Navajo Nation in Utah, Colorado, New Mexico and Arizona. This includes the 110 Chapter Houses plus over 200 Head Start Schools and another 200 buildings on the Navajo Nation between now and 2010. This unique partnership will be headed by OnSat and called the ONASI Solar Partnership. It will be comprised of the Navajo Nation, represented by the Executive Director of the Navajo Nation Division of Community Development in Window Rock, Arizona, and the Solar Electric Light Fund.

- **Regional Peer-to-Peer Exchange(s)**

Two regional Peer-to-Peer Exchanges have been held in collaboration with the Western (Seattle) Regional Office – the Southwest Peer-to-Peer Exchange, held in Albuquerque on March 24-25, and the Western MSR Peer-to-Peer Exchange held on May 6-7, 2004 in San Francisco. We received wide participation at both workshops from both Seattle and Denver regions.

The Southwest Workshop Agenda focused on “Developing Community Solar Schools Programs; Solar Curriculum for Solar Schools; Solar in New School Construction; and State Experience with Renewable Portfolio Standards”. Approximately 34 attendees were present from both the Central (Denver) Region and the Western (Seattle) region. Central regional participants included representatives from both NREL and Sandia National Laboratories, the City of Albuquerque MSR partnership, the State of New Mexico, NCAT-Montana, CSG Services, Austin, and the City of Boulder, Colorado.

The Western Regional MSR Peer-to-Peer Agenda related to Solar Home Tours; Solar New Home Construction, and Solar on Public Buildings. A fascinating tour of the San Francisco Moscone Center PV System was held the first day of the workshop. The

Central Regional Office MSR partner attendance joined the City of Boulder, Colorado Renewable Energy Society – Aspen Homes, the City of Aspen (CORE), and NREL, with MSR partners from the Western Region for a very worthwhile and interesting Peer Exchange. Attendance was estimated at approximately 40 participants.

- **2003 MSR Grants Review**

2003 Grants Awards went to six (6) MSR partners. A total of 14 applications were received in 2003; seven (7) new MSR applicants were selected under Phase I criteria; seven (7) existing partner applications were selected under Phase 2 criteria, culminating in four awards for existing partners and two awards for new partners.

MSR 2003 Grant Recipients included:

Community Office of Resource Efficiency (CORE), Aspen, CO

Existing Partner

Center for Resource Conservation, Boulder, CO

Existing Partner

Delta Montrose Electric Association, Montrose, CO

Existing Partner

CSG Services, Inc., Austin, TX

Existing Partner

Trees, Water and People, Fort Collins, CO

New Partner

City of Albuquerque, NM

New Partner

Total amount awarded for 2003 = \$299,835

Looking Towards the Horizon

- **General Comments**

The future for the Million Solar Roofs Initiative is encouraging for the Central Regional Office. Evidence of growing State and local government interest is significant in light of rising utility and natural gas prices. Partners have adopted aggressive programs to enhance solar education, outreach and

ongoing initiatives. The Central Regional Office sees our MSR partners leading the way and sustaining the push for new and creative measures to complement the program in 2005 and beyond.

- **Focus Areas & Key Challenges**

Our regional MSR partners all note the many challenges they face to overcome financial barriers. Lack of incentives in many states are also challenges that require continued efforts by our partners to increase public awareness of the advantages of renewable energy.

- **Upcoming Events**

The MSR Central Regional Office Project Manager will participate at the 2004 Colorado Renewable Energy Conference (CREC) at the University of Denver on June 25-27, 2004. The conference will bring together renewable energy and energy efficiency professionals, policy makers, and the interested public under the theme: "Renewable Energy: It Makes Sense." The conference will additionally feature both educational sessions and hands-on workshops directed toward homeowners, business owners, and local leaders.

The CREC Conference this year is combined with NREL's Consumer Energy Expo, which will feature exhibits highlighting businesses and organizations that specialize in renewable energy and energy efficiency technologies, products and services.

A Colorado MSR Partner Meeting is tentatively being planned for Fall 2004.

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Boulder Community Partnership

April 1, 2004

Partnership Lead Organization

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Other Partners

- City of Boulder; Boulder Housing Partners; Industrial Solar Technology; Altair Energy; RMS Electric; Jim Logan Architects; Naropa University/Hedgerow Farms.
- *New Partners:* Peak Properties; Solar Village Development Team; Wonderland Hill Development/Co-housing.

Year of Formation

1999

Million Solar Roofs Installation Goal

The Boulder Community Partnership works to overcome market barriers and increase solar system demand through: 1) education about the technology, economic and environmental benefits of solar installations; and 2) training and technical assistance to the building community and municipal projects; and 3) providing support for an “orphan” solar equipment program.

Our solar system installation goal is 500 systems by 2010.

We also have a greenhouse gas emission reduction goal in partnership with the city of Boulder- to reduce greenhouse gases by 7% as a city from various sources by 2014.

We have educated or provided technical assistance to approximately 100 architects and builders in Boulder County through workshops or on-site visits to their construction projects. We expect reach over 250 from the building community by 2010.

We have educated or assisted over 1,000 Boulder County residents through community workshops, solar home tours, technical assistance to individual projects, and in partnership with the city’s Green Points building program.

Cumulative Installations

In 2003, the Boulder County Partnership installed:

Thermal heating/DHW/pool	10 4x10 panels/400 gal storage
DHW/Spa	3 4x8 panels/180 gal storage
DHW	2 4x8 panels/120 gal storage
DHW	1 4x8 panel/heat exchanger
Radiant heat/DHW	10 4x8 panels/320 gal storage
Radiant heat/DHW	10 4x8 panels/320 gal storage
Radiant heat/DHW	10 4x8 panels/w 200 gal storage

PV systems

Solar Schools

- We have 2 elementary schools- Crestview and Jamestown – that were the recipients of granted 1.4KW PV systems from Xcel Energy.
- Xcel Energy also granted 2 systems to the Center for ReSource Conservation for educational purposes- 1 system is on our office building where we often host school or community groups and the 2nd system powers our off-grid office at the ReSource used building materials yard- which has approximately 7,000 shoppers of alternative building supplies each year.

Leveraged Resources

Over \$10,000 raised from business community to coordinate and publicize our annual solar home tour.

New and Noteworthy Accomplishments

Our combined Denver/Boulder Solar Home Tour has increased to 700 attendees and has received significant financial support from the business community.

Activities Underway

- Renewable energy hotline- providing technical assistance to Boulder County residents
- Solar Home Tour
- Educational display for 128-panel thermal system on City Recreation Center pool
- Solar Workshops for homeowners and building professionals
- Orphan solar program/used system display at ReSource building material recycle yard.

Upcoming Events

- Partnership meetings, Solar Fairs, exhibits, training programs, etc.
- Education of policy makers during Solar Home Tour.

What we could use help with

Largest barrier is still economic – no state or local incentives with relatively cheap gas and electric prices.

Secondary barrier is system reliability and performance of thermal systems- addressing that now with monitoring and reporting of newly installed systems, promotion of certified solar installers and educating buyers of the importance of trained installers.

Community Office for Resource Efficiency

April 1, 2004

Partnership Lead Organization

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Contact Organization: Community Office for Resource Efficiency

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Other Partners

- City of Aspen
- Holy Cross Energy
- Eco –Electric
- Novy Architects
- Sunsense
- Solar Energy International
- Aspen Solar
- Community Banks of Aspen

Year of Formation - 2002

Million Solar Roofs Installation Goal

CORE's MSR Implementation Goal is to facilitate the installation of 500 solar rooftop systems in Western Colorado by 2010. CORE's mission will be accomplished:

- through education and outreach to the construction community (including architects, builders, developers and homeowners),
- by working closely with City of Aspen and Pitkin County- the largest housing developers in the region- to implement solar on affordable housing,
- through installation of solar on schools and public buildings to increase awareness of solar technologies,

- by strategic alliances with City of Aspen Municipal Utility and Holy Cross Energy to implement CORE's solar incentive programs and
- by creating market opportunities for solar through building codes.

Cumulative Installations

Reporting procedures indicate 130 solar systems have been installed since the partnership was formed. Prior to the formalized partnership, we estimate that partners had previously installed 300 systems here in the valley. Both City of Aspen and Holy Cross have agreed to net metering and there are both off- the grid and on the grid solar installations in the region. Our extension to other areas of Western Colorado served by Holy Cross Energy is in progress.

Solar Schools

Within our geographic territory served by Holy Cross, City of Aspen, there are 9 Solar systems on schools.

Leveraged Resources

- CORE has garnered additional financial support (\$50,000) from the Renewable Energy Mitigation Program to increase the geographical scope for incentives, \$1000-2000 for solar hot water and up to \$4000 for solar electric.
- CORE is working with DOE Building America to design and build 2 models for DOE Building America and ZEH type homes for affordable housing. NREL has agreed to test and monitor the 2 models.
- CORE obtained a \$25,000 Home Depot grant and \$20,000 REMP grant for solar, efficiency up-grades on the Building America and ZEH type models and for outreach.

New and Noteworthy Accomplishments

- Held workshop “Architects teach other architects” about solar technologies
- The City of Aspen will use DOE Building America standard for large affordable housing subdivision of 300 homes
- Advertising program underway for solar incentives, virtual solar home tour on the web site is up and running.

Activities Underway

- Finalizing the design of the ZEH type model and the Building America model at Blue Creek
- Integration of both solar hot water and PV into a “building integrated” design for Blue Creek
- Solar installation at Basalt Middle School

Upcoming Events

- Solar Fair for school open house at Basalt Middle School- Friday April 30, training and installation on April 26, and 28.
- Earth day events – Aspen Center for Environmental Studies on April 22 and May 8th with Carbondale Environmental Board
- Construction workshops during construction of Blue Creek Models focusing on DOE Building America techniques and solar technologies

What we could use help with

Does one of the partnerships have a slide presentation that we could use or modify for addressing barriers to solar installations from homeowner’s association covenants?

Colorado Renewable Energy Society

April 1, 2004

Partnership Lead Organization

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Other Partners

- Altair Energy
- Aspen Homes (new)
- Colorado Coalition for New Energy Technologies
- Colorado Energy Science Center (new)
- Colorado Governor's Office of Energy Management and Conservation
- Eco-Build (new)
- E-Star Home Builders Association of Metropolitan Denver - Built Green
- Industrial Solar Technologies
- Lightly Treading, Inc. (new)
- Millennium Energy LLC
- Solargenix (new)
- Sundance Solar Designs (new)
- Tierra Concrete Homes

Year of Formation

2000

Million Solar Roofs Installation Goal

The CRES MSR Implementation Goal is to facilitate the installation of 5,000 solar rooftop systems in the State of Colorado by 2010. The CRES mission will be accomplished through conducting education and outreach activities to home builders and the general public alike, to create increased demand for new homes that integrate Zero Energy Home strategies and technologies -- including photovoltaics and solar hot water systems. Through demonstration of the integrated design approach to new home

construction, it is envisioned that the solar market can be penetrated in a more economical manner, while reducing the environmental impacts of the new home construction sector in Colorado due to the increasing demands this growth places on the utility system. In addition to the 5,000 solar system goal, we have also established a goal to train at least 5 new homebuilders a year to provide them with the capability to offer and build Zero Energy Homes.

Cumulative Installations

Preliminary estimates indicate approximately 175 solar installations in the state of Colorado. Installations of PV systems have been hampered by the requirement of one of the largest utilities in the state to have the customer carry a \$300,000 liability insurance policy payable to the utility. This annual premium for this insurance is ~\$500, which effectively offsets the majority of electric utility bill savings. In the future, we plan to conduct a survey of all utilities in the state to document PV systems installed under existing net metering policies, as well as survey COSEIA members to document both PV and Solar Hot Water installations.

Solar Schools

To date there have been 30 solar PV installations on schools through Excel Energy's Solar Schools Program.

Leveraged Resources

During the past year, we have secured in-kind labor support to assist in our Zero Energy Home modeling and energy systems package development efforts. We have received extensive support from DOE's Building America Program and one of its contractors (IBACOS, Inc) and National Renewable Energy Laboratory staff and subcontractor Paul Reeves in conducting DOE2 and TRNSYS modeling of various Zero Energy Home configurations. In addition, the builder participating in this pilot effort, Aspen Homes, has provided considerable in-kind support in providing data on Zero Energy Home design requirements and measure costs, as well as coordinated with local

utilities to obtain favorable net metering policies. We are grateful to all of our in-kind supporters for the dedication and assistance.

New and Noteworthy Accomplishments

- CRES pilot Zero Energy Home Workshop for homebuyers conducted on December 6th, 2003 at NREL exceeded expectations with over 60 attendees dedicating an entire Saturday to participate, and another 30 were placed on a waiting list and unable to attend due to space limitations. In addition, Joe Bourg- CRES MSR lead, provided a 2 hour ZEH presentation to CRES' northern Chapter which attracted ~55 participants (their largest meeting to date), further demonstrating the increasing interest in the ZEH concept in Colorado.
- Aspen Homes, the homebuilder working with the CRES MSR Partnership to develop the ZEH concept in Colorado is planning to break ground on its first ZEH this summer, with completion targeted for the fall. The goal of the project is to reach true net zero energy consumption for the home on an annual basis, making it one of the first true net zero homes in the country and the first in Colorado. If successful, the builder is considering constructing additional Model Homes as ZEHs and offering a ZEH option to homebuyers.
- Millennium Energy, a CRES MSR partner, has recently completed a simplified economic analysis tool (Excel spreadsheet) to compare monthly and annual cash flows of mortgages for standard homes vs. ZEHs and the associated utility bill savings.

Activities Underway

Due to the success of the pilot ZEH Workshop for Homebuyers, CRES and fellow MSR Partner N-CRES are collaborating on the development of a ZEH Workshop Program. The next ZEH Workshops will be held in April in Fort Collins.

Upcoming Events

- April 23, ZEH for Building Professionals, Fort Collins CO
- April 24, ZEH for Homebuyers and Consumers, Fort Collins, CO

- June 25th - 27th, CRES Renewable Energy Conference, 2004 - Sessions on Colorado MSR Partner Updates and Zero Energy Homes @ Denver University, Denver CO

What we could use help with

One of the largest barriers facing the Colorado MSR Partnership involves issues of utility net metering and interconnection policies. While the largest utility in the State has a true net metering policy, it has recently enacted a requirement whereby any customer interconnecting to the grid with a PV system must carry an additional \$300,000 of insurance coverage payable to the utility to cover any potential damages that may arise from the interconnection. Estimates indicate that this coverage would cost ~\$500 per year, assuming the consumer can even find someone to write the policy. As a result, the insurance premium alone offsets the majority if not all of the utility bill savings resulting from PV generation, negating any economic benefit to the PV system owner.

An equally critical barrier to increased PV utilization in the state is the disparity of net metering policies of many of the remaining utilities in the state. Some utilities have no net metering policy at all, others offer dual metering (retail purchase / wholesale buy-back), and others require any utility energy purchases during a particular month be purchased at retail rates but excess energy provided to the grid in other months is credited at wholesale rates. Very few utilities have, or are considering "true net metering" (1:1 kWh credit), which is a significant barrier to both PV system deployment and Zero Energy Home development. The Partnership could use some help from MSR in these two areas.

Delta-Montrose Electric Association

March 31, 2004

Partnership Lead Organization

- Contact Person: Paul Bony
- Contact Title: Manager, Marketing and Customer Service
- Contact Organization: Delta-Montrose Electric Association
- Mailing Address: PO Box 910, Montrose, CO 81402
- Phone Number: (970) 240-1278
- Fax Number: (970) 240-1201
- Email Address: pbony@dmea.com
- Website Address: <http://www.dmea.com/>

Other Partners

None

Year of Formation

2003

Million Solar Roofs Installation Goal:

500 systems by 2010

Mission Statement:

1. Encourage the installation of at least 500 solar systems within DMEA's service territory by 2010, focused primarily on grid-connected systems.
2. Create a program template for other leading energy utilities to consider the financing of Solar Roofs
3. Educate utility staff and stakeholders in the value of marketing, selling, financing, installing, and servicing Solar Roofing systems.
4. Encourage other energy utilities throughout the region to implement similar programs.

Cumulative Installations

DMEA has only verified that there are 6 PV systems net-metered on DMEA's power lines at present. System sizes vary. A goal is to better catalog system installations through the finance application process.

Solar Schools

None

Leveraged Resources

DMEA has committed up to \$150,000 in in-kind support, to include access to its Co-Z Energy Plan program template, economic modeling and development process for its geothermal heat pump program.

New and Noteworthy Accomplishments

None

Activities Underway

DMEA is developing:

1. A PowerPoint Presentation suitable for presentation to the DMEA Board to seek approval to proceed with a 2005 Budget Submission to modify the current C-Z program to launch the financing of a limited number of grid-connected PV systems in 2005.
2. As supporting documentation, DMEA is preparing a separate "From Geo to Solar: Co-Z Program Options" report suitable for presentation to Senior DMEA Staff that documents and validates the economic modeling, and all other the assumptions and reasoning in the PowerPoint presentation.
3. In addition, DMEA is preparing a "From Sunshine to Gold: Solar Financing Options" PowerPoint Presentation and Report suitable for presentation by DOE to any co-op or other electric service provider to consider and/or modify DMEA's default data to justify and seek approval to launch a similar program of their own.

DMEA plans to submit this material to DOE no later than September 1, 2004.

Upcoming Events

Home Energy Efficiency Workshops, Sept. 17-18, 2004,
Montrose Pavilion

What we could use help with

Any analysis on the incremental value of PV systems to grid-connected homeowners would be helpful. Also anything on best practices from other organizations that finance residential installations.

SolarBound

March 20, 2004

Partnership Lead Organization

The Million Solar Roofs Initiative for Northern Colorado

Contact Person: Alison Mason

Contact Organization: Trees, Water, and People

Mailing Address: 633 Remington Street, Fort Collins, CO 80521

Phone Number: (970) 484-3678

Fax Number: (970) 224-1726

Email Address: alison@treeswaterpeople.org

Website Address: <http://www.solarbound.org/>

Other Partners

- City of Fort Collins
- Platte River Power Authority
- Northern Colorado Renewable Energy Society
- Western Area Power Administration
- Sierra Club – Poudre Canyon Group

Year of Formation

2003

Million Solar Roofs Installation Goal

- 500 installations in Northern Colorado by 2010
- Establish true net metering and a streamlined interconnection process with our local utilities.
- Establish a Solar Projects Fund to finance solar installations on public buildings.
- Help our local solar industry to evolve from a custom business to a production business.

Mission Statement

SolarBound is dedicated to supporting solar energy efforts in Colorado with a special emphasis on initiatives designed to increase solar energy use in communities along the Northern Front Range.

Cumulative Installations

We are currently collecting information on existing installations and setting up a process to track new installations.

We expect a 400-800 square foot solar thermal installation to be installed on the new Pioneer Expeditionary Learning Outward Bound (ELOB) Charter High School this summer.

We expect a 5-10 kW photovoltaic system to be installed on Colorado State University's new Phipps Auditorium this summer.

Solar Schools

None yet.

Leveraged Resources

Northern Colorado Renewable Energy Society - \$22,000

Organizing and promoting the solar tour;
Organizing and implementing the Solar Energy Workshops; Marketing the program to all N-CRES supporters and the general public via renewable energy television and radio;
Development of the implementation plan.

City of Fort Collins - \$15,300

Evaluating local barriers to solar energy dissemination; Market the program;
Development of final implementation plan.

Platte River Power Authority - \$1,000

Market the program; Opening facilities for the purpose of public education and outreach
Provide technical assistance; Define energy demand and opportunities; Analyzing data and assist in development of the implementation plan.

Sierra Club - \$2,500

Promote MSR partnership and objectives;
Public education and outreach; Develop training and educational curriculum;
Development of the implementation plan.

Western Area Power Administration - \$1,000

Analyze barriers to market penetration; Provide technical assistance in the development of education materials; Analysis of gathered data and development of implementation plan.

- June 5 - Riverfest – SolarBound Outreach to Community
- Sept. 17-19 - Sustainable Living Fair – SolarBound Outreach to Community
- Oct. 2-3 - Northern Colorado Solar Tour – Fort Collins and Loveland

New and Noteworthy Accomplishments

- Launching of Solar Projects Fund
- Facilitating the inclusion of photovoltaic panels on CSU's Phipps Auditorium
- Facilitating the inclusion of solar thermal on Pioneer High School

What we could use help with

#1 - MONEY/the price barrier

#2 - Net metering/interconnection

#3 - Education, understanding of solar technologies

We would like to document the creation of the solar projects fund and make it available to other partnerships as a template.

Activities Underway

- Develop implementation plan
- Create installation tracking system
- Address localized barriers to solar energy
- Develop financing mechanisms
- Provide technical assistance for solar on residential, municipal and commercial building projects
- Create SolarBound website
- Establish renewable energy hotline
- PV on the Poudre – facilitate use of and awareness of solar technologies in/on schools
- Northern Colorado Solar Tour
- Monthly renewable energy educational events/programs
- Renewable radio
- Renewable local television
- In-house solar workshops for the building community
- In-depth building professional solar workshop
- In-depth homeowner solar workshop

Upcoming Events

- April 13 - Northern Colorado Renewable Energy Society April Program: Solargenix
- April 22 - Earth Day – SolarBound Outreach to Community
- April 23, 24 - Zero Energy Home Workshop – SolarBound Solar Education
- May 20 - SolarBound Partnership Summit

Montana MSR Partnership

March 30, 2004

Name of Partnership

Partnership Lead Organization

Contact Person: Cathy Svejksky, Program Specialist
Contact Organization: National Center for Appropriate Technology (NCAT)
Mailing Address: P.O. Box 3838 Butte, MT 59702
Phone Number: (406) 494-8667
Fax Number: (406) 494-2905
Email Address: cathys@ncat.org
Website Address: <http://www.ncat.org/>

Other Partners

[National Center for Appropriate Technology](#)
[NorthWestern Energy](#)
[Montana Renewable Energy Association](#)
Montana Department of Environmental Quality
Bonneville Power Administration

Year of Formation

2000

Million Solar Roofs Installation Goal

We're committed to seeing that 1,000 solar energy systems are installed on buildings in Montana by 2010.

Cumulative Installations

Cumulative installations: 263 (245 PV; 13 SDHW; 5 solar air-heating)
2003 installations: 80 (69 PV; 11 SDHW)

Solar Schools

27

Leveraged Resources

\$803,000 (dollars)

New and Noteworthy Accomplishments

- Through continued USB funding, NCAT installed PV systems on 15 additional Montana homes and five additional schools. In addition, through new projects, NCAT installed PV systems on six rural fire departments and solar water-heating systems on 11 homes.
- Members volunteered time and labor to install 10 grid-tied PH systems on energy-efficient Habitat for Humanity homes being built in Butte, MT.
- MREA members are supporting renewable energy in public policy by writing letters to legislators in support of renewables, and providing comment to legislative committees.
- Members are providing renewable energy site assessments to interested home and business owners in MT.
- MREA developed a series of brochures on renewable energy and energy efficiency topics.

Activities Underway

- Developing a video presentation showing how solar technology is being applied in Montana
- Conducting Continuing Education Seminars for electricians
- Providing renewable energy site assessments for Montana homeowners and business owners
- Speaking about renewable energy at a variety of events
- Producing publications on renewable energy topics
- Maintaining MontanaGreenPower.com
- Beginning 2004 solar demonstration projects for Montana homes, fire stations, city/county buildings, and schools.

Upcoming Events

- Hosting test site for PV Installer Certification Exam, April 2004
- Participating in Sustainability Fair, Livingston, MT, July 2004

What we could use help with?

Million Solar Roofs special funding for marketing and educational efforts are extremely important.

Solar for Schools

April 1, 2004

Partnership Lead Organization

City of Albuquerque, Facilities Management Dept.
(FMD)
Contact Person: Richard Harding - Manager, FMD
Contact Organization: City of Albuquerque
Mailing Address: 1801 Fourth St. NW, Building B,
Albuquerque, NM 87102
Phone Number: 505-768-5362
Fax Number: 505-768-5317
Email Address: rharding@cabq.gov

Other Partners

- GLOBAL Energy 2003
- NRG Engineering 2003
- Rebuild New Mexico 2003

Year of Formation

2003

Million Solar Roofs Installation Goal

“The MSR partnership is structured to achieve maximum effectiveness to achieve multiple solar installations over the next decade. The group believes that huge barriers call for huge measures. Partners were selected for strength of their commitment, their strategic placement in the community, and their belief that barriers in New Mexico can and must be overcome. *All the steps overcoming barriers, including workshops, are designed to be wholly transferable to other communities.*”

Cumulative Installations

This is our first MSR project, which began in February after COA contracts and insurance for contractors was in place. Both SHW and PV are planned for large community-high school shared pool facility. Draft scope for PV is approximately 3 kW, and SHW is 75 4x10' collectors (FAFCO type). Successful project and training workshops

are aimed at inspiring many similar projects in the Greater Albuquerque area.

Solar Schools

One high school to date, a demonstration PV unit of 6 collectors, and one grade school of passive design will come on line in the Fall.

Leveraged Resources

\$19,257 in-kind contributions (28%)

New and Noteworthy Accomplishments

With the country's highest solar insulation, New Mexico is a technical natural for solar energy. The barriers for large installations (nonresidential), however, are high and must be overcome to reach potential. This project attacks three chief barriers: technical assessment of solar installations, including feasibility and payback; fear/ignorance of the maintenance required; and access to capital to finance installations. The project will demonstrate how these barriers may be overcome, using the selected project as the real-world model, followed by free workshops to the building management and maintenance community at large *The team sees breaking through these barriers by the dissemination of a New Mexico success story as the most significant outcome of this project.*

Activities Underway

Selection of target site committee assembled and site selected. Energy engineering scope of selected project almost complete. Performance contract RFP drafted and now being reviewed. Meetings with major players (school science teachers, energy chairs, City of Albuquerque maintenance and purchasing, etc.) have taken place or are scheduled.

Upcoming Events

On-site visit of selection committee and contractors scheduled for April 22nd, 7:30 a.m.

What we could use help with

Time constraint due to start-up delays is somewhat of a concern. The team may not be able to help the City through the entire performance contract process, as planned. Small nagging issues: finding donor for display billboard very much desired by selection committee, to be operated by PV, to track savings and performance and be visible from main thoroughfare. Second nagging concern, buy-down or purchase break for PV panels to allow larger installation while staying within state payback limits (10 years). Balancing size for demonstration and with educational goals, which should include sound economics. SHW payback estimated at 3.5 to 4 years. PV, at market cost, would be over 30 years, or beyond the guaranteed life of the panels. Sandia National Laboratories has agreed to check our calculations, and Public Service Co. of NM has engineer on our team.

State of New Mexico

April 29, 2004

Partnership Lead Organization

Michael McDiarmid, P.E.
New Mexico Wind Power Program Manager
Energy Conservation and Management Division
New Mexico Energy, Minerals and Natural
Resources Department
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505
Phone: 505-476-3319
fax: 505-476-3322
email: mmcdiarmid@state.nm.us

Other Partners

na.

Year of Formation

1999

Million Solar Roofs Installation Goal

The New Mexico Energy, Minerals and Natural Resources Department's original commitment was installation of 600 qualified solar energy systems by 2010. This goal has been achieved.

Cumulative Installations

Conservative estimate is 2,000 systems.

Solar Schools

One.

Leveraged Resources

n.a.

New and Noteworthy Accomplishments

Partnership goal has been achieved.

Activities Underway

n.a.

Upcoming Events

n.a.

What we could use help with

We need a creative financing mechanism for low-income homeowners to purchase solar electricity systems. There are 5,000 homes in New Mexico without reliable electricity. Typically the homeowner spends over \$100 per month on various unreliable electricity sources such as old generators. They could make payments on a reliable solar system but do not qualify for a loan. Often the house is not suitable collateral.

Salt Lake City MSR Partnership

March 25, 2004

Partnership Lead Organization

Contact Person: Lisa Romney
Contact Title: Environmental Affairs Coordinator,
Office of the Mayor
Contact Organization:

Salt Lake City Corporation
Office of the Mayor
451 S. State Street, Room 306
S. State, Room 306
Salt Lake City, UT 84111
Phone: (801) 535-7939
Fax: (801) 535-6331
lisa.romney@ci.slcc.ut.us
<http://www.slccgov.com/>

Other Partners



Sarah Wright, Director
Richard S. Collins, Ph.D.
Utah Clean Energy Alliance
Associate Professor of Economics and Finance
917 2nd Ave.
Westminster College, Salt Lake City, UT
Salt Lake City, UT 84103
(801) 832-2665 (801) 673-7156
Email: rcollins@westminstercollege.edu
sarah@utahcleanenergy.org
www.utahcleanenergy.org

Year of Formation

June 2002

Million Solar Roofs Installation Goal

- Our long-term installation goal is 500 roofs or equivalent.
- Non-system goals: Passage of a utility tariff that creates a buy down program for solar PV.

***Mission Statement:** To reduce the financial barriers associated with the installation of solar systems by creating a regulatory environment in Utah that recognizes and rewards the utility and public benefits associated with solar energy.*

Our intent is to provide expert evidence and testimony to the Utah Public Service Commission, the local regulated utility (PacifiCorp), and other regulatory agencies which demonstrates that partial utility funding of private rooftop PV systems is a cost-effective means of meeting Utah's ever increasing and costly summer peak power demand. The partnership is also working to include solar in the PacifiCorp's green pricing program. Additionally, the partnership has approached PacifiCorp and its regulators to consider an R&D pilot program that will fund PV solar installations in their territory.

The Partnership is participating in the recently initiated Natural Gas Demand-Side Management regulatory proceedings and will pursue opportunities to promote solar hot water installations as a cost-effective demand-side measure.

Cumulative Installations

Based on conversations with the manager of the solar programs with the Utah State Energy Office, we estimate that 4kW of PV rooftop solar panels were installed in 2002 and approximately 4-5 kW were installed in 2003. We will verify these numbers by checking solar tax credits submissions to the Utah Energy Office.

Solar Schools None yet.

Leveraged Resources

Salt Lake City has contributed \$9,975 of in-kind services from the Mayor's Environmental Affairs Coordinator and the City's attorney.

New and Noteworthy Accomplishments

The Partnerships initiative for a utility buy-down program is the lead agenda item for the June meeting of the Utah Resource Forum. The forum was initiated by utility regulators to address Utah's growing peak power demand problem. The forum consists of utility regulators, PacifiCorp representative, industry representatives, and public/environmental interest groups. It is hoped that the Forum will recommend that a Utah Public Service Docket be opened to implement such a tariff that would enable a solar buy-down program.

Activities Underway

We continue to participate in the Integrated Resource Planning (IRP) process advocating the inclusion of solar as a viable resource utility acquisition. Utility modeling efforts, using the IRP model to quantify solar's potential contribution to the electrical system, are ongoing. Our solar R&D proposal is still awaiting comment from PacifiCorp's management. Participation in the gas utility's Demand-Side Management (DSM) proceedings is aimed at encouraging eligibility of solar hot water in their DSM programs.

Solar San Antonio, Inc.

March 19, 2004

Partnership Lead Organization

Contact Person: William Sinkin, Chairman
Contact Organization: Solar San Antonio, Inc.
Mailing Address: 118 Broadway, Suite 635
Phone Number: 210-354-0236
Fax Number: 210-354-0200
Email Address: bsinkin@solarsanantonio.org
Website Address: <http://www.solarsanantonio.org/>

Other Partners

We did not receive the complete list.

Year of Formation

The Partnership was first recognized April 15, 2002.

Million Solar Roofs Installation Goal

Solar San Antonio works to decrease energy costs and improve the quality of life in San Antonio and South Texas by bringing about the widespread use of solar and other renewable and sustainable energy sources. Solar San Antonio is working to educate the public and private sectors about renewable energy technologies in an effort to achieve a sustainable, renewable energy based economy.

Solar Schools

East Central Independent School District - East
Central High School Solar Demonstration

Leveraged Resources

In kind – 20 K
City Public Service 75 K

New and Noteworthy Accomplishments

- Solar Hot Water Heating Workshop – 1st of it's kind in San Antonio and had 48 attendees.
- Institute of Texan Cultures Solar Demonstration
- Renewable Energy Teachers Workshop

Activities Underway

- Working with the local community college, the City of San Antonio, and Bexar County to bring a Solar manufacturing plant to San Antonio.
- Working with the local utility and the Texas Engineering Experiment Station to monitor a recent Solar Hot Water Heating Installation on Brooks City Base to determine the benefits.
- Working with the University of Texas at San Antonio's Master of Technology program to determine the feasibility of a Solar Leasing Program and local infrastructure to support it.
- Working to educate the local school district decision makers on the value of Solar technologies, sustainable building, energy conservation and energy efficiency.
- Working toward implementing solar technologies in Affordable Housing in San Antonio.
- Working with the local utility and community decision makers to determine the possibility of a rebate program or other incentives for Solar Hot Water Heating.

Upcoming Events

Solar Fest 2004 – June 12, 2004 at Maverick Park in San Antonio, TX

Texas MSR Partnership

May 2004

Partnership Lead Organization

Jane Pulaski, Texas Solar Energy Society
Russel Smith, Texas Renewable Energy Industries Association
5603 Mapleleaf Drive
Ph: 512.926.8472
Fax: 512.927.2484
jpulaski@austin.rr.com

Other Partners

- West Texas A&M University/Alternative Energy Institute
- Austin Energy
- El Paso Solar Energy Association
- Electric Power Engineers
- Environmental Defense Fund
- Hutton Communications
- Meridian Energy Systems, Inc.
- Morningstar Enterprises
- Planergy, Inc.
- Public Citizen
- Solar System Installations
- Southwest PV Systems, Inc.
- Texas Solar Energy Society
- Texas Solar Power Company
- Texas Southern University
- The Power Store

Year of Formation

The Texas MSR partnership became an official partnership on September 3, 1999.

Million Solar Roofs Installation Goal

The Texas MSR Partnership has committed to 1,500 systems by 2010. Although the original goal was 2,500, that goal was predicated upon the installation of 1,000 solar thermal systems from Sun Trapper, Inc. Sun Trapper, Inc. ceased to exist in 2001, and with it any chance of achieving those additional systems for the Texas commitment.

Cumulative Installations

In 2003, 160.38 kW of PV were installed in Texas. Cumulative: 673kW of PV installed since 1997, for a total of 738 systems, nearly halfway to our 1,500 system commitment. This in a state without any incentive/rebate programs.

Solar Schools

A total of 37 schools throughout Texas account for 87.8kW PV installed. A complete listing of the Texas schools can be found on the IREC Schools Going Solar website (<http://www.irecusa.org/sgs.php?state=Texas>)

Leveraged Resources

None

New and Noteworthy Accomplishments

Texas Solar Energy Society produced a Solar Homes Tour Guidebook (\$6), sold more than 1,700 copies for the 8th annual Cool Homes Tour (a few extra copies available; contact Kathryn Houser for availability);

Solar Electric Power Workshop, scheduled for June 27-29, for homeowners, consumers and those wishing to enter the solar industry as an installer. Training based on NABCEP task analysis. To help address consumer needs and questions about the newly established Austin Energy Solar Rebate program.

Activities Underway

- Working with Solar Austin on a rebate program with Austin Energy. Rebate program official, May 27, 2004. It will be interesting to see if residential and commercial installations increase because of this rebate program. Austin Energy will require installers to have NABCEP certification by 2006.
- Beginning discussions with Dave Menicucci on energy surety strategies for Austin;
- Net metering/interconnection outreach and education with municipal utilities, coops and retail energy providers, with a goal of coming up with model interconnection language appropriate for each utility class.

Upcoming Events

- May 22nd: Cool House Tour, TxSES Solar Homes Tour
- June 27-29: Solar Electric Power Workshop, designed for solar decision makers and for those interested in becoming a solar professional. Training by John Hoffner, NABCEP-certified instructor.
- July 1st: Training session with selected coops, munis and REP's on net metering/interconnection with Bill Brooks
- July, 2004: Work session with David Menicucci/Sandia to learn how Austin can become an energy surety community
- Sept. 24-26: Texas Renewable Roundup and Sustainable Living Fair, Fredericksburg, Texas.

What we could use help with

Continued efforts with interconnection, net metering and energy security issues for Texas.

Mid-Atlantic Region

Regional Office Report

Delaware
Delaware MSR Coalition

Maryland
State of Maryland

New Jersey
New Jersey MSR Partnership

Pennsylvania
Philadelphia

Washington, D.C.
District of Columbia Solar Initiative

West Virginia
West Virginia's Solar Energy Initiative

The Solar Year in Review For the Mid-Atlantic Region

Prepared by the Mid-Atlantic Regional Office

I. Activities, Advances & Accomplishments of Note

- **General Comments**

All in all, 2003 was a very good year for solar energy advances within the Mid-Atlantic region. Our states and partnerships had a number of solar successes and milestones for which they should be lauded:

Delaware: The past 12 months have seen a flurry of solar-related activity within the “First State.” Early in 2003, Delaware improved the solar incentive structure within its Green Energy Program to accommodate up to a 50% rebate for solar projects. During 2003, the Delaware MSR Coalition worked tirelessly with the State’s municipal utilities to first understand, and then work to overcome their barriers to participating in the State’s Green Energy Fund, and to adopt a statewide interconnection standard and net metering tariff. Over last summer, the Coalition sponsored a series of solar thermal professional seminars in an effort to increase the solar thermal quotient of Delaware’s local installer base. The highlight of the fall season was the annual Delaware Fall Home Show, for which Delaware MSR and Energy Star teamed up as the title sponsor. With the slogan, “The Pathway to a Zero Energy Home: Energy Star & Million Solar Roofs,” the Coalition scored a winning message with Delawareans young and old!

District of Columbia: Recently our office was proud to accept the District’s Energy Office request to organize a new Million Solar Roofs Partnership!

Maryland: As lead for the Maryland MSR Partnership, the Maryland Energy Administration (MEA) seeks to maximize the implementation of renewable energy projects through a variety of channels, including partial funding of solar projects in select cases. Reported at more than half way towards their partnership commitment of 500 solar installations, the MEA was instrumental in enabling solar installations on 8 schools across the state, and in providing \$41,600 in rebates for residential solar PV projects in 2003. Currently, the partnership is involved with a number of high-profile solar projects in the state, including solar PV installations at the Maryland Science Center and the National Aquarium, both located in Baltimore’s famous Inner Harbor. Recently, Maryland created a new Solar Energy Grants Program, which is under development with an expected kickoff in January, 2005.

New Jersey: With an annual \$125 Million worth of societal benefits funds available for energy efficiency & renewable energy programs, New Jersey is ‘rocking and rolling’ in their effort to develop the state’s solar energy generation capacity. In April 2003, the New Jersey Board of Public Utilities (co-coordinator for the state’s MSR Partnership) took over management of the New Jersey Clean Energy Program. Since that time, the BPU’s Office of Clean Energy has worked in partnerships with stakeholders to fashion a host of renewable energy programs that encourage solar energy adoption among New Jersey consumers, institutions, businesses and municipalities alike. The driving force behind much of this is due to Governor McGreevey’s Renewable Portfolio Standard for the state,

which contains a solar requirement of 120,000 MWh of solar power generation by 2008.

Pennsylvania: True to form, our *Philadelphia MSR Partnership* has been quite active during the past year. With over 60% of the partnership's solar commitment already met, Philly MSR has continued to build its member base and to leverage solar education and outreach opportunities wherever they are present. From showcasing their 'Solar Home On Wheels' at various Philadelphia-area public events, to convening local architects and builders for a jam packed workshop on solar for affordable housing projects, to advising the state's legislature on issues related to the pending RPS, net metering and interconnection standards, the Philadelphia MSR Community Partnership is on fire in their efforts to encourage the local and regional solar marketplace. Outside of Philadelphia, the *Pennsylvania MSR Partnership* is likewise engaged in connecting with the 5 other societal benefits funds that exist across the state, in an effort to catalyze the fund managers to embrace solar-friendly incentives for Pennsylvania residents and businesses. In 2003, the state solicited the first round of funding for renewable energy projects under the 'Energy Harvest' grant program, with increased funding and a higher number of solar projects expected in 2004!

Virginia: In addition the state's solar manufacturing incentive programs offered through the Department of Mines, Minerals & Energy, a primary area of focus over the past year for the Virginia Partnership has been the 'SunScreen4VA' online solar screening tool. This is a tabbed calculator that enables a residential or commercial building owner to

quickly compare the payback periods of four different solar energy technologies (both solar electric and thermal), to see which application on a given wall or roof of a building yields the greatest economic benefit.

'SunScreen4VA' enables users to make priorities in considering multiple applications (such as solar ventilation pre-heat on a south-facing wall and indoor pool heating for a recreation center) or to see which application yields the greatest economic benefit (photovoltaic electricity or solar domestic water heating for a small residential roof with limited south-facing area). This program has been designed for easy replication by all the MSR partnerships, simply by modifying the tool to incorporate NREL's publicly available solar radiation data for their state or region.

West Virginia: Recently our office was proud to accept the West Virginia Development Office's request to organize a new Million Solar Roofs Partnership!

- ***Regional Meetings***

First, on May 20, 2003, and with support from the Sustainable Development Fund and the States of Delaware, Maryland & Virginia, the Mid-Atlantic Regional Office teamed with the Delaware Valley Chapter of the Association of Energy Engineers to present a vanguard forum for the Mid-Atlantic Region. 'Taking Control of Energy Costs! A Mid-Atlantic Energy Management Workshop' attracted over 80 commercial energy managers, facilities managers and design professionals who were interested to learn about ways to make their facilities more energy efficient and energy independent. Glenn Strahs, of EERE's Solar Technology Office, gave opening remarks at this workshop, which placed heavy emphasis on solar energy applications for commercial buildings.

Then, on August 12-13, 2003, representatives from the region's 6 Million Solar Roofs Partnerships gathered to participate in the 2003 Mid-Atlantic Peer-to-peer Exchange at the Maritime Institute, just outside of Baltimore. Building on the success of the previous year's inaugural event, the 1 ½ day workshop focused on solar-related successes and challenges as voiced by the partnerships, such as effective strategies for getting solar onto schools, and models for voluntary green pricing programs. Coordinated with assistance from the Interstate Renewable Energy Council (IREC), the 2003 peer exchange received high marks from those Partner representatives in attendance.

- **2003 MSR Grants Review**

In September 2003, Million Solar Roofs grants were officially awarded to 3 Mid-Atlantic Partnerships. The Delaware, Philadelphia and Pennsylvania Partnerships each received MSR grants to continue their work in paving the way for solar throughout their respective geographies.

Looking Towards the Horizon

- **General Comments**

In the coming year, a host of potential solar advances within the Mid-Atlantic region may include:

- Statewide adoption, within the state of Delaware, related to its interconnection and net metering policies, in addition to statewide utility buy-in to the Green Energy Fund or some other green pricing model.
- An observable increase in Maryland solar projects once the approved Solar Energy Grants Program is launched.
- Continued growth of New Jersey's solar industry, including the launch of the region's first Renewable

Energy Credits (RECs) trading system.

- Pennsylvania's adoption of a statewide interconnection standard and net metering tariff, in addition to a proposed Renewable Portfolio Standard.
- Additional regional residential developers coming on-board with offering solar as an option to new homebuyers.
- Noteworthy advances in solar in both the District of Columbia and the state of West Virginia, our newest additions to the MSR family of Partnerships.

- **Focus Areas & Key Challenges**

With respect to solar energy challenges for the region in the coming year, the following are likely to be key areas of focus:

- Continued education and outreach to Mid-Atlantic consumers on the benefits and need for solar energy technologies.
- The pending passage of select state renewable portfolio standards.
- The passage of legislation to utilize existing Mid-Atlantic public benefits funds to attract solar adoption by both consumers and businesses.
- The passage of legislation to allow for interconnection of solar systems and the net metering of the solar generation throughout all areas within the region.

- **Upcoming Events**

2004 Mid-Atlantic Peer-to-peer Workshop: August 4-5, 2004, at the University of Delaware. Of particular note on this year's agenda is a tour of local solar projects, including Pennsylvania's first production home development to offer solar PV!

**Million Solar Roofs Regional Coordinator
Contact Information**

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Delaware MSR Coalition

May 19, 2004

Delaware Million Solar Roofs Coalition

Partnership Lead Organization

Contact Person: Sandra Burton, Coordinator

Contact Organization: Green Plains Energy

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Website: <http://www.delawaresolar.org/>

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Other Partners

New Partners

- Analytical Applications of Bear, DE
- E3Energy Services, L.L.C.
- Delmarva Poultry Industry
- Home Builders Association of Delaware

Existing Partners

- Advanced Building and Solar
- AJL Resources, Inc.
- Applied Energy Group
- CMI Electric
- Conectiv Power Delivery
- Energy Alternatives
- Energy Services Group
- Green Plains Energy
- McConnell Development Inc.
- State of Delaware's Energy Office
- The Commonwealth Group
- University of Delaware, Center for Energy and Environmental Policy
- Wanex Electrical Services

Year of Formation

2002

Million Solar Roofs Installation Goal

The Delaware Million Solar Roofs Coalition (DE MSR) is an unincorporated association established in 2002 by a group of organizations, businesses, and individuals working together for the advancement of the use of solar energy, other forms of renewable energy, and energy efficiency.

The purpose of the DE MSR is to respond to the United States Department of Energy's request for state partners in the Million Solar Roofs Initiative. The National MSR Initiative challenges these partnerships to install one million solar energy systems by 2010.

The DE MSR supports the National Initiative and incorporates into this mission statement the US DOE’s goal of:

- Contributing to the Million Solar Roofs by installing a minimum of 500 solar energy systems within Delaware.
- Identifying and eliminating market barriers to the installation to solar energy systems.
- Developing and strengthening local demand for solar energy products and applications.

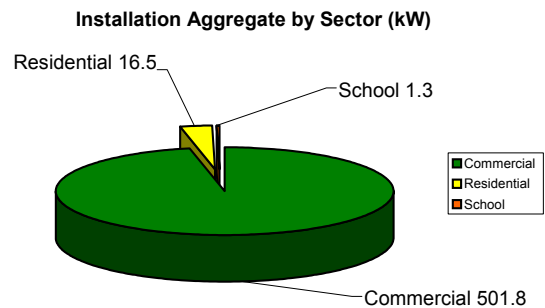
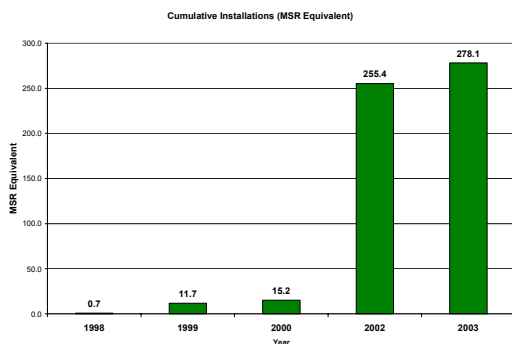
Further, the goals of the DE MSR align with the State of Delaware’s “Livable Delaware Policy” regarding energy efficiency and clean energy. The Livable Delaware goals incorporated into our mission are:

- Promoting energy efficiency and clean energy technologies by encouraging the use of solar energy on Energy Star buildings.
- Promoting the Green Energy Grant Program, which offers 50% buy-down for solar energy installations.

The overall goals of the DE MSR are to:

- Educate consumers on the applications and benefits of solar energy, other forms of renewable energy, and energy efficiency.
- Overcome local barriers to the use of solar energy.
- Promote solar energy to all utility service providers in Delaware.

Cumulative Installations



Solar Schools

Sussex Central Middle School

Leveraged Resources

The DE MSR, through its partnership with Energy Services Group, Inc, Delaware’s Energy Star leader, has leveraged nearly \$7,500 in dollars and in-kind service in 2003

New and Noteworthy Accomplishments

The DE MSR, in cooperation with the Delaware Energy Office and the Delaware Municipal Electric Corporation (DEMEC), hosted the grid-interconnection workshop in February 2004. This one-day workshop discussed interconnection and net metering issues in Delaware and provided expert solutions. The event attracted forty-eight (48) attendees consisting of City Managers, City CFO's, Municipal Board Members, City Council Members, and technical staff. Out of the nine member utilities of the Delaware Municipal Electric Corporation (DEMEC), there was representation from eight municipalities representing more than 99% of DEMEC's customers. This workshop was used as the forum for a grid-interconnection training video directed by the Appalachian Community College.

The Market Barriers to Grid-Interconnected Photovoltaics study and the expert presentations from IREC experts were a combination for success. The DEMEC is actively pursuing clean energy supply with the optimistic goal of offering a clean energy program by early 2005. The DEMEC hopes to issue an RFP for up to 20 MW of clean energy by September 2004 to solicit new and existing clean energy sources. The DE MSR will continue to support DEMEC's efforts to secure a green energy program using solar energy.

Activities Underway

Continue to support DEMEC's 20 MW clean energy RFP, Delaware home builders, and the State's 50% solar energy incentive program.

Upcoming Events

June 2004	DE MSR insert in Conectiv Power Delivery bills.
August 2004	Solar Water Heating Installation Training (Hand's on installation)
August 2004	Conduct Delaware MSR Coalition Meeting
September 2004	Delaware Home Show "Pathway to a Zero Energy Home: Energy Star and the Million Solar Roofs"
November 2004	Conduct Delaware MSR Coalition Meeting
April 2005	Spring Home Show in southern Delaware
June 2005	Delaware Poultry Industry Workshop presenting the results of the <i>Solar Applications for the Delaware Poultry Industry - An Energy Usage Study</i> to be completed 2004-2005.

What we could use help with

Continued national funding support, a portable solar model house for home shows and community events, reprint of the Clean Energy Options booklet, MSR National conference call focusing on RPS, green pricing and RECs.

State of Maryland

May 2004

Partnership Lead Organization:

Contact Person: Tim LaRonde, Program Manager

Contact Organization: Maryland Energy Administration

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21403

Phone Number: 410-260-7539

Fax Number: 410-974-2250

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Website Address: www.energy.state.md.us

Other Partners

- Alice Ferguson Foundation – Hard Bargain Farm Environmental Center
- Antares Group
- Aurora Energy
- BP Solar
- Capital Sun Group
- Chesapeake Wind and Solar
- Daystar Energy Services
- Highland Beach Community
- Maryland, DC, Virginia Solar Energy Industries Association (MDV-SEIA)
- Maryland Department of Environment
- Maryland Science Center
- Montgomery County Department of Environmental Protection
- National Aquarium at Baltimore
- Potomac Region Solar Energy Association (PRSEA)
- Thermo Technologies

Year of Formation:

1997

Million Solar Roofs Installation Goal

Maximize the implementation of renewable solar energy projects through a variety of venues including, in some cases, partial funding of projects.

Cumulative Installations:

2003 Installations: 13 Residential PV = 17.51 kW

Cumulative Installations:

<u>Category</u> <u>Equiv* (@ 2.5 kW)</u>	<u>Total</u>	<u>kW</u>	<u>Roof</u>
Residential PV	58	93.5	58
Residential Thermal	12	25.2	12
Schools PV	8	10.4	8
Farms PV	6	8.4	6
Commercial PV	6	93.0	37
Commercial Thermal	3	151.2	59
<u>Federal PV</u>	<u>3</u>	<u>153.9</u>	<u>46</u>
Total	96	535.6	224

* The Roof Equivalents are calculated for each individual project and not on the total kW for each category.

Solar Schools:

A total of 8 Solar Schools, located in 4 school districts, have been completed.

Leveraged Resources

The Maryland Energy Administration provided \$41,600 in rebates for residential PV in 2003. There were also several State Income Tax Credits for solar provided by the Maryland Comptroller's Office. The actual number and amount of credits for 2003 is not yet available.

New and Noteworthy Accomplishments

State legislation has created a new Solar Energy Grants Program that is under development with an expected kickoff in January 2005. This program has an approved budget of \$103,500 for FY 2005 and is intended to take the place of the solar tax credits, which will expire at the end of December 2004. The net metering law was expanded to include wind and all electric customers. An RPS was passed with requirements for renewables but no specified minimum requirement for solar.

The Food and Drug Administration's Federal Research Center at White Oak installed a 25.9 kW PV system that was completed in February 2004. The installation was performed by Capital Sun Group from Cabin John, Maryland under a contract with Sempra Energy Services.

Activities Underway

The Alice Ferguson Foundation has issued a Request for Bids for a PV array up to 12 kW at their Hard Bargain Farm Environmental Education Center. Thanks to Jim Dunlop from the Florida Solar Energy Center for developing the Technical Specifications.

The Maryland Science Center plans to add PV to their facility at the Inner Harbor in Baltimore. BP and BP Solar have offered their assistance on the project.

The National Aquarium in Baltimore is planning to design and build a state-of-the-art green building on a Brownfields site. They expect to incorporate several solar technologies including BIPV and hope to obtain funding assistance through DOE's recent State Energy Programs solicitation.

Additional green building projects are planned throughout Maryland including; the City of Bowie, The Community of Highland Beach and The Black Olive Restaurant.

The Takoma Park Middle School is finally getting close to installing a minimum 1 kW PV awning. Gel Kizer, from the Foundation for Environmental Education, has been working with the Partnership with the intent of identifying additional solar schools projects.

A Net Zero Energy Home project is being developed with the support of the National Association of Homebuilders Research Center.

Members of the local SEIA chapter (MDV-SEIA), led by Peter Lowenthal, have met with the Maryland Energy Administration and are providing valuable recommendations regarding the development of the upcoming Solar Energy Grants Program.

The Anates Group, based in Landover, is conducting a survey of owners of residential PV systems on behalf of the National Renewable Energy Laboratory.

Upcoming Events:

An August MSR Peer to Peer exchange meeting is being planned by Stephen Miller for the Mid-Atlantic partners.

Celebration ceremonies are being planned for a number of the solar projects currently under development.

What we could use help with

Additional funds for more solar projects, especially through DOE's SEP grant solicitation, would be very valuable. The Partnership plans to request additional technical support from the National Laboratories through DOE's Regional Office. Two types of assistance will be requested. One will be for the development of Technical Specifications for upcoming commercial PV projects and the other will be for assistance in making recommendations for the development of a System Benefit Fund in the next legislative session.

New Jersey MSRP

June 3, 2004

Partnership Lead Organization

New Jersey Board of Public Utilities

Office of Clean Energy
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Other Partners

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URL: <http://www.capturethesun.com/>

Year of Formation:

1999

Million Solar Roofs Installation Goal

The New Jersey Million Solar Roofs Partnership - NJMSRP - is an unincorporated group of solar businesses and non-profit and government supporting organizations. Members support increased utilization of solar energy, expanded employment in solar industries and improved environmental quality through use of solar energy.

Cumulative Installations

The exact number of MSR qualifying installations is difficult to document since some MSR qualifying technologies enjoy no state subsidy. We are more apt to be able to convey installation experience for solar photovoltaics installations since there exists state managed incentive programs with official tracking requirements. As management responsibilities have transitioned from utility to the NJBPU Office of Clean Energy in mid-2003, some margin of error in exact figures derived from these programs should be expected.

In 2003, the NJBPU's Customer Onsite Renewable Energy (CORE) program experienced tremendous activity and growth. There were over 225 applications received and approved. While some official program tracking worksheets show only 185 kW installed in 2003, the actual capacity of installed projects exceeded 800 kW. This difference is due to the fact many systems were not rebated until the 2004 fiscal year due to processing time. The cumulative capacity of solar photovoltaic systems installed since the program's inception in 1999 through 2003 exceeds 1.7 MW (and 1 MW for biomass, wind and fuel cells).

Of all technology sectors incentivized by the program, solar electric continues to dominate statewide activity. In 2003, the CORE program helped fund the installation of 85 solar electric, 2 fuel cell, 2 small wind, and 2 biomass projects. Only 35 of these projects are represented in the official 2003 fiscal summary for the reasons mentioned above. Program-wide rebate expenditures for the CORE program were \$1,112,895. This represents approximately 4% of the authorized budget for 2003. This amount is low because it does not include rebates to be paid in fiscal year 2004 for projects installed in 2003. In 2003, the CORE Program also made commitments to fund an additional \$27.5 million for renewable energy systems.

The number of project approvals in 2003 skyrocketed with 156 solar electric projects totaling 5.7 MW committed through the end of 2003. If and when all of the committed projects are installed in 2004, the installed solar capacity will be 330% greater than the amount installed at the close of 2003. The numbers for program participation are encouraging and indicative of the programs success considering in 2002 only 37 projects

were installed and in 2001 only 3. If the trends continue 2004 is bound to be an active year for renewable energy in New Jersey.

Solar Schools

Again, the exact number of MSR qualifying installations, even on schools, has been difficult to document since some MSR qualifying technologies enjoy no state subsidy. We are more apt to be able to convey installation experience for solar photovoltaics installations management responsibilities have transitioned from utility to the NJBPU Office of Clean Energy in mid-2003, some margin of error in exact figures derived from these programs should be expected.

Interest in solar on schools is increasing rapidly just as in the commercial and residential sectors due to the combined influence of our new financing programs, the increased value of production through the Solar Renewable Energy Certificate program, and the CORE rebates. Howell Township Board of Education installed two 50 kW solar photovoltaic systems in 2003. Approvals were secured for at least thirteen distinct school systems including a college in 2003 that are expected to be installed in 2004.

Of notable mention is the Bayonne Board of Education, which received a commitment for funding 9 solar electric projects on 9 separate school buildings. The 9 projects aggregate to 1.8 MW and have received commitments from the Clean Energy program totaling \$7.15 million. Once installed Bayonne will have the largest concentration of solar electric generation in the East. Cumulative activities also include Ramapo College's installation of a 2 kW photovoltaic system in 2002.

A significant issue exists with the contracting and finance of equipment in New Jersey schools. Existing law prohibits public school districts from entering into lease purchase agreements without initially conducting public bidding. The NJBPU Office of Clean Energy is working with the Governor's Office in support of legislation to amend existing law to allow the finance of energy saving improvements with 15-year lease purchase agreements.

Also expected to contribute significantly to New Jersey's effort to encourage solar photovoltaics on schools is our new Voluntary Green Power Fund, which would give electricity consumers a check off option to support this work.

Leveraged Resources

NJDCA Housing Funding; HOME Funding; Petroleum Over Charge Reimbursement Funds (PORF); NJDCA Green Homes Office staff in kind services
NJBPU OCE staff in kind services
NJBPU OCE CORE Funding 2003

2004 as much as \$45.15 million in rebates for solar photovoltaics, wind, and biomass with trends significantly favoring solar photovoltaics.

- New Jersey Festival of Ballooning, Clean Energy Pavilion, July 27-29, 2004, Readington, NJ
- NESEA Mid Atlantic Conference September 29-October 1, 2004 Trenton NJ

New and Noteworthy Accomplishments

Also include any products, tools, processes or advice that you (the Partnership) would like to share. If you don't have anything to report here, just insert a sentence on your main strategy for increasing solar installations.

Casino Redevelopment Authority (CRDA) in partnership with the NJ Board of Public Utilities – Office of Clean Energy and the NJDCA Green Homes Offices built six high performance modular homes; all included passive and active solar features, two are net energy producing.

Activities Underway

The Department of Community Affairs, Division of Housing; Green Homes Office received the US EPA Region Two Environmental Quality Awarded for their Bellevue Court Project, rehab of 22 single family homes two of which have integrated passive solar, active solar, solar thermal, and 27 other green high performance features.

Micro-load Pilot - The Department of Community Affairs, Division of Housing; Green Homes Office and Balanced Housing Program will select, design, and assist in the construction of 20-25 units of micro load - "zero energy" housing within the City of Camden. This effort will include extensive pre-design commissioning, offer design alternatives, and have extensive monitoring and publicity.

As of March 1, 2004, each megawatt hour of solar electricity produced in the state and connected to the local distribution system is eligible for a Solar Renewable Energy Certificate (SREC). SRECS are intended for trading to and ultimate retirement by electricity suppliers in support of our recently revised Renewable Portfolio Standards via a soon to be unveiled website.

Significant MSR and IREC assistance was helpful in our efforts to improve New Jersey's net metering and interconnection standards by increasing the size of eligible systems (from 100 kW to 2 MW) and more clearly define the application protocols, requirements and procedures.

Upcoming Events

- Partnership meetings, Solar Fairs, exhibits, training programs, etc.
- Rowan College, 2004 NJ Clean Energy Symposium, June 18, 2004 Glassboro, NJ

What we could use help with

Technical Assistance with codes would be helpful.

Philadelphia MSR Partnership

May 15, 2004

Partnership Lead Organization

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Website Address: www.phillysolar.org

Other Partners

- AIA Committee on the Environment
- Celentano Energy Services/RA Consulting
- Citizens for Pennsylvania's Future
- Philadelphia Municipal Energy Office
- Clean Air Council
- Community Energy, Inc.
- Energy Cooperative Assn of PA
- Finley Shapiro Consulting, Inc.
- GPU Solar
- Green Mountain Energy Co.
- Green Plains Energy/SDF
- Mid-Atlantic Solar Energy Industries Assn.
- PUC Office of Consumer Advocate
- PA Department of Environmental Protection
- PECO Energy Coordinating Agency
- Philadelphia Solar Energy Assn.
- Princeton Energy Systems
- Solar Strategies Development Corp.
- SunPower Builders
- Sustainable Development Fund

Year of Formation

1999

Million Solar Roofs Installation Goal

The Philadelphia Million Solar Roofs Community Partnership is a collaborative of local organizations, businesses, and government agencies committed to

helping the five county region of Southeastern Pennsylvania contribute over 500 new solar energy installations by 2010. Community Partners include local energy providers, utilities, solar energy system designers, installers, government representatives, and community based energy experts. The Philadelphia MSR Community Partnership serves as the central point of contact, information clearinghouse, and facilitator for the Million Solar Roofs program in the region.

Cumulative Installations

In the past 12 months, installation is pending or has been completed of 28 solar PV and 102 solar water heating systems. Over 63% of the Philly MSR goal has been reached: A total of 317 systems (48 solar PV systems and 269 solar water heating systems) have been installed since April 1999.

Solar Schools

None

Leveraged Resources

\$50,937 of in-kind match in materials and labor were received over the past 12 months.

New and Noteworthy Accomplishments

- March 16, 2004 Conducted a successful all-day workshop for architects, contractors and builders on affordable housing utilizing solar and energy efficient technologies.
- May 7, 2004 Conducted an in-depth briefing for staff of the Pa. Public Utility Commission on net metering and interconnection standards. The PUC is considering a statewide approach to net metering and interconnection in lieu of the four tariffs, which Pa. currently has. Chris Cook of E3 Energy and IREC is working closely with PMSR on this effort.
- Convened a group of partners to advocate for uniform net metering and

- interconnection, and to secure a solar share in any renewable energy portfolio standard.
- Work with the Philadelphia Zoo is finally moving. The Zoo Educational staff are actively considering a solar installation
- PECO Energy reissued its RFP for PV installation on low-income housing. The awards are expected to be announced shortly.
- Updated installers list to include all SDF participating contractors
- Developed two PV installation case studies.
- Regularly updated calendar of events.
- Junior Solar Sprint segment aired on Kathy O'Connell's Kids Korner show.
- Presentation for architects, homeowners, and general public at Chestnut Hill Friends Meeting on May 3rd.
- Developed PowerPoint presentation and loaned LCD projector to PMSR speakers for various community events.
- Distributed over 7,500 copies of the Solar Services Guide, SDF brochure, DOE literature at events and meetings throughout the Philadelphia region.
- Revised and reprinted Solar Services Guide.
- Participated in '03 Tour de Sol in Philadelphia.
- Spoke at March '04 meeting of the International Brotherhood of Electrical Workers in Philadelphia.

Activities Underway

- Increasing visibility of Solar House on Wheels. The SHOW has had a very busy schedule this spring. Unfortunately the SHOW suffered minor damage to the trailer hitch, roof, and solar panels on the way to an Earth Day event in Chester County. The SHOW already has dates on its schedule through the second week in August.
- Adding video capability to website and video assist to SHOW.
- Continuing education of public and public officials on net metering/interconnection and a renewable portfolio standard that includes solar.
- Media campaign to accompany focus on public education program to raise awareness of need for net metering/interconnection and renewable portfolio standard in PA.

- Continuing to support efforts of major area institutions such as the Philadelphia Zoo, Delaware Green Building Council, others to incorporate a solar energy educational component in their missions and services.
- Advocacy of solar energy in PA through participation in several conferences around the state.
- Several new PV case studies underway.

Upcoming Events

- Special John Wiles workshop on June 22nd for contractors, installers, and inspectors.
- Presentations at Goddard Sustainability Conference and Penn Future "Getting to 10%" Conference.
- Reception for public officials in Harrisburg on May 10th offering opportunity to meet with representatives of the solar industry, including manufacturers, installers, engineers, etc.

What we could use help with?

- Funds for public education and staff development
- Funding to increase availability of the Solar House on Wheels and share with neighbors in the Tri-state area.

District of Columbia Solar Initiative

March 30, 2004

Partnership Lead Organization

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Environmental Solutions
Contact Organization: DC Energy Office
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Fax Number: 202.673.6725
Email Address: tomaysa.sterling@dc.gov
Website Address: www.dcenergy.gov

Other Partners

- Office of Property Management
- Hines Corporation
- Public Technology
- CH2M Hill

Year of Formation

2004

Million Solar Roofs Installation Goal

The goal of the DC Solar Initiative (DCSI) is to have five hundred solar installs in the metro area that have been initiated by DCSI. Our mission is to increase the use of solar energy to improve our environment, by backing down traditional electricity generation provided to the District of Columbia, and decrease the District of Columbia Metropolitan Area's dependence on the traditional electric grid.

Cumulative Installations

We are just starting our program and don't as of yet have any installations. However, we are projecting that by the end of year 2005 we should have 50-75 solar installations, either complete or under construction, associated with the DCSI.

Solar Schools

DCSI is in its initial stage, however, we do have plans to include the school system in the projects and programs that will result from DCSI.

Leveraged Resources

DCSI, currently has a resources from the Reliable Energy Trust Fund (RETF) from the DC Public Service Commission

New and Noteworthy Accomplishments

Our most noteworthy accomplishment is that we are joining MSR and are fully committed to accomplishing and exceeding the goals we have set forth in our initiation.

Activities Underway

We are currently, operating a renewable energy demonstration program and expect to initiate a targeted PV program in the very near future.

Upcoming Events

We are going to participate in Holistic Energy Day, sponsored by the DC Energy Office, on April 28, 2004. At Holistic Energy Day we will provide information on how using solar energy can benefit homes, businesses, and the environment.

What we could use help with

We haven't faced any major barriers yet, but I expect one of them would be coordination and incentives to encourage individuals, agencies, and organizations to go solar.

West Virginia's Solar Energy Initiative

May 17, 2004

Partnership Lead Organization

Contact Person: Debi Conrad, Program Coordinator
Contact Organization: West Virginia Development Office, Energy Efficiency Program
Mailing Address: 1900 Kanawha Boulevard, East, Capitol Complex, Building 6, Room 645, Charleston, WV 25305
Phone Number: (304) 558-0350
Fax Number: (304) 558-0362
Email Address: dconrad@wvdo.org
Website Address: <http://www.wvdo.org/community/eep.html>

Other Partners

- Shepherd University's Institute for Environmental Studies
- The Conservation Fund's Freshwater Institute
- Webster County Economic Development Authority

Year of Formation

2004

Million Solar Roofs Installation Goal

The West Virginia Million Solar Roofs Partnership will serve to advance the application of solar energy technologies in West Virginia.

Cumulative Installations

Not applicable

Solar Schools

We currently do not have that information, but will provide upon request in the future.

Leveraged Resources

Not applicable

New and Noteworthy Accomplishments

The partnership was just formed in April 2004.

Activities Underway

Submitted an application for funding under the Million Solar Roofs Program in April 2004.

Upcoming Events

The partnership will provide a program overview at the upcoming Wind Energy Workshop to be held in Flatwoods, WV in September. It is also planning a solar workshop in the spring of 2005 in eastern West Virginia.

What we could use help with

We could use informational materials such as brochures and pamphlets for distribution to businesses, schools, and homeowners.

Midwest Region

Regional Office Report

Iowa

State of Iowa Million Solar Roofs

Wisconsin

Wisconsin Million Solar Roofs Initiative Partnership

The Solar Year in Review For the Midwest Region

Prepared by the Midwest Regional Office

Activities, Advances & Accomplishments of Note

- **General Comments**

Almost every partnership had solar home tours, there are currently over 717 PV and 875 solar thermal known installations in the region. The Chicago PV installations provide over 1.3 MW of peak capacity. Both Michigan and Wisconsin had certified PV training courses. Glen Kizer in Ohio has been successful in assisting 100 schools in the Ohio and Illinois get solar and develop curriculums. The Regional Office held a meeting with the City of Chicago to get them back on track and thinking about expanding to the surrounding suburbs. The City of Chicago recently held a ceremony welcoming the SolarGenix Company, a solar thermal manufacturer, to Chicago.

- **Regional Peer-to-Peer Exchange(s)**

The Chicago Region has held two MSR partnership meetings, one in November of 2003 in Michigan and the second in April in Wisconsin. At the first meeting the partnerships develop four working groups for the region in which they will work on developing regional activities. These working groups are Academic Education, Professional Training, Market Education, and Market Marking/Community Energy. Each working group has a list of action four items to pursue and develop a white paper on to present at the next regional meeting.

The last meeting held in Wisconsin provided partnerships with an opportunity to discuss what they have been working on the last several months and to discuss some marketing ideas to promote solar in the region. On the second day

the WI partnership held a Zero Energy Buildings meeting that was attended by over 65 participants from around the area. Due to the overwhelming response the WI partnership will hold another ZEB meeting in the fall.

- **2003 MSR Grants Review**

Minnesota, Wisconsin and Ohio received awards on 2003.

Minnesota was for a Phase I, and Wisconsin and Ohio were both Phase II.

- **Solar Exchange**

The partnerships at the fall regional meeting came up with four working groups to develop ways to exchange information and ideas. These groups are just starting and will have drafts of regional efforts drafted late July. The regional office has been working to hold conference calls on a regular basis to exchange information, ideas and announce meetings/training/workshops that will be taking place.

The region will also look into developing a listserv to inform each other of meetings and activities that may be of interest.

Looking Towards the Horizon

- **General Comments:**

The next regional meeting is scheduled for MN in September. This meeting will focus on presentations by the working groups, EPA's Supplemental Environmental Program, and possible WAP/Low income housing efforts and where could MSR fit in.

The CRO is working with the FEMP HQ and the MSR HQ to develop a cross program effort of utilizing MSR partnership expertise to provide technical assistance to federal agencies in the region. The CRO will look to use discretionary funds from both programs in FY05 to fund this effort. This is still in the planning stages but expect this to go as soon as the budget is resolved in FY05 and funds are received in CRO for use.

- **Focus Areas & Key Challenges**
The region will look to develop regional activities that will strengthen their activities. The partnerships are looking for ways to work with the federal agencies in the region. Always looking for funding incentives and creative ideas for promoting solar.

- **Upcoming Events**

Michigan:

Renewable Energy Introductory Seminars

June 19, 2004
GLREA Energy Center
257 S. Bridge St.
Dimondale, MI 48821

Photovoltaic Intermediate Course

July 17, 2004
GLREA Energy Center
257 S. Bridge St.
Dimondale, MI 48821

Minnesota:

Energy Efficiency & Renewable Energy Certificate Series of Graduate Courses for Teachers:
Location: Hamline University, St. Paul, MN
June 21-24, 2004
Course: SOLAR DIRECT - (THERMAL AND PHOTOVOLTAIC APPLICATIONS) SCED-6078

Ohio:

Ohio will hold a "stand alone" solar seminar and tour August 5th in Westerville, Ohio. This tour will be a look at several different back up or stand alone solar devices available. This community has a solar powered traffic signal, bus stop light, flag pole light, lightning warning systems with solar power back-up, school zone traffic signals. The seminar is from 10:00am -2:00pm. There will be a tour from 2:00pm - 4:00pm

Wisconsin:

Renewable Energy and Sustainable Living Fair
Location: ReNew the Earth Institute
Custer, WI
June 18 – 20, 2004

**Million Solar Roofs Regional Coordinator
Contact Information**

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Website: www.the-environment.org

Niels Wolter
WisconSUN Solar Use Network
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Middleton, Wisconsin 53562
Phone: 608-831-1127
Fax: 608-836-1290
Wolter@msbnrg.com
Website: www.wisconsun.org

* While Brian Loll has replaced Steve
Walter for the time being, the Chicago
Partnership has applied for a grant that
will be used to fund an Executive
Director for the program. If this
proposal is awarded, contact for the
Chicago Partnership will change.

State of Iowa MSR

March 3, 2004

Partnership Lead Organization

Contact Person: Patti Cale-Finnegan, Program Planner
Contact Organization: Iowa Department of Natural Resources
Mailing Address: Wallace State Office Building
502 East 9th St., Des Moines, IA 50319
Phone Number: 515-242-6043
Fax Number: 515-281-8895
Email Address: patti.cale-finnegan@dnr.state.ia.us
Website Address:
<http://www.state.ia.us/dnr/energy/>
<http://www.solarmidwest.org/>

Other Partners

None.

Year of Formation

1999

Million Solar Roofs Installation Goal

PV technologies will be an accepted technology in new and existing construction in the Midwest.
500 installations by 2010

Cumulative Installations

6 installations in 2003
42 installations since partnership formation. Total capacity of PV installed is 55.215 kW.

Solar Schools

Muscatine High School, Muscatine, Iowa.

Leveraged Resources

None in 2003.

New and Noteworthy Accomplishments

Completed several consumer educational materials, including:

- Updated the Consumers Guide to Purchasing a Solar Energy System to include Solar Hot Water.
- Updated the Midwest Solar Yellow Pages to include Solar Hot Water.
- Updated www.solarmidwest.org
- Funded educational displays regarding solar installations at 4 sites in Iowa.

Activities Underway

Seeking funds to continue and advance the program.

Upcoming Events

None planned, no current funding.

What we could use help with

Creation of a reliable and sufficient funding source to advance, educate, promote and cost share installation of solar energy systems.

Incorporate all federal solar funding sources under one federal program, such as Million Solar Roofs, instead of incorporating the federal solar funding in every federal program. Example, eliminate Solar Technologies aspect of Department of Energy State Energy Program Special Projects and move that funding into the Million Solar Roofs program.

Wisconsin MSRI Partnership

March 10 2004

Partnership Lead Organization

Contact Person: Alex DePillis, Renewable Energy Engineer

Contact Organization: Wisconsin Division of Energy

Mailing Address: 101 E. Wilson Street, 6th Floor, PO Box 7868, Madison WI, 53707

Phone Number: 608.266.1067

Fax Number: 608.267.6931

Email Address: alex.depillis@doa.state.wi.us

Partnership Webpages

www.wisconsun.org

www.focusonenergy.com (click on renewable energy)

Other Partners

Contact Person: Don Wichert, Program Manager

Contact Organization: Wisconsin Energy Conservation Corporation

Mailing Address: 211 S. Paterson Street, Madison WI, 53703

Phone Number: 608.249.9322 x120

Fax Number: 608.249.0339

Email Address: donw@weccusa.org

Program Implementation

Contact Person: Niels Wolter, Associate

Contact Organization: MSB Energy Associates

Mailing Address: 7507 Hubbard Ave., Suite 200, Middleton WI, 53562

Phone Number: 608.831.1127 x308

Fax Number: 608.836.1290

Email Address: wolter@msbnrg.com

Year of Formation

1999

Million Solar Roofs Installation Goal

3860 systems

Cumulative Installations

Total number of PV and solar thermal installations for 2003: Estimated PV 140, ST 100

Total installations to date: estimated 469

Total kW of PV installed: estimated 260 kW

Projected number of target installations for 2004 and 2005

	04	05
PV	160	220
ST	130	200

Solar Schools

38 PV systems on 38 schools in 32 school districts

Leveraged Resources

Very difficult to estimate, roughly \$750,000, through the WisconSUN program and the Focus on Energy Renewable Energy programs' solar thermal and solar electric activities

New and Noteworthy Accomplishments

The partnership's implementing organization has not been funded since June 2003, new contract signed in February 2004.

Activities Underway

- In related (Focus on Energy Program) areas
- Working on getting solar systems exempt from state sales tax
- Attending home shows across the state
- Working on developing a co-op advertising program for Wisconsin's solar energy professionals
- Investigating time of day rate benefits for PV systems
- Coordinating and organizing a Zero Energy Homes panel as part of the Upcoming Chicago-area meeting of MSR partners

Upcoming Events

- Regional MSR partnership meeting
- Zero Energy Homes session, April 21 2004

What we could use help with?

I asked the National MSR team several questions in the fall and never got the answers.

Northeast Region

Regional Office Report

Maine

State of Maine

Massachusetts

Brockton Solar Champions Partnership
National Grid USA
Newton SUNERGY
Solar Boston
The Vineyard Million Solar Roofs Project

New Hampshire

New Hampshire Million Solar Roofs Initiative Partnership

New York

Long Island Solar Roofs Initiative
New York State Research & Development Authority

Vermont

Vermont Solar Roofs Partnership

The Solar Year in Review for the Northeast Region

Prepared by the Boston Regional Office

This past year, we struggled with less money than we needed to carry out the ambitions of many of the partnerships. We saw many of the partnerships maturing to the point where they are the right arm of the Systems Benefit Charge providers in Massachusetts.

Without them, who would aggregate, who would hold the hand of and be the honest broker for the would-be homeowner thinking about going solar. They are leading the way for the industry when it comes to individual homeowner or institutional projects. We have several new partners just starting out in Connecticut and Massachusetts, and we have a couple of old ones who are being re-born. They are getting new energy from new players who are joining them in both Maine and New Hampshire. New York State and Long Island are competing for the most number of installations.

The regional peer-to-peer exchange is always well attended, and never long enough. As much as people have an opportunity to highlight their efforts in promoting solar at these meetings, they can only scratch the surface of what they are doing, day to day. Solar Hot Water took a major role in our last regional conference, and we hope to see some effort made to promote that technology in the years to come. The host state, Maine, has rededicated itself to finding ways of using solar technologies.

The 2003 solicitation was tough. We had 11 applications for funding, and could only fund 6. We also had people applying for partnership status at the same time that they applied for funding, which was confusing. I think that the process has improved by requiring that any new partnership speak with us first, so that we can together better define their partnership before they apply for funding. We have 4 new partnerships this year, and each has a very special and significant thrust and direction.

I continue to be amazed by the energy of Kate Warner and the Martha's Vineyard Partnership. I don't know how she does it, but she engages people. Perhaps she has the advantage of living in a place where people confront the changes to nature

around them all the time. Chris Warfel lives in a similar island setting, and maybe that propels him. We have a couple of elected officials, Mayor Yunits of Brockton, and Mayor Cohen of Newton, leading Partnerships. They obviously link solar to their stewardship. We have NYSERDA attempting to service a state as broad and varied as New York.

Looking ahead to the coming year, I can see that there will be new demands on the Partnerships. New England has always been a real geographic region, and perhaps New England could figure out a way of reinventing the program. We have 4 states with SBC charges (assuming we adopt New York) and a 5th, if we include LIPA. We have several manufacturers, we have a burgeoning Brightfield, we have Governors committed to a clean energy policy, and to an RPS. We share a utility grid, and our close ally is NY. We have NAPCEP. We have the Northeast Sustainable Energy Association, and through it, access to one of the best meetings in the country for solar advocates, professionals, visionaries, and potential solar customers. In the Northeast, education is an industry. We need to engage that quarter, as well.

If there is a part of the country that could reinvent MSR, it is here. If there is a part of the country that should reinvent MSR, it is here. We have to broaden our solar menu. We have to do more to promote solar hot water, to get manufacturers to build here, to engage the Weatherization Program in MSR, making renewable energy available to everyone, to engage our SBC providers, the entire solar industry, and the MSR partnerships, state and federal government in an all out effort to deploy solar to every sector of the economy. We need to work together to assure that everyone who has access to the sun has access to the power that it provides. We need to work together to understand and solve the issues surrounding the "network," and the challenges for interconnection to the grid in older downtown areas. We have to work together to craft a program that will celebrate the achievements of those who have access to resources and buy-down programs, while encouraging and supporting those who do not. If we can address it on a regional level, we would have an agenda for quite a meeting.

We will have a Peer-to-peer meeting, perhaps this fall. Vermont has generously offered to host. Vermont in mid-October.....

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State of Maine

June 14, 2004

Partnership Lead Organization

Contact Person: Shirley Bartlett, Program Manager
Contact Organization: Maine Public Utilities Commission
Mailing Address: #18 State House Station,
242 State Street, Augusta, ME 04333-0018
Phone Number: 207-287-3318
Fax Number: 207-287-1039
Email Address: Shirley.Bartlett@maine.gov

Website Address:

<http://www.state.me.us/msep/index.html>

<http://www.state.me.us/mpuc/homepage.htm>

Other Partners

We work closely with the following organizations:

- Maine Solar Energy Association
- Maine Energy Investment Corporation

Year of Formation

1997

Million Solar Roofs Installation Goal

500 roofs by 2010

Cumulative Installations

We are currently working on collecting this information. We have given a grant to the Maine Solar Energy Association to develop a database and collect information on solar installations in Maine that have taken place since 1997. We expect to have this information available by the next report date.

Solar Schools

This information is unknown at this time.

Leveraged Resources

na

New and Noteworthy Accomplishments

- We are currently developing a database to capture, and continue capturing, information on solar installations in Maine.
- We currently have contracted with the Maine Energy Investment Corporation to investigate the possibility of a “Yankee Co-op” which would aggregate purchases, and investigate other sources of funding in order to bring down the cost of solar installations for Maine citizens. This would encourage more solar installations while increasing sales for producers and installers of solar equipment, which in itself should eventually bring down the price.

Activities Underway

See above

Upcoming Events

We are beginning a Clean Energy campaign, which, while it does not focus only on solar installations, will draw consumer attention to the availability of energy produced by renewable resources in Maine. This campaign should be of great value to the solar community.

What we could use help with

Money that can be spent on actual purchase and installation of equipment is always our primary barrier.

The second barrier is getting past a mind-set that solar installations are not reliable, which was based on some negative experiences by Mainers who purchased equipment in the 70s that became disabled and had to be abandoned because the producers and installers of the equipment had disappeared.

There is also, of course, the widespread feeling that Maine doesn't get enough sunlight to make solar installations feasible.

Brockton Solar Champions Partnership

June 14, 2004

Partnership Lead Organization

Contact Person: Lori R. Colombo, Brownfields Coordinator

Contact Organization: City of Brockton

Mailing Address: 18 Harwich Road, Brockton, MA 02301

Phone Number: (508) 895-9129

Fax Number: (508) 586-1401

Email Address: LRColombo@aol.com

Website address: www.ci.brockton.ma.us

Other Partners

City of Brockton, Office of the City Planner, Brockton 21st Century Corporation (nonprofit economic development agency), Brockton Public Schools, Metro South Chamber of Commerce, Brockton Interfaith Community, Bay State Gas Company, Massachusetts Electric Company, Rockland Trust Company, Brockton Rox (minor league baseball team, considering joining), KEMA-XENERGY (energy consultants)

Year of Formation

The Partnership was first recognized in 2003.

Million Solar Roofs Installation Goal

The Brockton Solar Champions Partnership commits to installing at least 30 systems by 2010. We will reach the MSR objective of 500 systems through equivalents. The first phase of our solar Brightfield alone (500 kW DC installed) meets the requirement. We commit to an additional 29 installations, for a projected total of 750 kW installed by 2010.

The partnership's mission is to propel Brockton to a leadership position in the deployment of solar energy through:

- Development (in multiple phases) of a 1 MW solar "Brightfield" on Grove Street
- Installation of at least 100 kW of rooftop solar (PV and solar thermal) city-wide
- Use aggregation, bulk purchasing, and creative financing to reduce capital costs of solar
- Sale of green power and renewable energy certificates using innovative models that utilize economies of scale, financial incentives, and creativity to increase solar revenues
- Public-private partnerships including government agencies at the local, state and federal levels
- Demonstration of solar installations on low income, energy efficient housing

Brockton initiated this program to spur economic development, protect the environment, create a local energy source protected from market volatility, retain Brockton's energy investments in Brockton, and improve Brockton's image.

Cumulative Installations

Brockton did not receive its grant documentation until November 2003, and the grant was not presented to City Council for acceptance until December 2003. Therefore, no installations were completed. Installations known and currently planned for 2004 include:

<u>Location</u>	<u>Capacity</u>	<u>Planned Installation Date</u>
Brockton High School	2.6 kW	July 2004
Foster St. Condo Complex (24 units)	71.6 kW	Q4 2004
Brockton Brightfield	500 kW	depends on special state legislation

Solar Schools

None currently, two planned (Brockton High School plus new “Green School” to be constructed on Quincy Street)

Leveraged Resources

Brockton contributed \$25,000 in FY 2003 funds for work to develop the Brightfield. Massachusetts Technology Collaborative contributed \$79,550 for Brightfield predevelopment activities. The in-kind donation of the PV system to Brockton High School was facilitated in 2003 by CSG Services. It is valued at about \$21,000 and includes panels donated by Evergreen Solar and matching funds from MTC.

New and Noteworthy Accomplishments

The MSR partnership commenced late in 2003. Most noteworthy accomplishments include:

- Securing \$1 million grant from Massachusetts Technology Collaborative (MTC) to support installation of the solar Brightfield (application submitted 2003, decision in 2004)
- Securing \$644K revenue guarantee (Massachusetts Green Power Partnership) for Renewable Energy Certificates (application submitted 2003, decision in 2004)
- Securing donated PV system for Brockton High School
- Brockton High School PV system will be one of five PV systems featured on MTC website
- Completion of DOE funded Brightfield report including analysis of system size and costs for PV installations at five municipal facilities.

Activities Underway

The primary focus of the City of Brockton (lead partners) has been completing predevelopment of the Brightfield and performing community education and outreach to build community awareness of solar. See below for planned events. An educational panel will be convened at a local school and broadcast on cable access television. Brockton is partnering with the

Massachusetts Technology Collaborative and the Rendon Group to serve as a stop for the “Clean Energy Tour”, Boston to the Berkshires. This two-day event will include a variety of speakers, educational programs for children and the general public, and a vendor fair. We are also partnering with Bridgewater State College on a teacher-training institute in August. We are working with Brockton Interfaith Community to raise funds to support installation of PV on five low-income homes.

Upcoming Events

- Partnership meeting June 29, 2004
- Community education panel to be televised on community access cable – July 2004
- Two-day “Clean Energy Tour” event in partnership with Massachusetts Technology Collaborative (target date Oct. 1-2), may include a builder’s workshop.

What we could use help with

The largest barrier to progress facing the Partnership is dealing with the transactional costs associated with developing the Brightfield. They consume a significant share of City of Brockton's resources dedicated to solar projects. Municipalities are constrained by Massachusetts General Laws, and that adds numerous steps not faced by the private sector. We will seek help with developing a request for proposals for the installation. Financing is the second most significant issue, and we are also investing significant resources in this area. The smaller, nagging issues are the challenges associated with coordinating numerous activities and stakeholders with diverse interests.

National Grid USA

May, 12, 2004

Partnership Lead Organization

Contact Person: John J. Bzura Contact,
Principal Engineer
Contact Organization: National Grid USA
Mailing Address: 55 Bearfoot Road, Northboro,
MA 01532
Email Address: John.Bzura@us.ngrid.com

Other Partners

None

Year of Formation

1997

Million Solar Roofs Installation Goal

Facilitate the utility-PV system interconnection process through simplified and expedited forms and procedures.

Cumulative Installations

Added 6 residential PV sites in 2003 (approx. 84 total) and 1 school PV system (7 total) to go with existing 2 businesses, 2 institutional sites and 7 experimental sites.

Solar Schools

Seven schools in seven school districts

Leveraged Resources

Estimate \$50K of in-kind services applied to promote the MSR program.

New and Noteworthy Accomplishments

A new DG interconnection process, which includes PV systems, has been developed collaboratively in Massachusetts. This provides for simplified requirements and expedited processing of all PV systems rated at 10 kW or less.

Activities Underway

1. Ongoing Technical Working Group has been formed under the Collaborative noted above, to examine processes to simplify PV system installation on utility *network* power distribution systems (in contrast to the usual far more common radial systems)
2. Respond to questions from people on PV systems, relayed by MSR web site.
3. Monitor performance of existing PV sites.
D. Analyze current PV energy forecast models versus actual kWh output for 6 PV systems in central Massachusetts.

Upcoming Events

None

What we could use help with

COST CALCULATIONS: It would be a great help if some government lab or contractor developed a simple spreadsheet for people to plug in (1) a proposed PV system cost, (2) estimated system life, (3) a loan/mortgage rate, (4) local electricity cost, and (5) the contribution from a state SBC fund: this will help to easily determine if a PV system makes sense economically.

Newton SUNERGY

May 26, 2004



Partnership Lead Organization

Contact Person: David Tannozzini, Engineer
Contact Organization: Newton Public Buildings Department
Mailing Address: 52 Elliot Street,
Newton, MA 02461
Phone Number: 617-796-1605
Fax Number: 617-796-1601
Email Address: dtannozzini@ci.newton.ma.us
Website Address:
<http://www.ci.newton.ma.us/sunergy/>

Other Partners

- Newton-Needham Chamber of Commerce
- Green Decade Coalition/Newton
- Newton Public Schools
- Newton Public Buildings Department
- Newton Planning Department

Year of Formation

2000

Million Solar Roofs Installation Goal

Newton SUNERGY's commitment is 500 (equivalent) solar installations by 2010. The Mayor's advisory committee on Newton SUNERGY has also been tasked with promoting all renewable energy resources for our City.

Our mission statement:

Successfully promote the installation of 1,000 kilowatts (equivalent) of solar energy in Newton.

Our purpose

Reduce imported oil and pollution while providing economic benefits available from renewable energy. Newton SUNERGY focuses on the Commercial, Institutional and Residential Sectors.

Cumulative Installations

Last year eleven PV systems were installed totaling 28 kW. Ten are 2 kW and one 8 kW. Fourteen qualifying systems have been installed since partnership formation. Three DHW systems and eleven PV with a roof equivalency of seventeen is the total.

Solar Schools

Two schools have solar installations: Newton South High School (left) and the Newton Community Services Center pre-kindergarten/after school facility (right).



Leveraged Resources

Newton SUNERGY received a \$45K project management grant from the Massachusetts Technology Collaborative (MTC) because of MSR efforts. These leveraged funds allowed Newton SUNERGY to finance the work of our Solar Promoter consultant, Mass Energy Consumers Alliance and our Buyers Agent consultant, Vidya Technologies.

The MTC awarded the City of Newton a \$470K grant to increase the 8 kW South High School system to 55 kW. This project is now in construction.

Newton SUNERGY's two-kilowatt systems (10) leveraged \$100K of Massachusetts Technological Collaborative funds and project management resources through the Mass Energy Consumer Alliance Solar to Market Initiative grant.

Newton SUNERGY's partner Green Decade Coalition/Newton raised over \$20K in private donations for the installation at the Newton Community Services Center.

In-kind services in 2003 are valued at \$20K by Newton SUNERGY's partners and City staff.

New and Noteworthy Accomplishments

Replicating the votesolar.org model is a good tool for large installations. Vendors can install large systems leveraging energy efficiency financial savings. Facility owners will make payment to the vendor for energy produced. This model is used for Newton SUNERGY's efforts with the Commercial and Institutional Sector.

Activities Underway

- 55 kW system now in construction at Newton South High School
- 60 kW system proposed for a Supermarket submitted to MTC for funding.
- SUNERGY continues to ask MTC for better and sustained incentive programs.

Upcoming Events Newton SUNERGY's partner Green Decade Coalition is hosting an Energy informational party for Newton Highlands Businesses. This is a possible model for small business outreach.

What we could use help with

1. Sales expertise is a barrier. Training in One-on-One Sales is needed. Large-scale installations are doable using the votesolar.org model.
2. Assistance in implementing Newton's Energy Action Project. This project takes advantage of the short payback of energy efficiency measures to provide a comprehensive package including solar energy.

3. Providing stable and long term incentives such as production credits. Owners want to minimize risk that incentives will change.
4. Programs to reduce the cost of solar equipment through bulk purchases, buy-downs and industry partnering.

Solar Boston

June 14, 2004

Partnership Lead Organization

Contact Person: Leslie Grossman, Program Director

Contact Organization: Massachusetts Energy Consumers Alliance (Mass Energy)

Mailing Address: 670 Centre Street, Boston, MA 02130

Phone Number: 617-524-3950

Fax Number: 617-524-0776

Email Address: leslie@massenergy.com,
info@solarboston.org

Website Address: <http://www.solarboston.org/>

Other Partners

- Boston Area Solar Energy Association,
- the City of Boston*,
- Dudley Street Neighborhood Initiative,
- Episcopal Power and Light,
- Fenway Community Development Corporation,
- Heliotronics Inc,
- Interstate Renewable Energy Council,
- MASSPIRG*,
- Northeast Sustainable Energy Association,
- RWE Schott,
- Solar Works Inc,
- Tufts Climate Initiative,
- Wainwright Bank and Trust Company,
- Zapotec Energy.

*the City of Boston and MASSPIRG became official Solar Boston partners during the first quarter of 2004.

Year of Formation:

1999

Million Solar Roofs Installation Goal

10,000 solar roofs by 2010

Mission: Increase the use of solar energy by connecting consumers to their resources, by

reaching out to the community, and by working to reduce the high transaction costs associated with solar energy.

Cumulative Installations

Cumulative

PV: 91 (341 kW) within Interstate 495
193 (538 kW) total statewide

Solar Hot Water: 6 within Interstate 495

Since beginning of 2003

149 new solar installations

Of those reported, 147 PV and 2 SHW

Solar Schools

There are 15 schools with PV in the Greater Boston area, including 9 public school districts, 1 private school, and 4 universities. An additional 6 educational institutions (community centers, etc) have PV.

Leveraged Resources

Mass Energy contributed an in-kind contribution to the Solar Boston program of \$11,718.

Other Solar Boston partners contributed time to participate in monthly and strategic planning meetings.

Mass Energy also received \$525,000 from the Massachusetts Technology Collaborative's Renewable Energy Trust to administer incentives for PV installations in the Boston area throughout 2003 and 2004 (\$100,000 in "grantee support funds" and \$425,000 for installation and production incentives).

New and Noteworthy Accomplishments

As administrator of one of the most successful PV incentive programs in Massachusetts, Mass Energy and Solar Boston recently held ribbon cuttings for PV systems on Worcester Polytechnic Institute, The O'Bryant School of Math and Science in Boston, and North Quincy High School. All of these PV

systems are being used in the classroom, and the projects exemplify community partnerships and fundraising efforts. Funding sources included alumni (WPI); the National Science Foundation and MIT with a grant from NASA (O'Bryant School); and IBEW Local 103, Quincy Rotary Club, and the City of Quincy (North Quincy High School) as well installation grants from the Mass Technology Collaborative via Mass Energy for all projects.

As well as the schools, Mass Energy's incentive program has installed a total of 24 PV systems since the spring of 2003 including a 27 kW (AC) installation on a commercial property in Waltham, Massachusetts. To our knowledge this is the largest privately owned PV system in the state.

Mass Energy is now purchasing green attributes from PV systems installed in MA and RI after 1998 for \$0.06/kWh for three years. These attributes are sold as part of a product called *New England GreenStartSM*, which is available to customers of National Grid via a green pricing program called GreenUp. The *New England GreenStart* mix currently includes 0.5% solar, and is being sold to more than 1000 customers so far.

Solar Boston recently updated our "Consumers Guide to Solar Energy," our most popular brochure, for reprinting. The brochures are available to other MSR partnerships upon request.

Activities Underway

Mass Energy continues to administer incentives for small PV systems in the Boston Area through MTC's Solar to Market Initiative. We plan to complete our total of 111 kW in the fall of 2004.

With the Solar to Market Initiative in Massachusetts winding down, Solar Boston serves as an important resource connecting consumers with solar opportunities. We continue to advocate for long-term, consistent support from MTC for solar energy. We also monitor new programs such as the "Commercial, Industrial, and Institutional Incentives" which include funding for solar energy, and advise those who are interested in applying. Our goal is to maintain a demand for solar energy, and to help people access their best options in the ever changing and confusing Massachusetts marketplace. As part of this goal, we continue to attend and coordinate many outreach events per year such as Boston's EarthFest, the Race to Stop Global Warming, and the National Tour of Solar Homes and Green Buildings.

Mass Energy/Solar Boston spent much time during 2003 participating in the Massachusetts Distributed Generation (DG) Collaborative, established by the Department of Telecommunications and Energy (DTE). In the spring of 2004, the DTE adopted a statewide interconnection standard. While we do feel that progress has been made in simplifying the interconnection progress, particularly for small PV systems on the radial distribution network, there is still much work to be done to foster a friendly environment for renewable energy interconnection. We will continue to participate in follow-up discussions on interconnection standards, as well as in collaborative topics such as standby charges and the role of distribution companies in the growth of DG.

Solar Boston is working with the George Robert White Environmental Conservation Center at the Boston Nature Center in Mattapan to develop a case study, outreach materials, staff training, and to provide technical assistance in support of the education program at the green building.

Upcoming Events

- Solar Boston partnership meetings (monthly).
- Boston Area Solar Energy Association's "Boston Solar Day," June 19.
- Wisconsin Delegation to the Democratic National Convention meeting at the Boston Nature Center in Mattapan staffed by Solar Boston, July 25
- Ribbon cutting for Spectacle Island Visitor's Center, TBA
- At planners' request, Solar Boston will co-host with the Boston Harbor Alliance, a tour of Boston Harbor and a site visit to the Hull turbine(www.hullwind.org) during the Democratic National Convention.

What we could use help with

Case studies on buildings using DG that are interconnected to a network distribution system.

The Vineyard MSR Project

May 22, 2004

Partnership Lead Organization

Contact Person: Kate Warner
Contact Organization: The Vineyard Energy Project, Inc.
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West Tisbury MA 02575
Phone Number: 508-693-3002
Fax Number: 508-693-3820
Email Address: kate@vineyard.net
Website Address: www.vineyard-unplugged.org/

Other Partners

- The Cape Light Compact
- Cape and Island Self Reliance Corporation
- Mirant New England
- NStar
- Martha's Vineyard Commission

Year of Formation

Partnership began in 2002.

Million Solar Roofs Installation Goal

Goal: 500 Solar Roofs by 2010.

Our vision for our island is "energy independence within a generation" thus, the website name "Vineyard Unplugged". Our goal is to become a "Renewable Energy Island" based on the model of Samso Island in Denmark where they have a goal of being energy-sustainable by 2008.

Cumulative Installations

2003:

20 systems 960-3705 watts DC in size, grid-tied
2 stand-alone systems, 100 & 300 watts DC
4 solar hot water systems

Since partnership formation:

28 solar electric systems
8 solar hot water systems

Solar Schools

The island has 5 elementary/middle schools, 1 high school, 1 Charter School. Currently 3 of the elementary schools have solar ranging in size from 1120 - 2700 watts DC. The high school has a small stand-alone system to provide lighting near the athletic field. The Charter School will have a 2700-watt DC system installed this summer.

Leveraged Resources

Funding for public demonstration projects was from the Massachusetts Renewable Energy Trust and from private donations to the Vineyard Energy Project, Inc.

Funding to subsidize residential sites also from MRET as well as a Community Planning Grant.

New and Noteworthy Accomplishments

10 solar demonstration sites were installed in highly visible locations this year to teach about how solar works and the value of renewable energy to our island's future. Sites included grid-tied solar at 3 schools, public restrooms at a popular tourist destination, our ferry terminal, and a BIPV system at 1 of our 2 supermarkets. Stand-alone systems were installed for cash register power for a landfill, a light for the high school athletic field and for DC lighting for a school courtyard. A solar hot water system was installed to provide hot water for showers at our fishing port.

Activities Underway

A Vineyard Energy Project DVD has been prepared to highlight the solar installations on the Vineyard and community involvement in the overall energy effort.

Work has begun to bring a resolution to Town Meeting next spring about the concept of "Renewable Energy Island" which will raise overall island energy awareness.

Upcoming Events

Solar Electric Code Training for electricians and electrical inspectors in June.

Solar cake walk/ice cream social in July to show DVD.

What we could use help with

Largest barrier remains cost. Other issues are problems with one of the island's six electrical inspectors (thus the training planned for June). Still don't have a solar hot water system to use that is easy to install and good for use in seasonally used houses.

New Hampshire MSR Initiative Partnership

May 13, 2004

Partnership Lead Organization

Contact Person: Joseph C. Broyles, Program Manager
Contact Organization: NH Office of Energy and Planning
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Email Address: joseph.broyles@nh.gov
Website Address: <http://www.nh.gov/oep>

Other Partners

Laura Richardson
NH Sustainable Energy Association
47 Learned Farm Road
Pike, NH 03780

Peter Adams
Plymouth Area Renewable Energy Initiative
PO Box 523
Plymouth, NH 03264
peter@evpcreative.com

William Crangle Vice President for Financial Affairs
Plymouth State University
Plymouth, NH 03264

Electric Utilities:
NH Electric Cooperative – support for PAREI
Public Service of New Hampshire – past support for Solar on Schools
– interested in renewable power generation applications (biomass, wind, and solar)

Year of Formation

2000

Million Solar Roofs Installation Goal

500 roofs: “NH-MSR will design a realistic, statewide implementation plan, tailored to New Hampshire’s specific needs and situation, for the state’s MSR Partnership to reach its commitment of 500 solar systems by 2010.”

Cumulative Installations

We have attempted to track installations dating from the start of the NH Partnership. The information given here is not complete as the state’s inventory was interrupted when DOE stopped the national inventory. The state and its partners have applied for a continuing partnership grant in this most recent round of grants. One of the objectives of this grant is to devise a more comprehensive tracking system. Here are the data as they now exist.

Total of 57 systems.

- a. [Source NH electric utilities] Net Metering PV: Total = 53 installations, 97.6 kW cumulative;
(In 2003: 5 systems, 14.2 kW installed.)
The schools listed in Item 8 below *are* included in the total here.
- b. Off-grid PV: 1 installation, 2.4 kW
- c. Solar thermal systems: 3 btu unknown

Solar Schools

21 systems in schools, including 16 public schools; 4 systems on public universities/colleges; one independent school.
9 additional installations at non-school educational institutions;
1 installation at a high-visibility public housing site.

Leveraged Resources

Money unknown in 2003 – will determine this amount as part of inventory in new grant application. (See below)

New and Noteworthy Accomplishments

Recent spikes in fossil fuel prices and updated air quality reports have re-invigorated grass roots interest in solar energy. The creation of the new Office of Energy and Planning will assist communities with renewable energy systems planning.

Activities Underway

The newly formed Plymouth Area Renewable Energy Initiative (PAREI) has joined (2004) NH Office of Energy and Planning in submitting an MSR grant application to fund a major public outreach and education effort. PAREI's goal is a significant increase in solar installations in their 8-town area, as well as providing statewide outreach and tracking. Materials and approaches developed will be appropriate to and available for statewide dissemination/ implementation. We anticipate that PAREI's enthusiasm, significant and diverse talents, technical skills, and widespread business and community support will create a locally implemented model that will be replicable throughout rural America.

Upcoming Events

See above.

What we could use help with ?

The primary barrier continues to be the cost of systems versus return on investment. There are insufficient incentives to overcome this price barrier. Federal funding and/or tax credits for small systems to individual households and small business would be an immense help.

Another challenge is the difficulty of identifying extant and new installations for a state registry. NH is addressing this in its new application by creating a website to encourage self-reporting. NH is seeking to track ALL solar applications no matter how small.

The partnership also plans to create an 'Individual Energy Plan' for participating individuals and businesses. Assistance with the creation of this plan will be greatly appreciated.

Long Island Solar Roofs Initiative

June 1, 2004

Partnership Lead Organization

Contact Person: **Gordian Raacke**, Executive Director
Contact Organization: **Renewable Energy Long Island, Inc. (RELI)**
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Phone Number: 631-537-8282 Fax Number: 631-537-4680
Email Address: RELI@optonline.net
Website Address: www.LIshines.org

Other Partners

Founding Partners: Renewable Energy Long Island (RELI) formerly as CAP LI, Long Island Power Authority, KeySpan Energy, Pace University Energy Project.

Partners: Brookhaven National Laboratory, Chaleff & Rogers Architects, Citizens Campaign for the Environment, Duke Solar Energy, East Hampton Energy Advisory Committee, Elemco Electrical Construction, Environmental Advocates of New York*, Environmental Defense Fund, ETM Solar Works, FairWind Energy, Four Seasons Solar Products, Go Solar, Group for the South Fork, Interstate Renewable Energy Council, Kyocera Solar Inc., LI Builders Institute, LI Neighborhood Network*, LI Sierra Club Energy Committee, LI University Southampton College Institute for Sustainable Development, Natural Resources Defense Council, New York Board of Fire Underwriters, New York Power Authority, New York Solar Energy Industries Association, North Fork Retrofit, Prime Energy Technologies, Residents for a More Beautiful Port Washington, SEADS, Inc. (Solar Education Corporation), Shea Stadium, STAR Foundation, SUNY Farmingdale Solar Energy Center, Sunshine Plus Solar, Suffolk County Electrical Contractors Assoc., Sustainable Energy Alliance of LI (SEA), The Town of Huntington, Trace Engineering [* denotes new partner]

Year of Formation:

1999

Million Solar Roofs Installation Goal

LIPA has committed to install at least 10,000 solar roofs by 2010

Mission Statement: The Long Island Solar Roofs Initiative is committed to creating a viable solar market on Long Island through increased outreach and education, responsive customer service, and the reduction of market barriers and costs that impede the expansion of solar installations.

Cumulative Installations

Installations 2000 through April 30, 2004 (PV only). Source: LIPA

Building Type	Number of Installations in 2003	Total kW in 2003	Number of Installations cumulative	Total kW cumulative	MSR kW Equiv.	MSR Roofs Equiv. cumulative
Commercial*	3	16.14	15	1213.24	2.0	606
Residential **	140	736.74	458	1917.32	0.5	3834
Public***	1	10.00	4	31.90	1.0	31
Churches	0	0	4	30.24	1.0	30
Schools****	0	0	9	119.00	1.0	122
Total	144	762.88	490	3311.70		4623

4620 MSR Roof Equivalent = 46% of LISRI goal of 10,000 solar roofs

Notes:

*Includes commercial installations rebated through LIPA's Solar Pioneer Program (113.24 kW) and Fala (1.1 MW)

**Includes residential installations rebated through LIPA's Solar Pioneer Program (1873.16 kW) and LIPA's PV 1999 and 2002 lottery installations (44.16 kW, inclusive).

***Includes Jones Beach Theodore Roosevelt Nature Center (18 kW), U.S. Merchant Marine Academy (10 kW), NYS DEC (0.9 kW) and NYPA Project: IAM Community Center, Roosevelt (3 kW)

****Includes NYIT (15 kW); Farmingdale University (Four installations totaling 80 kW through previous NYSERDA project); NYPA Project: (four schools N. Babylon H.S.; Terryville Elementary; Ross H.S. Brentwood; Sycamore Elementary Connetquot totaling 24 kW).

Solar Schools

Four public school districts, one installation in each district through previous New York Power Authority (NYPA) projects (24 kW). Four installations (80 kW) through previous NYSERDA project at Farmingdale University.

Leveraged Resources

In Kind Services – Through June 1, 2004 Long Island Power Authority. 2003 LIPA Clean Energy Initiative – Solar Pioneer Program Budget: \$2,650,000 (\$2.2 Million in Rebates, \$450,000 Other).

Detailed breakdown of activities and amounts available upon request.

New and Noteworthy Accomplishments

On May 28, 2003 LIPA and LISRI partnership members unveiled a 1 MW PV system in Farmingdale on the roof of Fala DM, a direct mail business. This system consists of 13,464 solar panels, is roughly the size of two football fields, generates one million kilowatt-hours (kWh) of electricity annually and cost \$6 million.

The Third Annual Solar Conference was held in May 2004 at Farmingdale State University, its Solar Energy Center (FSEC) held numerous seminars and workshops attended by hundreds of people, and LIPA presented PV technology to Nassau County Code Officials in the fall of 2003 with a similar presentation planned for Suffolk County Officials in 2004.

Activities Underway

With funding from DOE, Lishines developed an Automated Inquiry Response System (AIRS), consisting of an automated voice mail system and a website that allows potential PV customers to input information, receive a pro-forma estimate and automatically solicit bids from installers. Lishines is also establishing a SolarCorps volunteer network to assist with outreach and public information efforts of the partnership.

Upcoming Events

On July 21 the partnership will hold a meeting with solar contractors. On July 24 & 25, Solar Community Corp, a volunteer-based organization will hold the First Annual New York Solar Fest 2004 on Long Island. FSEC will host various workshops and seminars, as well as a review course for NABCEP candidates.

What we could use help with

The largest barriers facing the Partnership now are lack of easy financing for PV and insufficient marketing. Sales lead pursuit and follow-up by integrators is spotty. PV sales training would help.

New York State Energy Research & Development Authority

May 26, 2004

Partnership Lead Organization

Contact Person: Adele Ferranti, Sr. Project Manager

Contact Organization: NYSERDA

Mailing Address: 17 Columbia Circle, Albany NY
12203

Phone Number: (518) 862-1090 ext. 3206

Fax Number: (518) 862-1091

Email Address: afl@nyserda.org

Website Address: www.PowerNaturally.org

Other Partners

- New York Solar Energy Industry Association
- SUNY Farmingdale
- Dr. Gay Canough

Year of Formation

1999

Million Solar Roofs Installation Goal

500 installations by 2010. Our goals also include developing 4-5 accredited PV training programs/institutions across the state (one accredited to date), having a NYS certified Master Trainer (Dr. Canough is now certified), having 4-8 certified instructors across the State, and helping PV installers get certified by NABCEP.

Cumulative Installations

As of April 1 2004, NYSERDA has helped installed 162 PV systems for a total of 829 kW.

Contracts/reservations have been approved for another 120 systems, representing another 1312 kW. For all systems installed or contracted, the total installed system costs are well over \$15 million, with NYSERDA incentives totaling \$8.4 million. The average system size is 7 kW across the programs.

Solar Schools

To date sixteen, 2 kW systems have been installed and another 34 systems (all 2kW) will be installed in schools by this fall

(www.schoolpowernaturally.org/)

Leveraged Resources

For all systems installed or contracted, the total installed system costs are well over \$15 million, with NYSERDA incentives totaling \$8.4 million. NYSERDA has committed/spent another \$1.5 million on training, outreach, and education.

New and Noteworthy Accomplishments

Since its Phase One MSR Grant and other related initiatives were completed, NYSERDA has seen the number of trained, qualified installers participating in its program jump from 20 to nearly 50. A dozen or so New York installers are certified by NABCEP and many others are pursuing certification. The number of qualified installers could easily jump to 75-80 in the next 12-18 months.

NYSERDA has held 18 training sessions, reaching about 400 PV students, at more than a dozen different locations across the State. Architects, builders, installers, contractors, electricians, utility staff, and inspectors have participated in training in topics ranging from building-integrated PV design, to PV for inspectors, to OSHA safety. Working with the PACE Energy Project, another MSR partner, NYSERDA was the main sponsor for the two-day Bear Mountain Energy Expo which offered free technology exhibits and PV workshops to the community.

Activities Underway

While many state and clean energy fund programs focus most of their efforts on providing cash incentives and rebates for renewables such as PV, NYSERDA has implemented many initiatives addressing several barriers to utilization of PV in New York, including: developing a qualified installer network across the State; educating consumers about PV; providing funds for companies developing innovative or more efficient PV technologies; providing funding for PV installers and dealers to develop innovative marketing strategies; and placing system and installer quality ahead of maximizing the number of kW installed. For every three dollars NYSERDA has spent on cash incentives for PV, another dollar has been invested in training, certification, education, and outreach.

NYSERDA is also redesigning its Power Naturally web site.

Upcoming Events

Fall and winter training events are being scheduled and should be posted at www.PowerNaturally.org during the summer or 2004.

What we could use help with

DOE could help fund and coordinate training (installer, inspector, realtors, etc.) , installer and trainer certification through NABCEP, PV training program accreditation through the ISP, and consumer outreach activities.

Vermont Solar Roofs Partnership

June 14, 2004

Partnership Lead Organization

Contact Person: David Hill, Director
Contact Organization: Vermont Energy Investment Corp.
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Fax Number: (802) 658-1643
Email Address: dhill@veic.org
Website Address: www.erc-vt.org/

Other Partners

- Vermont Department of Public Service
- Renewable Energy Vermont
- Associate partners include the 14 solar system installers active in the Vermont Solar and Small Wind Incentive Program

Year of Formation

1999

Million Solar Roofs Installation Goal

Vermont's Solar Roofs Partnership goal is 1,000 Solar Roofs by 2010. The Vermont Solar Roofs Partnership, through The Renewable Energy Resource Center (RERC), a project of the Vermont Energy Investment Corp. provides consumers with information on solar hot water and solar electric renewable energy systems. In our web site you can learn about how solar electric and hot water systems work, find information on the economic and environmental benefits of renewable energy, incentive program details, and locate dealers and advice that can help you make better choices when purchasing and installing a renewable energy system. We are also available to field phone calls and information requests via email.

Cumulative Installations

Between 1999 and 2003, Vermont's Solar Roofs Program estimates there have been roughly 177

new solar installations, three quarters of which have been photovoltaic, with the remainder hot water.

After five years, Vermont has achieved roughly 20% of its Million Solar Roofs target. We are tracking progress based on industry self-reported installations for hot water, and net metering application approvals for solar electric. This is conservative, since off-grid installations will not receive a net-metering approval, and the self-reporting on solar hot water is likely to miss some installations. Starting with 2004 we will use information from the Vermont Solar and Small Wind Incentive Program to more accurately capture the number, types, and size of installations.

Solar Schools

Burlington, VT established in 2003 a "Solar on Schools" program and plans to install seven solar systems over four years (www.burlingtonelectric.com/solarpg.htm) To date, we are aware of two schools that have solar systems currently installed.

Leveraged Resources

The Vermont Department of Public Service through allocation of Petroleum Violation Escrow Funds dedicated \$581,000 in start-up funding for the establishment of the Vermont Solar and Small Wind Incentive program in October, 2003. Supplemental incentive program funding was contributed by two Vermont electric utilities, Central Vermont Public Service and Green Mountain Power, in the amount of \$380,000 in April, 2004. Additional resources are also leveraged every time a consumer invests their personal funds in a solar system for their residential or business application.

New and Noteworthy Accomplishments

Supported the establishment of the first-ever incentive program in Vermont for renewable energy systems: The Vermont Solar and Small Wind Incentive Program. Since 2003, a total of \$961,000

has been raised for the incentive program. As of May 2004 68% is reserved for renewable systems, representing approximately 85 solar electric and 37 solar hot water systems. Additionally, the number of solar installers in the state recognized as members in the incentive program continues to grow and is now 14 businesses.

Activities Underway

Website updates and consumer education and outreach events to the public about the Solar and Small Wind Incentive Program. Additionally, the Vermont Solar Roofs partnership regularly convenes meetings of the solar installers in the state to address questions and promote opportunities for greater installation of systems.

Upcoming Events

1. American Solar Energy Society, July 9-14, 2004, Portland, OR. – poster session on Vermont Solar and Small Wind Incentive Program
2. Solar Fest, July 10-11, 2004, Poultney, VT (www.solarfest.org) – Consumer education
3. Renewable Energy Vermont Annual Conference, October 14, 2004 Burlington, VT (www.revermont.org) – Consumer education

What we could use help with

We could use financial support to incorporate a solar hot water analysis option into the Clean Power Estimator available on our website.

Southeast Region

Regional Office Report

Florida

Florida SunSmart MSR Partnership

Georgia

Georgia MSR Partnership

Kentucky

Kentucky Solar Partnership

Mississippi

Mississippi MSR Initiative

North Carolina

North Carolina MSR Partnership

South Carolina

South Carolina MSR Partnership Initiative

Tennessee

Big Frog Mountain Corporation
Tennessee MSR Initiative

The Solar Year in Review For the Southeast Region

Prepared by the Atlanta Regional Office

Activities, Advances & Accomplishments of Note

- **General Comments**
The Southeast MSR Partnerships continues to move in the direction of developing a unifying approach to building the local solar markets throughout the Region. This approach revolves around developing strategies to introduce solar hot water technologies in indigenous markets both as a hedge against rising energy costs and/or as a “power” source. MSR activities include P2P strategy meetings, encouraging utilities in selected states to add solar thermal in green power offerings, and meeting with professional organizations to seek support. Systems, both PV and thermal, continue to be added throughout the region. As state and utility green pricing programs are being rolled out, some limited incentives either offered by utility or state fiat are materializing. The TVA Green Partners Program that remunerates 15¢/kWh to small power producers who sells it to TVA leads the way. Other states such as Georgia are considering similar approaches. The State of Kentucky’s legislature passed a net metering bill for PV due in no small part to the efforts of the MSR partnership led by Appalachia Science in the Public Interest.
- **Regional Peer-to-Peer Exchange(s)**
The fall ’03 P2P meeting partnerships developed the following:
 - Framework for Regional MSR Weatherization Program
 - Draft plan to Market solar water heating to utilities
 - Module for effective communication techniques.
 - SE MSR Partnerships Survey

The Next P2P meeting to be held in Charleston will feature selecting a theme through which to market solar such as green building design. We will also continue our regional peer building efforts to establish better communications among partnerships, continue developing a tripartite approach to increasing the hot water industry throughout the region, i.e., 1) affordable housing 2) new construction and 3) solar thermal as power source.

- **2003 MSR Grants Review**
The following is a summary overview of MSR grants awarded for FY’03 in the Southeast Region. (...area for notating 2003 partnership grants, etc.) “Development and Dissemination of Financial Models for Solar Energy in NC”
Recipient: NC State U, \$50,000

This project will customize an on-line “clean energy” economics calculator with North Carolina specific data to be posted on the NC MSR website. In addition, this project will conduct at least two (2) “Continuing Education” workshops on research of economic models for solar technologies in North Carolina. These economic models will quantify the value of solar energy technologies for single family and multifamily residential, commercial and governmental sectors.

“SUNRISE OF THE SOLAR INDUSTRY Phase II”

Recipient: State Of Mississippi \$50,000

This project will continue efforts in building the indigenous Mississippi solar industry by providing technical assistance to organizations interested in manufacturing and distributing solar equipment, providing additional leveraged funding for solar thermal hardware, coordinating development of outreach tools between the private and public sectors, providing financial assistance for staffing the Phoenix Center and expanding training for project installers.

“Redefining Market Strategies”
Recipient: Florida Solar Energy Center,
\$49,972

This project will define program attributes and incentives that entice utility, commercial and industrial customers to purchase solar equipment and or green tags. The project will use a market survey of sub partners to determine effective marketing strategies. In addition, this project will build upon national studies by organizations such as NREL to determine what may be effective in marketing solar. Finally, this project will create a commercial and utility “tool kit “ to increase solar sales.

“Georgia MSR Initiative”

Recipient: Southface Energy Institute,
\$49,985

This project will review existing solar education and technical assistance materials to create a “Solar Roadmap” for those interested in pursuing solar installations as a policy initiative. The project will directly assist educational institutions in installing solar equipment. This project will provide technical briefings to public policy officials and adequately document all solar installations statewide.

“South Carolina MSR Initiative Advancement”

Recipient: South Carolina State Energy Office, \$46,800

This project will develop a statewide chapter of the American Solar Energy Society. It will also create and execute an educational marketing program that builds upon knowledge gleaned from the SC MSR’s first year of activity. This project will also develop and execute a method for accurately measuring the program’s success, beyond number of installations.

- Solar Exchange
 - Community MSR Partnerships continue to grow in North Carolina as well as the commitment to numbers of

installations. One such addition is a partnership at Fort Bragg, which is planning on renovating 2500 housing units and building an additional 2500 housing units. They will develop green building guidelines while investigating solar hot water and other renewable and DG technologies that enhance security and energy independence.

- The Florida Partnership continues to provide leadership in installing solar PV on schools, working with utilities to support, through financial and other means, solar technology installations.
- The South Carolina MSR partnership initiated a solar hot water heating demonstration program for six public buildings.

Looking Towards the Horizon

- General Comments
 - Alabama is the latest area to join the MSR initiative. This Partnership is headed up by the Brownfield Institute of Anniston, Alabama. The State Energy Office and the Tennessee Valley Authority are partners with this group.
 - High levels of commitment by individuals and groups towards growing the solar and renewable industries shine bright in the Southeast. Increasingly, experienced colleges and universities such as the University of Central Florida, North Carolina State University, Georgia Institute of Technology, Coastal Carolina University, and North Carolina A&T will partner with less experienced universities and HBCUs (Historically Black Colleges and Universities) to promote and support solar education and installation

activities. Federal commitments such as the previously mentioned Fort Brag, and others such as Camp LeJune which will install or re-install hot water solar systems to not only provide hot water but also to provide dehumidification are examples.

- Georgia inaugurated its Solar for Schools Program in the fall '03.

- **Focus Areas & Key Challenges**
Our key challenges continue to orbit around financing issues. Individuals and institutions in the southeast are no less eager to investigate, indeed install solar technologies, than their counterparts in any other part of the United States. Absent any restructuring of the state electric industries, incentive programs such as system benefit charges will be slow to arrive. Two states did propose Resource Portfolio Standards, which did not pass legislative muster. On the positive side, in several of our states public utilities have created innovative programs that give consumers some financial assistance.

Other areas that MSR must stay focused on involve public private partnerships and marketing. Solar technologies have to be considered in a broad context for wider acceptance. This broader context should include rational decision path exercises with the utility industry and messaging with highly receptive audiences. In addition, marketing efforts with, non-energy related private sector or academic experts would prove useful in program support.

- **Upcoming Events**
 - Financing Workshop in Little Rock, AR - Summer
 - P2P Meeting July 20-21, 2004 in Charleston ,SC

**Million Solar Roofs Regional Coordinator
Contact Information**

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Florida SunSmart MSR Partnership

June 7, 2004

Partnership Lead Organization

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Website Address: www.sunsmart.org,

www.fsec.ucf.edu/pvt/projects/msr

Other Partners

- Florida Energy Office/Florida Department of Environmental Protection
- Florida Municipal Electric Association
- Florida Solar Energy Industries Association
- Florida Solar Energy Research and Education Foundation
- Progress Energy
- FPL
- TECO
- Gulf Power
- JEA
- Gainesville Regional Utilities
- Orlando Utilities Commission
- City of Tallahassee
- Lakeland Electric
- Ocala Electric Utility
- *City of Key West
- *Florida Institute of Technology
- *Florida Gulf Coast University
- *FSU Center for Advanced Power Systems
- *Florida Atlantic University
- *Westside Technical School
- *City of Ocoee
- *Jacksonville JATC
- *Daytona JATC
- *Orlando JATC
- *Gainesville JATC
- *Energy Structures and Systems
- *Solar Energy Inc.
- *Environmental Protection Commission of Hillsborough County
- *IFAS Energy Extension

Year of Formation

1999

Million Solar Roofs Installation Goal

Our goal is to install 20,000 PV systems and 140,000 solar hot water systems by 2010. Our mission as a partnership is to facilitate the growth of Florida's solar industry through education, demonstration and active community support.

Cumulative Installations

Source of Data	System Type	Year Installed	Number Installed
Lakeland Electric	Solar Water Heating	2000	29
Lakeland Electric	Solar Water Heating	2002-3	28
SunBuilt	Solar Water Heating	2001	70
SunBuilt	Solar Water Heating	2002	120
SWAP (FSEC)	Solar Water Heating	1997-1998*	801
FSEC PV Buildings/PV Rebate	Photovoltaic	1999-2002*	119
Industry Estimates	Solar Water Heating	1998	240
Industry Estimates	Solar Water Heating	1999	200
Industry Estimates	Solar Water Heating	2000	200
Industry Estimates	Solar Water Heating	2001	130
Industry Estimates	Solar Pool Heating	1998	14,000
Industry Estimates	Solar Pool Heating	1999	15,000
Industry Estimates	Solar Pool Heating	2000	15,000
Industry Estimates	Solar Pool Heating	2001	15,000
Industry Estimates	Solar Pool Heating	2002	15,000
Industry Estimates	Solar Water Heating	2002	70
JEA-Owned Solar Program	Photovoltaic	2001-2002	32
JEA-Owned Solar Program	Solar Water Heating	2002	1
JEA-Owned Solar Program	Solar Pool Heating	2001	1
SunSmart Schools Program	Photovoltaics	2003	14
SunSmart Schools Program	Photovoltaics	2004	15
Front Porch Sunshine Program	Solar Water Heating	2003	1
Front Porch Sunshine Program	Solar Water Heating	2004	22
JEA-Owned Solar Program	Solar Water Heating	2003	2
JEA-Owned Solar Program	Photovoltaics	2003	3
JEA Solar Incentive Program	Solar Pool Heating	2003	452
JEA Solar Incentive Program	Solar Water Heating	2002-2004	130
JEA Solar Incentive Program	Photovoltaics	2002-2004	14
Industry Estimates	Solar Water Heating	2003	370
Industry Estimates	Solar Pool Heating	2003	14,992
Totals			92,056

Totals by Year	
1997-1998	15041
1999	15200
2000	15229
2001	15201
2002	15342
2003	15862
2004*	181

*Does not include one full year of data

Solar Schools

Number of solar schools in Florida: 76

Number of school districts with solar in Florida: 17

Leveraged Resources

Florida Energy Office: \$1,650,000 (SunSmart Schools, SunBuilt, Front Porch Sunshine)

JEA: \$500,000 solar budget for FY2003

New and Noteworthy Accomplishments

- Surveys and final report on selling builders on the zero energy home
- Energywhiz.com website for K-12 on solar energy and efficiency
- Sunbuilt brochures (solar thermal in model homes)
- Sample business plan for utilities considering green power marketing strategies

Activities Underway

- Market study on selling solar to commercial accounts.
- SunSmart Schools program (PV rebates for schools)
- Sunbuilt (water heating for model homes)
- Front Porch Sunshine (water heating for low income housing retrofits)

Upcoming Events

- Florida SunSmart MSR meeting June 23rd in Jacksonville.
- Check the FSEC website for a full list of solar and efficiency training courses
- SE Green Power Summit in Orlando, May 2005

What we could use help with?

Our largest barrier: minimal state-funded financial incentives; no policies to sustain funding for solar programs.

Smaller issue: more funds for widespread solar education campaign are needed.

Georgia MSR Partnership

May 13, 2004

Partnership Lead Organization

Contact Person: Jeff Ross-Bain, Manager
Marie Reedy, Assist. Manager
Contact Organization: Southface
Mailing Address: 241 Pine Street, NE
Atlanta, GA 30308
Phone Number: (404) 872-3548
Fax Number: (404) 872-5009
Email Address: jeff@southface.org
marie@southface.org
Website Address: www.southface.org/

Other Partners

N/A

Year of Formation

1999

Million Solar Roofs Installation Goal

The Georgia MSR Partnership goal is to have a minimum of 500 solar installations in the state by 2010. Interim goals do not have a numerical component, but progress is based on success of outreach activities including outreach to school systems across the state.

The mission of the Georgia MSR Partnership is to advance the general knowledge of solar energy to all sectors of the state including architects, engineers, industry leaders, homeowners and citizens. This goal is accomplished through advocacy, outreach, training, technical assistance and persistence.

However, the unofficial goal of the partnership director is to have solar equipment available for purchase in home improvement retail stores across the state.

Cumulative Installations

The actual number of installations, both in 2003 and total since the Million Solar Roofs Initiative started has proved to be difficult to determine with accuracy. However, the partnership has had some success in getting data when names and addresses are not required. For instance, locating installations by Zip Code has helped.

Best estimates would be 22 solar installations in 2003 for a total of approximately 200 toward the total goal of 500. The Georgia MSR partnership is constantly working to define this number accurately.

Solar Schools

The Georgia MSR Partnership is proud of the advancements made in delivering the solar message to schools across the state. Through partnership with other concerns in the state, a simple solar system has been installed in Oglethorpe County and is currently being used as a learning tool.

Additionally, plans are currently underway for a high performance energy smart school in DeKalb County Georgia that will include a solar powered sign in front of the building. The school board is excited about the project and has offered to partner with Southface in establishing plans for the sign.

A seminar on high performance schools is planned for late summer and will have a heavy emphasis on the need and merits of implementing solar into the school curriculum.

Leveraged Resources

The Georgia MSR Partnership worked with several suppliers and manufacturers in showcasing a *Zero Energy* home in Atlanta. In particular, representatives of a solar installation company donated time to attend the event and describe the solar installation.

New and Noteworthy Accomplishments

The new Southface office addition, called the Eco Office, is a 10,000 square foot commercial office space that will represent the latest in cutting edge energy efficient technologies and design strategies. Solar PV panels in the range of 15kW capacity will form an integral part of the building. Additionally, there is the potential for inclusion of amorphous PV glass for the connector area. These strategies are being modeled for building performance and will form the integral part of a feasibility study for this project.

Experiences from this process will further advance the “real-world” training potential for delivering solar energy as a viable consideration for many commercial buildings.

Activities Underway

1. Eco Office Solar installation design and simulation
2. Survey of state solar installations
3. Survey of solar resources in the state including interested citizens, installers and manufacturers
4. Training session for school systems
5. Preparation of presentation on implementing solar technologies into the LEED™ Building Rating System

Upcoming Events

- Regional Partnership meeting – Charleston, SC, June 2004
- GA High Performance Schools Symposium – Atlanta – September 2004
- Regular meeting of the GA Solar Energy Association

What we could use help with

I feel the single largest barrier to the partnership is that solar energy, at least in Georgia, remains relatively unknown. A region wide, uniform message that is presented on a large scale (and especially presented to schools) would make an impression that would be seen across the region and not just in a state. This is planned to be topic of discussion at the MSR regional meeting in June 2004.

Kentucky Solar Partnership

May 21, 2004

Partnership Lead Organization

Contact Person: Joshua Bills or Andy McDonald,
Co-Coordinator
Contact Organization: Appalachia—Science in the
Public Interest
Mailing Address: 50 Lair Street,
Mt. Vernon, KY 40456
Phone Number: 606-256-0077
Fax Number: 606-256-2779
Email Address: solar@a-spi.org
Website Address: www.kysolar.org
(June 2004)
www.a-spi.org/solar (old URL)

Other Partners

Kentucky Division of Energy, Eastern Kentucky
Appropriate Technology, Murray State University
(Center for Environmental Education), Berea
College (Sustainabilities and Environmental Studies
Program), WOBZ-TV, Robbins Alternate Energy,
Watrous Associates Architects, Sunlink Solar,
LLC., Kentuckians for the Commonwealth (joined
in past year)

Year of Formation

2001

Million Solar Roofs Installation Goal

KSP installation goal is 510 Solar Systems.

The **Mission** of the Partnership is fourfold:

1. Determine and break down barriers to the growth of solar installations in Kentucky.
2. Generate informative resource materials.
3. Continue educational outreach to community and students on benefits of solar energy use.
4. Demonstrate with appropriate, safe, code-compliant solar installations.

Cumulative Installations

PV: 45 known systems with total capacity at
104,000 Watts.
SHW: 2 known solar pool systems w/ 300 sq. ft. of
collector space.
6 known solar water heating systems w/ 240 sq. ft.
of collector space.

Solar Schools

There are now 5 schools w/ 1000-watts each
throughout Kentucky.

Leveraged Resources

For 2003, the Kentucky Solar Partnership raised
\$5043 towards promoting solar energy in Kentucky.

New and Noteworthy Accomplishments

On April 22, 2004, a net metering bill was signed
into law for Kentucky.

A Kentucky Professionals Directory has been put
online for solar installers and green builders. The
Directory is at www.greenprofessionals.org/ky

We are producing a public service announcement
regarding net metering in Kentucky.

Activities Underway

The KSP is in the editing phase of The “Kentucky
Solar Guidebook”, a book describing solar
technologies with examples of systems in
Kentucky.

Upcoming Events

The “Bluegrass Energy Expo”, will be held at the
Lexington Center in Lexington, KY on October 16-
17th, 2004.

What we could use help with?

We would like to hear other success stories,
especially geared towards low-income housing.

Mississippi MSR Initiative

May 21, 2004

Partnership Lead Organization:

Mississippi Development Authority/Energy
Contact Person: Jackie McKee, Jr.,
Environmentalist
Contact Organization: MDA/Energy
Mailing Address: P O Box 849,
Jackson, MS 39205-6642
Phone Number: (601) 359-6635
Fax Number: (601) 359-6642
Email Address: Jmckee@mississippi.or
Website Address: www.Mississippi.org

Other Partners:

None

Year of Formation:

October 2002

Million Solar Roofs Installation Goal:

500

The Mississippi Development Authority-Energy Division committed to install 500 solar applications by 2010. In achieving this task we have set various objectives to complete this goal. The objectives have been divided into two phases.

Phase 1

1. Demonstrate that solar thermal water heating systems will reduce costs and make homes more affordable for low-income and mixed-income residents;
2. Train building community members in the installation and maintenance of solar thermal water systems;
3. Work toward the goal that within 10 years, 20% of all HOME, HOPE, Mississippi Housing Corporation, the U.S. Department of Agriculture's Rural Development, and other Department of Housing and Urban Development (HUD) financed homes will incorporate a solar system in their construction annually;

4. Increase public and building community awareness about the advantages of the use of solar power; and,
5. Identify barriers to solar development and to implement strategies to address them.

Phase 2

1. Diversify markets through a specific promotional/market services and the implementation of recommendations from the Solar Feasibility Commercialization Study;
2. Provide financial and technical assistance to secure staffing of the Phoenix Center in partnership with the North Midtown CDC; and
3. Expand training for installers and for key partners.

Cumulative Installations

	<u>2003</u>	<u>2004</u>
SHW	19	1
PVE	3	0

One of our largest milestones has derived from the changing of program managers. All installations that have occurred we have yet to collect the data. We are scheduling to visit the residential sites and compile data based on three sectors of Mississippi (Northern, Southern, and Central). We have also made preparation to do more installs as CHDO's began building for the year.

Solar Schools:

None

Leveraged Resources:

In addition to the DOE federal dollars in the amount of 100,000 our division has teamed with the Community Service Division to contribute 250,000 through Community Housing and Development

Organizations for three years to incorporate solar within multi-family homes. We have experience various delays due to the construction time lines of the CHDO's.

New and Noteworthy Accomplishments

Our plan is to schedule installs as the houses become available by this years CHDO's.

Activities Underway

Scheduling one on one with new CHDO's for the year and the collection of data.

Upcoming Events

- National Solar Conference Portland, Oregon
July 9-14, 2004
- Farm Bill Seminar Jackson, MS
May 26, 2004

What we could use help with

One of our largest barriers is obtaining additional funding to install solar.

North Carolina MSR Partnership

May 2004

Partnership Lead Organization

Contact Person: Katy Ansardi, Outreach Coordinator

Contact Organization: North Carolina Solar Center

Mailing Address: Box 7401, NC State University
Raleigh, NC 27695-7401

Phone Number: 919.513.7148

Fax Number: 919.515.5778

Email Address: katy_ansardi@ncsu.edu

Website Address: www.ncsc.ncsu.edu/

Other Partners

- Western NC Green Building Council
- Appalachian Regional Initiative for Sustainable Energy (ARISE) sponsored by Blue Ridge Resource Conservation & Development and Watauga County Cooperative Extension Service
- Town of Chapel Hill
- Citizens Leading in Education & Awareness of Renewables (CLEAR) sponsored by Centralina Council of Governments
- Durham Initiatives for Renewable Energy Community Task (DIRECT) sponsored by Durham County Cooperative Extension Service
- Sustainable Sandhills sponsored by Sandhills Area Land Trust (new)
- Guilford Solar Communities sponsored by Guilford County Cooperative Extension Service
- New Hanover County (new)

Year of Formation

1999

Million Solar Roofs Installation Goal

The mission of the North Carolina Million Solar Roofs Partnership is to promote the adoption of solar technologies in order to protect our natural environment, encourage energy independence and stabilize energy costs for North Carolina's citizens.

Our goal is the installation of 3,000 solar energy systems in North Carolina by 2010.

Cumulative Installations

Estimated cumulative installations since the formation of the NC MSR Partnership are:

Photovoltaic

120 systems 290 kW capacity*

Solar Hot Water

350 systems 29,179 mmBTU/year capacity**

* based on a 2003 survey of solar installers; includes one 100 kW system

** based on EIA data on shipments of solar thermal systems to North Carolina; substantiated by 2003 installer survey

All of the local partnerships have included a system inventory and tracking task as part of their current grant. We expect to have a more accurate count of systems by the end of the year.

Solar Schools

While many new schools in North Carolina are incorporating daylighting and other passive solar strategies, we are currently aware of only five K-12 schools in the Partnership have installed active solar systems.

Leveraged Resources

The NC Solar Center provided \$34,000 in indirect cost share and the NC State Energy Office contributed \$80,000 toward MSR activities for the current fiscal year. In addition, the Solar Center and the local MSR partnership sponsors provide a number of in-kind services including administrative and marketing support, information resources and educational workshops.

New and Noteworthy Accomplishments

The North Carolina MSR Partnership has added two new local community partnerships over the past year and reorganized two existing partnerships. For the first time, local partners were asked to bid competitively for small grant funds this year. All partnerships that submitted an acceptable proposal were guaranteed a level of funds equal to their last grant, but those that placed emphasis on defined statewide goals and demonstrated ability to execute successfully received larger amounts. This resulted in higher quality proposals and more activities directed toward objectives such as tracking system installations.

Activities Underway

The local partnerships are working on numerous activities such as hosting public forums and teacher workshops, publishing & distributing solar guides and directories, and creating demonstration and exhibit materials. The Watauga County partnership has created unique annual events that have gained local recognition such as their 8th Annual Christmas Tree Lighting in December 2003 and the 2nd Annual Bob Flora Solar Derby for middle school students held in May 2004.

Upcoming Events

There will be a statewide peer-to-peer meeting in late August or early September 2004. We are currently gathering suggestions for dates, location and agenda. In addition, several of the local partnerships across the state are already preparing to participate in the NC Sustainable Energy Association's Green Building Tour, held in conjunction with the national Solar Home Tour in October. Many local partners hold monthly or bi-monthly public forums.

What we could use help with

More time and more money! Realistically, better indexing of and easier accessibility to resources available from DOE and the other partnerships would be helpful. The local partnerships need professionally produced, up-to-date PowerPoint presentations, factsheets and other ready-to-use collateral materials addressing specific audiences for outreach activities.

South Carolina MSR Partnership Initiative

May 20, 2004

Partnership Lead Organization

Contact Person: D’Juana Wilson, Program Coordinator
Contact Person: Jean-Paul Gouffray, Program Coordinator
Contact Organization: South Carolina Energy Office
Mailing Address: 1201 Main Street, Suite 1010, Columbia, SC 29201
Phone Number: D’Juana Wilson: 803/737-1706
Fax Number: 803/737-1452
Phone Number: Jean-Paul Gouffray: 803/737-8038
Fax Number: 803/737-9846
Email Address: Dwilson@gs.sc.gov – D’Juana Wilson
Web Address: www.state.sc.us/energy/Renewable%20energy/sc_solarroofs.htm
Email Address: jpgouffray@gs.sc.gov – Jean-Paul Gouffray

Other Partners

A roster is attached. New members joining in the past year are: Garfield Moss, James Schoolmeesters, Michael Tavernetti, Tim Thomas, Fletcher Mann and Frank Powell, Ph.D.

Year of Formation

2002

Million Solar Roofs Installation Goal

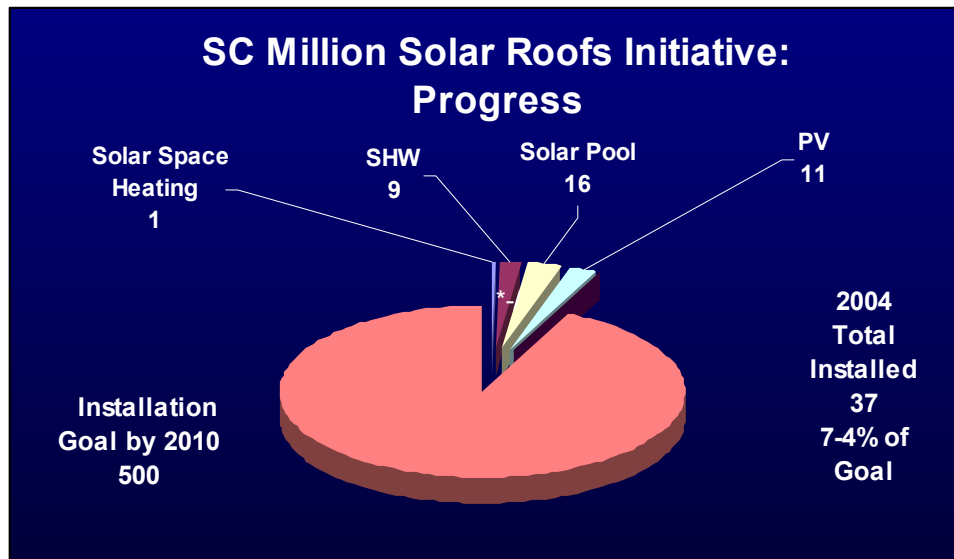
To install 500 systems in South Carolina by 2010.

Cumulative Installations

Number of installations in 2003, One
Cumulative since the Partnership formation.
Include number by: technology

	37 Total
SHW	9
Solar Pool	16
Solar Space Heating	1
PV	11

Solar installer's in SC update the Energy Office as new systems are installed.



Solar Schools

Two

Leveraged Resources

Cost Share for two years:	SCEO	\$ 9,728.41
	MSR Partners	\$ 4,000.00
	Total	\$13,728.41

New and Noteworthy Accomplishments

We have awarded grants to USC Aiken (solar hot water swimming pool) and The Citadel (solar hot water heating on an apartment complex). The projects will have an 8-year or less return on investment.

Each award is for \$25,000.

Activities Underway

- Jean-Paul Gouffray is spearheading a drive to establish the SC Chapter of ASES.
- We have contracted with York Technical College to build a solar display that can be used at meetings, conferences and workshops by the Partners.

Upcoming Events

Working on a Partnership meeting to discuss Articles of Incorporation and By-Laws, prior to incorporating the partnership.

What we could use help with

Lack of understanding of solar technology and systems; lack of education and training to support the systems. We have identified these barriers and our efforts are geared toward eliminating these barriers.

Big Frog Mountain Corporation

May 26, 2004

Partnership Lead Organization

Contact Person: Thomas Tripp, President
Contact Organization: Big Frog Mountain Corporation
Mailing Address: 100 Cherokee Blvd., Ste. 321 Chattanooga, TN 37405
Phone Number: 423-265-0307
Fax Number: 423-265-9030
Email Address: tmtripp@bigfrogmountain.com
Website Address: www.bigfrogmountain.com/

Other Partners

Year of Formation

1999

Million Solar Roofs Installation Goal

Cumulative Installations

2003 partial list:

PV 3.3 KW stand-alone residential
PV 2.5 KW utility interactive commercial
PV 32 KW utility interactive residential
PV 2.5 KW utility interactive residential
PV 2.8 KW stand-alone commercial
PV 0.5 KW stand alone residential
PV 1.0 KW stand-alone commercial
PV 2.5 KW utility interactive residential
PV 2.5 KW utility interactive residential

We have also supplied systems that were installed that are not included in this list yet.

Solar Schools

Not any qualified systems that I'm aware of in TN.

Leveraged Resources

No government funding has been received by our partnership in 2003. We spent about \$80,000.00 in promoting installations of solar in 2003.

New and Noteworthy Accomplishments

- Working with TVA distributors we have helped to get the Green Power Generation Partners contracts signed in several areas.
- We continued our efforts with ORNL in the development of Zero Energy Homes and supplied systems for two more proto-types of ZEHs in TN.
- We have made more solar component manufacturers aware of the MSR program and are working with them to add support.
- We have added more employees and also now have a NAPCEP certified PV system designer installer in house.

Activities Underway

- We are using a portable solar system to educate the public by powering special events with electricity generated from solar.
- We are working with local governments and contractors on educating them about utility interactive solar systems and how they can be incorporated in their buildings.
- We are training contractors to install PV and wind generation systems.

Upcoming Events

- We are powering a stage with solar at the upcoming Bonnaroo Music Festival in TN June 11, 12 and 13th. 90,000 people expected.
- We will be a major sponsor of the upcoming Southern Energy and Environment Expo in NC August 27-29. 8,000 people expected.

For more upcoming events contact us.

What we could use help with

We could certainly use some dollar matching on our educational efforts and travel expenses in promoting solar for the MSRP. We would also like to build more portable demonstration/educational systems that can be used over a large area to help support other MSR partners.

Tennessee MSR Initiative

May 27, 2004

Partnership Lead Organization

TN Million Solar Roofs Initiative (Partnership is administered by the Southern Alliance for Clean Energy for the State of Tennessee Energy Office.)
Contact Person: Gil Hough, TN Million Solar Roof Coordinator
Contact Organization: Southern Alliance for Clean Energy
Mailing Address: PO Box 1842
Knoxville, TN 37901
Phone Number: (865) 637-6055 ext. 15
Fax Number: (865) 524-4479
Email Address: gil@cleanenergy.org
Website Address: www.cleanenergy.org/

Other Partners

We work closely with Big Frog Mountain a MSR partner based in Chattanooga, TN and we also have a close working relationship with the Tennessee Valley Authorities Generation Partners program.

Year of Formation

2002

Million Solar Roofs Installation Goal

500

Cumulative Installations

There was four new solar PV systems installed in Tennessee for an added capacity of 14.5 kW for a total amount of 27 systems for an estimated total installed capacity of 227 kW

Solar Schools

2

Leveraged Resources

\$180,000 thru 2005

New and Noteworthy Accomplishments

- Worked with State Energy Office and Oak Ridge National Lab to get solar on two model Zero Energy buildings in a Habitat for Humanity community
- Helped create the Generation Partners program – Tennessee first solar incentive program paying 15 cents a kWh for generation.
- Have organized with TVA and the local Utility solar seminars in Knoxville and Chattanooga, taught by the Florida Solar Energy Center
- Host with local American Solar Energy Association chapter annual gathering of Tennessee Solar Stakeholders.
- Helped promote new solar hybrid technology

Activities Underway

- Working with several local utilities to join Generation Partners program including Nashville Electric Service, Sequatchie Valley Electric Cooperative and Upper Cumberland EMC
- Working on Sales tax and financing issues to help with capital cost
- Working to set up solar seminars in Memphis and Nashville.
- Working with architects and builders to integrate solar in new construction

Upcoming Events

Planned Solar Seminars in Memphis in early summer and one in Nashville late summer.

What we could use help with?

The main issue is the high capital cost of solar equipment

Western Region

Regional Office Report

Arizona

Arizona Solar Initiative
Greater Tucson Coalition for Solar Energy

California

Bay Area Solar Consortium
City of Anaheim
City of San Francisco
Marin Solar Program
San Diego Regional Energy Office

Hawaii

Island of Hawaii
Kauai MSR Partnership
Island of Maui MSR Partnership
Oahu MSR Initiative

Idaho

Idaho PV4You Solar Working Group

Nevada

Nevada MSR Partnership

Oregon

Oregon MSR Coalition

Washington

Washington MSR Collaborative

**The Solar Year in Review
For the Western (Seattle) Region
Prepared by the Western Regional Office**

**Activities, Advances & Accomplishments of
Note**

- **General Comments**

It has been a very busy 12 months for solar in the Western United States. California has been leading an aggressive charge, with over 71 Megawatts of PV installed as of this spring. With so much activity and a large population, it is no surprise that they are the most active Million Solar Roofs State with 14 Partnerships, representing communities within the state from North to South, and East to West. The most recent additions include the Great Valley Solar Partnership, the County of Santa Barbara, and Ventura County. In total, there are 29 Million Solar Roofs Partnerships in the Western Region, representing all eight states and one territory.

Below are *just a few* of the activities or milestones I'd like to highlight on behalf of the partnerships in this region:

- Oregon initiated an apprenticeship program for PV and solar thermal contractors in the state. In conjunction with that program, Lane County Community College is offering a 2-year degree program in Renewable Energy.
- Marin County, California initiated an innovative project in which they created a solar potential map using GIS. The project helped them identify nearly 70 MW of rooftop potential within the county. They used the information to reach out to building owners in the community. Marin has reached their MSR goal of 600 systems by 2010, and is looking to increase that goal to

~5MW of installed solar capacity by 2010.

- San Francisco held the Solar Cities Summit in September 2003. The Summit was considered a tremendous success. Participants included 17 mayors and 110 policy makers from across the U.S. In addition, the City dedicated the first large solar installation since passing the Solar Bond Initiative. The 675 kW was installed on the roof of the Moscone Convention Center. More installations are planned for this year.
- The Arizona Department of Commerce completed the "Sunrise" Documentary, highlighting the history of solar electricity and its use in Arizona. The documentary is aired on local PBS stations, and was the winner of the prestigious 'Remi' Award at the 37th Annual Worldfest Film Festival.
- The Washington MSR Partnership has been working with Public Utility Districts throughout the Pacific Northwest to promote Chelan County PUD's "Sustainable Natural Alternative Power" (SNAP) concept. Thus far, six utilities in the region, and one in Fairbanks, AK, have indicated their interest in adopting the SNAP model, which pays local solar and small wind producers, for the power their system(s) produce, out of funds collected through a green power program.

- **Regional Peer-to-Peer Exchange(s)**

The Seattle Regional Office teamed up with the Denver Regional office to offer two Regional Peer Exchanges in 2004. The first was held in March in Albuquerque, NM for the southwestern states. The second was held in May in

San Francisco for the California, Hawaii and more northern partnerships. Both workshops were well attended by a diverse group of partnerships. The Albuquerque workshop focused on solar schools, renewable energy portfolio standards, the technical resources available at Sandia National Laboratories, and codes and standards issues. The overarching theme of the San Francisco workshop was making the most of public education and outreach opportunities. Discussion centered around solar home tours, solar on public buildings, and experiences with solar in new home construction. Presentations from both of these workshops are posted on the Million Solar Roofs Website under the heading, "2003 Workshops."

- **2003 MSR Grants Review**
Eleven Partnerships from the Western Region received Million Solar Roofs Grants for fiscal year 2003. The City of Anaheim and Humboldt County (Redwood Coast Energy Authority) each received a Phase I grant. Recipients of Phase II grants included Marin County, San Diego, Hawaii Electric Light Company Inc., Bay Area Solar Consortium (Rahus Institute), Greater Tucson Coalition for Solar, Nevada (University of Nevada Reno), Oregon Department of Energy, Idaho Department of Water Resources, and Washington State University.

We anticipate awarding 10 Million Solar Roof grants with FY2004 money. Awards should be finalized and announced by late summer.

Looking Towards the Horizon

- **Focus Areas & Key Challenges**

Schools: The concept of solar on schools continues to gain momentum. In December of last year, Idaho celebrated the first installation of PV on a school in the Castleford School District. Nevada has dedicated three school systems in the state under the Sierra Pacific/Nevada Power's Green

Power Program. Every state in the Western region now has at least one solar (PV) school system (including Fairbanks, AK). Some MSR partner communities are taking solar schools to new levels.

- Chelan County PUD in Washington State is currently installing 35 solar school systems
- The San Diego School District has plans to have solar installed on 17 schools over the next two years, for a total of nearly 2 MW.
- The Rahus Institute, a partner of the Bay Area Solar Consortium, has an MSR grant to work with the CA State Architects Office to come up with a standard system design they can approve quickly – helping to overcome a substantial barrier in that State.
- The Anaheim partnership will focus on teaching educators about solar energy and ways to incorporate it into existing curriculum.

Residential Construction: Solar as a standard feature in new home developments has continued to gain momentum since Shea Homes dedicated the first such development in San Diego several years ago. Below are examples of developments in this area:

- Recently, the California State Senate passed a bill that would require a percentage of all new home developments, larger than 25 homes, to include solar as a standard feature. The Governor has offered his support to this idea.
- For the International Builders' Show, hosted in Nevada, Pardee Homes built the Ultimate Family Home. The home is featured as a Zero Energy Home, including and 8.6kW photovoltaic system.
- Last Spring, Washington and Oregon jointly hosted the first

- ever Net Energy Homes Conference for the Northwest.
- The Greater Tucson Coalition for Solar has worked with Pulte Homes of Arizona, since they took over the Civano Neighborhood. Pulte has committed to including solar hot water as a standard feature for all homes built in Civano (~1200). Plans are in process to expand the inclusion of Solar Hot Water as a standard feature in other Arizona Pulte Developments.
- Maui Electric Co. has successfully worked with builders and developers on the Island towards the inclusion of SHW as a standard feature on their homes. As a result of their efforts, 65% of new homes built on Maui today, include SHW. They are hoping to grow this success and begin working with the low-income and existing homes markets.

MSR Partnerships continue to look for information on how to connect with builders, realtors, and homebuyers.

USDA Funding: In FY2003 both Maui Electric and Ferry County, Washington received grants for solar installations from the U.S. Department of Agriculture. Maui Electric Co. was awarded \$1.1 M in USDA funds for the installation of SHW on homes on the Island of Molokai. Ferry County Public Utility District received \$750,000 to support line extensions, and solar in lieu of line extensions, depending on which is more economical. As we speak, several partnerships are preparing applications for funding under the Fy2004 Farm Bill Solicitation.

State Incentives: States in the region continue to explore new incentives structures, or changes to existing incentive structures for solar. For example:

- This summer Nevada will roll out \$20M for solar rebates over

the next three years. The rebates will be available to residential customers, small businesses, schools, and public buildings. In the first year, the rebate will be \$5/Watt for up to 500 kilowatts. In the second year, the rebate will drop to \$4.00 Watt for 1.5 MW. In the third year, the rebate will drop to \$3.00/Watt for up to 3MWs of installed PV.

- Arizona is in the early stages of exploring possible changes to the state Renewable Portfolio Standard. One suggested change is for a 30% set-aside for distributed, customer-sited solar.
- Legislation was introduced in Washington State for a production based solar and small wind incentive. The legislation did not get through to the full senate before the end of the session, but plans exist to reintroduce the bill in the next year.

- Upcoming Events

The **Solar Power 2004 Conference** will be held October 18-21 in San Francisco, California. The conference is hosted by the Solar Electric Power Association, Solar Energy Industries Association, Pacific Gas and Electric Company, and the San Francisco Public Utilities Commission.

The 7th Annual Northwest Solar Summit is planned for Idaho in October.

**Million Solar Roofs Regional Coordinator
Contact Information**

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Arizona Solar Initiative

April 16, 2004

Arizona Department of Commerce

Contact Person: Jim Arwood, Solar Coordinator

Contact Organization: Arizona Department of Commerce

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Phone Number: 602-771-1144

Fax Number: 602-771-1203

Email Address: jima@azcommerce.com

Website Address: www.azcommerce.com

Other Partners

Arizona Solar Center

Arizona Solar Industries Association

Arizona Solar Energy Association

Arizona Solar Advisory Council

No new partnerships

Year of Formation

1997

Million Solar Roofs Installation Goal

100,000 systems goal

The Mission of the Arizona Solar Initiative is to encourage individual, local, and statewide action that capitalizes on the national Million Solar Roof Initiative and the region's explosive growth. This Initiative will help enable Arizona to become a national leader in solar energy utilization, manufacturing, and exports.

Cumulative Installations

- Prior to 2003: 243 rooftop and other totaling 174 kW
- Cumulative which now includes EPS figures from Arizona utilities (note: some of these systems were installed prior to 2003 but were not reported because there was no method in place to factor these in)
- APS EPS Systems: 4.325 mw (on 1/01/04) or the equivalent of 1730 rooftop systems

- TEP EPS Systems: 4.306 mw (on 1/01/04) or the equivalent of 1722 rooftop systems
- SRP Systems: 525 kW (on 1/01/04) or the equivalent of 210 rooftop systems

Total Arizona Cumulative numbers (including Tucson): 4220 rooftop systems

Solar Schools

- APS service territory: 2 schools, 1 university, 2 libraries, 3 other (Learning Centers, Nature Center, etc.)
- SRP service territory: 0 schools, 1 library
- TEP service territory: 2 schools

Leveraged Resources

- The Arizona Solar Center continues to host materials developed under the MSR funding. The partners to the Solar Center include non-profits and utilities. The annual budget for the website is approximately \$15,000.
- The Arizona Department of Commerce Energy Office provides staff and in-kind support to the state's MSR partnership in the \$100,000 range.

Activities Underway

Promoting and marketing our new documentary on solar energy.

Upcoming Events

- Partnership meetings, Solar Fairs, exhibits, training programs, etc.
- SolFest is April 17 and 18 – which is an educational weekend that addresses the environmental and social challenges of our time.
- The MSR funded documentary “Sunrise” airs on Arizona PBS station channel 8 on April 25.
- Working with Challenger Space Center on an exhibit honoring the 50th Anniversary of the Silicon Solar Cell.

- Working with MSR partner SRP as they stage their 3rd annual solar boat race for high school students.

What we could use help with

With the help of MSR we have turned the corner on the largest barrier Arizona faced – CC&R issues.

With the help of MSR funding for a CC&R outreach program and the recent conclusion of a lawsuit challenging the restrictive covenants of one HOA, associations have become much more acceptable to solar on rooftops in their communities.

Greater Tucson Coalition for Solar Energy

April 18, 2004

Partnership Lead Organization

Contact Person: Valerie Rauluk, Director
Contact Organization: Venture Catalyst Inc.
Or Greater Tucson Coalition for Solar Energy
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Phone Number: 520-326-3195
Fax Number: 520-326-5986
Email Address: vajra@vecat-inc.com

Other Partners

The City of Tucson
Town of Marana (03)
Tucson Unified School District

Pima Community College	University of Arizona	Community of Civano
Armory Park Del Sol	John Wesley Miller Companies	Progressive Solar
The Solar Store	Expert Solar Systems	American Solar Electric (03)
SolarBuilt	Primavera Builders	Dreambuilders
BTB Solutions	Larry Medlin Architects	Venture Catalyst Inc.

All members original members unless noted in parenthesis the last two digits of year joined.

Year of Formation

1997, commitment for specific units 1998

Million Solar Roofs Installation Goal

20,000 units

Mission: To increase community investment in solar energy applications by stimulating demand and enhancing supply.

Goals: To establish solar energy as a viable alternative in commercial applications.

To establish solar energy as a viable alternative in institutional applications.

To establish solar energy as a viable alternative in residential applications.

Cumulative Installations (see below)

Tucson Metropolitan Area Solar Energy Scorecard

As of 12/2003

	Total to Date	2003	2002	2001	2000	1999
Solar Electric Systems*						
Total Systems	2,295	788	570	767	135	35
Total Kilowatt Capacity	4,553	1,540.0	1,139.0	1,534.0	270.0	70.0
EPS Solar Electric Systems actual **	3	1.0	1.0	1.0	-	-
EPS Solar Electric Systems Equivalent	1,926	687.0	489.0	750.0	-	-
EPS Kilowatt Capacity	3,852	1,374.0	978.0	1,500.0	-	-
Solar Thermal Systems*						
Domestic Hot Water	659	153	141	136	133	96
Solar Pool Heaters	487	159	143	82	37	66
Solar Space Heaters	47	7	1	9	14	16
Total Systems***	1,193	319	285	227	184	178
Total Kilowatt Capacity	3,235	969	859	573	360	474
<i>Total Solar Systems</i>	3,488	1,107	855	994	319	213

Solar Schools

The largest school district in the region, and a MSR partner, Tucson Unified School District, has 6 systems at schools and school facilities.

Leveraged Resources

GTCSE region has a local solar energy investment (excluding MSR dollars and including non-partner commitments) of \$9,100,000. Of that amount \$8,742,878 represents the utility portfolio contribution and are strictly hardware only investments. Thus, resources secured from other sources besides MSR to do market development, barrier reduction and education totaled \$ 357,122, primarily representing contributions of technical and marketing support.

New and Noteworthy Accomplishments

Third Party financing mechanism for solar thermal campaign for institutions.

We are finishing up our pilot project and will document the process for use by other partnerships.

Activities Underway

In addition to our annual Solar Adventure at the Reid Park Zoo, the Coalition is working to maintain capital budgets for solar in the City government and has begun policy initiatives with the County.

We have refined our energy efficient building code (“Sustainable Energy Standard (SES)”) to clarify and specify minimum standards for solar energy. Any solar device can be used to meet the requirement but 550kWhrs per bedroom, per year must be achieved.

In a related activity, we are developing an energy code, with the above solar energy carve-out, for the master plan document, outlining development standards for the primary growth area of Tucson.

We have begun the work of getting a comprehensive and effective net metering and interconnection standard for the region.

Upcoming Events

May 8, 2004 Solar Adventure at Reid Park Zoo (We were rained out in March, much to the shock of all of us).

What we could use help with

Resources to keep working the issues in the community with the stakeholders making the decisions for solar investment, both technical and financial, are critical to our success.

Bay Area Solar Consortium

April 19, 2004

Partnership Lead Organization

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Contact Organization: City of San Jose
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San Jose, CA 95112
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Fax Number: (408) 277-3606
Email Address: Mary.Tucker@ci.sj.ca.us
Website Address:
<http://www.bayareasolar.millionsolarroofs.org/index.html>

Other Partners

BASC is comprised of more than 60 members who are dedicated to expanding the use of solar energy and “green” power within the region. Partner organizations include:

Utilities and Agencies

- Alameda Power and Telecomm
- Palo Alto Municipal Utility
- Silicon Valley Power

Municipalities and Public Sector

- Association of Bay Area Governments
- City of San Jose
- City of Oakland
- City of Berkeley
- City of Emeryville
- City of Santa Cruz
- Environmental Protection Agency – Region IX
- San Mateo County Universities and Schools
- California State University at Hayward – Geography and Environmental Studies
- Chabot Observatory and Science Center
- Oakland Public Schools
- Renewable and Alternative Energy Laboratory
- San Jose Unified School District
- San Jose State University – Department of Environmental Studies
- University of California at Berkeley – Energy Resources Group Solar Photovoltaic

Manufacturers and Contractors

- Akeena Solar
- Applied Power Corporation
- Astro Power Inc.
- BP Solar
- California MicroUtility
- EcoEnergies
- Endecon Engineering
- Helioline
- MC Solar
- Natural Logic, Inc.
- Offline Independent Energy Systems
- OnGrid Solar Energy Systems
- Pacific Ridge Electric, Inc.
- Pacific Solar Company PVUSA
- PowerLight Corporation
- Real Goods
- REgrid Power
- Schott Applied Power
- Siemens Solar Industries
- Solar Self-Help inc.
- Solar Depot, Inc.
- Solar Connection
- Sun Light and Power
- Sunlit Systems
- Xantrex

Non-Profit Organizations

- Architects, Designers and Planners for Social Responsibility (ADPSR)
- Bay Area Action
- Bay Area Earth Day 2000
- Center for Energy Efficiency and Renewable Technology
- Community Energy Services Corporation
- East Bay Solar Energy Collaborative
- Ecology Action – Santa Cruz
- Energy Alliance of Northern California
- Northern California Solar Energy Association (NCSEA)
- ReEnergize East Bay
- Renewable Energy Marketing Board
- Rising Sun Energy Center
- The Rachus Institute

Business and Trade Associations

- A.J. Hicks Construction
- Intergy Development Corporation
- International Brotherhood of Electrical Workers – Local 332
- National Electrical Contractors Association
- Santa Cruz Chamber of Commerce
- Sustainable Business Alliance: Berkeley

Year of Formation **1999**

Million Solar Roofs Installation Goal

Initial commitment was 5000 roofs. Achieved this in Spring 2003. Raised the goal to 25,000 by 2010.

The mission of BASC is to:

Support the development and use of solar energy in the San Francisco and Monterey Bay areas;

- Align the resources and capabilities of the consortium members to install 25,000 solar energy systems within our area by the year 2010;
- Develop a strategy for addressing barriers to the use of solar energy; and
- Develop and implement an action plan for the installation of solar technologies within our Bay areas.

Cumulative Installations

BASC achieved its initial goal of 5000 roofs (466 individual systems, or 5,477 roof equivalent systems, totaling almost 4.8 MW have been installed in the Bay Area) in spring of 2003. We've since raised this goal to 25,000 roofs. Jennifer Sequin, of City of San Jose, was tracking the numbers of installations, though has been on maternity leave this past year. She will work to update the installation data when she returns later this summer.

Solar Schools

- Santa Cruz – 2 schools (Ark HS & Mission Hills MS)
- Palo Alto – 2 schools (Gunn HS & Ohlone ES)
- Alameda – 1 school (Lincoln MS)
- Berkeley – 1 school (Berkeley Montessori)

Leveraged Resources

Through working with The Rahun Institute, BASC has been able to leverage funding from other sources. The Rahun Institute conducts work in the solar field throughout California.

New and Noteworthy Accomplishments

Solar Fountain Workshop – targeting teaching staff at outdoor environmental schools, this workshop was held at Walden West in Saratoga on February 22nd. Ten different schools left with solar modules and pumps to build teaching fountains at their respective schools. In addition, several schools also received Solar Technology Kits and Solar Cell Kits developed by the Solar Schoolhouse Program (Rahun). This audience has been great! They have integrated our materials into their teaching curriculum and reach a new group of students every week, averaging 5000 students per year per site. Several Outdoor schools are also considering installing grid-tie systems. A solar fountain design guide and teaching guide for outdoor educators is emerging from this workshop.

Activities Underway

Pre-approved Solar Electric system for schools.

In California, the Division of State Architect (DSA) is the construction authority for schools k-12. Expensive custom engineering costs are required for nearly all construction work, which has been a barrier for small PV systems at schools. BASC/Rahun is working to pre-certify several standard designs for schools. Then the permitting cost is minimal at each specific site. Many projects are in the queue for when this gets approved.

Upcoming Events

CSC Solar Forum – in partnership with The Rahun Institute and California Solar Center, hosting a full-day Solar Forum in San Francisco on May 5th. CSC Solar Forums engage in current topics, including: green tags, performance based incentives, new home construction policy, real-time data monitoring, project highlights, etc. Presentations from previous Solar Forums are online at www.californiasolarcenter.org/solarforum.html

Adopt-a-School Workshop – For solar contractors & activists. Highlighting the streamline approach to getting a solar electric system installed at a school, with maximum educational value. Teaming

with local installers who would like to develop greater relationship with their community. Will also cover some fundraising tips. Date TBD Fall 2004.

What we could use help with

Limitation on state & utility rebates for the growing solar market – developing new policy and/or securing more funding for solar electric systems. Also exploring solar hot water systems as a solution to the coming natural gas shortage. [Note: this is a big issue, a crossroads for further development and potential for bringing costs down] There are various parties in the state discussing/debating these issues. This issue crosses over to all the partnerships within the state.

Solar Decathlon 2002 Video – DIY network has made some great video of the solar home competition of 2002, though the video is not commercially available. Would be a great educational tool for many audiences if we had copies. This competition highlights what is possible in the zero energy home arena, integrating all the ‘solar’ design strategies possible: passive, hot water, electric, cooking, etc.

City of Anaheim

April 1, 2004

Partnership Lead Organization

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Contact Organization: City of Anaheim Public Utilities
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Fax Number: 714/765-4152
Email Address: dpredisik@anaheim.net
Website Address: <http://www.anaheim.net/utilities>

Other Partners

- The Rahus Institute
- Foundation for Environmental Education

Year of Formation

2003

Million Solar Roofs Installation Goal

The City of Anaheim Public Utilities Department established a set of goals for renewable fuel sources, with a special emphasis on solar energy due to the abundance of sunlight in the region. The goals include:

- incorporating renewable fuel sources into the power generation portfolio
- responding to ratepayer's requests for solar energy implementation
- increasing awareness of environmental benefits of renewable power
- setting an example in Anaheim for the implementation of renewable energy production
- investigating renewable energy technology development and legislative actions to meet State and Federal RPS schedules

Solar education is one of the many components to reach the Department's renewable energy goals.

Other actions include installing solar energy systems on City facilities, providing incentives to

residential and business customers that install solar energy systems, participating in State and Federal programs that support the Department's goals, and seeking outside sources of funding when available.

Anaheim has developed a PV program specifically for private and public schools. The program is called "*Sun Power for the Schools.*" In addition to funding for PV installations, the program also encourages schools to include solar energy in science curriculums in order to promote the use of PV and to develop familiarity with the technology. As part of the program, the Department developed a *Public Solar Energy Education* project with funding assistance from the Department of Energy's Million Solar Roofs Initiative. The project assists schools by teaching educators about solar energy and ways to incorporate it into existing curriculum.

The training and offered lesson plans are correlated to California subject teaching standards. This helps teachers achieve existing teaching objectives without creating more work in their schedules. Solar energy lessons may be incorporated by teachers to meet math, science, and even social science standards. Through the workshops that mimic the "hands-on" approach of the curriculum, teachers gain proficiency in the subject matter, become comfortable working with solar energy equipment, and gain practice conducting solar energy labs. The workshops enable teachers to experience the curriculum and technology both from a student and a teacher perspective. The lab kits, posters, and other tools the teachers, schools, and districts receive can be immediately implemented into the existing curriculum once the workshop is completed.

Cumulative Installations

Anaheim's MSR goals are to support the installation of 50kW solar energy generation a year in the City of Anaheim. In May, 2003, when Anaheim submitted their letter of intent to the MSR

Regional Coordinator, Anaheim's totals were over 240kW. To date, Anaheim has supported over 291 kW of PV generation. Roof values are as follows:

Actual roof installations:

Residential: 27
Commercial: 7
Total: 34

kW capacity

Residential: 97.26
Commercial: 194.2
Total: 291.46

MSR roof equivalents

Residential: 195
Commercial: 97
Total: 292

Since the Partnership Formation:

Actual roof installations:

Residential: 9
Commercial: 1
Total: 10

kW capacity

Residential: 39.61
Commercial: 7.09
Total: 46.70

MSR roof equivalents

Residential: 79
Commercial: 7
Total: 86

Solar Schools

To date, one school has a 4kW PV system on the roof. Pending PV installations include a 1.02 kW educational roof-mounted system at a local high school, and two 7 kW lunch shelters with PV in the City elementary school district.

New and Noteworthy Accomplishments

Receiving \$50,000 MSR New Partnership Grant for the *Public Solar Energy Education Project*

Activities Underway

- Construction on three solar energy systems in Anaheim schools that will receive 80% funding for completed projects under Anaheim's "Sun Power for the Schools" Program.
- Design of solar energy carports for Anaheim Fire Department Stations to provide shade for Emergency Response Vehicles and Equipment.
- Design of Energy Play Field in housing development that will demonstrate solar energy generation while also providing green space to the housing community. The project consists of designing the play field to include the installation of picnic shelters with solar energy technology.
- Development of the *Public Solar Energy Education Project* with the first educators workshop scheduled for late May 2004 and the website development in progress.

Upcoming Events

Solar Energy Basics for Residents – workshop for residents that is part of Anaheim's Residential PV Buydown Program. The 3-hour workshops is held twice a year and covers solar energy technology, costs, and the Anaheim incentive process.

City of San Francisco

April 19, 2004

Partnership Lead Organization

Contact Person: Kim Knox, Utility Specialist
Contact Organization: SFPUC
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Phone Number: 415-554-1536
Fax Number: 415-554-5280
Email Address: kknox@sfwater.org

Other Partners

- Vote Solar
- U.S. DOE-Lawrence Berkeley Laboratory
- Literacy for Environmental Justice
- Norcal Recycling and Sanitation

Year of Formation

2003

Million Solar Roofs Installation Goal

1. Create a People's Earth Day Fair in the community that houses two peaker plants,
2. Create a Solar Cities' Summit, which is a leadership summit of mayors and other policy makers and
3. Create a video on how to install solar systems on residential homes in San Francisco.

Cumulative Installations

We have installed 675 kilowatts on Moscone Convention Center and we are about to install 229 kilowatts at our main wastewater treatment center.

Solar Schools

We have one school that has solar in our partnership area.

Leveraged Resources

na

New and Noteworthy Accomplishments

- Created an event that 500 people in the community surrounding our two peaker plants participated.
- Created a Summit where 17 Mayors and a total of 110 policy makers participated to create a springboard for solar throughout the U.S.
- Created a video on the step-by-step procedures on installing solar on SF homes that is available for checkout at local libraries.

Activities Underway

We are installing 229 kilowatts on the Southeast Wastewater Treatment Plant, another 300 kilowatts on Moscone West and another 300 kilowatts at Pier 96 within the next 18 months. We are also installing ten 2.5 kilowatt systems on 6 schools, 2 libraries and 2 medical centers.

Upcoming Events

We are co-sponsors of the 2004 SEPA conference.

What we could use help with

Getting everything through the various procedures of the City and County of San Francisco

Marin Solar Program

April 13, 2004

Partnership Lead Organization

Contact Person: Gwen Johnson, Solar Program Coordinator
Contact Organization: County of Marin Community Development Agency
Mailing Address: 3501 Civic Center Drive #308
Phone Number: 415-499-7309
Fax Number: 415-499-7880
Email Address: gjohnson@co.marlin.ca.us
Website Address: www.marinsolar.org

Other Partners

- Town of Belvedere, joined 2004
- Town of Corte Madera, joined 2004
- City of Sausalito, joined 2004
- Town of Mill Valley, joined 2004
- Marin Municipal Water District, joined 2004
- Greenlight Solar, joined 2003
- SunPower & Geothermal, joined 2003
- SunFirst Solar, joined 2003
- Cooperative Community Energy
- Eastwood Energy Corporation
- Electric Bills
- Helioline
- SolarCraft Services Inc.

Year of Formation

2002

Million Solar Roofs Installation Goal

Marin Solar Program's mission is to foster solar energy use by providing targeted education and outreach to Marin's residents, businesses and institutions.

The current goal is 600 rooftop systems. With the increased commitment to solar by Marin's municipalities, the Partnership is investigating the potential to increase this goal. The proposed goal change would be for 5 MW by 2010. Given the mix of solar energy systems already installed and the

expected growth in the public, business and residential sector, this is equivalent to approximately 3500 rooftops in the residential sector and 1625 rooftops in the commercial sector.

Cumulative Installations

PV installations since 2002: 596 equivalent rooftops totaling 1.3 Megawatts
In 2003: 297 equivalent rooftops totaling 595 KW
Solar Thermal since 2002: 94 equivalent rooftops totaling 7307 square-feet of collectors
In 2003: 16 equivalent rooftops totaling 1280 square-feet of collectors

Solar Schools

Kent Middle School & Bacich Elementary (both in Kentfield School District) will have PV systems by June 2004

Leveraged Resources

Marin County Community Development Agency: in-kind services
Pacific Gas & Electric: equipment, supplies and trainings
Nor Cal Solar Energy Association: equipment and supplies for Solar Homes Tour
Solar Living Institute: Supplies and trainings

New and Noteworthy Accomplishments

1. Created Marin's Solar Potential Map, a Geographic Information Systems (GIS) tool for assessment and outreach. To date, almost 70 megawatts of rooftop potential has been identified using this tool.
2. Created a technical assistance template, which provides information to residents and businesses that details shading, photovoltaic energy production, system costs and savings in report format.
3. Facilitated six trainings in 2003 for residents, businesses, electricians, contractors and city building inspectors

4. Participated in the following community events: Greening West Marin, Mill Valley Green Building & Solar Symposium, Marin Solar Homes Tour
5. The County of Marin completed its first photovoltaic installation, a 90 KW system. Dr. Donald Aitken, local elected officials and 70 other guests helped to dedicate the system.

Activities Underway

Current activities include:

1. Investigating options for helping other communities create similar solar potential maps.
2. Working with our water and wastewater districts to determine feasibility of PV applications
3. Facilitating small-group meetings and solar tours for the commercial sector
4. Airing a public service announcement at local movie theaters
5. Construction of a simple, modular (though compelling and provocative) solar exhibit for display at community events

Upcoming Events

There are several events that the Marin Solar Program will be participating in: the Home Show and Fairfax Eco-fest in the spring and summer of 2004. In October, the County will co-host the Marin Solar Homes Tour with Nor Cal Solar Energy Association.

What we could use help with

The larger issues include connecting businesses and residents with contractors in a qualified and equitable manner while retaining our objectivity and community trust. Also of concern is coordinating with individual municipalities to create consistency in plan-checking and building inspection processes.

The smaller issues center on trying not to reinvent the wheel while keeping apprised of all the tools that can make the program more relevant and useful. Also, finding good quality 100% recycled-content paper that is attractive and colorful yet still moderately priced presents a surprising challenge.

San Diego Regional Energy Office

Feb 14, 2004

Partnership Lead Organization

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Contact Organization: San Diego Regional Energy Office

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Fax Number: 858-244-1178

Email Address: awa@sdenenergy.org

Website Address: www.sdenenergy.org

Other Partners

- Altair Energy
- Association of Energy Engineers
- BP Solar. Inc.
- Brummit Energy Association
- Carrier Johnson (AIA)
- CA Local Government Comm.
- CAL-SEIA
- Carlson Solar
- California Energy Commission
- CEERT
- CA Public Utilities Commission
- City of Chula Vista
- City of El Cajon
- City of San Diego
- County of San Diego
- D-Q University
- Endecon Engineering
- Horizon Solar
- Independent Energy Solutions
- League of Women Voters
- Kyocera America
- Manzanita Tribe
- New School of Architecture
- NREL
- Pardee Homes
- Platt & Whitelaw (AIA)
- Powerlight
- Renewable Energy Dev. Inst.
- SANDAG
- SD City Mayor
- SW Center for Environmental Research and Policy
- SD City Schools
- SD Co. Office of Education
- SD Earthworks
- City of SD Livability Initiative SDSU Center for Energy Studies
- Shea Homes
- Siemens Solar
- Sierra Club
- Mark Naylor Solar
- San Diego Gas & Electric
- Solar Design Associates
- SRCC
- ST Microelectronics, Inc
- Del Mar Fairgrounds
- US DOD
- Sun Earth
- Sun Systems
- Unisolar
- US Navy
- US Postal Service

Year of Formation

1999

Million Solar Roofs Installation Goal

The San Diego region seeks to install 20,000 solar roofs by 2010.

Mission Statement: The San Diego Regional Million Solar Roofs Initiative (SD-MSR) mission is to raise awareness of the value and benefits of solar energy technology solutions and to ultimately increase the number of solar energy projects in the San Diego Region.

Cumulative Installations

1999	11 units	28.7 kW
2000	28 units	86.3 kW
2001	273 units	889.5 kW
2002	354 units	2040.4kW
2003	531 units	3686.0kW
Total	1197 units	6730.0kW

Solar Schools

Schools: 8

School Districts: 2

Leveraged Resources

- SDREO was able to partner with our Self Generation Program to help promote solar, its benefits, available rebates and tax credits by utilizing the Self Generation Program's marketing budget to cross-promote events and technologies.
- SDREO was able to leverage our relationship with local businesses and government agencies to help promote solar by participating in solar dedications and ribbon cutting events.
- SDREO has used our own solar installation as a tool to promote solar by conducting tours of our system for interested parties.

New and Noteworthy Accomplishments

- Solar Homes Tour 2003 was our biggest Tour yet. We received over 600 visitors to 22 sites.
- In 2003, SDREO completed installation of our very own 10kW PV System utilizing both thin-film and crystalline technologies.

- We have also installed a solar kiosk for our Energy Resource Center, which monitors the system and allows visitor to see system output, wind speed and avoided carbon dioxide use. Our Energy Resource Center includes many more educational kiosk, a tool lending library and meeting room which are available free of charge.
- We have completed and recently revised our Federal and State Tax Credit Handouts which can be found on the solar portion of the SDREO website.

Activities Underway

Development of Solar Tool Lending Library,
Promotion of Rebuild a Greener San Diego Program

Upcoming Events

- *SEI PV Workshop on April 16th and 17th*
- *Large Business Environmental Fair on April 19th*
- *Solar Fountain workshop with Rahus Group on May 22nd (tentative)*
- *Solar Homes Tour 2004 on May 15th*

What we could use help with

The largest barrier in promoting solar in the San Diego Region is getting past the high initial capital outlay and the payback period. Our unbundled rate structure, low energy costs and demand charges make solar payback even longer than normal and therefore a less attractive option. Information on how others may have handled similar situations would be helpful. Other issues include dissatisfaction with system output possibly due to "overselling" of systems by installers.

Island of Hawaii MSR Partnership

April 16, 2004

Partnership Lead Organization

Contact Person: Patrick Moore, Administrator,
IRP/Energy Services Planning
Contact Organization: Hawaii Electric Light
Company, Inc.
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96720
Phone Number: 808.969.0136
Fax Number: 808.969.0135
Email Address: pmoore@hei.com
Website Address: www.hawaiiislandsolar.org/

Other Partners

- County of Hawaii
- State of Hawaii Department of Business,
Economic Development and Tourism;
- U.S. Dept. of Energy
- ProVision Technologies
- The Alternate Source
- Renewable Energy Services, Inc.
- Vicki Vierra Graphics
- Hawaiian Solar and Plumbing

Year of Formation

1997

Million Solar Roofs Installation Goal

20,000

Mission Statement: The Island of Hawaii MSR Partnership will support the goals of the MSR Initiative and will identify local barriers to the adoption of solar technologies and will work in a collaborative fashion to remove those barriers along with promoting solar technologies.

Cumulative Installations

2786 solar water heaters. We are currently working on updating our PV registration.

Solar Schools

Four schools within the County of Hawaii district.

Leveraged Resources

New and Noteworthy Accomplishments

Installed 1 kW PV system at Kalaniana'ole Elementary and Intermediate School.

Activities Underway

The Island of Hawaii MSR Partnership team leader, Hawaii Electric Light Company, has entered into a partnership with the Natural Energy Laboratory of Hawaii Authority (NELHA) to install two 20 kW ac PV systems at the Gateway Distributed Energy Resources Center in Kona, Hawaii. Center will be a focal point for distributed generation development and commercialization, and is expected to be visited by thousands of worldwide visitors annually.

Upcoming Events

Two partnership members will be attending the MSR Peer-to-Peer Workshop May 6-7 in San Francisco and will be reporting back to the partnership at the next meeting.

What we could use help with

Sharing of case studies, both successful and otherwise, from other partnerships regarding how to encourage and obtain the registration of qualifying systems. We would like to identify a source for an energy cycle, or plans for one, that uses a bicycle and generator to power various electrical equipment to illustrate energy efficiency.

Kauai Million Solar Roofs Partnership

April 15, 2004

Partnership Lead Organization

Contact Person: Edwin Nakaya, Energy Services Specialist

Contact Organization: Kauai Island Utility Cooperative

Mailing Address: 4463 Pahee Street, Lihue, HI 96766

Phone Number: (808) 246-8282

Fax Number: (808) 246-8268

Email Address: enakaya@kiuc.coop

Other Partners

Kauai County

Kauai Community College

Year of Formation

2000

Million Solar Roofs Installation Goal

500 solar water heating systems installed by 2010.

Cumulative Installations

2003 installations: 59 solar water heaters, 4 PV systems (11.82 kW)

Cumulative installations through 2003: 397 solar water heaters, 15 PV systems (42.15 kW)

Solar Schools

One school has solar water heating for its athletic building.

Leveraged Resources

If applicable, please indicate resources (i.e.: dollars, in-kind services, etc.), apart from the MSR federal grant dollars, that the Partnership committed in 2003

New and Noteworthy Accomplishments

We ended a DSM resource-based solar water heater incentive rebate program in December 2003, which required participants to pass screening criteria for cost-effective installations. This meant that smaller households using less energy for water heating were likely not to qualify for the incentive rebate. In January 2004, we implemented a rebate program that does not require participant qualification other than the solar water heater must replace a conventional electric water heater or be at a new construction.

Activities Underway

We are awaiting the installation of a PV system at Kauai Community College that will allow energy production tracking that can be displayed on the college's website. However, because of delays in the construction of the car roof the project might not be completed before the end of the program year.

Upcoming Events

A zero-interest loan program for residential solar water heater installations will be implemented this summer.

What we could use help with

The largest barriers to installation of solar water heating and PV systems continue to be high cost of installation and long period before payback is realized.

Island of Maui MSR Partnership

April 30, 2004

Partnership Lead Organization

Contact Person: Jib Wilson, Residential Efficient Water Heating Program Manager.
Contact Organization: Maui Electric Company, Ltd.
Mailing Address: P.O. Box 398, Kahului, Hawaii 96733
Phone Number: (808) 871-8461
Fax Number: (808)872-3247
Email Address: jib.wilson@mauielectric.com
Website Address: <http://www.mauielectric.com/>

Other Partners

The following are in our solar builder program. Most agreements are for one year, however, most builders continue to include solar in their new construction packages.

- 3D Builders & Design
- Betsill Brothers Construction
- Graham Builders
- JC Builders
- Pono Building Company
- Seaside Construction
- Steel Frame Homes Construction
- YM Homes
- Towne Development
- *Stanford Carr Development*
- Dowling Company Inc.

MECO also works with the following agencies/entities. Some have no formal agreements but have established partnerships.

County of Maui

MECO administers interest free \$350,000 revolving loan program funded by the County.

State of Hawaii Energy Division of the Dept. of Business, Economic Development and Tourism
MECO co-sponsors green build workshops with DBEDT, provide/exchange literature, technical support, and /or speakers at various conferences, provide literature, technical

USDA Rural Utilities Service

MECO has recently been awarded \$1.1 million in USDA funds for the installation of solar water heating on the island of Molokai.

Approved Solar Contractors

MECO's provides \$1000 rebate for solar water heating installed by one of its approved contractors. These contractors install system to meet MECO's quality standards to help ensure quality and energy savings. The list of these contractors changes from time to time, the most current are on the MECO website listed above.

Year of Formation

1998

Million Solar Roofs Installation Goal

MECO is committed to the installation of 6,300 solar water heating systems by the year 2010. (as updated in MECO's MSR award 2001)

Cumulative Installations

MECO's program has installed 1049 solar water heating systems in 2003. MECO has installed 5114 systems since its program began in 1996.

There were three residential PV net energy metering connections to MECO in 2003, for a total of 14.6 kW.

Solar Schools

Two schools have PV under MECO's "Sun Power for Schools" program (Baldwin High School and Molokai High School). Each is 1 kW.

Leveraged Resources

MECO received commitment for an additional \$100,000 from the County of Maui for the solar revolving loan fund.

MECO continues to provide its \$1000 rebate for each of the 1,049 systems installed in 2003, as well as associated program administration costs.

New and Noteworthy Accomplishments

USDA Rural Utilities Service

MECO has recently been awarded \$1.1 million in USDA funds for the installation of solar water heating on the island of Molokai.

As noted in its 2004 MSR application, the main barriers for solar installations remain initial cost and lack of appropriate public education to drive the demand for solar.

Activities Underway

MECO is currently planning its opening dedication of the USDA Rural Utilities Service grant on May 26, 2004 with Congressman Ed Case in attendance.

Upcoming Events

USDA Opening dedication (classes planned on solar water heating maintenance & residential energy efficiency)
Maui Contractors Association Homeshow
HUD Homebuyers Fair
MECO in Our Community

What we could use help with

As noted in its 2004 MSR application, the main barriers for solar installations remain initial cost and lack of appropriate public education to drive the demand for solar.

There are also limited resources, particularly in the area of staffing, to undertake and complete activities in a quality manner for partnership leaders.

Oahu MSR Initiative

April 16, 2004

Partnership Lead Organization

Contact Person: Ron Richmond, Analyst
Contact Organization: Hawaiian Electric Company
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Phone Number: (808) 543-4784
Fax Number: (808) 543-4722
Email Address: ron.richmond@heco.com
Website Address: <http://www.heco.com/>

Other Partners

- City & County of Honolulu
- Hawaii Renewable Energy Alliance
- Hawaii Solar Energy Association

Year of Formation

1997

Million Solar Roofs Installation Goal & Mission Statement

- Goal: 21,000 systems by 2010
- Mission Statement: Promote and coordinate an integrated response in support of the MSR by:
 - educating Oahu stakeholders about the energy, environmental and economic benefits of solar energy
 - identifying realistic, achieving targets for Oahu participation in the MSR
 - facilitating installation of solar systems on Oahu roofs
 - broadening the understanding & base of support of the MSR

2003 & Cumulative Installations

	PV		SHW		
	No. of Sys.	Capacity (kW)	No. of Sys.	Energy (GWH)	Capacity (MW)
Solar	8	11.7	1,833	4.5	1.1
Cumulative	21	87.4	13,587	33.2	8.2
Goal	-	-	21,000	51.4	12.6
% of Goal	-	-	65%	65%	65%

Solar Schools

9

Leveraged Resources

HECO has committed staff time for tracking & reporting; office, equipment, and furniture resources; and allocated about \$400,000 in marketing to promote solar on Oahu.

New and Noteworthy Accomplishments

- U.S. Marine Corp Base Hawaii built its first family housing project to have solar water heating systems. HECO presented the Marine Corp with a \$133,500 rebate check for 178 systems. This project brings the number of military family housing units to have solar to over 3,000 systems.
- HECO and the City & County of Honolulu partnered to launch the City's Honolulu Solar Roofs Initiative. This Initiative provides low or no interest loans to low-to-moderate income families or to landlords who rents to these families
- Convinced the City building department not to hold up permits until homeowner association approval is granted

Activities Underway

- HECO is continuing to fund its solar marketing efforts at the same level as last year
- The military is privatizing over 10,000 of its family housing units. HECO is working with privatization contractors to insure solar water heaters are incorporated as units are rebuilt.
- Oahu has a high percentage of single-family dwelling and townhouses rental properties. HECO is targeting this market for solar water heaters.
- Supporting HSEA in securing a policy that allows solar contractors to install complete systems without subcontracting to a licensed plumber and licensed electrician.

Upcoming Events

- Conduct a series of presentations to Section 8 landlords at the City & State's annual briefing
- Partner with a large local real estate brokerage firm to offer solar to residential buyers & sellers
- Sponsor HECO's annual Energy Efficiency Housing Award

What we could use help with

- The biggest barrier to greater adoption of solar is homeowner association restrictions. Help with this

Idaho PV4You Solar Working Group

April 15, 2004

Partnership Lead Organization

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Fax Number: 208-327-7866
Email Address: khanna@idwr.state.id.us
Website Address: www.energy.idaho.gov;
www.idahosolar.org/

Other Partners

Association of Idaho Cities
Aurora Power and Design
Bonneville Power Administration
EnerTech Services
Fall River Rural Electric
Idaho Council on Industry and the Environment
Idaho department of Administration
Idaho Department of Water Resources
Idaho Power Company
Idaho Public Utilities Commission
Idaho Rivers United
Idaho State University
Kootenai Electric Cooperative
Nez Perce Tribe
Northwest Power Planning Council
Solar Cascade
Solar Electric Hybrid
Solar Solutions
Sunelco

In partnership with

Backwoods Solar Electric Systems Electric	Clearwater
Clearwater Electric Electric Light Division	Idaho Falls
Lost River Electric Cooperative Resource Company	Natural
Northwest Energy Storage Electric Cooperative	Raft River
United Electric Cooperative	

Year of Formation:

1998

Million Solar Roofs Installation Goal

5,000 solar roofs by 2010

On August 12, 1993, the Idaho PV4U State Working Group, the predecessor of the Idaho PV4You Solar Working Group, adopted this mission statement: promote the cost-effective utilization of PV as an energy source through a collaborative process among major stakeholders in Idaho.

Cumulative Installations

Idaho has at least 616 systems installed. In April 2004 the Energy Division surveyed all the Idaho solar dealers and installers to get the 2003 installation count, but none of them has yet supplied this information.

Solar Schools

Castleford School District installed a PV system in December 2003, the first PV school project in the state. It was a partnership that included the Idaho Rural Council, the Bonneville Environmental Foundation, the Castleford School District and the Idaho Power Co. Two Boise schools have solar hot water heating systems.

Leveraged Resources

New and Noteworthy

Accomplishments: The Idaho Energy Division commissioned a preliminary feasibility study on putting solar PV panels on the roof of the Idaho Statehouse and the new Idaho Water Center. The capitol restoration project is on hold due to budgetary constraints; nonetheless, the study indicates the building is probably not a good candidate for PV. The Idaho Water Center, presently under construction, is an excellent candidate, but with great challenges to overcome. The building owners are interested in having an array on the roof, and several tenants are interested in participating in the design and/or actual installation. In the fall, the Idaho Energy Division will move into the Idaho Water Center.

The division and the Blaine Soil Conservation District organized and conducted an Idaho renewable energy fair in Sun Valley on Oct. 11, 2003. Gov. Dirk Kempthorne proclaimed Solar Awareness Week, and Mayor Paul Wilson read his Sun Valley Renewable Awareness Day proclamation to open the event. Solar booths and exhibits were featured, and a solar workshop was presented. Architects who attended were eligible for continuing education credit.

The Idaho Energy Division co-sponsored a test site on Oct. 25, 2003 for the first NABCEP certification exam for PV installers. Several Idaho applicants took and passed the test at the College of Southern Idaho, Twin Falls.

The division also sponsored two solar energy in-service training classes for Idaho grade school teachers. Those who participated were eligible for continuing education credits.

In cooperation with the Northwest SEED, the Energy Division developed the Idaho state edition of the Renewable Energy Atlas. It includes a section on solar energy resources and technology applications.

The Idaho Energy Division and the IPV4You Solar Working Group hosted three teleconferences and web casts on solar energy technologies and related topics. These included: PV for Affordable Housing, April 2003; Energy Surety, Nov. 6, 2003; and Net Metering, Jan. 26, 2004.

One staff member attended the September 2003 peer exchange in Portland and made a presentation on the Idaho solar programs. Two energy division members attended the regional Solar Summit in Sunriver, Oregon, in October 2003 and discussed the state's solar programs and how they were marketed.

In 2003, the Idaho Energy Division's low-interest loan program received six applications for solar projects. Several were funded.

Activities Underway

The Idaho Energy Division is working with Boise State University to put PV panels on a new Nordic ski loop at Bogus Basin, north of Boise. Staff members continue to network with the owner of the new Idaho Water Center about using PV on the roof.

A partnership was just formed with Timberline High School, Boise, which wants to install a solar array on the grounds as a school project.

Upcoming Events

Idaho will host the 2004 regional Northwest Solar Summit in October. The Idaho Energy Division and its local partners in Blaine County will co-sponsor a renewable energy fair in Sun Valley that month.

In addition, the Idaho Energy Division will co-sponsor the state's first sustainability conference next spring. Energy will be a vital component of that.

What we could use help with

Idahoans are interested in using PV, especially since all three major investor-owned utilities offer net metering, but they are reluctant to spend the money until the financial climate improves. Major employers have either moved operations out-of-state or had serious layoffs, and the ripple effects of these continue. Agriculture is a prime player and that area is in a slump as well.

Idaho has no solar-related manufacturing plants, and the state offers no real incentives to use solar or any other renewable energy. There is a tax deduction but there are no grants, rebates, tax credits or other incentives, which other states offer.

One Idaho solar dealer closed his business in 2003 because of the poor economy.

Nevada MSR Partnership

April 16, 2004

Partnership Lead Organization

University of Nevada Reno
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Coordinator
Contact Organization: University of Nevada Reno
College of Engineering
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Phone Number: 775-784-1169
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Email Address: jacobsoe@unr.edu

Other Partners

- University of Nevada Reno
- Desert Research Institute
- University of Nevada Las Vegas
- Sierra Pacific Power Corporation
- Nevada Power Corporation
- Independent Power Corporation
- Sunrise Sustainable Resources Group (Nevada ASES)
- Hitech Communications (new this year)
- Las Vegas Solar Electric (new this year)

Million Solar Roofs Installation Goal

The MSR commitment for Nevada is 10,000 rooftop equivalents. Our efforts focus on public education and outreach programs that support the Green Power program for solar on schools, the state net metering and incentive programs, and other public education and outreach programs to make solar power a realistic goal for commercial and residential installations in our state.

Solar Schools

Through the Green Power Program, a total of 6 schools in southern Nevada and 1 school in northern Nevada now have solar. The press event for the first northern school is scheduled for May 5, 2004.

Leveraged Resources

Since we are primarily a public education and outreach program, we haven't committed funds to this effort. Instead we support the programs sponsored through the Green Power Program and the state incentive programs (just starting).

New and Noteworthy Accomplishments

This year we will complete the solar PV and solar thermal demonstration unit components and the computer monitoring system that provides efficiency and tracking data for public information. These units were used at the Solar Home Tour and at Earth Day where over 3000 people explored the advantages of solar power in the state. We joint ventured with the power company to provide information on the user-supported solar on schools program and other related information about opportunities in the state. In addition, we completed the database program for inventory and tracking, and have submitted the first report to the national tracking using that system. Last we are working closely with the Green Power Program, and our local school district and received a grant for \$129,000 per year for 3 years from the Nevada State Department of Education that incorporates renewable energy, particularly solar education, into a professional development program for middle school teachers in the state. This is funded through federal No Child Left Behind education funding, leveraging the investment in solar on schools made through the Green Power Program. We are also in the final year of a US EPA-funded program for energy education in schools that reaches out to the Hispanic community through children in predominantly Hispanic, economically disadvantaged schools. Through these grants we

have developed resources that are used not only for school programs, but also to supplement the public outreach program resources available through Million Solar Roofs. Last, the partners in the Million Solar Roofs program have been instrumental in commercialization planning for the Nevada Southwest Energy Program (NREL-supported) DRI hydrogen powered internal combustion engine project for off-grid power systems for rural applications. This DRI-led, over \$1million, research and development program is now in the third phase of a multi-year effort and is a result of the collaborations of the key partners in the Million Solar Roofs Program.

Activities Underway

We are:

- sponsoring several workshops this year to focus on technical issues related to solar installations in Nevada
- completing the inventory program and collecting our first systematic data about installations in the state
- continuing our public outreach both to the general public and through the Green Power Program supporting solar on schools
- working with our schools and community organizations to expand on our current outreach and marketing efforts

Upcoming Events

Partnership meetings, Solar Fairs, exhibits, training programs, etc.

- June, 2004 we plan join with the Nevada Cooperative Extension, USDA and others to hold a workshop on “LifeCycle Costing for Rural Solar Applications” by Larry Moores, Sandia National Laboratory
- September, 2004 we are in the early planning stages to host a solar expo highlighting key commercial vendors of solar technology

What we could use help with

The partnership faces challenges associated with the size of the state, the number of entities wanting to become involved in renewable energy agendas in the state, and the need for improved communication among those stakeholders.

Often the renewable energy issues that we face within the engineering community are perceived as “different from” those of other engineering applications when in fact we could use what we have learned from other industry applications such as the growth of the computer industry, and apply those lessons learned to this industry – and we seldom make those linkages across applications

The national labs have expertise particularly regarding programs at the national level such as certification programs for solar installers, and we hope to bring them to Nevada to share this knowledge during the next fiscal period.

Oregon MSR Coalition

May 24, 2004

Partnership Lead Organization

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Website Address: www.energy.state.or.us

Other Partners

- University of Oregon Solar Radiation Monitoring Laboratory
- Oregon Solar Energy Industries Association
- Solar Energy Association of Oregon
- 3E Strategies
- Energy Trust of Oregon
- Lane Community College
- Oregon Renewable Energy Center
- Klamath Solar Association
- Solar CREEK
- Umpqua Solar Association
- Home Power Magazine
- Bonneville Power Administration
- Eugene Water and Electric Board

Year of Formation

1999 – formation

2000 – initial projects began

Million Solar Roofs Installation Goal

Initial Goal – 50,000 systems by 2012

Interim non-system goals:

Net metering	1999
Barrier Assessment	2000
1 st state with solar powered state capitol building	2001
License for solar electric contractors	2001
License for solar water heating contractors	2001
Apprenticeship program for solar electric contractors	2002
Apprenticeship program for solar thermal contractors	2003
Statewide tour of solar homes	continually expanding
Media contact list	2002
1 st “Zero” net energy home conference	2003
Help develop incentive programs and system standards	2003

Free public workshops on solar energy	over 120 so far
Refine and improve incentive programs	on going
Refine and improve training programs	on going
Refine and improve public education efforts	on going

Mission Statement (revised)

The Oregon Million Solar Roofs Coalition is an affiliated group of organizations, companies and agencies that are interested in advancing the use of solar energy in Oregon. The Coalition was formed in 1999 and received funding from the US Department of Energy’s Million Solar Roofs program in 2000, 2001 and 2002. Each year the group decides on a collection of activities that it feels will best remove barriers and advance the installation of solar energy.

The current implementation plan remains focused on addressing primarily technical/policy and public awareness issues. Many of the barriers identified in the original implementation plan (copy at end of document) have been substantially overcome. The focus now has shifted from one of establishing policy and training programs to targeting markets (such as new construction and green homes) and building public awareness of the value of solar energy systems.

Cumulative Installations

Number of systems (2004 data not complete)

<i>YEAR</i>	PV Systems	Pool Systems	SDHW Systems	Cumulative
1997	1	61	66	128
1998	9	47	124	180
1999	13	111	211	335
2000	26	84	103	213
2001	61	121	241	423
2002	29	101	179	309
2003	96	93	103	292
2004	98	34	71	203
SUM	333	652	1,098	2,083

Savings (kwh/yr)

<i>YEAR</i>	<i>PV Systems</i>	<i>Pool Systems</i>	<i>SDHW Systems</i>	<i>total per year</i>
1997	1,000	513,324	159,000	4,713,268
1998	12,542	395,025	297,000	4,227,401
1999	18,101	1,070,490	512,000	8,002,957
2000	67,134	847,530	249,000	4,654,657
2001	62,706	1,179,426	586,500	5,485,897
2002	35,989	1,003,865	441,000	2,961,708
2003	117,556	1,013,441	241,072	1,372,069
2004	258,558	412,425	168,000	-
SUM	573,587	6,435,526	2,653,572	9,662,685

Solar Schools

Data is not collected – these are best estimates

Portland Metro	8
Salem Metro	2
Corvallis	1
Eugene Metro	5
Central Oregon	2
Southern Oregon	4
Klamath Falls	2
Hood River	1
John Day	1

Leveraged Resources 2003

Direct Commitment	
Oregon Department of Energy	\$15,000+
Oregon Solar Energy Industries Association	\$6,000
Energy Trust of Oregon	\$10,000
Leveraged State Solar Incentives	
Oregon Residential Energy Tax Credit	\$1,200,000
Oregon Business Energy Tax Credit	\$500,000
Energy Trust of Oregon	\$1,000,000
Eugene Water and Electric Board	~150,000
City of Ashland	~\$20,000
BPA customer utilities	~\$25,000

New and Noteworthy Accomplishments

- 2003 Solar Tour of homes expanded to 10 cities.
- Publication of 20,000 copies of the full color 64 page magazine with articles on homes and solar technologies. Template docs to be available at ASES conference.
- Launch of 2-year degree in RE in conjunction with solar contractor apprenticeship program through the Lane Community College
- Installation of 80+ PV systems in the last 6 months
- April 3rd Solar Electric Workshop at IBEW training center for 120 electricians/contractors
- Rose House –Net Energy Home received major TV and press coverage

Activities Underway

Solar Energy Association of Oregon Hosts this year's ASES Conference

10+ Workshops

5 Tours

Local Solar Energy Fair

Oregon Renewable Energy Action Plan – State strategy for developing and attracting RE businesses includes direct support for MSR related activities.

Initiation of ODOE's high performance home initiative in partnership with the Oregon Renewable Energy Center.

Solar Tour of Homes 2004 – magazine + 12 cities

SolWest Renewable Energy Fair

Upcoming Events

ASES 2004 Conference

July 10-14

SolWest Fair

July 24-26

Solar Tour

October 3rd

What we could use help with

Big Issues:

Limited incentive program funds

Lack of Solar Water Heating contractors – they've left to do hydronic heating

Small Issues

Refinement of net metering law needed

Streamlining of permitting and licensing issues

Marketing strategy needed for new construction

Washington Million Roofs Collaborative

April 21, 2004

Partnership Lead Organization

Washington State University/Northwest Solar Center

Contact Person: Mike Nelson, Northwest Solar Center Director

Contact Organization: Washington State University

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Fax Number: 206 396- 8446

Email Address: miknel@westernsun.org

Website Address: www.northwestsolarcenter.org

Other Partners

Washington State Department
of Trade and Economic Development

Okanogan. Co-op
Okanogan PUD
Seattle City Light

Utility members

Clark Co PUD
Clallam Co. PUD
Benton PUD
Benton REA
Chelan PUD
Franklin Co. PUD
City of Ellensburg
Grant PUD
Ferry Co. PUD
Inland Power and Light
Kittitas PUD
Klickitat PUD
Nespelem Co-op

Associate Members:

Awish
Bonneville Environmental Foundation
Bonneville Power Administration
Institute for Environmental Research and Education
Next Generation Solar Co-op
Northwest Renewable Energy Festival

Industry Partners:

The Cottage Company
Outback Power Company
Zantrex, Inc.

Year of Formation

The Washington Coalition was formed in 1997.

Million Solar Roofs Installation Goal

The Mission of the Washington MSR Collaborative is to act as a primary catalyst in transforming grid connected solar technologies from a niche activity by early adopters to the power system of choice in communities throughout Washington

Our goal is to install 20,000 grid connected solar electric systems by 2010 in the State of Washington

Cumulative Installations

As of April 15, 2004, the State had a total of approximately 383 kW of reported, grid-connected solar electric. (This number may increase once the data from the final electric provider has been received.) This represents a growth of approximately 51% over 2002's 253 kW. Additionally, although not covered in this survey, anecdotal evidence suggests that off-grid solar electric also continues to experience significant growth. The 4-year growth rate since net metering became available is over 200 % per year average. To meet Coalition goals this rate will need to increase by about 30%.

Washington State continues to see significant growth in grid-connected solar electric installations. This is so even though the state has some of the lowest electricity rates in the U.S. and there are few incentives from the state and federal governments.

We are only promoting solar electric systems as resources require a carefully defined scope of work.

Solar Schools

We have installed 18 schools around the state; we are currently installing another 35 in Chelan County.

Leveraged Resources

During the last year we leveraged 280 thousand dollars of hardware support from Wenatchee. Another 120 thousand dollars was leveraged from Seattle City light

New and Noteworthy Accomplishments

Last year's highlights for the Washington State MSR Collaborative include:

- A three-day Regional Zero Energy Home conference - This conference was a highly successful conference that established a reserve of nearly \$15,000 dollars for future events. To our knowledge, this was the first full "how to do it" conference in the country;
- The Sixth Solar Summit conference at Sun River, OR - This year we moved the event to an Oregon site as a collaborative gesture to that state, never-the-less, we took organizational lead and financial responsibility;
- The purchase of 35 school systems in cooperation with Chelan PUD. They are currently being installed;
- Six community systems, including a new curtain-wall system at the Seattle Center Opera House are being installed in Seattle. Assistance is being provided to Seattle City Light for installation;
- Technical support is being provided to Ferry County PUD in their successful implementation of their Utility Off Grid alternative to line extension Program;
- Encouragement to adopt the Chelan Co. PUD SNAP program was provided to a multi-state group of utilities;

- The Washington Solar Industry Summit was convened at Chelan, WA; and
- Development and preparation work was provided for the City of Ellensburg for the creation of a community owned PV power plant located along an interstate highway.

Activities Underway

- Working on an 18kW STC system for State Capitol
- Building a world wide web network of solar electric systems, each with it's own website node which assembles the information on those sites into a regional virtual power station;
- Implementing a new round of Solar Installation Training Programs including a "Master Solar Practitioner" volunteer network;

Upcoming Events

- Northwest Renewable Energy Fair
- Annual Solar Summit
- Zero energy house training

What we could use help with

Lack of National, State, Local Market incentives is the single largest problem. Having a rapid response team available for legislative events would be very valuable.



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.

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