The SOLARIZER

April 1998 Volume 1, Issue 1

Newsletter of the Oregon Solar Energy Industries Association (OSEIA)

Message from the President

by David Parker

Dear Members,

Here it is at long last - the first OSEIA newsletter of this decade! My hope is that you will get something useful for your business and/or personal life out of these pages, so that the energy expended will be multiplied among you. Kudos to Frank Vignola for making this a reality, and to the articles' authors for their time and effort.

This year is already shaping up to be a watershed year for renewables, with all the behind the scenes activity bearing fruit in 1999 and the new millennium. On the national level, the Million Solar Roofs initiative may finally get some legs with Clinton's proposed $6 billion budget to reduce greenhouse gases. There is a 15% federal tax credit up to $1000 maximum proposed for solar water heating and up to $2000 maximum for photovoltaics. If Congress passes this, it would go into effect January 1, 1999 (see accompanying comments in the Sunflash). Curtis Framel of DOE's Seattle office met with John Patterson, Ray Pokorny and Brent Gunderson in Portland and Christopher Dymond in Salem at the end of February to give an update on the MSR initiative.

On the state level, OSEIA is working on the language for the upcoming net metering bill to be introduced in the 1999 legislative session. This will be a major focus of our upcoming chapter meeting. On a recent trip to Trace Engineering, I met with Sam Vanderhoof and Mike Nelson of WASEIA, and Tom Starrs of Kelso, Starrs and Associates, who crafted the successful net metering bill that was recently approved in the state of Washington. (Complete text of legislation is on the web at http://leginfo.leg.wa.gov/pub/billinfo/house/2750-2774/2773-s_hbr_031698.) Brent Gunderson has released a "PV only" version for Oregon, and has promised to enjoin the debate at our next meeting.

Utility restructuring is taking a new direction in Oregon, with major opposition forming to Enron's open competition model. The Fair and Clean Energy Coalition, now boasting 95 diverse members, such as the Citizen's Utility Board (CUB), the Oregon Food Bank, OSPIRG and the American Association of Retired People (AARP), is seeking to keep the utilities' territories intact, while mandating customer choice through "portfolio" options. Each utility would be required by the PUC to offer choices, such as low priced hydro, medium

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'SCAPE FROM THE ORDINARY

By John Patterson

On Friday, April 24, 1998, the staff and students of Rowe Middle School in Milwaukie, Oregon will hold a grand opening ceremony for their new naturescaped wildlife habitat in the central courtyard of their school. An all-school assembly in the gym will begin at 9:10 a.m., followed by a dedication in the courtyard at 10:00. The dedication will be attended by some students, volunteers who helped with the project, and local dignitaries.

For The Critters: The main purpose of the garden is to provide a habitat made up of native plants and food, water, and protection for birds, squirrels, frogs, snakes, fish, and other small animals. Students hope to provide a safe haven for small wild animals to flourish in the midst of an increasingly urban area.

The Kids Did the Work: The naturescaped habitat was designed and built by students with the help of teachers and community

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The SOLARIZER is the newsletter of the Oregon Solar Energy Industries Association (OSEIA). OSEIA is Oregon's local chapter of the Solar Energy Industries Association. The information presented in this newsletter reflects the opinions of the authors and not necessarily those of OSEIA.

The success of the newsletter depends upon your contributions. This is an opportunity to tell the OSEIA members about your activities and to express your opinions. Photographs or figures to accompany articles are most appreciated. Articles of current and timely interest will be given highest priority. Otherwise, articles will be publish on a first come basis as room allows.

Send your contributions to:
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We would like to thank Bob Claridge of Bobcat and Sun Construction, Curtis Framel of U.S. DOE FEMP, Paul Isreal of R.V. Solar Consultants, Bob Maynard of Energy Outfitters, David Parker of Energy Service Company, and John Patterson of Mr. Sun Solar for their contributions to the newsletter.

OSEIA Officers

President: David Parker of Energy Service Company, Ph: (541) 302-6808
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Secretary: Chris Eames of Energy Service Company, Ph: (541) 302-6808
Treasurer: Ray Pokorny of Solar Interior Design, Ph: (503) 224-2322

OSEIA Meeting Agenda

Where: Oregon Electric Station
27 E. 5th Ave., Eugene OR When:
Wednesday April 8th, 12 Noon

Agenda

1. Welcome and Introductions - David Parker
2. Approval of 1/5/98 Meeting Minutes - Chris Eames
3. Treasurer's Report - Ray Pokorny
4. Net Metering in Oregon - Brent Gunderson
5. Million Solar Roofs Update - John Patterson
6. Utility Restructuring - Bob Jenks, Citizen's Utility Board (invited)
7. Oregon Office of Energy's PV and SDHW Systems Update - Christopher Dymond
8. OSEIA Finances - All
9. OSEIA Brochure - Newt Loken
10. OSEIA Newsletter - All
11. Other Business

Directions to Oregon Electric Station

The April meeting of OSEIA will be held at the Oregon Electric Station (OES) in downtown Eugene, north of the Eugene Hilton and the Hult Center.

To get to the OES from I-5, take exit 194b to Eugene. This is the I-105 interchange. Once on I-105 take the Coburg - University of Oregon exit. On Coburg road, head south over the Ferry Street bridge and take the sixth avenue exit. Take 6th to Willamette street (about 4 blocks) and turn right. The Oregon Electric Station is on the northeast corner of 5th and Willamette. The parking lot is on 5th avenue.

The President's Million Solar Roof Initiative

from talk by Curtis Framel

What is the Million Solar Roofs Initiative?

- Announced in United Nations Address by President Clinton, June 26, 1997
  - Organize $1 billion in assistance over 5 years to support energy efficiency, develop alternative energy sources
  - Encourage private investment to meet environmental standard
  - Increase the use of new and more efficient technologies, including installing one million solar roofs by 2010
- Announcement of Million Roofs by Energy Secretary Peña, June 27, 1997
  - Leveraging existing federal resources and incentives
  - Partnership with local communities and organizations
- Partnership of Federal agencies, state and local governments, business and private sector to install I million solar roofs by 2010 to:
  - Reduce greenhouse gas and other emissions -- equivalent to removing 850,000 cars from the road
  - Create high-tech jobs -- 70,000 by 2010
  - Keep the U.S. solar industry competitive -- PV market alone expected to reach $1.5 billion by 2005

Why an Initiative Now?

- "Capturing the sun's warmth can help turn down the Earth's temperature." *President Bill Clinton, June 26, 1997*
- PV and solar technology are ready
- Affordable, clean energy options:
  - create jobs,
  - offer consumers an environmental option

What Qualifies as a Solar Roof?

- Comply with:
  - National Electrical Code
  - Underwriters Laboratories
  - Solar Rating and Certification Corporation
- Located on or immediately adjacent to building

Which Solar Technologies Qualify?

- Photovoltaics

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GORE ANNOUNCES $2,000 SOLAR TAX CREDIT

PRESS RELEASE

FAIRFIELD. Calif., Jan. 30 /U.S. Newswire/ -- Vice President Gore today proposed a $2,000 solar tax credit to help American homeowners and businesses adopt clean energy technologies that create jobs and fight global warming.

"By cutting taxes for those who help us cut pollution -- by promoting cutting-edge industries and technologies that help clean up our environment -- we will meet the challenge of global warming for tomorrow, while creating new jobs for today," the vice president said.

Speaking at the dedication of a new British Petroleum solar manufacturing plant, the vice president said the solar tax credit is a key element in the $6.13 billion package of tax incentives and R&D spending announced by President Clinton in his State of the Union address. The proposed five-year package will promote energy efficiency and renewable energy sources.

As an incentive to homeowners and businesses, the vice president proposed a tax credit equal to 15 percent of the cost of a rooftop solar system -- up to $1,000 for water heating systems, and up to $2,000 for photovoltaic panels. The tax credit would apply to systems put in service starting in 1999 and would extend through 2003 for water heating systems and 2005 for photovoltaic.

The vice president said that solar and other renewable energy sources are critical to efforts to reduce emissions of carbon dioxide and other gases contributing to global warming. He said that solar energy use in the United States is expected to grow 300-fold by the year 2015. It will then be producing enough clean energy to power a million homes, cutting carbon dioxide emissions by 5 million tons a year -- the equivalent of taking more than 3 million cars off the road.

The vice president also reported that a plan announced by the president last June to put I million solar panels on rooftops by 2010 is well ahead of schedule. States and utilities across the country already have announced plans aiming to install nearly half a million solar energy systems.

TAX CREDITS FOR SOLAR ENERGY

WASHINGTON. Jan. 30 /U.S. Newswire/ -- The following was released today by the White House:

FACT SHEET

As part of a $6.3 billion package of tax and research incentives for energy technologies to help combat global warming, the Clinton-Gore Administration is proposing tax credits of up to $2,000 for the installation of rooftop solar energy systems. This proposed incentive will help achieve the President's goal of one million solar roofs by 2010.

The Solar Tax Credit means:

Savings for Businesses and Homeowners - The investment tax credit will be for 15 percent of the cost of a new rooftop solar unit, up to S 1,000 for hot water systems and $2,000 for photovoltaic systems.

Reductions in Greenhouse Gases - Meeting the target of I million solar roofs will cut emissions by 1.8 million metric tons by 2010, equivalent to the amount produced by 850,000 cars.

A Market Boost for Renewable Energy - The five-year tax credit will spur demand for solar energy systems, bringing down their cost to drive future market demand and help manufacturers tap a booming global market for clean, renewable energy.

Progress Toward One Million Solar Roofs - In June, President Clinton said the federal government would work with businesses and communities across the country to install I million solar rooftop units by 20 1 0. Just seven months later, the initiative is well ahead of schedule. Already, states and utilities have announced plans that collectively aim to install half a million solar units on U.S. roofs.

A Safe Environment and a Strong Economy - The proposed solar tax credit is one component of a five-year $6.3 billion package aimed at spurring the development and use of energy-saving technologies and renewable energy sources. This investment will help The United States reduce greenhouse gas emissions while creating new jobs and seizing new economic opportunities here and abroad.

The proposed solar tax credit would be available for rooftop systems put in service beginning January 1, 1999. It would extend through 2003 for water heating systems and 2005 for photovoltaic panels. Systems used primarily to heat swimming pools would not qualify.

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PV and solar thermal. Picture from the Energy Service Company web stie: www.efn.org/~esco.

BP SOLAR OPENS NEW PLANT REMARKS BY JOHN BROWNE CHIEF EXECUTIVE -BP GROUP

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Mr. Vice President, Ladies and Gentlemen, good afternoon.

This is a great day for BP and for California.

And I hope and believe that it is a day which will have an even wider significance.

We're here to mark the opening of a plant which brings new and exciting technology to this state ... providing jobs and offering the prospect of even more jobs as production expands.

Here in Fairfield today, we're opening a plant which is pushing back the boundaries of photovoltaic technology through the production of Apollo thin films, It marks a big step in the process of driving down costs and making solar power significantly more attractive to a wider number of customers.

A lot of hard work needs to be done. But we are confident that by 2000 production at this plant will reach I OMW - possibly even more.

I want to thank all those who have made today possible.

Our employees whose effort and enthusiasm have created everything you see here.

The state of California whose support has proved to me once again that if you want to develop a new business this is one of the very best places in the world in which to do it.

And I'd also like to thank you Mr. Vice President for taking the time to come today, and for continuing to argue the case that the world can and must meet its energy needs in a safe and environmentally sound manner.

We share that belief in positive energy, and this operation is just one part of the process of transforming words into action.

Oil and gas remain very important - and they remain central to our business. The world will need more energy as population grows and oil and gas will meet the bulk of that requirement. That growth in demand is causing concern about the impact of emissions on the climate, and as we've said before that means we have to take precautionary action. We have to ensure that the production and use of oil and gas is as efficient and environmentally sound as possible. And we will,

Solar power is still a tiny part of the world's energy supply. The total generating capacity of solar power in the world today is enough to satisfy just two days of Californian electricity needs.

There's a long way to go - but to me that just shows how big the opportunity is. We believe that renewable energy could account for as much as 5 per cent of the global energy consumption in twenty years time and for a very significant proportion by the middle of the next century.

That's why we're developing a world wide business in photovoltaics and solar power.

We've set ourselves an ambitious target to increase our turnover in this business to over a $1 billion within the next decade.

And the process of growth is beginning.

In the past year alone the Solar business has passed some remarkable milestones.

Solar power from BP panels will provide the energy for the athletes village at the next Olympic games in Sydney Australia. That will be the largest grid-connected solar suburb anywhere in the world.

Our solar panels are providing power to over a million people in remote island villages in the Philippines.

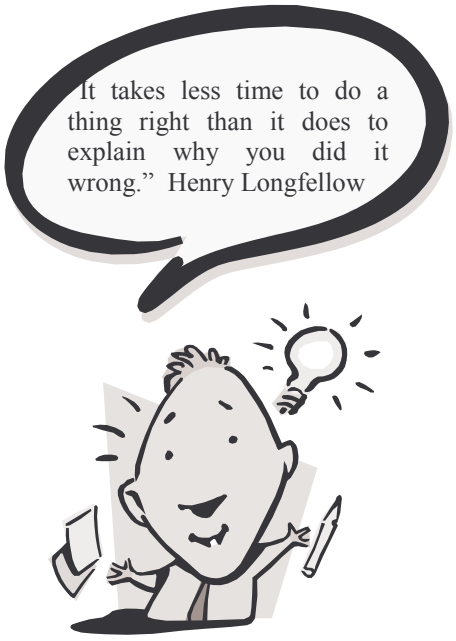
And earlier today we announced in Spain that we are set to double production from our other manufacturing site there.

The speed at which solar markets develop can be influenced by government local and national - and clearly California is ahead of the rest. We are tremendously encouraged by the lead that it is setting in the support of the development of photovoltaics market.

Mr. Vice President, Ladies and Gentlemen, I think we have the right product. in the right place .. at the right time ... and I'm delighted that you could all join us today to celebrate the beginning of I'm convinced will be one of the great enterprise of the 21st century.

Thank you very much.

THINK ABOUT IT ...



Photovoltaic Array powers naturescaped wildlife habitat at Rowe Middle School in Milwaukie, Oregon

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volunteers. Math students measured and mapped the courtyard. Art students, guided by four professional landscape architects, drew up formal design plans. Science classes studied the ecosystem before construction began, so that changes over time could be recorded. Ecology classes did much of the moving, digging, and planting. Tech (shop) students built feeders, birdhouses, and a large study table that seats eight people. Language Arts and Photojournalism classes recorded the stages of progress using descriptive writing and photography. More than four hundred students contributed to the project since its inception in the autumn of 1996; they collectively put in thousands of hours of work.

Community Garden: Not only will the naturescape be used as a science observation area by students, but it will also be open to members of the public with an interest in native plants, organic gardening, or local wildlife. Appointments for student-led tours can be arranged by calling David Lochtie at 653-3718.

See What Could Be: Students decided to use gardening and construction practices, which are ecologically sustainable, so that the finished courtyard would be a demonstration site for the use of such practices. No herbicides or petrochemicals were used; weed barriers of newspaper and cardboard were buried beneath the surface, and compost, yard debris, and worm castings (from cafeteria waste) were churned together by hand to create a rich, spongy soil approximating the floor of a mature forest. No internal combustion engines were used at the site.

Concrete rubble from demolition sites was used to create hills and berms. The study table and benches are made of recycled plastic lumber. Leftover industrial roofing rubber was used to line the pond. Trickling into the pond is a recirculating stream powered by a photovoltaic solar panel. And the centerpiece of the courtyard, a 17-foot viewing bench, is made of cobb, a natural cement made of sand, straw, water, and clay (excavated during the creation of the pond). Students are hoping to show construction pros as well as do-it-yourselfers the possibilities of these beautiful, inexpensive, and eco-friendly ways to build.

Community Partnership: There has been an outpouring of support for this project in the Milwaukie area. Businesses like Milwaukie Concrete and McFarlane's Compost donated supplies and time. We received a grant from the Clackamas Adult and Family Services, and support from the Milwaukie Rotary Club. Clackamas County Master Gardeners, the John Inskeep Environmental Learning Center, and the Oregon Fish and Wildlife and three of dozens of groups and individuals who have been very helpful. The Portland office of the National Wildlife Federation has been active, and will be proclaim Rowe a Wild School Site during the April 24th grand opening.

For more information contact David Lochtie at Rowe, 653-3718.

Spotlight on John Patterson

John Patterson of Mr. Sun Solar in Portland will be honored by students and guests at Rowe Middle School in Milwaukie, Oregon on April 24th. The school did a nature setting project in their courtyard as a quiet place to study and contemplate. Mr. Sun provided a PV module and 12 volt direct drive pump that effects a waterfall and stream returning to a fish pond. The 75 watt module sits alone on a pole as the only energy source for the nature park. Students assisted with trenching during the installation. John also spoke to several classes about the principals of solar energy and practical applications for solar. At the grand opening and appreciation event, John will be thanked by the students, teachers, parents and the press.

"HALF FULL OR HALF EMPTY?"

by Bob Claridge Vice President of OSEIA

Water heated by solar collectors is a viable energy source for year-round space heating. The most efficient and practical application of accepted technology, in my opinion, is to circulate the same water through a distribution network of tubing embedded in the floor that circulates through the solar collectors, To accomplish this feat, knowledge of drainback engineered systems is crucial to the success of the project.

I recommend a site built, vented storage tank to handle the energy generated by the large solar collector array typical for this type of system. In Zone 3, three 4x8, black chrome high quality collectors will produce enough energy year-round to supply between fifteen* and fifty* percent of the total energy required to heat the structure; *depending on regularity of insolation, (based on F-Chart, sixty degree tilt, about 1,000 sq. ft, of living area and high performance insulation details). Regular water filling/replenishing is required throughout the year.

The key to efficient solar space heating however, lies in the distribution system of radiant floor heating. Lower water delivery temperatures such as 85 to 95 degrees F for slab-on-grade and 105 to 125 degrees F for lightweight topping slabs make the marriage of solar and radiant heating systems a good one- Important points to remember include oxygen permeation. Forget about oxygen barriers, This system sucks air like Mike Nelson in Sea Hunt, Use non-ferrous components only.

Back-up heating can be accomplished by dropping 5,000 to 6,000 watt elements into the tank. Keep control costs down by instructing the owner to manually turn on and turn off the backup elements. Response time is super-fast especially for thin topping slabs covered with tile.

Double your tax credit possibilities by installing a copper coil heat exchanger for a domestic hot water preheating system. These work incredibly well and when the space heating load drops off in the summer you'll never waste the energy that's available,

Even as the beast of OG-300 approaches, this type of system will always be successful because of it's ability to survive without a tax credit. Years of low energy bills justify its great return on the investment.

Message from the President

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priced semi-green, more expensive green power etc. to all customer classes. Public hearings are being held in Portland in April on Enron/PGE's proposal and the Public Utility Commission will announce its position in October. Under the "portfolio model" there would be a 3% systems benefit charge that would fund conservation and renewables. However, it is not yet clear how this would be implemented. I intend to have an update for the next meeting.

Congratulations are in order to V.P. Bob Claridge for recruiting Heliodyne and Bob Maynard for bringing Solar Tech into the chapter. Great work, guys! That means 6 new members already in the first quarter of '98 and brings our total membership to 26. Welcome to Christel Bieri and Larry Elliott respectively.

We have about $4000 in our account and many demands on how best to use it: the State Fair booth, new OSEIA brochure, 800#, lobbyist, tax credit advertising, etc. I would ask all members to give this some thought and bring your ideas to the meeting.

Speaking of which, our next meeting date has been changed to **Wednesday, April 8th at 12 noon** at the **Oregon Electric Station, 27 E. 5th Ave., downtown Eugene** (541) 485-4444. See the rest of the newsletter for the agenda and directions to the restaurant. We will have a working lunch in an historic railroad car – you'll be glad you made the trip!

On a personal note, I applaud each and every one of you for the determination and vision that you possess to be a player in the solar industry in Oregon in the nineties. It's a tough way to make a living. Without your dedication, a cleaner, saner energy future would be just a dream. Our time is coming and we are ready!

Sincerely,

David Parker

OSEIA's new seal certifying that the storage system meets new insulation standards saving an additional 15% in energy usage annually.

East West Orientation of Solar Collectors

by Frank Vignola

How much energy is lost by orienting solar collectors away from due south? Much to my initial surprise, the answer for solar collectors in the Willamette Valley, is not very much.

Driving around town shows evidence of many solar collectors mounted at awkward angles trying to gain the maximum solar energy by aiming the solar collector at an optimum orientation and tilt. Other systems are mounted flush to the roof. There is a definite tradeoff between aesthetics and performance. The value of the appearance of the installation is often overlooked with so much focus on the cost.

Five factors are important when considering the location of a solar system on the roof of a house.

- The first consideration is to stay away from shading by nearby structures or trees.
- Second is tilt of the collectors for proper drainage.
- Third is how to orient the collectors on the roof for optimum performance.
- Fourth is the cost of mounting the collectors to the roof.
- Fifth is how the system will look on the roof.

It is well know that orienting a system due south is the optimum orientation. What hasn't been thoroughly examined is how much the system performance deteriorates once the systems are facing away from due south. As an initial step to answer this question, the solar radiation data from Eugene, Oregon was modeled to see how much less annual insolation was received on collectors facing due East or due West as opposed to facing due South. The results of the calculation are given in Table 1.

Table 1 shows the monthly average and the yearly average solar radiation incident on a 15 degree tilted roof for the north, east, south, and west directions as well as the total solar radiation on a horizontal surface (global insolation). On a yearly basis, the insolation on an 15 degree tilted east or west facing collector is about 10% less than the insolation on a similar south facing collector. Even a north-facing collector receives 80% of the insolation on a south-facing collector at a 15-degree tilt.

The solar radiation on different tilts and from different locations needs to be examined before a more comprehensive answer can be given about collector orientation. In addition, the performance of different systems probably decreases slightly faster than the insolation. However, the information in Table 1 does raise the question of the necessity of orienting a collector due south at the expense orienting the collector along the roof line. In addition, this information should increase the number of roofs considered adequate for solar installations. Ultimately, the consumer will make the choice. The availability of good reliable information will help consumers make the most appropriate choice for themselves.

Table 1. Calculated 15 Degree Tilted Surface Insolation for Eugene, Oregon 1996 (Values in Watt hours/m^2 per day)

Month\Tilt	15 North	15 East	15 South	15 West	Global	45 South
January	820	1098	1337	1063	1103	1727
February	1607	2094	2647	2181	2189	3323
March	2829	3295	3719	3280	3354	4081
April	3955	4260	4588	4305	4371	4419
May	5004	5153	5416	5281	5330	4766
June	6451	6452	6802	6827	6799	5618
July	6669	6886	7283	7115	7200	6209
August	5523	6030	6632	6179	6276	6316
September	3626	4393	4968	4250	4414	5432
October	1841	2172	2611	2298	2286	3065
November	1061	1336	1655	1387	1392	2134
December	588	754	931	766	775	1219
Average	3331	3660	4049	3744	3791	4026
Ratio	**0.823**	**0.904**	**1.000**	**0.925**	**0.936**	**0.994**

News Flash

from Bob Maynard of Energy Outfitters

Sunmotor International of Olds, Alberta, Canada has appointed Energy Outfitters Ltd., of Cave Junction, Oregon as their exclusive distributor for the United States. Sunmotor manufactures solar powered water pumps used primarily for livestock watering systems, pond aeration, small scale irrigation projects, and wetland enhancement. Sunmotor solar pumping systems utilize solar electric modules to operate submersible water pumps at locations where, utility power is not readily available. Energy Outfitters Ltd. is a distributor of photovoltaic products with a nationwide dealer network. The two companies have developed a free design service to ensure their customers receive the most suitable system for their particular application. For more information contact Bob Maynard at 1-800-467-6527.

The Oregon Department of Fish and Wildlife has purchased 9 systems for stream restoration projects. The systems will pump water from streams to watering troughs to protect stream side vegetation.

THE PRESIDENT'S MILLION SOLAR ROOF INITIATIVE

(Continued from page 2)

- Residential >.5 kW, Commercial > 2 kW
- Solar Thermal Water Heating
- Residential domestic > 1kW or > 20 ft^2
- Residential pool heating > I 00 ft^2
- Commercial domestic >2.0 kW or 40 ft^2
- Commercial pool heating > 400 ft^2
- Solar Thermal Space Heating >4.0 kW or> 100 ft^2

Who is a Partner?

- Individual Partnerships
- State and Community Partnerships
- National Partnerships

What Will Partners Do?

- Develop plans to install specific number of systems
- Remove barriers, modify codes and standards
- Identify/develop financial incentives, including net metering
- Outreach, marketing, information sharing
- Training
- Integrate into sustainable community plans

What Assistance is Available?

- Access to low-cost loans, buy-down grants, and other financing opportunities
- Training and information
- Recognition and support
- Marketing assistance
- Technical assistance and training
- Linkages among customers, businesses, associations, industry

What About Federal Buildings?

- 1/2% of U.S. buildings are Federal -- 500,000
- $3 billion every year for energy
- President Clinton: 20,000 buildings by 2010
- Federal Energy Management Program Super Energy Saver Performance Contracts
- GSA Schedules for solar equipment

Accomplishments Through October 1997

- Seven letters committing to 250,000 roofs
- RSO Coordinating Meeting October 9-10th
- Peter Dreyfuss named Director October 20th
- President Clinton reiterates commitment at National Geographic Society, October 22nd
- 20,000 Federal roofs
- $5B in various supports to mitigate $C0_2$, including MSR
- Buildings for 21st Century and Million Solar Roofs Satellite Broadcast -- 202 sites, over 7000 viewers -- October 29th

Milestones, 1997

- PV:BONUS final awards in November
- Council on Environmental Quality interagency meeting to coordinate Federal resources, November 17th
- RSO meetings in states planned for November 18th in Denver, December 4th in Sacramento
- Kyoto Climate Change Conference, Dec. 6th

Milestones, 1998 and Beyond

- January, implementation plan completed
- UPVG proposals due January 15th, awarded by Spring
- National Registry and supporting databases in place
- Update at April Soltech conference
- 2000 Federal roofs by 2000

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The Mailing Address Goes Here