July 1, 2000

JULY—Solar Awareness Month

Northwest Solar Alliance

Governors Announce July as Solar Awareness Month

Idaho—Montana–Oregon–Washington

Governors Agree – Solar development makes good economic and environmental sense. The governors of the four northwestern states have announced that July 2000 is solar awareness month to show support for the companies and consumers who invest in clean solar energy.

World markets for clean energy and technological advances have spurred annual increases in solar electric power (photovoltaics) by more than 25% per year over the last 6 years.

The World Bank estimates that over the next 35 years global demand for new electric energy resources will more than double. Regions that develop the skills and local markets for solar energy will best be able to capitalize on this market. Providing electric power for the world represents a market tens of times larger than the computer industry. One third of the world's population, equal to six and a half times the population of the USA, lives without electricity. We can choose to be the providers of clean renewable energy technologies or wait for someone else.

80-kW installation at the Mountain Home Air Force Base near Grasmere, Idaho. (Photo courtesy of Idaho Power Company)

Inside this issue:

Solar Potential Ranks High in the Pacific Northwest

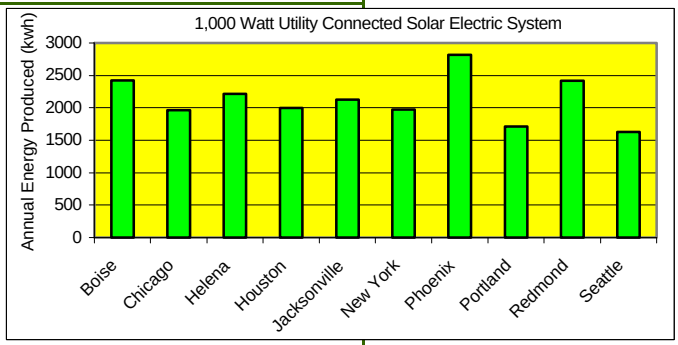
Solar energy technologies do work well in the Northwest. The graph on the right shows that many Northwest cities rank above Florida and are nearly as good as Phoenix. Longer summer days and cooler temperatures add up to higher performance.

Electricity– "Photovoltaics" or solar cells covert sunlight directly into electricity. As prices for solar modules continue to drop the cost of installation and the balance of system will be key factors. Products already exist that replace roofing or siding material.

Water Heating–In the Northwest a typical solar water heater will provide half the annual hot water energy needed – more than a system in Jacksonville Florida!

Passive Solar– Using sunlight can beautify your home while cutting your heating bill by 20 percent. Much of this energy gain can be obtained by orienting the axis of the home along an east west direction and putting larger glass areas to the south. Of course proper shading is needed in summer.

Daylighting is also a valuable feature for modern commercial business and office space and is cost effective today.



Special points of interest:

- *Ashland PV Pioneer Program*
- *Solar Initiatives Establish Goals*
- *Bonneville Power Funds Regional Solar Data Center*

Solar Events Calendar

The following calendar includes all events that are planned as of June 12th. For a more up to date listing of events check the following website.

http://www.energy.state.or.us/solaware/solaware.htm

July	Governors Proclamations
July 4-7th	Solar Library Tour – Eastern Oregon
July 7-8th	Energy Village Oregon Country Fair
July 7-8th	Idaho Renewable Energy Fair - Coeur D'Alene
July 8th	Solar in Seattle Conference
July 12th	Solar Library Event - Salem
July 14-15	PV installation workshop GSA bldg. - Auburn WA
July 14th	Photovoltaics High School Saturday Academy Class – Newberg OR
July 15-16th	Portland Zoo – Remote Solar Display /w kids toys
July 17th	Portland Solar Event -Pioneer Square
July 20th	Solar Library Event - Ashland
July 21st	Solar Library Event – Klamath Falls
July 20-22nd	Solar Days @ WA PUD Annual Meeting
July 23rd	Solar Home Energy Workshop - Bend, Central OR Environmental Center
July 24th	Solar Hot Water Workshop for Homeowners and Builders - Hillsboro
July 26-28th	Grid-tied PV Systems Workshop - John Day.
July 28th	Ashland Solar Ribbon Cutting Oregon's 1st Solar Utility
July 29-30th	SolWest Renewable Energy Fair - John Day
Aug 2st	Photovoltaics Interconnection Workshop - Portland
Aug 3-4th	BPA Electric Revolution Conference - Portland
Sept 11-15th	Solar Utility Tour - Umatilla, Redmond, Eugene, Portland, Tillamook
Sept 12th	MSR Financing Workshop— Seattle
Sept 28th-29th	Northwest Green Summit— Seattle
Oct. 7th	Oregon Solar Home Tour - Portland, Bend, Eugene
Oct 17-20th	Utility Solar Summit III - Winthrop Washington

Residential solar electric system

Residential solar electric controls

Solar Information Contacts

Idaho	John Crocket (208) 327-7962
Montana	Dale Horton (406) 721-9908
Oregon	Chris Dymond (503) 378-8325 Frank Vignola (541)-346-4745
Washington	Mike Nelson (360) 956-2148
Bonneville Power Administration	Steve Fucile (509) 358-7455
US DOE Seattle Office	Curtis Framel (206) 553-7841

Solar pumped water tastes better. (photo Christopher Dymond)

Idaho Renewable Energy Fair: July 7th—8th, Coeur d'Alene

Northern Idaho residents will have a great chance to learn first hand more about solar energy at a special two-day Renewable Energy Fair being held July 7 and 8 in Coeur d'Alene.

The two day fair, part of NW Solar Awareness Month, will feature displays from more than a dozen solar electric and renewable energy equipment distributors. There will also be a series of classes on solar electric technology. All events are free and open to the public.

The Fair is being held in the Student Union Building on the North Idaho College Campus in Coeur d'Alene. It will run 9 am. to 7 p.m. on July 7 (Friday) and 9 a.m. to 6 p.m. on July 8 (Saturday).

Opening ceremonies for the fair is set for 10:30 a.m. on July 7.

"This special Fair has been designed to provide folks with the chance to see the latest in renewable energy technology, to talk with experts and is strongly recommended for anyone thinking about possibly installing a PV or solar system," said Energy Division spokesman John Crockett.

People who attend the free classes will learn how solar systems work, how they are designed and installed, how much they cost and what types of special programs are available for assistance and financing.

For more information contact the Idaho Energy Hotline at (800) 334-SAVE (8273).

Solar in Seattle: July 8th

Help Solve Global Warming, Dependence on Mid East Oil, Disappearance of Northwest Salmon all on a Saturday Morning!!

Incorporate into Your Own Life Tools for Sustainability, Green Energy, Low Environmental Impact Technologies - Use the Sun. Do it Now!!

When: 9 a.m. till 12:30 p.m. July 8th, Saturday, 2000
Where: Rainer Room, Northwest Center, Seattle Center

Agenda:

9:00 Welcome, Introductions, Review agenda

Solar Technology is Ready!

Bill Ropenecker CEO - Trace Engineering
Mark Roper - Astropower Solar Co.

Is Seattle Ready for the Sun?

Cliff Mass KUOW all around weather guy (invited)

What is Happening Elsewhere?

Christie Herig, National Renewable Energy Laboratory

Setting a Solar Agenda! Facilitated discussion

Brainstorming Barriers to Solar and Ways around Them

Sponsored by: EPA, Western SUN, Solar Washington, Seattle City Light ,WSU Energy Program, Dept. of Trade & Economic Development, NW Energy Coalition

SolWest Renewable Energy Fair—July 29th-30th

SolWest 2000 is coming up! Fair hours will be 9 to 7 on Saturday, July 29th and 9 to 5 on Sunday, July 30th. Admission is $5 per day for adults, with junior/senior, family, and weekend discounts. On-site child care will be available. A concert is planned in the fairgrounds arena on Saturday night. For lodging information, call the Grant County Chamber of Commerce at 800-769-5664.

EORenew is worked to make SolWest 2000 top last year's, if that is possible. A repeat of all of the good things is planned: the good food, the free camping for participants, the small-town upbeat atmosphere. This year to improve SolWest, EORenew hopes to increase the numbers of exhibits, workshops, and fairgoers to enjoy all the activities and patronize the exhibitors. Judging by the enthusiastic early response, EORenew is going to make its goal of 60 exhibitors, 32+ workshops, and 2000+ fairgoers.

Two dynamite keynote speakers are scheduled this year, one for each day. Randy Udall is the director of the Community Office for Resource Efficiency (CORE) in Aspen, Colorado, a non-profit organization established to promote water and energy efficiency. He has a positive, can-do attitude and a great message! John Perlin, the author of From Space to Earth, the Story of Solar Electricity, "does an excellent job of telling the history of solar electricity by focusing on the people and their needs, which helped drive its development," Home Power Magazine.

Richard Perez and Joe Schwartz of Home Power Magazine will direct the installation of a grid-intertied PV system on the Grant County Fairgrounds July 25th-28th, immediately before SolWest Fair.

For more information about the fair, or to inquire about presenting a workshop or hosting an exhibit at the fair, write or call:

- Eastern Oregon Renewable Energies Assoc. (EORenew)
- P0 Box 485 Canyon City, OR 97820
- voice only; 541-575-3633
- Email: solwest@highdesertnet.com

Idaho

The Greeks called it Helios and the Romans called it Sol. Whatever the name, the sun produces *386 billion billion* megawatts per second.

The sun's energy output is produced by nuclear fusion reactions. Each second about 700 million tons of hydrogen are converted to about 695 million tons of helium and 5 million tons of energy in the form of gamma rays.

Of all the energy that arrives at the top of the earth's atmosphere, known as the electromagnetic spectrum, only 3 percent is utilized at the earth's surface. The rest is screened or reflected off the earth's surface, by cloud cover, and the atmosphere.

Technology now enables us to put that energy to work to produce electricity. Photovoltaics harness the sun's energy to produce electricity directly.

Financing a photovoltaic or solar thermal heating system can be a costly venture depending on the size

Solar panel to provide electricity to Stonebreaker Ranch facility in Chamberlain Basin. (Photo Idaho Power Co.)

of the system. Various financial programs can help relieve this burden to make a solar project more feasible.

The Idaho Energy Division's energy conservation loan covers renewable resources such as solar energy, wind power, geothermal, hydropower and biomass energy systems. The program provides residential loans from $1,000 to $10,000 and commercial loans from $1,000 to $100,000. The five-year loans are available at 4 percent interest.

Idahoans who install remote photovoltaic systems may qualify for a rebate program offered by the Energy Division.

Participants are expected to pay for their systems. After it's been installed, and proof of purchase and installation are submitted to the Energy Division, the system will be evaluated according to the rebate criteria.

If approved, participants will be reimbursed $3 for every watt of installed solar electric capacity. The rebate amount is for a maximum of 25 percent of the total cost up to $5,000 based on panel wattage.

For more information about this program or to obtain an application, call the Idaho Energy Hotline, **1-800-334-SAVE**.

Montana

A crew from Solar Plexus installs PV array for NCAT (NCAT photo)

The amount of solar activity is steadily growing in Montana. In April, participants in the final planning session for the Montana Solar Initiative voted unanimously to form an association to represent the state's solar industry.

Some 800 Montanans responded by April 22 to news articles and newspapers ads seeking participants in a solar electric demonstration project sponsored by Montana Power Co.

The project will result in the installation of up to 20 residential photovoltaic systems in MPC's electric service area.

Applicants had to meet basic requirements such as a roof that is adaptable for installation of solar panels and that has open southern exposure from 9 a.m. to 3 p.m.

Those who are selected will own a $13,000 solar electric system that includes monitoring equipment for only $3,000. That's less than a third of the retail price and represents a cost of only $3.30/watt compared to the present retail cost of about $10/watt for an installed system.

Montana Power Co. and the National Center for Appropriate Technology in Butte have agreed to install the grid-connected solar electric units on the homes by August 2000.

The solar electric systems will be utility-intertied, which means the electricity they produce will be supplemented by utility power.

NCAT recently announced a new project that will install photovoltaic (PV) systems on 12 middle and high schools served by the Montana Power Company's electric distribution system.

The selected schools will each receive a 2-kilowatt PV system that will be interconnected to the utility electric grid. Solar energy generation will be monitored by installing an internet-based metering system. Simultaneously, a solar energy curriculum will be developed for the participating schools. The initiative will be developed by NCAT and modeled after similar programs elsewhere.

Sun4Schools is funded by the Montana Power Company Universal Systems Benefit Charge (USBC) funds. For more information, visit NCAT's Web site at http://www.ncat.org/news.htm.

Oregon

Residential Energy Tax Credits

- Solar Water Heating
- Solar Space Heating
- Solar Photovoltaics
- Premium Efficiency Appliances
- Wind Power
- Alternative Fuel Vehicle

Business Energy Tax Credits

Tax credit incentives for businesses that invest in renewable energy projects or energy efficiency.

Energy Loan Program (SELP)

Low cost financing for both energy efficiency and renewable energy projects.

For more information about these programs, contact the Oregon Office of Energy (800) 221-8035

Remote Solar Rebate Program

Cash incentives are available for both remote homes and water pumping applications where solar electric power is the lowest cost option. The Office of Energy provides technical support and guidance to get started—Funds are limited on a first come basis.

REMOTE HOMES

- Up to $3,500 of tax credits and cash
- Training and technical support

CATTLE WATERING

- 35% of incremental costs
- Over the phone application
- Training and technical support

Washington

The time to do off-grid solar is now! The **Washington State 5,000 Solar Rooftops by 2005 Collaborative** has rebates available for pre-packaged, pre-engineered solar electric systems. They include remote home packages, water pumping and lighting systems. These modular units are an open standard that can be purchased from any Washington Solar Energy Industries Association dealer. Participants receive a **25% rebate (will change to 20 % soon)**. The rebates are available to any Washington state resident.

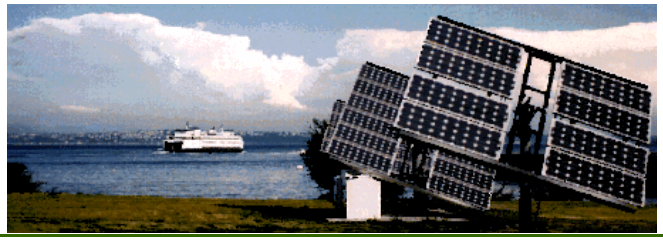
To learn more about this program visit**:** http://www.energy.wsu.edu/org/waseia/Rebate-P&P/dir.html.

This project is made possible by the Washington State 5,000 Solar Rooftops by 2005 Collaborative. Collaborative participants include the WSU Cooperative Extension Energy Program, WesternSUN COOP, the Washington Solar Energy Industries Association (now Solar Washington), the Washington State Department of Community, Trade and Economic Development, the Clark Co. Public Utility District, Okanogan Electric Cooperative, the Conservation and Renewable Energy System (CARES), The Coulee Dam Credit Union, and The U.S. Department of Energy.

Utilities form Western S.U.N. Western S.U.N. (Solar Utility Network) helps its members acquire and implement renewable energy technologies at the lowest possible cost through market aggregation. Its members are electric cooperatives, public utility districts, and municipal utilities. The Co-op purchases solar-electric technology directly from manufacturers and resells to members for resale to end use customers. The Co-op provides educational resources, training, marketing to its membership and their customers.

Current uses for PVs—Short List

- Remote Homes
- Area Lighting
- Street Lighting
- Traffic Hazard Signs
- Monitoring
- Communications
- Water Pumping
- Warning Signals
- Cathodic Protection



Net Metering— Spin Your Meter Backwards!

As photovoltaic systems are increasingly used to power the electrical needs of homes, owners are looking at ways to offset their electric bills.

Net metering is a concept that allows homeowners with solar electric systems to receive the full value for the electricity that their solar energy system produces. It can also apply to other renewable energy generation systems. The actual term, *net metering*, refers to the method of accounting for the solar electric system's electricity production.

The kilowatts produced by a solar electric system are first used for any electrical appliances in the home. If more electricity is produced from the system than is needed, the extra kilowatts are fed into the utility grid. Homeowners pay one rate for the net difference between the amount of energy they use from the utility and the amount produced by the solar electric system.

With net metering, the home's electric meter will actually run backwards when the solar electric system is producing more energy than is needed to operate the home.

Montana, Oregon, and Washington require regulated utilities to offer net metering for customers with solar electric and other systems.

With net metering, the home's electric meter will actually run backwards when the solar electric system is producing more energy than is needed to operate the home. At the end of the month, if the customer has generated more electricity than is used, the utility may either credit the net kilowatt-hours produced for next month's bill or buy the excess power at wholesale rates on either a monthly or annual basis at the wholesale power rate. If customers use more electricity than they generate, they pay the difference at the regular retail rate.

With net metering, the homeowner with a solar electric system can "bank" energy selling it to the utility when it's not needed and buy it back when required. It allows homeowners who aren't home when their systems are producing electricity to still receive value for that electricity without having to install a battery storage system. The power grid acts as the customer's battery backup, which saves the customer the added expense of purchasing and maintaining a battery system.

Most of the electric utility in Northwest offers some form of net metering. However, the procedures involved can vary widely. To find out more about net metering, first contact your local utility. You can also call the Idaho Energy Hotline, **1-800-334-SAVE**, or contact John Crockett of the Energy Division at (208) 327-7962.

Turning the meter backwards

Ashland PV Pioneer Program

Installation of the solar electric system on Southern Oregon University library.

The city of Ashland will soon offer solar electric power to its customers. For a $4.00 extra charge per month customers can purchase a portion of the output from one of four solar electric systems located on the SOU library, the Ashland Shakespeare Festival, the City Council Building and the City Police Station.

The city acts as a broker, buying the power from the systems and selling it to its customers at a premium. With the support of the Oregon Office of Energy, Bonneville Power Administration, Bonneville Environmental Foundation and Avista Corp., the city has made it possible for the four locations to recover their costs in about 7 years. The following picture was taken during the installation and training event that took place June 5-7.

> *"The program is enormously successful – we have already enough participants to start thinking about the next phase."*
>
> Dick Wanderscheid
> City of Ashland

Solar Initiatives Establish Goals

During a speech to the United Nations' Session on Environment and Development June 26, 1997, President Clinton announced a national program to install solar energy systems on 1 million roofs by 2010. This paved the way for states and communities to commit to environmentally-sound energy development.

The program, known as the Million Solar Roofs Initiative, includes two types of technologies – **photovoltaic systems** that produce electricity from sunlight, and **solar thermal collectors** that produce heat for domestic hot water, space heating and swimming pools.

The initiative, sponsored by the U.S. Department of Energy, will help increase the market for solar energy and encourage increased development and production of solar energy systems. At the same time, it will give consumers an affordable, clean-energy option and create new U.S. high-technology jobs.

To attain this goal, DOE is working with numerous state and local government agencies and commercial businesses to remove market barriers to solar energy use and develop and strengthen the demand for solar energy products and applications.

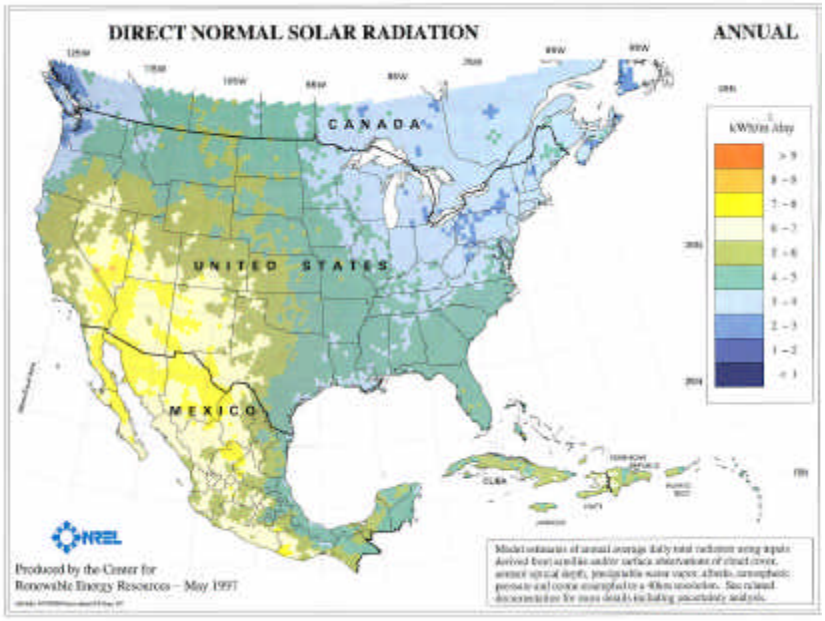
To be included in the MSRI, a building's solar energy system must comply with all relevant parts of the National Electrical Code, Underwriters Laboratories Standards, and the Solar Rating and Certification Corporation Standards. The system must also be located on or immediately adjacent to the building and meet minimum standards of that particular system established by the MSRI.

"President Clinton announced a national program to install solar energy systems on 1 million roofs by 2010."

Want to Learn More?

The best place to start is the U.S. Department of Energy's Clearinghouse for Energy Efficiency and Renewable Energy. The web site is http://www.eren.doe.gov/.

Additional net metering information is available from the Solar Energy Industries Association at http://www.seia.org/main.htm.



Bonneville Power Funds Regional Solar Data Center

The Bonneville Power Administration contracted with the University of Oregon Solar Monitoring Laboratory to create a regional solar radiation data center.

The UO Solar Monitoring Lab runs a 15 station solar monitoring network in the Pacific Northwest and is supported by a consortium of regional utilities (BPA, Eugene Water and Electric Board, Northwest Power Planning Council, PacifiCorps, Portland General Electric, and the National Renewable Energy Laboratory).

The new five-year $890,000 contract with BPA enables the UO Solar Monitoring Lab to expand and upgrade the solar monitoring network, provide solar resource data to the interested parties, coordinate regional solar monitoring efforts, and educate utilities and the public on the use of solar radiation data, and to produce a one stop solar resource assessment web site.

Over the next two years, the UO Solar Monitoring Laboratory will construct a web site (http://solardata.uoregon.edu) that will provide high quality solar radiation data and tools to use the data. In addition, the web site will provide links to other useful solar web sites along with brief descriptions of these sites. Currently the web site has solar radiation gathered over the past 20 years by the UO Solar Monitoring Lab and a useful link to a PV performance calculator hosted by the National Renewable Energy Laboratory.

For further information contact Frank Vignola at fev@darkwing.uoregon.edu.

Northwest Solar Alliance

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Washington	Mike Nelson (360) 956-2148
BPA	Steve Fucile (509) 358-7455
UO DOE Seattle	Curtis Framel (206) 553-7841

Building our solar future today!

Mail label here

Northwest Solar Alliance

Northwest Solar Awareness Month is sponsored by the members of the Northwest Solar Alliance. The Northwest Solar Alliance is a coalition of public agencies, utilities, environmental organizations and businesses committed to expanding the role of solar energy. The coalition's primary role is to connect organizations, to help foster good ideas, and encourage others to have a strategy for bringing solar energy into what they are doing already.

To become a member you must develop your own plan to incorporate solar energy into what you do, and be cosigner of the NW Solar White Paper which outlines the current priorities of the group. Once you join your organization will be included in e-mails and conference calls regarding solar energy market development in the northwest. How much you do and how much your organization gains from being a member is entirely up to you.

"When the Edison light bulb was first mass-produced, it cost more than $50 in 1999 dollars. Enough people chose it over cheaper oil lamps, that within a decade electric power had become accepted practice."