

SOLAR RISING

April 2004

Volume 6, Issue 2

Quarterly Newsletter of the Oregon Solar Energy Industries Association (OSEIA)

Bringing you tomorrow's sustainable energy technologies today!



by Jon Miller

Between the LRT apprentice, MSR Coalition, and OSEIA meetings we had close to 75 people attending meetings discussing Oregon solar issues in January at EWEB in Eugene. We had a great turnout! Many thanks to EWEB and Don Spiek for providing the meeting space and invaluable support making these meetings possible.

It's been a very busy year for OSEIA so far and it's only going to get busier. We've added over 20 new members this year, we plan to be out in force during the energy fairs throughout Oregon, we are working on several legislative items for 2005, and OSEIA members receive reduced booth space fees at the National ASES conference in Portland July 10-14th.

In an effort to reduce email we've established our online OSEIA member only discussion group at: <http://finance.groups.yahoo.com/group/oseia/>. If you want to stay current on OSEIA issues and voice your opinions please join us online. You can adjust your email settings to receive as much, or as little email as you wish.

OSEIA Updates (below):

1. Officer Elections
2. Board Member Elections
3. OSEIA's 2004 Agenda
4. New Members

1. Officer Elections

OSEIA's board met on February 16th and

electd our 2004 Officers. This year the board elected 3 Vice Presidents to represent each Oregon zone (allowed by our bylaws - If you're interested in zone locations please see our contractor zone page on our website). These vice presidents will represent OSEIA in their local area. This change provides the VP's an official title to use when contacting local boards, state officials, and provides more local input to OSEIA's agenda items.

Congratulations to OSEIA's 2004 elected officers!

President: Bob Maynard, Energy Outfitters

Vice President (zone 1): David Parker, Advanced Energy Systems

Vice President (zone 2): Bob-O Schultze, Electron Connection

Vice President (zone 3): John McIntosh, Cascade Sun Works

Treasurer: John Patterson, Mr. Sun Solar

Secretary: John McIntosh, Cascade Sun Works

OSEIA members, if you have any suggestions, projects, or issues you think should be addressed please contact one of the officers listed above or myself.

Note that according to our bylaws, officers (except the president) can hold more than one office. OSEIA contractor zones: zone 1-Portland to Eugene, zone 2- South of Eugene to Ashland, zone 3- East of the Cascades (you can view these on our website on the contractor zone page under the consumer link).

2. Board Member Elections

The membership has elected 2 new board members: Andrew Koyaanisqatsi and Diggy Brieling. Board members serve 2 year terms.

I want to thank Andrew Bortz and John Patterson for their involvement and time commitment on OSEIA's board. It is always difficult for business owners to take the time to be involved at this level but it's crucial to the success of OSEIA. Both John and Andrew have served well and have provided valuable contributions towards OSEIA's future.

Diggy Brieling is currently running his business, Solar Path Imaging, in Hillsboro. You may have seen his photographic sun charts at one of the energy fairs held in Oregon. He is very enthusiastic about the future of solar energy and OSEIA and will be a very good addition to the board. Welcome to the board Diggy.

Andrew Koyaanisqatsi runs his business, Solar Energy Solutions, in

(Continued on page 3)

Table of Contents

<i>OSEIA Message</i>	1
<i>Sample OSEIA Meeting Agenda</i>	2
<i>Member contact information (needs updating)</i>	2
<i>2004 Oregon Technical Renewable Energy Forum</i>	4
<i>Solar Electric Power Contractor Workshop</i>	5
<i>Kettle Foods Installs Largest PV system in Oregon</i>	6
<i>Tamarack Wellness Center—Stewart Aquatic Center</i>	8

SOLAR RISING 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 published on a first come basis as room allows.

Send your contributions to:

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Draft OSEIA Meeting Agenda

April 13, 2004

11:00 am—3:00 pm

EWEB Conference Room—Eugene

1. (15 min) Introductions and welcome new members
2. (5 min) Approve previous meeting minutes
3. (30 min) Executive Director's Report
4. (30 min) OSEIA Legislative Agenda
5. (30 min) ETO Program Update
6. (30 min) BPA Bright Way update
7. (30 min) Fast Jack Roof Mount System
8. (30 min) Financing Program
9. (15 min) String Voltage Calculation for PVs
10. (5 min) Membership issues
11. (5 min) On the horizon announcements

OSEIA Board Members

Bob Maynard
Bob-O Schultze
John McIntosh
Tom Scott
David Parker
Diggy Breiling
Andrew Koyaanisqatsi

Contact Information

OSEIA Web Page

<http://www.OregonSEIA.org>

Executive Director

Jon Miller

Phone: (503) 236-0367

Email: oseia@oregonseia.org

OSEIA Officers



President: Bob Maynard

Energy Outfitters Ph: (541) 592-6903

Vice President—Zone 1

David Parker, Advanced Energy Systems
(541) 683-2345

Vice President—Zone 2

Bob-O Schultze Electron Connection
Ph: (800) 945-7587

Vice President—Zone 3

John McIntosh, Cascade Sun Works
(541) 548-7887

Treasurer: John Patterson, Mr. Sun
(503) 222-2468

Secretary: John McIntosh

Cascade Solar Works (541) 548-7887

OSEIA Member	Company	Phone	OSEIA Member	Company	Phone
David Parker	Advanced Energy Systems	(541)-683-2345	John Murray	Lane Electric Cooperative	(541) 484-1151
Patrick M. Kemmerer	Aqua Energy	(541) 383-5088	Lance Barker	Morning Hill Associates	(541) 542-2525
Burr Boutwell	Bingham Construction	(503) 224-2676	John Patterson	Mr. Sun Solar	(503) 222-2468
Bob Claridge	Bobcat and Sun Construction	(541) 389-7365	Lloyd Marbett	Oregon Conservancy Foundation	(503) 637-3549
Angus Duncan	Bonneville Environmental Foundation	(503) 248-1905	Chris Dymond	Oregon Department of Energy	(800) 221-8035
Doug Boleyn, P.E.	Cascade Solar Consulting, LLC	(503) 655-1617	Dan Stifle	Oregon Solar and Water	(541) 344-1594
John McIntosh	Cascade Sun Works, Inc.	(541) 548-7887	Sonja Ling	Renewable Northwest Project	(503) 223-4544
Sidney Clouston	Clouston Energy Research	(503) 642-1886	Dick Kent	RV Energy Systems-Environmental Energies	(541) 954-6786
Phil Tussing	Electric Norm, Inc.	(503) 861-1688	Newt Loken	Solar Assist	(541) 338-4957
Bob-O Schultze	Electron Connection	(530) 475-3402	Andrew Bortz	Solar Design & Construction	(541) 753-8725
Joe Savage	Emerald PUD	(541) 744-7448	Roy Mizani	Solar Depot	(800) 680-7922
Vincent McClellan	Energy Design	(541) 937-8284	Andrew Koyaanisqatsi	Solar Energy Solutions	(503) 238-4502
Al Walker	Energy Independence Co.	(541) 496-3987	Larry Elliot	Solar Tech	(541) 545-3201
Bob Maynard	Energy Outfitters	(541) 476-4200	Pat Stapleton	Stapleton Electric of Oregon	(503) 970-2976
Tom Scott	Energy Service Co., The	(541) 302-6808	Dave Robison	Stellar Processes	(503) 827-8336
Brian Bowman	Energy Smart Systems LLC	(503) 885-9571	Ron Summers	Summers Solar Systems	(541) 683-4014
Don Spiek	EWEB, Attn: E.M.S.	(541) 484-1125	Rick Reed	Sun Earth Inc.	(909) 605-5610
Brent Gunderson	Gen-Con, Inc.	(503) 245-7657	Paul Israel	Sunlight Solar Energy	(541) 322-1910
Christel Bieri	Heliodyne, Inc	(510) 237-9614	Tim Dawson	Solar Collection, Inc.	(541) 535-5364
Joe Schwartz	Home Power Magazine	(541) 512-9281	Frank Vignola	U of O Solar Radiation Monitoring Lab	(541) 346-4745
Bob Klecha	Idaho County Solar	(208) 983-0820	Leonard O'Donovan	West Linn Electrical, Inc.	(503) 656-4375
Dave Reuter		(541) 343-3257	Gary Higbee	Windstream Solar	(541) 607-1818
Kerry Whitehead	Renewable Energy Systems	(541) 592-3958	Diggy Breiling	Solar Path Imaging	(503) 992-1242
Kathie Kapple	PV Powered	(541) 312-3832	Cliff Schrock	Solar Wind Power of Portland	(503) 292-8916
Tina Nickerson	Shell Solar Industries	(805) 388 6519	Markus Stoffel	Environmental Building Supplies	(503) 222-3881
Dean Abney	Abney Electrix	(541) 923-6000	Phil Dussel	Dussel Construction Inc.	(541) 851-0932

Message from the Executive Director

by Jon Miller



Portland. Most of you know Andrew and also know that he has been very involved with OSEIA and solar energy in Oregon for many years now. Andrew has been very active in providing input to develop Oregon solar programs, LRT license issues, and traveling to Salem to provide input for the development of new tax credit rules. Welcome to the board Andrew.

Bob Maynard was re-elected to the board and runs his business, Energy Outfitters, in Grants Pass. I'm sure most of you know Bob, he's OSEIA's President. Bob has been very active in OSEIA attending energy fairs, meetings with the Governors staff, and participating in energy conferences all over Oregon to promote solar energy and OSEIA. Thanks for all of the work Bob, and for committing time to another term on the board.

Current OSEIA Board members are:

Bob Maynard
Bob-O Schultze
John McIntosh
Tom Scott
David Parker
Diggy Breiling
Andrew Koyaanisqatsi

Alternate Board members: Don Spiek and Doug Boleyn

3. OSEIA's 2004 Agenda

We discussed our agenda at both the board and member meetings. We will continue our outreach and public education efforts by attending local energy fairs and conferences. We will continue to

provide input to develop Oregon solar programs. And we will continue efforts to grow our membership.

A primary effort this year for energy fairs is the National ASES conference in Portland. This is a chance to show our state officials Oregon's solar community is well established and ready to grow. Because of our involvement in the Local organizing committee, OSEIA members receive reduced rates on booth space in the exhibit hall. We are having a large effort to attract the public to the exhibits this year so come join us in Portland July 10th - 14th.

Our legislative agenda received a lot of the discussion and there were some key points as we look forward to the 2005 Oregon legislative session:

Our legislative efforts:

- Must comply with and fulfill purposes stated in our bylaws
- Should reflect the will, and be of benefit to the membership
- Need to be reasonable and achievable
- Support the current small business based industry in Oregon
- Encourage members to contact legislators and be active with supporting legislation
- Identify legislators to sponsor renewable energy legislation
- Focus on jobs, jobs, jobs, and the economic benefit of RE

High on our legislative agenda are:

- Resubmit a tax credit carry forward measure
- Net metering changes
- Changes to the LRT and SOL licenses
- Establishing solar ready building incentives and building codes

If you have ideas and want to be involved

with developing some of the details of our possible legislation you need to attend our board meetings. Please let me know if you are interested.

4. New Members

We have added over 20 new members this year.

Welcome to OSEIA!

Voting Small businesses:

Leaning Tree Wind & Solar, Grant & Jan Fowler

Rich Elstrom Construction, INC., Rich Elstrom

Dussel Construction Inc., Philip Dussel

PV Powered - Bill Taylor

Voting Medium Businesses

Ecosystems, Michael Fitzgerald

Voting Professional:

Gregory Acker, Architect

Scott Sayles

Associate Individuals:

Scott Axness, Journeyman Elec, IBEW local 48

Tim Moxley, Journeyman Elec, IBEW local 48

LCC students: Rick Crawford, Arthur Clements, Mattias Jarvegren, Eric Morrison, Brian Herndon, and Kim McBride

[Contact information for the new members will be in the next issue of Solar Rising. Ed]

2004 Oregon Renewable Energy Technical Forum

by Frank Vignola



Fig. 1: Steve Hickey presents the new and improved SW Plus Stand Alone inverter.



Fig. 2: ReadyWatt, one of Energy Outfitters integrated products.

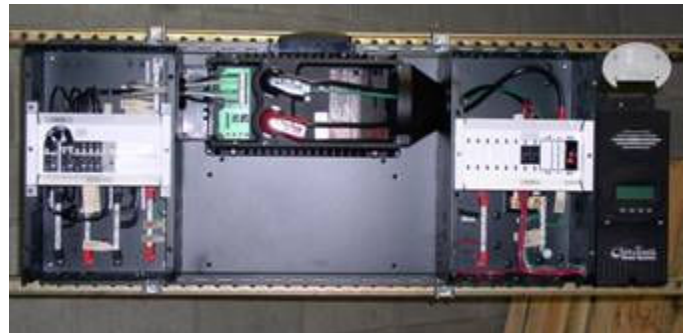


Fig. 3: The new Outback GVFX batter based grid-tied inverter.

Energy Outfitters host the 2004 Oregon Renewable Technical Forum in Grants Pass on March 5 and 6th.

Nearly 100 solar dealers and enthusiasts attended the two day forum in Grants Pass to listen to battery and inverter Manufacturer Representatives. Special guests from Isofotón, a Spanish manufacturer of photovoltaic modules, presented technical information on their PV modules. It was good to see that a major European PV module manufacturer has enough interest to send a representative to Oregon. Oregon is making a name for itself worldwide. It was even sunny for the visitors.

A wide variety of inverters were shown and demonstrated. PV Powered announced that their new inverter will have a 10 year warranty. Now that is a big step forward for the solar industry.

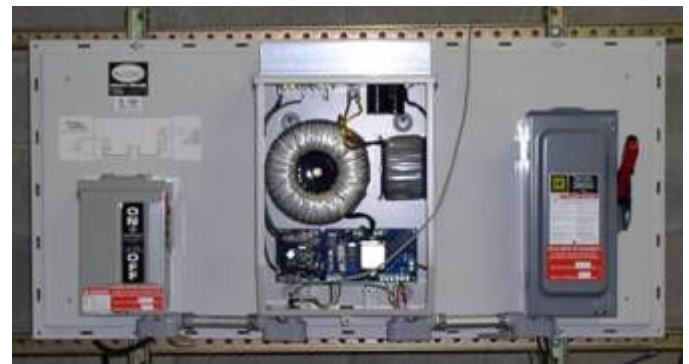


Fig. 4: Inside view of the new PV Powered StarInverter PVP 1100 utility intertie inverter.

Solar Electric Power Contractor Workshop

By Frank Vignola

The Oregon Department of Energy, mostly the work of Christopher Dymond, brought together solar industry representatives, electrical power contractors, electricians, and other solar enthusiasts on April 3, 2004 in Tangent, Oregon. The workshop took place at the Central Electric Training Center and was sponsored by the International Brotherhood of Electrical Workers, Energy Trust of Oregon, National Electrical Contractors Association, Oregon Solar Energy Industries Association, and the Oregon Department of Energy.

Over 100 participants attending the workshop on the warm sunny Saturday. During lunch most people ate in the parking lot to take advantage of the sun and to meeting and connect with people of like interests.

Part of the attraction was 3 door prizes given away by the solar manufacturing representatives at the end of the workshop. Door prizes ranged from solar panels to the newest inverters.

It is about time that the solar community starts reaching out to others who will become involved with the industry. In addition, it is important that these electrical contractors get to know those already involved in the solar industry so they can contact the experts when they are asked to install solar systems.



Fig. 1: Inverter representatives discuss various types of inverters. Over 100 people attended the workshop. The picture on right shows people sitting on back table listening to the speakers.



Fig. 2: The manufacturing representatives are showing off the possible door prizes for the lucky winners. Three inverters were chosen by the winners.



Fig. 3: Scott Sayles shows off his site analysis equipment. He built this using designed from an OSU Extension Service newsletter for \$29 in parts (two protractors, compass, and level) plus a tripod.



Fig. 4: Diggy Breiling show another way to get obtain a horizon diagram is to use the camera as shown on the right.

Kettle Foods Installs Largest PV System in Oregon

[Thanks to David Parker for these pictures for Solar Rising. Ed.]

Leading the way to the future, Kettle Foods installs a 116 kW system on its factory in Salem. This project, installed by ASE, is so far the largest PV system installed in Oregon. Kettle Chips' initiative was aided by Oregon Business Energy Tax Credits, federal tax credits and depreciation, and funds from the Energy Trust of Oregon. Let's enjoy those solar powered Kettle Chips from Oregon!



David Parker And Russ Reed



The system dwarfs those taking a tour on the roof of Kettle Chips.



*Xantrex
Combiner Box
on left.*

*Xantrex Inverter
on the right*



Setting up the Modules on the Roof of Kettle Foods



TAMARACK WELLNESS CENTER – STEWART AQUATIC CENTER



Tamarack Wellness Center Commercial Hot Water and Pool Heating System: A total of 56 solar water heating panels supplies feeds a 600 gallon tank.

On December 31st 2003 the switch was thrown on a unique grid-tied 24 KW solar electric array at the Tamarack Wellness Center complex in south Eugene. This commercial solar electric system is now greening Eugene Water and Electric Board's grid, while generating income for the Center. 144 Sharp solar panels span the 100 foot long parking shade structure from east to west and a Xantrex 20 KW 3 phase inverter with isolation transformer processes the power from DC to AC and syncs with EWEB's 208 VAC transformer, located 50 feet from the array. This transformer feeds power both to the Center as well as the surrounding residential neighborhood. A digital 3 phase EWEB-supplied meter was installed to record the production of the solar array. EWEB agreed to purchase all the power generated by the solar panels at a premium price of 25 cents per kilowatt hour on a 10 year contract. This pilot program is called "PV Eugene" and is currently committed for all 150 KW allocated to the pilot. These long term power contracts at premium prices are similar to the successful German utilities' "premium price" model incentive programs for their customers who put solar power on the grid. The income

generated by the solar array at the Center will pay for 90% of the electricity used by the Stewart Aquatic Center Pool building adjacent to the solar panel structure, an astonishing feat.

But what makes this solar installation even more remarkable is that the Stewart Aquatic Center Building itself is now sporting what is reputed to be the largest solar thermal array in the Pacific Northwest! 56 Sunearth black chrome 4' x 10' collectors (2250 sq.ft.), installed on the southwest facing roof above the pool, heat a custom 600 gallon storage tank with 3 internal double wall, domestic coil heat exchangers for showers and laundry,

and a 150 gallon per minute external, single wall heat exchanger for heating the pool. This drainback system is engineered to save the equivalent of 5700 therms of natural gas or 167,000 kWhs of electricity annually. It generates over 6 times the output of the PV array and has a 3 year payback, once commercial tax credits, incentive payments and accelerated depreciation are factored in. In addition the old, leaking gas water heaters were replaced with a state-of-the-art, 94% efficient Voyager condensing water heater with a 120 gallon pre-heat tank, which is the

(Continued on page 10)



Tamarack Wellness Center pool 600 gallon tank with Voyager

TAMARACK WELLNESS CENTER – STEWART AQUATIC CENTER



Early morning at the Easter Seals 24 kW parking shade array.



TAMARACK WELLNESS CENTER – STEWART AQUATIC CENTER

(Continued from page 8)

back-up system to solar. The control systems enable the solar tank to heat the pool and hot water instantaneously together or separately, as well as storing any excess energy for later use.

Tamarack Wellness Center is a facility dedicated to supporting the educational, physical and community service needs of the local area. These goals are being fulfilled by a variety of activities at the Center that include Four Winds Yoga, College Hill Montessori School, Stewart Aquatic Center, "VOICES", - Child Abuse Recovery Education (CARES), CampFire USA, Massage Therapists and Counselors. In addition the Center offers beautiful spaces for workshops, classes, and gatherings all in a peaceful, calming environment. The spacious hallways offer local

artists a place to display their art work.

The solar panel installations were a joint venture, spearheaded by Sue Sherman, the owner of Tamarack Wellness Center, with David Parker of Advanced Energy Systems and Newt Loken of Solar Assist. Paul Vermilyea of Dell's Electric handled the high voltage hook-ups, pump and control wiring and interface with EWEB. The entire operation, including the erection of a 2000 square foot array structure in the parking lot, took 8 weeks from start to finish.



Equipment is needed to help lift 144 panels.



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