



Solar Washington Newsletter

SUMMER 2008

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Silicon Energy PV Modules In Production, Certification

Prototype "Made in Washington" solar PV modules are in limited production at the Silicon Solar facility in Arlington, Washington and are in UL certification testing, according to Director of Operations Gary Shaver.

The company has engaged ETL to carry out the test program to the requirements of UL Standard 1703 for Safety of Flat-Plate Photovoltaic Modules. Initial production of UL listed modules depends upon the duration of the test program. The company is holding to the "late in 08" promised release date.

The PV Module is an approximately 4 x 4 ft. square glass-on-glass sealed assembly with integral mounting provision for roof, rack or wall installation. Total thickness of the glass laminate is about 3/8 inch. The individual cells are about 200 microns thick (about that of a sheet of paper) and about 6 x 6 inches square, encapsulated within the glass laminate and connected in series by transverse ribbon wires to the terminal wire leading up the right side of the module. Weight of the module assembly is about 60 pounds, and nominal power rating will be between 150 and 180 watts. The modules will be marketed directly to qualified installers, and 15 have been rack-installed by PSE at its Wildhorse Wind farm east of Ellensburg.

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Washington Small Wind Requirements Eased AWEA Standard, New L & I Rules Coming

The cost to owners and dealers of small wind turbines for complying with the requirements of the state Department of Labor and Industries (L & I) has been substantially reduced. Fee for the required engineering evaluation of a non-certified turbine for grid connection has been cut from up to two thousand dollars per model to two hundred dollars per model and less per unit by C. Sankaran and Power Science Engineering of Shoreline, an L & I – accredited testing laboratory.

Although there is general agreement that the turbine manufacturer should bear that cost, no manufacturer, dealer or individual would pay the larger fee, and during the spring of this year sales from some dealers were halted, turbines lay un-installed or installed and left standing idle, and lawsuits against L& I were threatened. Safety of the turbines has not been a valid issue. Confusion within the L & I as to whether local inspectors could approve turbine installations contributed to long delays in owners being able to have their turbines grid-connected. One dealer met with key state legislators, the office of the Governor, the state Electrical Board and the L & I, with the apparent result that an effort has been made to bring down the cost of the engineering evaluation.

The small wind turbine engineering evaluation consists of two parts: a primary evaluation by one of the two L & I – approved test laboratories based upon examination of drawings and other data, and a secondary evaluation of units in the field by an L & I – accredited engineer to assure that they match the drawings, and the engineer's application of the L & I "Approved" sticker. Several Skystream 3.7 turbines have now been approved, with owners paying the smaller fee, and a similar path has been cleared for the Proven 6K, the Jacobs and some models of Bergey turbines.

New AWEA Standard. Key L & I claim is that small wind turbines have not been built to a "standard". Most manufacturers of turbines offered in this country have joined the working group developing the American Wind Energy Association (AWEA) small wind turbine standard for certification of their turbine by the Wind Turbine Certification Council (NWCC). The AWEA Standard will include analyses and tests to show that the turbine meets requirements with respect to its Power Curve, Annual Energy Output, Noise, Strength and Safety and Service Life. Several small wind turbine models are now under test at the National Renewable Energy Laboratory (NREL) Small Wind Technology Center to the requirements of the draft Standard, and many more are likely to be tested and certified during the next few years. The draft Standard and results of the current tests are scheduled to be released this year. Turbine certification by the NWCC is expected to eliminate the need for L & I engineering evaluations, and the AWEA Standard and details of the NREL test plan and available results will be the subject of future Newsletter articles.

New L & I Rules. L & I Chief Electrical Inspector Ron Fuller, who has been nominated to the AWEA Working Group, will present a draft of new
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Many at Solar WA Meeting

A quarterly meeting of Solar Washington on July 21, the first in the beautiful REI Headquarters Building in Seattle, drew an attentive crowd of about one hundred professionals and interested citizens.

Introduced by past president Chris Herman and moderated by outgoing president Pam Burton, the audience heard a lively but civil discourse on the relative merits of evacuated tube and flat plate solar water heating systems. Using the Chinese-built Australian Apricus evacuated tube system, and the German Buderus and Irish ThermoMax evacuated tube system as examples, Buzz Burdett of Northwest Mechanical and Jeremy Smithson of Puget Sound Solar presented data, some challenged by the audience, which showed over-all similar performance with some site-specific advantages for each type system. Additional details on each system are available from the presenters.

All members were asked to OK 7 pm on the evening of the third Monday of alternate months at REI as the time and place for regular Solar WA meetings.

Current and Coming Events

Sept. 13 - "Green Edmonds Festival"

Sept. 22 - "Solar Energy for Your Home – class by Chris Herman in Shoreline

Sept. 27 & 28 – Sustainable Ballard Festival

Oct. 4 - ASES National Solar Tour

We're Solar Washington

Solar Washington is a chapter of the American Solar Energy Society. We're a private, not-for-profit association for people and organizations interested in solar power, energy efficiency and renewable energy.

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Next meeting: Monday, September 15th at REI – Seattle
See our website for more info.

(Cont. from P. 1) WAC electrical inspection rules to the State Electrical Board meeting at 9 am on July 31 at the L & I auditorium, 7273 Linderson Way SW, Tumwater, WA 98501. Substantial changes are proposed in WAC 296-46B-445, Wind-driven Generator Equipment, and WAC 296-46B-690, Solar Photovoltaic Systems. A 30-day period for public comment will be opened about the middle of August, followed by public meetings in Tumwater, Tukwila and Spokane. Effective date for the new rules will be December 31, 2008.

Editor's Note: Thank you to the many individuals and small turbine owners and dealers throughout the state whose e-mails and experience contributed to this article, to Ed Kennel and Mike Nelson for their counsel and to "Sank" Sankaran for his efforts on behalf of the small wind turbine industry in Washington. -Joe Heineck.

A Welcome to A & R Solar

Note: This is a profile of a new professional membership in Solar Washington and ASES, and will be an occasional feature of the *Newsletter*.

Founded in 2007 by Andy Yatteau and Reeves Clippard, A & R Solar offers consultation, design, installation and servicing of both solar thermal water heating and photovoltaic power systems to clients throughout the Puget Sound area and western Washington from their base in north Seattle.

With six years of solar experience, A & R have installed more than 100 systems in the Puget Sound area, following a four-step plan:

- a) Talk with their clients and assist them to determine their goals.
- b) Follow up with a thorough site evaluation.
- c) Offer the client a series of design options and associated costs to find the best way to meet their goals, and
- d) Install the system, normally in two to five days for a residence, and be available always to respond to questions or need for service or repair.

"Our team continually critiques our work to ensure that we are not only keeping up with, but staying ahead of the current technologies . . . We feel strongly about the quality of our product and service and will proudly stand behind our work. . . the possibilities of solar power are endless".

A & R may be reached online via info@AandRsolar.com, or by telephone (800) 714-1834.

Solar is FUN!

A 1 kW Solar PV system installed by Power Trip Energy at Port Townsend High School. Submitted by Andy Cochrane.

