FALL 2015

THE MAINE SUN

NEWSLETTER of the Maine Solar Energy Association

Jonesport Workshop Installing the PV/Thermal Hybrid Module

By Richard Komp

In August MESEA held a second workshop working on the newly designed PV/Hot Water Hybrid module we built in August of last year (*See the Fall 2014 Maine Sun).* Soni Biehl, assisted by Richard Komp, taught the workshop, which included a short course in plumbing solar water heaters. The major hands-on work was installing the module on the lower roof of Richard's home so that the water-antifreeze mixture will use thermosiphining to pump itself to the heat exchanger on the water storage tank in the attic above the bathroom.

Installing the PV/Thermal Hybrid module.

This module is made by adding a heat exchanger to a standard Canadian Solar PV module, although the same technique could be used to add a heat exchanger to any PV module, like we did last June in San Francisco *(See the **Summer 2015 Maine Sun** for that article).* The plumbing is identical to that used for our solar water heaters as shown in our **Maine Solar Primer.** I will try to have a diagram of the thermosiphon version of the plumbing in the next **Maine Sun.**

I have been told that several photovoltaic manufacturers, including Canadian Solar, are interested in this idea and I hope to get good scientific measurements of its performance and efficiency to write a scientific paper for the next ASES conference in Portland, Oregon next summer, but its electrical performance is considerably better than the earlier PV hybrid it replaces.

MESEA at the ASES 2015 Conference

By Richard Komp

This last July the American Solar Energy Society held their annual conference on the Penn State Campus at State College PA. John burke was our Official Chapter representative but both of us attended the Chapter Caucus on Monday, 28th July. The conference attendance was small this year, only about 200 people compared to 2000 in San Francisco last year. ASES has scaled way back and is operating on a very limited budget *(you can help by joining ASES at their www.ases.org website, it only costs $39 for an individual and their still have their money saving joint ASES-MESEA membership for $60).*

I gave a scientific paper on **improving the Improved Cookstove**, work I did in Nicaragua with the Grupo Fenix there (*see the Spring Maine Sun for the article).* And both John Burke and I gave a workshop in **Building Solar Cell Phone Chargers** on Thursday the 30th.

Workshop Participants soldering PV cells for the solar cell phone chargers.

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Website: www.mainesolar.org

The Maine Sun

Newsletter of the Maine Solar Energy Association

The Maine Sun is published four times a year by the Maine Solar Energy Association (MeSEA), a non-profit organization (sister chapter to the North East Sustainable Energy Association).

Our Mission:

We are dedicated to promoting the public awareness and use of:

- solar energy
- energy conservation
- other renewable non-polluting energy sources
- environmental and health awareness building practices throughout the state of Maine

The Maine Sun welcomes articles, submissions, photographs, and letters. Please send editorial materials to the following address: MESEA PO. Box 184
Harrington, ME 04643
Phone: 207-497-2204
E-mail**: sunwatt@juno.com or mainesolarenergyassociation @gmail.com**
Website: **www.mainesolar.org**

Receive the Maine Sun by e-mail or at our website to be green.

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Calendar of Events

MESEA Website WWW.mainesolar.org
Facebook: *Maine Solar Energy Association*

The 2015 Maine Solar Tour

Saturday 3 October, 9am to 4 pm – FREE

Site I-1. Jonesport, 17 Rockwell Road SE, Richard Komp, 497-2204, 450-1141
Home self –designed and built in 1988 with 750 watt off-grid PV, passive solar heating and 4 TAP air heaters, 'Hypocaust' under-floor thermal mass, wood backup, and a 'new design' PV/Thermal Hybrid for hot water. Featured in the May-June 1997 Solar Today. - Look for signs.

Midcoast - St. George, ME
Site 1 -2 . **The humble Farm**, 785 River Road, St. George ME
Owners: Robert and Marsha Skoglund, 226- 7442
200+ yr. old salt box farm house, on St. George peninsula, recently added home built solar thermal, DHW system. Eight, flat-plate panels, collect the sun's rays to pre-heat hot water and heat the cellar floor with non-toxic anti-freeze mixture, two tank system. Also, a 30 module, 7 Kilo-watt, PV system, with 230 W, Canadian Solar modules and Sunnyboy inverters, supply solar electricity all year long, a grid-connected PV system. Modules are installed on an 'owner-built', PV rack on chicken house !

Saturday, November 07, 2015
"Make a Solar Panel workshop" with MESEA, hosted by NYSES ...

We will assemble a 65 W PV module, with hands-on experience for all participants (including all steps, soldering solar cells, silicon encapsulation, final wiring and framing). Info and description of step-by-step assembly and material list hand-out included.

New York Solar Energy Society
9:30 am - 5 pm, Sat, Nov 7, 2015
5270 Sycamore Avenue, Bronx, NY 10471
$125.00 registration fee includes light refreshments and vegetarian lunch.
Instructor: John Burke, Maine Solar Energy Association.
Register here (nyses.org), using PayPal - (nyses.org - 'Make a Solar Panel workshop' link) - or ...
send a check to NYSES, 5270 Sycamore Avenue, Bronx, NY 10471. Ph. : 1-917-974-4606, - NYSES

Book Report

Let It Shine by John Perlin

By Richard Komp

Let It Shine is the follow-up book to the very popular book: **A Golden Thread** written by John Perlin and Ken Butti back in 1980. We have been waiting a long time for this book, but the wait was worth it.

I first met John Perlin back in 1980 when he was invited as the keynote speaker at the *Real Energy Independence Fair* at Governor's State University, south of Chicago. The people who organized that event (totally off the grid and powered by the renewable energy systems demonstrated at the Fair) forgot to arrange to pick-up John at the airport or arrange for a place to stay during the Fair. He showed up at a TV studio we were at in downtown Chicago and I got him fixed up to be interviewed and took charge of his duffle bag.

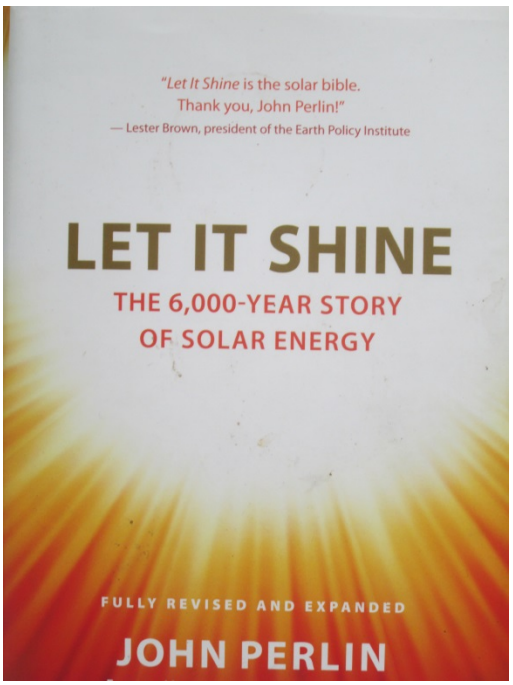
He stayed with me at a friend's house in Park Forest, one of the places he had written about in **A Golden Thread,** and showed him the passive solar homes in my old neighborhood. *(I had discovered solar energy there in 1950 when I was 12 and my parents had moved into an "accidental solar home" my father had bought with the picture window facing the street, which was due south. My father modified the control on the boiler of the "radiant heat" in the concrete floor so that the pump would circulate the warm water from the living room floor through the rest of the house without the gas flame coming on. The flame would finally come on about 2 in the morning. I went around and talked with the builders and architects [including Keck] and learned about passive solar architecture. [There is a whole chapter in john's book about this period.]).* John and I have been friends ever since.

John Perlin is a historian, not a scientist; but he is a meticulous scholar, getting all the details as accurate as he can. He manages to dig up information about solar energy that nobody else had found. He has an entire chapter on ***Solar Building in the Enlightenment*** about the work on passive solar buildings and even subdivisions built at that time. *(Back in the 1990s, John sent me looking at the library at the University of Wisconsin to find an old scientific journal published (in German) in 1806. It was in the old Gothic German script (which I can read since when I learned German back in 1954, they were still using that script) and the illustrations were in a separate volume from the text and in a different part of the library, but I found it and got it copied before the library closed at 5pm. I translated the article for John; it was about one of these subdivisions built in what is now the Czech Republic).*

John had figured out that the 19th Century photovoltaic (PV) pioneer Willoughby Smith had donated his papers to the town of Truro in Cornwall GB and asked my ex-wife Mirdza to find some of them about Willoughby's PV work. She found a microfilm copy of a handwritten letter from James Clerk Maxwell to Professor Stokes about the amorphous selenium PV cell, puzzling over how the process works. *(I transcribed his beautiful Victorian handwriting and published the letter with my comments in the* ***Winter 2000 Maine Sun****, as far as I know, this is the only place it has been published but you can get a digital copy at our www.mainesolar.org website.)*

John's book is full of such gems of information that you won't find anywhere else. A whole section is about the "hippy revival" of solar architecture in the 1970's with details I didn't know about many of the people I knew at that time.

Get this book! It is the best book of the history of solar energy that exists; a great improvement over John's first book.



Greening the US Energy Workforce

By Emily Schwartz Greco, OtherWords

Oil permeates the whole economy. Even if you telework in a solar-powered home and tote your groceries home by bicycle, the price of petroleum affects what you spend on goods and services. This impact, of course, is uneven. The collapse from $105 per barrel last summer to as little as $37.75 in late August in US oil prices brought relief to wallets across America - while kneecapping the industry's profits and costing tens of thousands of workers their jobs. But one tiny segment of the oil workforce isn't hurting.

Rising CEO Pay Levels, an OtherWords cartoon by Khalil Bendib.

The buck stopped elsewhere for ExxonMobil CEO Rex W. Tillerson, who pocketed $33.1 million in 2014. ConocoPhillips CEO Ryan M. Lance raked in $27.6 million, netting an 18 percent raise. And Chevron CEO John S. Watson, whose company recently cut 1,500 jobs, took home $26 million. Tillerson, Lance, and Watson topped the list when a team of my Institute for Policy Studies colleagues catalogued what the nation's 30 biggest publicly traded oil, gas, and coal companies paid their leading executives last year.

This new report, *Money to Burn: How Our CEO Pay System is Accelerating Climate Change,* shows that these Big Fossil giants handed their chief executive officers a total of $442.1 million as their profits stalled, fell, or - in the case of the Peabody Energy coal company - ran big losses. My colleagues added up all the money the highest-paid officers of each company took home over the past five years. It amounted to nearly $6 billion. What else could that $6 billion cover? One possibility: creating nearly 100,000 green-energy jobs for a year, the report's authors estimate based on prior research.

Although the Obama administration's early efforts to goose green employment faltered, renewable-energy jobs are booming now.

The number of Americans employed in the solar, wind, geothermal, biofuels, and small-scale hydropower industries soared to 724,000 last year, according to the International Renewable Energy Agency. That marks a 16 percent gain from 2013, boosted by a 43 percent surge in wind-power employment.

The solar industry is also fueling this growth. It's gaining jobs 10 times faster than the overall economy, and there are now more than twice as many solar workers as coal miners. At this rate, renewable-energy workers will soon outnumber people toiling in fossil-fuel industries. Employment in the "mining and quarrying sector," a category that lumps oil, gas, and coal together, fell to 781,500 jobs in July from 848,000 a year earlier, the Bureau of Labor Statistics found. With strategic support and public-private cooperation, thousands of unemployed oil workers and coal miners could potentially land wind and solar jobs.

Given their industries' breakneck growth, green-energy employers can struggle to find new workers with the right skills. To bridge this gap, the government is ginning up green-job training.

One promising example is the Solar Ready Vets program. Since this pilot's launch a year ago, 100 transitioning service members from Naval Station Norfolk in Virginia, Fort Carson in Colorado, and Camp Pendleton in California have gotten training. Every former soldier, marine, and sailor who completed these six-week courses landed at least one job offer in the solar industry, according to the Energy Department - which picked up the tab for the trainees' tuition, materials, and exam fees.

A big draw for this growing industry is the competitive pay. Wages range between $20 and $60 an hour, according to the Solar Foundation.

That's a mere sliver of the $14.7 million haul those 30 oil, gas, and coal CEOs averaged last year. But it's a living wage in a business that's curbing pollution and could help slow the pace of climate change.

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EMILY SCHWARTZ GRECO

Emily Schwartz Greco is the managing editor of OtherWords, the Institute of Policy Studies' national non-profit editorial service.

Crowdsourcing for 3rd World PV Work

By Richard Komp

Last May, after I spent a month teaching groups of students in in Sumatra, Indonesia. ; I promised them I would come back for a second set of courses next spring. Since then the part-Indonesian woman who had financed the project has had a slight reversal of fortune. While the costs of the course and materials and my stay in Indonesia are still covered, I will have to arrange for the cost of my own travel arrangements. In the next trip I will be teaching in a school run by a Christian family where most of the students are Muslims and staying at a Buddhist monastery, where I will also be giving seminars.

I will be traveling directly from Managua, Nicaragua to, and inside, Indonesia, then back to here in Maine. This is a distance longer than a round the world. While air fare in Indonesia is cheap, I have some long distance flights on airlines like Singapore Air. While they have five classes of accommodations in their two stories Airbus 380, I travel downstairs in "steerage", the lowest class. I also have to get back from Los Angeles to Maine; so I calculate I will need about $2600 from Skyheat Associates to cover all the expenses.

Please think of donating money to a special Skyheat program to cover all these expenses. Send checks to Skyheat at the MESEA address below. Thank you

Coming: The Third Edition

Now 36 pages with new material

The Maine Solar Primer

A compilation of practical information and diagrams from past issues of THE MAINE SUN

The Maine Solar Energy association has published a sourcebook for solar and other renewable energy resources in Maine and New England.
This booklet includes do it yourself plans and basic solar information for everybody.

The Maine Solar Primer is available for $12 inc. postage from MESEA, PO Box 184, Harrington ME 04643

MeSEA Membership Form

Annual membership includes: a subscription to the quarterly MeSEA publication - *The Maine Sun,* 10% discount on workshop fees and MeSEA-sponsored events, networking with other like-minded people in Maine, contribution to the sustainability of our program, and the right to declare your donation to a 501(c)(3) on your taxes.

Special Joint MESEA – ASES Membership: $60 ***Go to the www.ases.org/join/ website to sign up with a credit card.***

Name(s): _____

Address: _____

_____

Phone: _____

E-mail: _____

Individual MESEA membership - $30.

□ new □ renewal □ upgrading

Family MESEA membership - $50. □

Lifetime MESEA membership - $1000. □

Corporate MESEA membership - $150.□ **

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