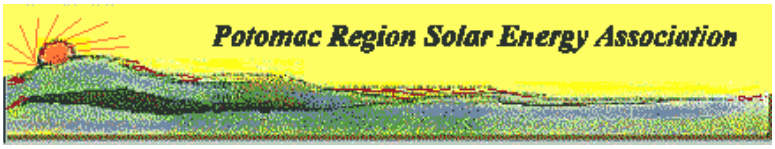

NEWSLETTER - POTOMAC REGION SOLAR ENERGY ASSOCIATION

September 23, 2006

P.O. Box 3315, Annapolis, MD 21403 Toll-Free: (866)477-5369
http://www.prsea.org info@prsea.org

General Membership Meeting Announcement

Time: **Saturday, October 28, 2006, from 10:00 AM until Noon**

Location: **Dolley Madison Public Library**
1244 Oak Ridge Avenue
McLean, VA 22101
www.fairfaxcounty.gov/library/branches/dm/

Special Attraction: The Electric Vehicle Association of Greater Washington DC (EVA/DC, http://www.evadc.org) will exhibit the Aztec Solar Car in the parking lot before and after the meeting. The Aztec is MIT's original solar electric vehicle, restored by EVA/DC. It has a long history, having raced in several NESEA Tour de Sols and won several awards. It is a two-passenger, three-wheeled, 120-volt, carbon-fiber car complete with a solar array, custom made magnesium wheels and a Solectria drive train.

Directions to the Dolley Madison Library:

From the George Washington Memorial Parkway:
Take Route 123 (Chain Bridge Road / Dolley Madison Blvd) towards McLean. After crossing the traffic light at Churchill Road and Dolley Madison Boulevard, get into the right lane, go 0.3 mile, and turn right on Ingleside Avenue. Drive one block on Ingleside. The library is the red brick building on the left. Turn left on Oak Ridge Ave. to enter the parking lot.

From the Beltway (I-495) or the Dulles Toll Road (Rt. 267):
Take Rt. 123 North (Chain Bridge Road / Dolley Madison Blvd). After crossing Old Dominion Drive, turn left on Ingleside Avenue, the very next street. Drive one block on Ingleside. The library is the red brick building on the left. Turn left on Oak Ridge Avenue to enter the parking lot.

Meeting Agenda

Report on the ASES International Meeting	Sergio Obadia
Aztec Solar Car and the Tour of Solar Homes	Charlie Garlow
Chewonki Foundation Renewable Hydrogen Project	Noah Tuthill
Renewable energy experts answer audience questions	General membership
2007 planning and nominations for new Board members	Sergio Obadia

Membership Email Server

Jason Fisher set up a Google Group, PRSEA-Members, for all PRSEA members to use. To post a message to the membership, send an email to PRSEA-Members@googlegroups.com, and it will be forwarded to the entire group. Since the mailing list is moderated, the message will not go through until one of the group moderators clears it. Everybody who is a member of PRSEA and gave an email address on the application should have received an invitation to join the group by email a few months ago. The group has seen very little action since it was started. Please use it. If you do not think you are a member of the group, please send an email to info@prsea.org. The group also has a web page, http://groups.google.com/group/PRSEA-Members. To view the web page, you have to create an account with a password on http://groups.google.com.

Board of Directors

In the December 2005 election, the following new people were elected to the Board of Directors:

Isaac Opalinsky – Treasurer	Noah Tuthill
Nelson Buck	Lee Bristol and Jason Fisher (tie)

Lee Bristol withdrew, leaving Jason Fisher to fill the seat.

Members whose terms expire at the end of the year are:

Jim Crowley - Secretary	Sergio Obadia - Chair
Mike Tolker	Robert Winfield

Nominations for candidates for the Board of Directors may be mailed to the address at the top of this newsletter before the General Meeting, or candidates may be nominated at the meeting. Following the General Meeting, ballots for the Board of Directors election will be mailed to members who have paid their dues for 2006. Newly elected members will take office January 1 and will serve for two years.

Volunteer Committees

Most of the activities of PRSEA will necessarily be carried out by teams of volunteers, such as the Tour of Solar Homes Committee. Volunteers are currently needed to work on the web site and newsletter, to monitor the phone calls and emails to PRSEA, and to assist the Treasurer with membership records. We also need ideas for new projects that committees can work on.

During the General Meeting, we will discuss projects. Come with your ideas. But we do not have to wait for the meeting. Our email server, PRSEA-Members@googlegroups.com, can forward your ideas to everybody in the group.

MEA Solar Grants

The Maryland Energy Administration (MEA) Solar Energy Grant Program is available to residential, business, and local government entities. Details are at:

http://www.energy.state.md.us/programs/renewable/solargrant/index.html

In addition, there is now a grant program for geothermal heat pumps. Details are at:

http://www.energy.state.md.us/programs/renewable/geothermalgrant/index.html

SOLAR MUSINGS

by Jim Crowley

Memo from Brazil

During a recent taxi ride in Sao Paulo, Brazil, my wife and I directly experienced one aspect of the Brazilian approach to energy independence. The taxi driver stopped briefly to refuel, and proceeded to fill his car's tank with natural gas, one of three different fuel options for his flex-fuel vehicle. Because natural gas is slightly cheaper per mile than gasoline or ethanol, it was the driver's preferred choice. However, filling stations offering natural gas are not as widely distributed, so that choice is not always available.

The experience illustrates the beauty of flex-fuel vehicles and points to several related aspects of transportation energy policy in Brazil. Gasoline is more expensive in Brazil than in the US because of higher fossil fuel taxes. As a result, most cars sold in Brazil are relatively small and fuel efficient (lower personal income levels also play a role). Furthermore, because of fuel costs and traffic congestion, many car owners use mass transit when it is available. Thus, vehicle fuel efficiency and having mass transit as a viable option are two cornerstones of the Brazilian energy success story.

A less obvious feature of Brazilian energy policy is that by having diverse fuel supply choices, a more competitive fuel supply environment can be maintained. Rather than support ethanol production by direct subsidies, the Brazilians tax the fossil fuel alternatives to ethanol at higher rates. Within this overall higher fuel cost structure, the ethanol industry is able to compete with gasoline and natural gas on a production cost-basis. This approach rewards efficiency and helps to avoid economic inefficiencies caused by direct subsidies. For example, it would make no sense in Brazil to use natural gas in the ethanol production process (as is done in the US) because natural gas (a) is expensive, and (b) can be burned in many vehicles directly. Instead, the Brazilian ethanol producers use sugar cane wastes as an energy source in the ethanol production cycle.

The lesson for the US is that subsidized ethanol production by itself will not duplicate the widely-touted Brazilian success at reducing energy import dependence. Other pieces to the puzzle include increased vehicle fuel efficiency, higher overall fuel cost structure, multiple fuel options, and policies that favor sensible economic choices over political expediency. It would also help if Americans would view shrinking energy supplies as an urgent problem worthy of collective patriotic action. Many Brazilians do have this attitude and are rightly proud of their energy accomplishments.

The Phantom Strikes Again

For those who don't already know, the "Kill-A-Watt" meter is a $30 device that lets you measure the energy usage of individual household appliances. This information can be quite shocking (no pun intended).

For example, we have a Maytag Neptune front load washing machine, which is now about 3 years old. The Maytag is EnergyStar rated, and is a nice product. It has lots of buttons but is easy to operate. According to the Kill-A-Watt, each load of laundry consumes only about 90 watt-hours of energy (not counting water heating of course).
If you wash 200 loads per year the total energy cost currently is only about $2.00. It's hard to complain.

Now comes the somewhat shocking part.

Even when the Maytag is turned off it continues to use energy at a rate of 5 watts. This trivial "phantom load" summed over an entire year results in a power consumption of nearly 44 KWH, which is more than most homes use in an entire day. Based on our hypothetical 200 loads per year, the machine consumes more than twice as much energy just sitting there as it uses to actually wash clothes!

What to make of this? There is no remote control (a common culprit in phantom load systems). I tried calling Maytag and received a vague explanation about sensors that determine if the washing machine door is open or not. My guess is that the energy may be used to maintain the button settings favored by the user (e.g., "sturdy" loads get hot water; "delicate" loads get warm). Thus, you only need to press one button instead of two or three when starting a load.

But I don't mind pressing another button. In fact I added one--an inline switch at the electrical outlet next to the washer.

If you have any similar energy saving discoveries to share please send them to info@prsea.org.

Solar CD's

Interest rates have increased quite a bit in the past year attracting more people to invest in low-risk certificates of deposit (CD's). Just for fun, let's compare two options: (1) $20,000 is invested in a 5 % interest-bearing CD, and (2), $20,000 is used to install a 3.0 KW grid-tie photovoltaic system. In the PV option we will assume that the $20,000 cost already takes into account various available rebates. Net metering is also assumed.

Option one is easy to analyze—you will receive $1000 per year interest, keeping perhaps $700 after taxes. Of course we don't know which direction interest rates will go in the future, but 5% is probably not a bad long term estimate.

For option two we must consider how much energy is likely to be produced by a 3.0 KW photovoltaic system. Due to inverter losses and other system factors electrical output at the utility meter is normally less than the theoretical "ideal" PV production values. Local solar illumination intensity and duration also must be considered. The estimate here is based on 4.5 hours of average peak sun per day, coupled with a de-rating factor of 0.75. This gives 3.0KW x 4.5H x 0.75-- let's just call it 10KWH per day or 3650 KWH per year. At my current delivered cost of electricity of about 11 cents per KWH, this works out to $401.00 per year of avoided costs.

Two nice things about the PV-generated electricity are that its value is not taxed, and the electricity offsets spending in after-tax dollars. That is, you would have to earn $572.00 to have the same $401.00 available after taxes to buy electricity from the utility. This is equivalent to a CD interest rate of 2.86% on the original $20,000 investment—about equivalent to the interest rates being paid on CD's one year ago.

This analysis does not take into account inflation, or PV system replacement and maintenance costs, and should not be construed as investment advice. Nonetheless, as energy costs go up, and/or CD interest rates come down, PV systems don't look too bad as a comparative investment. If one factors in other long-term benefits, such as reduced environmental degradation, the PV option becomes even more attractive.

_____

To join, mail this form with your annual dues to:

Potomac Region Solar Energy Association (PRSEA)
attn: PRSEA Membership
P.O. Box 3315
Annapolis, MD 21403

I would like to join the Potomac Region Solar Energy Association.

Enclosed is my check for one year annual dues:
(please check appropriate member category below)
____ Student ($10.00); ____ Educator ($15.00);
____ Individual ($25.00);

Please send correspondence to my ____Home ____Business address (*please check one*).

Name: _____Title: _____

Occupation: _____

Business Name (if applicable)_____

Work Address: Street:_____

City:_____ State:_____Zip/Postal Code:_____

Home Address:
Street:_____

City:_____ State:_____Zip/Postal Code:_____

Phone: (_____)_____ Fax: (_____)_____E-mail:_____

Primary areas of interest (include additional sheet if necessary):
_____

_____

Member of American Solar Energy Society (ASES) _____Yes _____No.

I am also a member of the following groups: _____

_____