



Peak Oil Spices Meeting with Cong. Baldwin

by Michael Vickerman
RENEW Wisconsin

Members of Madison Peak Oil Group (MPOG) and RENEW Wisconsin took advantage of the Congressional recess this August and engaged Second District Rep. Tammy Baldwin in a lively discussion on offshore oil drilling, renewable energy tax credits and regional transportation planning.

The meeting took place days after Russian troops had entered Georgia and asserted military control over railways and ports, interrupting shipments of oil through the strategically important Baku-to-Ceyhan oil pipeline. An onslaught of television ads touting T. Boone Pickens' ambitious renewable energy proposal was generating some buzz around the energy security issue. Against that backdrop, the assembled group, led by Hans Noeldner, a Village of Oregon resident and a MPOG founding member, advocated for federal energy policies to reduce America's dependence on an energy source that is nearing terminal decline.

The only Wisconsin member on the House Energy and Commerce Committee, Rep. Baldwin has made energy conservation and renewable resource development the centerpiece of her energy agenda. Group members expressed appreciation for her vigorous support for regional transportation planning and her success in securing funds for bicycle path improvements. Equally praiseworthy was her vote to establish a federal Renewable Energy Standard.

The group urged Rep. Baldwin to join the Congressional Peak Oil Caucus, a bipartisan group of legislators who acknowledge this country's vulnerability to diminishing petroleum supplies and advocate a more forceful set of policies to

bring about a leaner, cleaner and more secure energy infrastructure.

While calling attention to the need for federal leadership on this urgent matter, we handed Rep. Baldwin a CD recording of Maryland Rep. Roscoe Bartlett's August 2007 speech in Manitowoc. In that speech, Bartlett, a founding member of the Peak Oil Caucus, minced no words in outlining the great challenge before America. In his clarion call for a Manhattan Project-level commitment to building a sustainable energy economy, Bartlett told the 140 or so people in the audience that Peak Oil is as ominous a threat to our economy and environment going forward as is global climate change. We reiterated that message with Rep. Baldwin.

When the discussion turned to the continuing stalemate over legislation to extend the renewable energy tax credits set to expire this December, I asked Rep. Baldwin whether the House leadership would drop its efforts to impose a higher tax burden on fossil fuel companies to make up the difference. This display of fiscal discipline is misplaced, I argued, because these energy sources redirect so many dollars into the U.S. economy.

The source of the hold-up, Rep. Baldwin said, is not the Speaker's office but a group of fiscally conservative Democratic legislators known as the Blue Dogs. She urged national trade organizations such as the American Wind Energy Association and Solar Energy Industries Association to generate more constituent contacts in those districts represented by Blue Dog Democrats.

Two weeks after our meeting, the *Wisconsin State Journal* ran an editorial call-

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ing for an immediate resolution to the stalemate, noting that Wisconsin will be particularly hard hit by a lapse in federal tax credits. That editorial followed a guest column I wrote in July, which was published in both Madison newspapers.

Everyone in our delegation—Beth Campbell, Ross DePaola, Arnold Harris, David Knuti, Jeff Riggert, Hans and myself—came away from the meeting very satisfied with the tenor and candor of our conversation with our Member of Congress. We aim to continue the dialogue after the November election. As stated in our thank-you letter to her: "We are pleased to be represented by someone who appreciates the finite nature of fossil fuel supplies and understands the urgency of planning for the energy transition that lies ahead." ✨

Become a RENEW Member

RENEW needs your financial help to support the following initiatives:

- Promoting renewable electricity as a vehicle fuel;
- Instituting European-style renewable producer payments for small-scale installations;
- Encouraging schools and businesses to switch to fuel wood and grass pellets for heating.

To join RENEW, complete and return the membership form on page 2.

Tour Set for State's Solar Installations

If you stop and visit with any of the businesses and homeowners taking part in the two-day Wisconsin Solar Tour, you'll come away knowing that renewable energy is here for today.

The first day's tours scheduled on October 3 will focus on business installations.

On the second day, the public can view the solar features atop Michael Vickerman's residence in Madison, and dozens of others across the state.

Tour destinations will showcase advances in energy efficient construction, new products, sustainable landscaping, and renewable energy technologies.

"The tour demonstrates that renewable energy is practical, reliable, and affordable in today's economy," said Amy Heart, Program Director for the Midwest Renewable Energy Association, organizer of the annual tour.

"Tour participants have the chance to talk with people who live and work with renewable energy and green building features," Heart added.

Vickerman's 1,050 sq. ft. bungalow-style residence features a 1.7 kw solar electric system, a one-panel solar hot water system, and a "solar dryer," also known as a clothesline.

Full details on the Solar Tour are online at www.the-mrea.org. ✨



Solar installer Shawn Young (H&H Solar), RENEW's Michael Vickerman, and the City of Madison's Kay Schindel (left to right) inspect the solar hot water system on Station No. 1 with the downtown Madison skyline in the background.

Solar Hot Water Installations Adorn All Madison Fire Stations

Unlike many government reports, no dust settles on the report issued by the Mayor's Energy Task Force in September 2004. Solar hot water systems -- tangible commitments to the report's recommendations -- now serve all 11 of Madison's firehouses.

One of the most visible appears to be nothing more than window awnings on the south-facing back wall of Station No. 6 along W. Badger Road on Madison's south side.

The six-panel installation atop Station No. 1 on E. Dayton Street in down-

town Madison can't be seen from the street, yet it's the largest.

The glycol solution running through the south-facing panels reaches as much as 160 degrees and heats the water in the holding tank up to 135 degrees even on a cold, sunny day.

Under the supervision of Shawn Young, H&H Solar installed seven of the 11 systems for the City of Madison.

Kay Schindel, an engineer with the city's Facilities and Sustainability Division, says, "They all work." ✨

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RENEW Wisconsin is a nonprofit membership organization advocating the adoption of sustainable energy strategies to power Wisconsin businesses and households in an environmentally responsible manner. Through a combination of public policy and private sector initiatives, RENEW aims to increase the use of clean, renewable, and locally available resources to produce thermal and electric energy.

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RENEW also moderates a blog at www.renew-energy-blog.org.

Task Force Issues Global Warming Recommendations

by Clean Wisconsin

The Governor's Global Warming Task Force finalized recommendations that will help Wisconsin reduce greenhouse gas emissions and develop a clean energy economy. Clean Wisconsin, the state's largest environmental organization, voted in favor of the final recommendations but vows to push for stronger reform.

"Climate change is the number one environmental issue that we must address here in Wisconsin and around the world," said Keith Reopelle, Senior Policy Director of Clean Wisconsin.

"These recommendations represent an excellent first step in reducing greenhouse gas emissions, but we must do everything within our power to mitigate the disastrous effects of global warming."

"Expansion of Wisconsin's Renewable Energy Standard has to be one of those critical next steps," added Michael Vickerman, executive director of RENEW Wisconsin.

The recommendations include a three to four fold increase in Wisconsin's investment in energy efficiency; a renewable portfolio standard requiring utilities to produce 10 percent of their electricity from renewable sources by 2013 and 25 percent by 2025; a 75 percent reduction of greenhouse gas emissions from 2005 levels by 2050; and the implementation of a clean cars standard.

"These strong reduction targets, the increased investment in energy efficiency, and the strong renewable portfolio standard are essential elements of addressing global warming and transitioning into a clean energy economy," Reopelle said.

The Task Force's recommendations include modifying Wisconsin's nuclear moratorium law to ensure that any nuclear plant must meet stringent waste disposal standards.

"Nuclear power remains environmentally risky and unacceptably costly,"

Reopelle said. "Clean Wisconsin will continue to oppose the construction of nuclear plants in Wisconsin until a permanent, safe federal storage facility is available and all nuclear reactor safety issues are resolved."

The Task Force further recommended developing a cap-and-trade system to regulate greenhouse gas emissions. Clean Wisconsin advocated for an auction-based cap-and-trade system that requires utilities to purchase carbon credits rather than the utility-recommended system of freely allocated credits. The final recommendation sends the ultimate decision on allocation to the Midwestern Governors Association (MGA), where a regional cap-and-trade system will likely be developed.

"Meeting the strong reduction goals set in these recommendations requires a strong auction-based cap-and-trade system," Reopelle said. "Clean Wisconsin will continue to advocate for an auction-based system at the MGA."

Gov. Doyle created the Global Warming Task Force through executive order to provide policy recommendations that will address global warming, create new jobs in the clean energy industry, and identify goals for reductions of greenhouse gas emissions. The Task Force included a broad spectrum of stakeholders including environmental organizations, electric utilities, auto manufacturers, paper producers and members of the university research community.

"Climate change is a problem that individuals from all walks of life must address on a local and international level," Reopelle said. "The recommendations represent a positive first step in ensuring we take significant and immediate action to ensure future generations inherit a clean and healthy environment."

The Doyle administration continues to prepare a legislative strategy for action on the recommendations in the next legislative session.

The final Task Force report is posted at <http://dnr.wi.gov>.

Road Trip to Wisconsin's Newest Wind Installations

Text by Michael Vickerman

Photos by Ed Blume

RENEW Wisconsin

Beautiful mid-July weather provided a glorious backdrop for a visit to Wisconsin's two newest windpower installations, We Energies' Blue Sky Green Field (BSGF) installation and Invenergy's Forward Energy Center. A steady 20 mph wind from the south served up plenty of fuel for the 154 turbines now in operation.

The fields were alive with the sound of tractors and a few birds, punctuated by an occasional truck grinding along on the back roads.

My colleague Ed Blume and I headed out of Madison to drive to Blue Sky Green Field and snap a few photos. Though only five miles north of a major state highway (23), the 88-turbine project is tucked away behind rolling terrain, making it rather difficult to spot from the roadway.

We took the rollercoaster-like Seven Hills Road toward the project's southern boundary in the Town of Marshfield, Fond du Lac County. I highly recommend that approach, because the turbines will appear, disappear, and then reappear as you proceed from hillcrest to hillcrest.

We stopped near the 345 kV line which transports BSGF's electricity towards southeast Wisconsin, and about 1,200 feet from two turbines. Getting out of the car, we immediately heard the tell-tale crackling hum of the transmission line. In contrast, so faint was the aerodynamic sound from the nearby turbines that we had to consciously filter out the ambient sounds in order to hear the barely audible whoosh. By the way, we saw a lot of turned-over earth in the area, almost all of it a result of the Guardian Pipeline project now under construction.

Twenty minutes later, we joined a tour of the Forward Energy Center organized by Jenny Heinzen, an Electrical Apprentice Instructor at Lakeshore Technical College. Ed and I joined a tour arranged by Heinzen for the students in one of her



one-week-long introductory classes in renewable energy.

On hand to greet us at Forward's substation was Laura Miner of Invenergy. She is one of seven or eight Invenergy employees who work out of the Brownsville office.

At the substation, located at the project's northeast corner, we stood about 500 feet from the nearest operating turbine. At 500 feet you will hear gearbox-related sounds coming from inside the nacelle. You can also hear many other human-generated sounds in the mix, as well as birds and the wind itself passing through the trees. One of the objectors to the project has written posts picked up by windaction.org, in



which he likens the gearbox sound to a jet plane passing overhead. This has become an antiwind talking point. Living under the approach path to Dane County's airport, I stop talking whenever a jet flies overhead. Here, notwithstanding our proximity to that turbine, the people in our group had no difficulty talking to each other at normal conversational volumes.

Our second stop took us to a turbine just west of the hamlet of South Byron, about two miles north of Brownsville. We stopped at an access road leading to a turbine that had just shut down. While most of the group walked to that turbine, I stayed behind for a minute to listen to another turbine that was about four tower-lengths away (1,100 feet). I could not hear any gearbox sound or any whooshing sound from that turbine. Nor could I hear anything emanating from the seven or eight turbines that I could see from my vantage point. It was the perfect spot to appreciate the fact that 99% of wind energy's environmental impact is visual in nature.

According to Miner, there haven't been many complaints from neighbors. Most of the callers have complained of poor TV reception. Invenergy hasn't yet decided on a preferred mitigation measure for rectifying the reception problems. On this matter, I hope that Invenergy implemented whatever mitigation meas-

Photos of Green Field Blue Sky left and above.



ures it deemed appropriate by opening day of the 2008 NFL season.

Miner told the tour group that five or six households have complained about sound impacts. Considering the number of households within or abutting the 32,000-acre project zone, those are small numbers. Invenenergy just completed a sound characterization study of its turbines, which will be online soon.

The land reclamation/restoration effort had made considerable progress since March 12, the day Michels Wind Energy completed outdoor assembly work on the project. Waist-high stalks of corn lined the smoothly surfaced access we walked on. With the fields planted in

corn, it is nearly impossible to detect the access roads unless you happen to be directly in front of one. Miner mentioned that the restoration work on the county highways was almost finished.

To ensure that no bird carcass goes undetected in post-construction studies, Invenenergy is required to clear the vegetation/crops from about an acre's worth of land surrounding each turbine. This study will continue through the end of 2009.

On the way back to Madison, Ed and I turned off Highway 49 and pulled into a trailhead on the western side of Horicon Marsh to observe the turbines' visual impact behind the marsh and

compare the real-life views against the computer-generated rendering of the Forward project that appears on the Horicon System Marsh Advocates' Web site. If one needed additional proof of the deliberate deceit that underpins antiwind propaganda, take a good look at that second image on the web site and compare it to the photo (above) that we took that day.

In short, BSGF and Forward are excellent visual complements to Wisconsin's working landscape, and will prove to be worthy exemplars of Wisconsin's investment in utility-scale wind energy. To those who haven't visited either of these projects, what are you waiting for? ✨



Photos of Forward Wind Center left and above.

Plug-in Hybrids Could Mean More Growth for Wind

by Jeff Anthony, AWEA

Wind power in the U.S. continues its rapid growth rate, accounting for 35% of all new electric generating capacity in 2007 and staying on pace to more than maintain that rate this year.

Going forward, the drivers for this growth will continue to be the demand for more electricity, coupled with the need to have more energy produced by clean energy sources. Yet as everyone knows, energy issues within the *transportation sector*—specifically, the price of gasoline—continue to make headlines.

But what if there were a nexus between wind and those transportation issues, a crossover point where wind energy could help address our “addiction to oil,” as politicians are apt to say?

In fact, wind power *can* be a part of the energy solution for transportation. Behold the plug-in hybrid electric vehicle (PHEV), powered by the electric outlet in your garage.

Oil and Emissions Impact

With widespread deployment, the impact of PHEVs on the transportation sector and the nation would be massive. A study by the Pacific Northwest National Laboratory found that replacing 73% of the U.S. light-duty vehicle fleet with PHEVs would result in a reduction in oil consumption of 6.2 million barrels a day, cutting the need for imported oil by about 50%.

But what would such a heavy reliance on electricity generation for transportation purposes do to aggregate power plant emissions? A joint study by the Electric Power Research Institute (EPRI) and the Natural Resources Defense Council found that if 60% of light vehicles in the U.S. were replaced by plug-in vehicles by 2050, electricity consumption would rise only about 8%. The net gain from significantly reducing oil use for transportation—while only marginally increasing the use of fossil fuels to produce electricity—would translate into net carbon dioxide reductions of 450

million metric tons annually—equivalent to taking 82 million cars off the road.

And when you bring wind power into the equation, the news gets even better: if the renewable energy resource contributes a greater share to the electricity supply mix that ultimately would recharge the PHEV fleet, any increase in emissions from greater electricity usage can be cut dramatically, making the net emissions reduction even lower.

The primary reason PHEVs result in significant net emissions reductions is that electric motors are several times more efficient than gasoline internal combustion engines. EPRI estimates that while charging, PHEVs will draw only 1.4 kW-2 kW—about the same as a dishwasher. Moreover, in a transportation world that includes many PHEVs, electric rates are likely to be designed to ensure that vehicle charging occurs almost exclusively at night, guaranteeing that PHEVs will use low-cost electricity—while not imposing additional strain on the electric grid during daytime hours of peak electricity usage. And wind energy fits ideally into that part of the equation for another reason as well: wind power output is typically highest at night in many parts of the country.

Electric Industry Implications

Indeed, a number of electric utilities are getting into the act. Many recognize the benefits PHEVs could bring them—that is, not only the ability to greater optimize use of every facet of their infrastructure (i.e., generation, transmission, and distribution) around the clock, but also the opportunity to create a fundamental shift in their sources of revenue by playing a role in the transportation sector.

The assets of electric utilities are designed for “peak load” conditions which occur very few times during the year; if utilities are able to make better use of these valuable assets during off-peak periods (both seasonal and daily) by charging large numbers of PHEVs, they



Wisconsin Public Power Inc. (WPPI)
converted a Toyota Prius to a plug-in hybrid.
(Photo courtesy of WPPI)

stand to reap significant benefits from the assets they already own and operate.

Understanding these realities and opportunities, Southern California Edison, Duke Energy, Pacific Gas & Electric, San Diego Gas & Electric, Xcel Energy, and Austin Energy are among the several utilities partnering with manufacturers and other organizations to foster the development and deployment of PHEVs. Efforts even include inter-governmental initiatives, with the U.S. Department of Energy recently announcing a PHEV partnership with the Swedish Energy Agency.

Clearly, the effects of PHEVs on the electric industry will be huge if they are deployed in large numbers. A January 2008 report by the Department of Energy’s Oak Ridge National Laboratory (“Potential Impacts of Plug-in Hybrid Electric Vehicles on Regional Power Generation”) examined the electric industry implications of a constant 25% PHEV market share starting in 2020, which translates to 50.39 million such vehicles on the road by 2030. The study found that most regions will need to build additional capacity or use demand-response initiatives to meet the added power load created by PHEVs. Thus, the potential for more

Continued on page 7

load growth, exceeding the amount assumed in the DOE's "20% Wind Energy by 2030" report, could result if widespread adoption of PHEVs were to occur over the next couple of decades.

Again, this can be viewed as an opportunity as much as a challenge -- opportunities for the wind industry to contribute all the more to the electricity supply mix and for the greater energy industry to modernize its grid. Sure enough, the same challenges identified in the 20% scenario will be just as significant, if not more so, if the wind industry grows beyond 20% as a result. The need for more transmission infrastructure in the country, in particular, becomes even more urgent if more wind energy is needed to serve load centers across the country, where a vast new fleet of PHEVs will be charging in owners' garages and driveways.✧



Madison Gas and Electric purchased a Prius hybrid and converted it to a plug-in hybrid electric vehicle (PHEV). According to MG&E, "If widely adopted, plug-in hybrid electric vehicles using electricity from the utility grid could dramatically impact our future." (Photo courtesy MG&E.)

Wisconsin Event Becomes Premier Small-Wind Gathering

by Mick Sagrillo,
Focus on Energy

Over 220 people took part in the 4th Annual Small Wind Conference, an increase of 50% over the 2007 Conference. The conference, held in Custer, Wisconsin, has clearly become the premier small wind industry event in the United States.

The conference was funded by Focus on Energy and hosted by the Midwest Renewable Energy Association (MREA). Co-sponsoring the conference were the American Wind Energy Association (AWEA), Southwest Windpower, and Richardson Electronics.

Twenty nine people from around the world presented at the conference, with 16 out of 18 small wind manufacturers attending the conference. The manufacturers provided updates on their products, pricing, and future directions. The manufacturers included familiar companies with long history in the marketplace and new companies specializing in emerging technologies.

In addition to small wind installers, manufacturers, and dealers, attendees in

cluded staff of state public benefits programs, utility representatives, inverter and tower manufacturers, the insurance and finance industries, zoning officials, university professors, the PV industry, and various renewable energy consultants.

In all, presenters and attendees from eight countries on five continents rubbed elbows.

Presenters addressed several controversial topics, including rooftop turbines, which are very attractive to consumers, though the wind resource is challenging on most buildings. An ongoing British study, for example, shows that turbine performance on a building is much less than on a tower in a good location.

'Show Me the Data'

Another popular and controversial topic was vertical axis turbines (VAWTS). The industry mantra with VAWTS continues to be "show me the data". Many companies with no products available for purchase make per-

formance claims with no data to back up the claims. The National Renewable Energy Laboratory is currently testing a vertical axis turbine and participants are eager for the data from those tests.

The conference ended with installers discussing what they are learning from dealing with customers and installing product. This session put an exclamation mark on a conference with good nuts-and-bolts information, networking with industry movers, and honest dialogue on the issues facing the industry today.

This year's conference saw the first Small Wind Awards for "enthusiasm, dedication, advocacy, and contributions to the small wind industry." Roy Butler, Four Winds Renewable Energy in New York, received the Installer Award. Jenny Heinzen, Lakeshore Technical College in Cleveland, Wisconsin, received the Educator Award.

The conference preceded the MREA's annual three-day Energy Fair, where two of the three outstanding achievement awards were given to John Dunlop and Jeff Anthony, both staff of the AWEA.✧

Renewable and Energy Efficiency Events

<p>Oct. 3-4, 2008</p>	<p>Wisconsin Solar Tour. Homeowners and businesses all across Wisconsin open their doors to let people see how renewable energy is practical, reliable and affordable in today's economy. Although it is officially called the <i>Wisconsin Solar Tour</i>, sites include all varieties of renewable energy technologies and other innovative features. Sponsored by the Midwest Renewable Energy Association. More information at www.the-mrea.org.</p>
<p>Oct. 6-8, 2008</p>	<p>8th Annual BioCycle Conference on Renewable Energy from Organics Recycling. Middleton, WI. Comprehensive three-day conference focuses on latest developments in advanced systems, operations at innovative projects, economic and energy performance, and public policies that are helping to facilitate and fund development. More information on the calendar at www.focusonenergy.com.</p>
<p>Oct. 23-24, 2008</p>	<p>Solar Decade Conference. Milwaukee, WI. Explore how to incorporate solar energy into your business, career, and home. Sponsored by Focus on Energy and Wisconsin Green Building Council. For details see www.solardecade.com.</p>
<p>March 25-28, 2009</p>	<p>Renewable Energy Summit. Green Business - Unlimited Economic Opportunity. Milwaukee, WI. For details see www.renewableenergysummit.org.</p>
<p>June 19-21, 2009</p>	<p>The Energy Fair. The nation's premier sustainable energy education event. Three days of workshops, demonstrations and exhibits highlighting renewable energy and sustainable living. Custer, WI. For details see www.the-mrea.org.</p>

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