



RENEW Battles Local Opposition to Wind

by Michael Vickerman
RENEW Wisconsin

Legislation to create more uniformity and certainty in permitting wind energy systems of all sizes reached the Senate floor in the waning days of the 2007 – 2008 legislative session, but did not advance further.

The previous week the Senate Committee on Commerce, Utilities, and Rail passed the bill (SB 544) on a 4-3 vote split along party lines. Both Sen. Jeff Plale, the sponsor of SB 544, and Rep. Phil Montgomery, the sponsor of the companion bill in the Assembly (AB 899), plan to reintroduce the legislation early in the next session.

RENEW assembled a coalition of wind energy companies, environmental groups, utilities, labor, and business groups to support regulatory reforms to address local opposition problems stunting wind energy growth in Wisconsin. That effort created the Campaign for Sensible Wind Permitting in Wisconsin, led by RENEW and Clean Wisconsin.

Through op-ed pieces and advocacy before the Governor’s Global Warming Task Force (GWTF), RENEW outlined a two-pronged approach for overcoming locally generated obstacles to permitting wind turbines. The first prong involved requiring the Public Service Commission (PSC) to set uniform standards for permitting commercial turbines and small wind systems. The other major reform would create an optional permitting path that would allow developers proposing projects under 100 megawatts (MW) to obtain approvals from the PSC. Under current law, PSC review of power plant proposals is limited to projects at or above 100 MW.

Supporters of permitting reform pointed to growing numbers of hot spots, such as Calumet, Rock, Trempealeau, and Monroe counties, where antiwind groups were pressuring their local officials to establish restrictions on wind turbines large and small.

The tactics used to halt wind in its tracks included moratoria, arbitrarily long setback distances, and absurdly restrictive sound thresholds. By March many sections of the state, including many areas with an abundant wind resource, were effectively closed to wind development.

In true Lombardi fashion, we didn't lose, but simply ran out of time.

The Sensible Wind Permitting campaign received a boost in February when the GWTF issued its interim report recommending legislation to fix the permitting landscape. After the recommendation was issued, leaders of the Campaign for Sensible Wind Permitting began meeting with the Wisconsin Towns Association and Wisconsin Counties Association to hammer out a consensus bill. In the process, a bill to create uniform siting standards was developed for local units of government with appeals to the PSC. At that point, the Doyle Administration threw its support behind the bill.

The condensed legislative calendar made a thorough lobbying campaign a near impossibility, but RENEW and its allies were active in seeking bipartisan support. Unfortunately, in true Lombardi fashion, we didn’t lose, but simply ran out of time.

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Opposition groups turned out in force at the two committee hearings to cast aspersions on the bills. They hired a former state senator, Bob Welch, to organize the opposition into a cohesive force and derail the bill. Employing every theatrical trick in the book, Welch characterized the legislation as a “sledgehammer approach to force windmill ghettos into any corner of Wisconsin that a wind developer deems attractive.”

Owing to the lack of uniform standards, two wind developers working in Calumet County decided to add more

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New RENEW Members

RENEW welcomes the following new businesses and individuals who joined since the last newsletter:

Allied Industrial Marketing • Clear Wind, LLC • Great Northern Solar • David Hetzel • Brian Joiner • Mitchell’s Heating and Cooling • Gerd Muehllehner • James Murn • Rottier Agri Solutions, Inc. • Jacalyn Schultz Springdale Farm • Trench-It, Inc. • Erin Westen • Lew White

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

RENEW Fights Wind Opponents

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turbines to their respective projects. In so doing, they will bypass the local government and file permit applications instead with the PSC.

These decisions, wholly justified given the roadblocks encountered in Calumet County, expose the perversity of Wisconsin's wind permitting landscape. Note that what the developers plan to do is permissible under current law. But not every proposed project can or should be expanded to that size. For smaller projects to move forward, permitting reform is an absolute must.

We at RENEW thank our bill sponsors and former PSC Chair Dan Ebert for the leadership they demonstrated in advancing this critically needed legislation. We also thank our friends and allies in the Sensible Wind Permitting Campaign who contributed time, inspiration and resources to this cause. Last, we extend a warm thanks to all our members who took the time to write letters and make phone calls in support of this initiative.

We find ourselves in a strong position to resume the fight next year. As Sen. Plale wrote: "I look forward to revisiting this legislation, enabling Wisconsin to reap the vast environmental and financial benefits of wind power development. ✨"

Three Tips for Starting a Renewable Energy Business



RENEW recently asked attorney Mike Allen, a member of RENEW's board, to write a short article on tips for starting a renewable energy business, and the advice seems to apply to setting up any new business. Allen practices in his own firm Energy Law Wisconsin in Sun Prairie.

Because I'm an attorney, you might think that my tips would be legal in nature, such as advising entrepreneurs to choose the right form of legal entity, avoid legal traps when negotiating a commercial lease, or include non-compete and confidential information clauses in employment contracts.

While these and other legal issues are important, I am going to spend my limited ink on three non-legal issues that have been critically important to my entrepreneur clients and to me, as part-owner of an early stage energy-efficiency equipment manufacturing company.

I have attempted to pick three tips that apply with equal force regardless of whether your renewable energy busi-

ness will manufacture goods or provide services.

Tip No. 1 Start By Doing Good Market Research and Preparing a Business Plan

I may be cheating a little bit here – this is probably two tips disguised as one, but it is hard to separate the two. You need good market research because unless there are enough customers willing to pay enough for what you have to offer, you are dead in the water from Day One.

You need a business plan, because it outlines your path to success. Going without one is like navigating your way to an unknown destination without a map or GPS.

It is also very difficult to raise money without a decent business plan. Banks, equity investors, and even many government grant programs will insist that you submit a business plan to be considered for funding.

A good business plan will summarize the market opportunity, discuss your competitive edge, and candidly discuss your competition. It will also contain

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Yes! I want to help RENEW promote the use of clean, renewable energy resources to diversify Wisconsin's energy resource mix.

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RENEW also moderates a blog at

financial projections for the coming three to five years.

Tip No. 2

Look Far and Wide for Financial, Technical, and Business Assistance

This point may seem obvious, but I mention it because I have spoken to many renewable energy entrepreneurs who are fairly far along in their business planning, but when it comes to looking for money and assistance they haven't gone much farther than talking with friends and family or contacting Focus on Energy. These sources are extremely valuable, but represent only a small subset of what is available.

Potential sources of funding and technical assistance, include not only Focus on Energy, but also Wisconsin's municipal and investor-owned utilities, the IRS Small Business Resource Guide, the Wisconsin Entrepreneurs Network, Wisconsin Department of Commerce's "Business Wizard" webpage, the University of Wisconsin's Small Business Development Centers, the Federal Small Business Innovation Research (SBIR) program, the U. S. Department of Agriculture, and county and city economic assistance programs. Again, what money and assistance your business may be eligible for will depend on the nature of your business and the rules of the program.

Tip No. 3

Put Together the Best Support Team You Can

Some people are very skilled at working on their own cars. For others, like me, anything much more complicated than changing the air filter seems like black magic. If negotiating interest rates and deal terms with banks and investors, preparing a new business proposal form that is detailed enough to keep you out of trouble, or developing a go-to-market strategy seems daunting – don't go it alone. If you are well-funded, you may be able to hire people

who possess all the skills your business needs that you lack. The rest of us have to pay for fair market price for what we can afford and rely for the rest on more economical assistance, including volunteer and semi-volunteer mentors, advisory boards, and other affordable human resources.

The key point here is don't try to do it all yourself – no one can. Re-inventing the wheel frequently leads to costly mistakes that will delay your progress.

URLs for Help

If you need assistance undertaking market research or preparing a business plan, some potential sources of assistance are:

- IRS Small Business Resource Guide, www.irs.gov
- SCORE (formerly Senior Corps of Retired Executives), www.score.org
- Small Business Innovation Research (SBIR), www.sba.gov
- State of Wisconsin Business Wizard, www.wisconsin.gov
- U. S. Department of Agriculture, www.usda.gov
- Wisconsin's Focus on Energy, www.focusonenergy.com
- Wisconsin Department of Commerce Entrepreneurial Training Program, www.commerce.state.wi.us
- Wisconsin Department of Commerce Early Planning Grant Program, www.commerce.state.wi.us
- The Wisconsin Innovation Service Center at University of Wisconsin-Whitewater, <http://academics.uww.edu/business/innovate>
- Wisconsin Entrepreneur's Network, www.wenportal.org
- Wisconsin Small Business Development Center, www.wisconsinsbdc.org

Please note that the assistance you are eligible for will be determined by the rules of the particular program.

I hope these tips are helpful. If you have questions, feel free to e-mail me at mallen@energylawwisconsin.com.✧

Renewables Profiles

Wes Slaymaker: Doing the Right Thing with Wind

by Ed Blume, RENEW

Like many others in the renewable energy industry, the technology fascinated Wes Slaymaker when he was young.

For a high school science project at Scott County High School in Kentucky, he built a solar powered glider with photovoltaic cells on the wings and a motor on top. It even flew.

In college at Georgia Tech, Slaymaker was a member of a renewable energy group that built a small biodigester and a solar hot water system.

After graduating with a degree in mechanical engineering in 1991, he "messed around" with small turbines, but he never expected to be where he is today - Vice President of Wind Energy Development for EcoEnergy LLC, a division of The Morse Group, and a developer of renewable energy projects, primarily wind generation developments at this point in time.

Before joining EcoEnergy in 2005, Slaymaker admits that he job-hopped a bit in the Minneapolis area, spending seven years designing, testing, servicing, and even manufacturing waste water treatment equipment for a small company; developing projects for Navitas, including development work on the large Illinois project called Mendota Hills, and later doing similar wind development work in the Midwest for EnXco, another wind energy development company; working for Windustry, a nonprofit organization striving to increase wind energy opportunities for rural landowners and communities. At Windustry, Slaymaker met Tom Wind, a widely rec-



Wes Slaymaker, EcoEnergy, Vice President, of Wind Energy Development and a turbine technician straddle a 2 MW turbine high above Germany.

ognized wind energy consultant, who encouraged Slaymaker to strike out on his own as a consultant in community wind.

The best of those times came on an early wind turbine training trip to Denmark, where he delightfully discovered that district brewers directly pipe beer to taps conveniently installed at each table of nearby restaurants.

Slaymaker currently oversees EcoEnergy's Madison office and project development in the Midwest.

Q. *What do you do in an average day to develop wind energy projects?*

I try to look at big picture opportunities in renewable energy. I'm working on where the next project might be, what projects other than wind development EcoEnergy might pursue, business development for EcoEnergy, and business opportunities with utilities. I hand off the actual project development

to a developer in the state where the project will be located.

EcoEnergy is not just a wind developer. The company will construct its first landfill gas to energy project later this year in Freeport Illinois. This landfill gas project will displace natural gas to provide a less expensive renewable fuel to a local industry. If everything goes according to plan, this landfill gas project will be the first of many EcoEnergy biomethane energy projects constructed in the near future. At the same time, EcoEnergy is also considering the development of other renewable solid fuel power projects such as in the case of a 20-megawatt biomass project that would be located in northern Wisconsin.

Q. *Wind project opponents have been loud, and occasionally successful in stopping projects in Wisconsin. Is Wisconsin unique among the other states in the Midwest?*

For starters, Wisconsin is a state with many areas with town control of permitting. Large projects and town permitting seem to be a bad fit. I'm aware of many

other larger projects, no matter what the type of technology, that face similar difficulties in permitting in Wisconsin. It's easy for people to ignore the impacts of their energy use for areas that are not in their backyard, and its only through education that people can understand their energy use impacts worldwide, not just global warming, but strip mining, acid rain, water pollution, etc.

Q. *RENEW and the Governor's Task Force on Global Warming recommended legislative changes to let developers seek approval from the Wisconsin Public Service Commission (PSC), not the town government, for projects under 100 megawatts. (Projects over 100 megawatts already must be approved by the PSC.) Won't that change help?*

Yes it will help. Currently it costs as much as \$1 million to get PSC approval for a 100MW project and takes a minimum of 1 year. A small wind project, say four, five, or six turbines, can't produce electricity at a competitive rate if it has to recoup a large permitting expense.

Hopefully a new permitting reform will allow small projects to get permits, at a reasonable cost. The State needs to acknowledge the local benefits of wind turbines operating in Wisconsin. Iowa and Minnesota state governments produce and distribute materials documenting the economic importance of renewable energy projects in their states as well as encouraging wind-related manufacturers to locate in their states.

Wisconsin state government also should consider requiring Wisconsin utilities to meet some or all of the renewable portfolio standards by generating the electricity in Wisconsin. The utility might pay a little more for the electricity than it would pay for wind-generated electricity from Iowa, say, but the economic stimulus the projects give our economy more than offset the added costs of the electricity.

The renewable portfolio requirements also need to be raised in Wisconsin. The current law requires utilities to get 10 per-

cent of their electricity from renewable sources by 2015. Most of the surrounding states require their utilities to generate 25 percent by 2025.

Q. *Without some leadership from state officials, will EcoEnergy write off Wisconsin for new projects?*

Absolutely not, for a number of reasons. First, EcoEnergy has a commitment to Wisconsin and renewable energy. We and our parent company, The Morse Group, have hundreds of employees who live in Wisconsin and we'd like to build projects close to home.

We share The Morse Group's dedication to local economic development. EcoEnergy and The Morse Group try to stimulate local economic activity during the development and construction process for any project. For instance, we try to tap local subcontractors as much as possible.

Second, we do it because it's right. The staff of EcoEnergy drives projects. EcoEnergy as a whole is run by staff who want to create "a better world."

Third, Wisconsin has a decent wind resource. Most European countries would love to have as much wind as Wisconsin, and those countries have developed far more wind generation facilities than Wisconsin. We have plenty of places for wind projects, but it's all about the economics of projects in Wisconsin.

Q. *News stories about wind generation from turbines in Lake Michigan seem to capture the public imagination at the moment. What are your thoughts about offshore wind in the Lake?*

Personally, I'm tentative. Any project has to overcome the realities of Lake Michigan, like the impact of icing on the turbines and the turbine foundations, as well as the cost. European developers moved offshore because they'd de-

veloped most of the onshore resources, but offshore generation in the Great Lakes will be much more costly and difficult than projects in farmers' fields.

Q. *With all of the headaches and uncertainties of developing projects in Wisconsin, how do you feel personally?*

I'm having fun and learning a lot. I am proud of what I do, and as a father of two children I'm glad that I can offer them something positive for the future. In the energy business it's all about compromises, and wind is not perfect but it's head and shoulders above the competition!✧

EcoEnergy Wind Projects Under Development

If EcoEnergy installs the maximum possible megawatts for each project, the total installed capacity would total 1,145 MW, with 235 MW in Wisconsin.

EcoBryn – 100 MW
Ogle County, IL

EcoDane – 10 MW
Dane County, WI

EcoGrove – up to 500 MW
Stephenson County, IL

EcoMet – up to 200 MW
Calumet County, WI

EcoRock – 100 MW
Hancock County, IL

EcoVista – 200 MW
Howard County IA

Oak Prairie – 10 MW
Jo Daviess County, IL

WPPI Community Wind – 25 MW
Calumet, Outagamie, Rock, and Vernon in WI

Straight from the Garden - Solar H₂O

by Michael Vickerman
RENEW Wisconsin

Ben and Nancy Collins weren't only thinking about energy savings when they installed a solar hot water system in September 2007 at their Platteville residence to serve their family of six. They also wanted to influence their children's attitudes toward renewable energy use.

Says Nancy Collins, "We want our children to grow up thinking that it's normal for families to harvest solar energy. It's not space age or futuristic technology," she adds.

"I was surprised at the simplicity of the system and the efficiency of the heat exchange. It is a sound investment for energy savings. Natural gas prices have gone up but our bills have stayed the same."

But there are aspects of the Collins' system that are decidedly not normal. For example, due to heavy shading from nearby trees, the solar collectors could not be placed on the rooftop of the Collins' home. Instead, the installer, Todd Timmerman of Timmerman's Talents, Platteville, went searching for the least-shaded section of their yard, which turned out to be their garden.

But such is the Collins' commitment to harvesting solar energy that they decided to move the garden and situate the collectors in its place, amidst the cilantro, basil, and strawberries. On that space now stands a four-foot-tall wooden structure, housing two collector panels facing the sun at a 45 degree angle.

The array captures radiant solar energy through a series of vacuum-sealed tubes (also called evacuated tubes). Inside each tube is a copper heat pipe. Sunlight striking each of the 40 tubes heats a liquid inside each heat pipe, which quickly turns into a vapor. The gas travels upwards and releases heat into a larger pipe running along the top of the array. At that point the heat is transferred to a glycol solution that is then pumped into the house where it heats the water inside.



Todd Timmerman, Michael Vickerman, and Nancy Collins (left to right) discuss the specifications of the solar water system installed by Timmerman's Talents at the Platteville home of Nancy and her husband Ben. Panel: Solar Patriot 20 • Manufacturer: BTF Solar Ltd. • Array length (two panels): 13 feet • Orientation: 180° (due south) • Tilt Angle: 45° • Annual fuel savings: 125 therms • Hot water load: 60 gallons • Date of installation: September 2007 • SRCC Rating: OG-300s.

Timmerman believes that evacuated tube technology is well-suited for the rigors of a Wisconsin winter. Between the cylindrical shape of the tubes and the space between them, snow rarely accumulates on the collector area, which would diminish output.

The loop connecting the collectors to the house travels 80 feet to the house, and 20 feet inside it.

En route to an 80-gallon water tank, the loop runs through radiators that can heat the basement family room just by flicking a switch. On a sunny day in January, the system is not only preheating the water used in the Collins' washing machine, but also the basement interior. The space heat that's delivered to the family room comes free of charge.

"We keep our thermostat at 65 degrees," Nancy says. "It was interesting to find our five cats spending more and more time in the basement family room. It's pretty unusual that the basement is the warmest room in the house!"

Even on a frigid February day with full sunshine, the glycol solution would

climb to 121 degrees by 1 o'clock. That dosage of sunshine was sufficient to preheat the water from 50 degrees up to 102 degrees.

"On February 27th this winter, I was stunned to see the panel temperature reach 141 degrees!"

The Collins' decision to invest in a solar hot water system appears to be well-timed. Retail natural gas prices since October have increased by 25% and are now at \$1.27/therm. They should continue climbing throughout this year, fueled by larger-than-anticipated inventory declines along with a weaker dollar.

"Our bills are pretty much the same as last year so that must mean we're saving 20%!" Collins says.

The installation was part of a solar hot water workshop organized by the Midwest Renewable Energy Association (MREA) and led by Timmerman.

Formerly a machinist, Timmerman brings to a workshop more than 50 solar hot water installations' worth of experience. His most recent installation

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Clearing Regulatory Hurdles to Revive a Classic Wind Machine

by Willi Hempel
Wind Enthusiast

Several decades ago, before modern small-scale wind turbines hit the market, one of the most sought-after wind generators was the pre-REA direct-drive machine made by Jacobs Wind Electric. It's rugged, powerful, and reliable when maintained well. When I was growing up, my father and I flew five different homebuilt wind turbines, and I had always dreamed of someday flying a "Jake."

In September 2003, I spotted an old Jake sitting idly on a tower only a few miles from my family's home in Merton, Wisconsin, and immediately thought to myself, "I need to get this machine running again." I also had the feeling that, decades ago, I had once read about this particular machine.

Searching through some of my old periodicals, I found that then-U.S. Representative Henry S. Reuss [D-Milw] installed the 32 VDC, 1,800 W, direct-drive Jacobs Wind Electric generator at his summer home in North Lake, Wisconsin, in 1976. The wind generator was connected to the utility grid through a Gemini synchronous inverter.

After striking a deal with the current owner of the wind generator, I began assembling the necessary equipment to remove the machine from the tower. . . . Removing a 400-pound wind generator from atop a 72-foot tower can be challenging, but we did it and lived to tell the tale. The next step was to rebuild the generator and put it back into action.

Regulatory Hurdles

With the wind generator and inverter refurbished, I had to work on getting approval for installing the system. First, an expert from Wisconsin Focus on Energy, which works with residents and businesses to install cost-effective energy efficiency and renewable energy projects, performed a site assessment. Focus on Energy requires that the entire wind turbine rotor should sit at least 30 feet

above any obstruction within a 500-foot radius of the tower. Remembering that trees grow and towers don't, I estimated tree heights for the next 20 to 30 years to determine the tower's height. My 1.3 acres has a 70-foot-tall tree to the west, and to the east is a 40-acre white pine forest with trees that will probably reach 75 feet. The site assessor recommended a minimum tower height of 112 feet, and I rounded up to 120 feet.

Focus on Energy also provided an incentive of \$5,940 to cover approximately 25% of the project's cost.

Unfortunately, my proposed tower location didn't meet property-line setback requirements, so I had to request a variance through the Merton Zoning Board. In September 2005, I had to attend a public hearing before the Merton Zoning Board of Adjustment (BOA). After I described the project and answered questions from the board members, the meeting was opened to the public. The concerns were declining property values, audible noise, and visual impact to the neighborhood. Our suburban neighborhood homes are about 30 years old and sit on 1- to 3-acre partially wooded lots.

The BOA denied my request, but after all the elbow grease and sweat I'd put into bringing the Jake back to life, I was determined to see it fly.

After discussions between my attorney and the town attorney, and four more public hearings, the BOA granted my variance—but with fifteen conditions attached (including a 70-decibel noise limit at the closest property line, and a requirement that a structural engineer verify that the tower was installed according to the manufacturer's specifications). After almost six months of effort, I finally received a building permit to erect the wind turbine.

The Jake Generates

Then came the moment I'd been dreaming about—getting the wind generator into the air. The crew on the

ground attached the generator to the crane, and the 14-foot-diameter blade rotor was attached to the generator. The crane hoisted the whole assembly to the top of the 120-foot tower.

Getting the Jake up on the tower wasn't the end—we still needed to wire the system. Because this system was eligible for net metering, an interconnect agreement and site inspection were required by the local electric utility, and a sign-off was needed from the local electrical inspector. They gave their approval—almost three years to the day after I first set eyes on the old Jake!

An average wind speed of 11.8 mph should generate about 400 kilowatt-hours per month, providing roughly two-thirds of our electrical needs. . . .

With the Jake running, we're more motivated to see how we can minimize our energy usage by implementing conservation measures and upgrading to more efficient appliances. I am also pleased that since our Jake was erected, it has generated many positive responses from people in the area. In fact, more than one neighbor has expressed interest in installing a wind turbine.✧

Excerpted from the Feb.-March 2008 issue of Home Power magazine (homepower.com).

Straight from the Garden

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serves a new Habitat for Humanity house in Lancaster. Timmerman is slated to lead two MREA solar hot water workshops this year, one in Benton and the other in Willard. For more information about MREA's workshops, visit www.the-mrea.org.

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Renewable and Energy Efficiency Events

<p>June 17-18, 2008</p>	<p>4th Annual Small Wind Power Conference. Stevens Point, WI. Updates from manufacturers and importers; test results and updates on turbines and equipment under development; the real costs of system installations; successfully navigating your way through insurance, zoning and the permitting process; problem solving in the field; innovations in the industry; input from dealers and installers; update on NABCEP installer certification; much, much more. Sponsored by the Midwest Renewable Energy Association, American Wind Energy Association, Southwest Windpower. More information at www.the-mrea.org.</p>
<p>June 20-22, 2008</p>	<p>Renewable Energy and Sustainable Living Fair. Custer, WI. The oldest and largest event of its kind, showcasing all renewable energy technologies. Stop by RENEW's booth (B13) and say hello. Sponsored by the Midwest Renewable Energy Association. More information at www.the-mrea.org.</p>
<p>July 12, 2008</p>	<p>Northern Wisconsin Renewable Energy Fair. Ladysmith, WI. Join Focus on Energy at the first ever Northern Wisconsin Renewable Energy Fair. The one-day event at the Rusk County Fair grounds will bring together renewable energy experts in the back yard of Northern Wisconsin residents. More information on the calendar at www.focusonenergy.com.</p>
<p>Oct. 4, 2008</p>	<p>Wisconsin Solar Tour. Homes and business all across Wisconsin. Owners throw 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 sorts 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. More information on the calendar at www.focusonenergy.com.</p>

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