Wisconsin
Renewable Quarterly

Winter 2004 Volume 9, No. 1

Task Force Created to Fix Energy Policy Mess

The creation last fall of Governor Doyle's Energy Efficiency and Renewables Task Force is clear proof that state energy policy has become a minefield into which Wisconsin's political leaders dare not venture until the surviving civilians can show them a path through it.

Virtually every constituency affected by electricity policy has a representative on this 25-member body, which started meeting in November. Speaking up for renewable energy interests is RENEW's Michael Vickerman. For a list of participants visit the Task Force's Web site at: **http://energytaskforce.wi.gov**.

Chaired by energy attorney Lee Cullen, the task force is charged with generating "creative, consensus ideas for restoring Wisconsin's leadership in conservation and renewable energy," said Governor Doyle.

The need for "restoring" the political will to protect energy conservation dollars was put on full display during the 2003-2005 budget negotiations, which culminated with the state dipping into the ratepayer-funded Focus on Energy program and diverting more than one-third of its $124 million budget to non-energy purposes.

It will be a challenge for the Governor's Task Force to reach agreement on recommended actions requiring legislation before the current session ends on March 31. However, plenty of time exists for proposals to be developed and refined for inclusion in the Governor's proposed budget for 2005-2007, which will be released in February 2005.

Representing the Doyle Administration is Peter Bock, the Division Administrator whose responsibilities include managing the Focus on Energy program. Four legislators also serve on the Task Force: Sen. Robert Cowles, Sen. Fred Risser, Rep. Scott Jensen, and Rep. Spencer Black. Both Cowles and Jensen head their respective chambers' Energy and Utilities committees.

Task Force members agreed to divide themselves into four workgroups which address a specific issue area. The four issue areas are: Public Benefits - Administrative Model and Funding; Building Codes; State Policy Initiatives; and Renewables. Vickerman is a co-chair of the Renewables Workgroup along with Donald Reck of Xcel Energy.

Prior to the first meeting of the Renewables Workgroup, Vickerman drafted a policy memorandum outlining the following six initiatives to accelerate renewable power development in the state:

- Require utilities to increase their renewable electricity supplies by 1% every two years. With renewable electricity currently accounting for nearly 5% of Wisconsin's electricity mix, these additions will enable the state to achieve a 10% renewable target by 2015.
- Direct state government to establishing renewable targets relating to its electricity consumption. Appropriate targets are 10% by 2005 and 20% by 2015.
- Require utilities to provide a standard tariff of no less than 6 cents/kWh for new sources of distributed renewable generation and a standard tariff of no less than 4.5 cents/kWh for existing sources of hydroelectricity.
- Direct utilities to develop a (voluntary) renewable power rate to customers that is fixed over time and unbundled from fossil fuel costs.
- Adjust the Public Benefits law to allow greater flexibility in pursuing renewable energy business development activities.
- Exempt defined renewable electricity generating equipment and services from the state sales tax. This exemption would also apply to the provision of solar-heated water.

That renewable power will be a much larger part of a balanced energy diet than we thought possible in 1999 is now beyond dispute. But for every one utility that is committed to expanding renewable power sources, there is another with its head buried in the sand. Through our participation in the Governor's Energy Task Force, RENEW will make the case that ratepayers everywhere will benefit from the sustained orderly development of renewable power sources. ✡

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New RENEW Members

RENEW welcomes the following new members who joined since the last newsletter:

Pat Ducey • David Frasier • Mike Herro • Mark Jacobson • Barbara Schwarz • Amy Taivalkoski

The law firm of Michael, Best, and Friedrich became a Megawatt business partner.

To join RENEW, complete and return the membership form on page 7.

Breakout Expected for Windpower

by Michael Vickerman, RENEW

Though not a single commercial-scale turbine was installed in Wisconsin last year, 2003 will go down in history as the year when windpower broke out of its boutique-like niche and became perceived as a mainstream energy source. What's driving this transformation is a combination of factors: cost reductions, a new state formula for compensating host communities, technology upgrades that improve windpower's performance in moderate wind regimes, stable pricing, and utilities' need for more generating capacity.

While windpower presently contributes about 110,000 megawatt-hours a year, or 0.15% of the state's electricity production, current plans point to a rapid build-up in the next three to five years, resulting in over 400 megawatts (MW) of new capacity, all of it in Wisconsin. Assuming the necessary permits are granted, wind turbines should account for at least 20% of the generating capacity coming on-line between now and 2010.

If another 400 MW of turbines are installed and operating by 2010, windpower would contribute about one million megawatt-hours of electricity per year, an increase of one order of magnitude from current levels. That amount is the equivalent of what 120,000 Wisconsin households consume in one year.

A Home-Grown Resource

The transmission constraints that limit electricity imports are forcing independent companies and utilities to select in-state locations for new projects. Three years ago, there was a hefty premium to be paid for situating turbines in Wisconsin, because utilities then had the option of importing wind-generated electricity from installations in Minnesota and Iowa. Now, only utilities that serve western Wisconsin can import new sources of windpower across the Mississippi River, and only for use on their systems. Until a new transmission line to the west is built, eastern Wisconsin utilities cannot access ultra-low-cost sources of windpower in the Dakotas or even south-central Minnesota. With the Arrowhead-Weston line not scheduled to be completed until 2009 at the earliest, Wisconsin now has a five-year window in which to become the largest windpower-producing state east of the Mississippi River.

Indeed, everything is in place for windpower's rapid growth except for one critically important detail: the Production Tax Credit (PTC), a key ingredient in financing eligible renewable energy projects, which was allowed to expire at the end of 2003. This federal incentive, now valued at 1.8 cents per kilowatt-hour (kWh), lowers the contract price of a North Dakota wind farm to 2.5 cents/kWh, well below the per kWh cost of new coal-fired or gas-fired plants. Even in Wisconsin, where bid prices come in at about 4.5 cents/kWh, windpower is competitive with new fossil fuel generating sources when the PTC is in effect. As long as the PTC is allowed to lapse, windpower development all over the U.S. will remain on hold.

Congressional Cupidity

Even though the PTC is an uncontroversial subsidy supported by nearly everyone in Congress, the effort to extend it became a casualty of the politics surrounding the mammoth energy bill backed by the White House and key Republican leaders. In a move that would have brought a smile to Machiavelli's face, Congressional leaders folded the PTC extension bill into the omnibus energy package, where it was to function as a renewable condiment garnishing a feast prepared for fossil fuel and nuclear power interests. The energy bill's managers had hoped that this audacious maneuver would drive a wedge between environmentalists and renewable energy interests, but, having fallen two votes short of breaking a Senate filibuster, they appear to have lost this gamble. The prospects for freeing this subsidy-laden vessel from the shoals of the Senate darken by the day.

The wind industry is confident that the PTC will be extended before Congress adjourns this year. Unfortunately, until Congressional leaders pronounce the energy leviathan officially dead, the PTC cannot be acted on in separate legislation. Meanwhile, precious time ticks away. Once the PTC is extended, however, the dead calm that currently pervades the industry will quickly give way to another burst of frenetic activity, paving the way

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RENEW Wisconsin is a nonprofit organization advocating the adoption of clean 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, self–renewing energy resources to generate electricity or displace fossil–generated electricity.

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for another repetition of wind energy's boom and bust cycle.

Wind Farms in Fond du Lac County

Of the various wind generation proposals in play in Wisconsin, those set in motion by Milwaukee-based We Energies are the furthest advanced. In July We Energies concluded its solicitation for additional supplies of windpower by signing contracts with two developers, Navitas Energy in Minnesota and Midwest Wind Energy in Illinois. These two developers will build a combined 214 MW of new capacity in eastern Wisconsin. Taken together, these projects are expected to generate more than 500,000 megawatt-hours a year.

Following the contract award Navitas Energy, a Minnesota developer, filed applications to construct a total of 88 turbines across two townships in Fond du Lac County, both of which are east of the county seat and north of State Highway 23. For both townships Navitas proposed a master agreement that sets forth the ground rules under which host landowners can seek a building permit for each turbine erected on their property. Both affected townships, Marshfield and Calumet, approved the master agreements late last year.

Under the terms approved, each township would host 44 turbines, or 80 MW, for a combined total of 160 MW. When installed and energized, Navitas Energy's turbines should produce an annual average of 400,000 megawatt-hours of zero-emission electricity, the equivalent to what 50,000 households consume in a year. By themselves, the two Fond du Lac County installations will nearly quadruple current production levels in Wisconsin.

The project will have a pronounced effect on local government finances. During each full year of operation, the turbines will generate $640,000 in revenue sharing to local governments. Fond du Lac County can expect to receive an annual payment of about $375,000, while each township is entitled to nearly $133,000. These amounts reflect a new local aid formula enacted last year to encourage communities to site wind farms within their jurisdictions.

The developer needs to obtain wetlands crossing permits from the Department of Natural Resources before it can proceed with construction. According to Navitas, the project's impact on these wetland areas will be minimal.

In December a group of area residents filed a lawsuit seeking to invalidate the master agreement in place at Marshfield. The complaint, filed on behalf of the Concerned Citizens of Marshfield, alleges procedural violations on the part of the town board and also argues that wind turbines are a public nuisance, in that they lower property values,

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increase incidents of stray voltage, and seizures due to a strobing effect.

Representing this group is the law firm of Garvey and Stoddard, who several years ago represented a Washington County group opposed to a now-abandoned proposal to erect 25 MW of windpower in the town of Addison.

The public nuisance argument raised by opposition attorneys is significant, because state law (66.0401 Wis. Stats.) prohibits local governments from rejecting a permit application unless they can show that the particular development will have a negative effect on public health and safety. Other issues like aesthetics or property values are outside the scope of

local permit review, even though they very well may be the driving forces behind local objections. However, the attorneys' complaint is patently ludicrous, as there is no evidence to support their contention that wind farms in Wisconsin constitute an unacceptable risk to public health and safety.

Physical Impacts of Windpower

All forms of electricity generation have some impact on the surrounding environment, some more so than others. Compared to other generation sources, wind is highly visible, rising anywhere from 275 feet to nearly 400 feet in the air. The 88 turbines that Navitas will erect will rest atop 80-meter (264 feet) towers, with the blades extending 132 feet. Increases in production efficiencies have been achieved through taller towers and longer blades, yielding a stronger and smoother air flow as well as an expanded power conversion zone.

Unlike conventional generating sources, windpower is a resource with very few offsite impacts. Wind turbines are not powered with carbon fuels that are extracted from the earth's surface, which can be very damaging depending on the method used. Because Wisconsin has no known fossil fuel deposits, the conventional power plants located here consume fuel that has been extracted from another state and shipped here in already prepared form. If it's coal, it was either blasted out of a mountain in West Virginia or scraped out of the ground in Wyoming. If it's natural gas, it could have come from a deepwater Gulf of Mexico operation, using a drill that can extend a mile beneath the ocean bottom to exploit usable quantities of fuel. Burning coal releases gases that are harmful to nearby lakes. Transporting natural gas occasionally result in leaks that release large quantities of methane into the environment. Do the spinning blades on all of the world's wind turbines draw down air flows or change the chemistry of the global or local atmosphere? Of course not.

Whatever impacts wind turbines have on the environment are highly localized in nature. To put it another way, the impacts from windpower development in a particular township are felt by the host landowners and their neighbors, and are not transferable to the Appalachians, the Powder River Basin, the Rocky Mountain Front region, or the Western Canada Sedimentary Basin, as is the case with conventional power sources. Only those households in and around the turbines will hear them, see them when they're spinning or standing motionless, see their shadows moving across the land, and see their red lights blinking at night.

In the three to five years that Wisconsin's wind generators have been operating, there has been no known in stance of a permit violation.

The physical footprint of a wind farm consists almost entirely of the turbines, the access roads, and the interconnection facilities, which are often underground. Windpower's modest land requirements can be attractive to farming operations looking for supplementary sources of income, a not uncommon situation in Wisconsin. At the state's largest wind installation, for example, there are 20 1.5 MW turbines paralleling U.S. Highway 18 west of Dodgeville. The six host landowners lease a total of 15 acres to FPL Energy, the project owner. With royalties generally averaging about $2,000 to $2,500 a year per turbine, farmers are understandably eager to host wind generators on their land, as long as their presence doesn't interfere with core operations. As far as the farmers are concerned, the wind is another crop to harvest, just like corn and hay grown on their lands.

Every commercial wind turbine installed in Wisconsin is regulated through a local permit, which spells out the terms under which these generators may operate. These conditions are intended to minimize the risk to public health and safety that could arise from interspersing these tall devices among farm fields and residences. Minimum setback requirements create a cushion for dissipating the potentially annoying effects of wind turbines before they reach a neighboring residence.

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A distance of 1,000 feet separating wind turbines from off-site residences should be sufficient for that purpose. Such a setback also minimizes the likelihood of injury or inconvenience caused by an unusual weather event affecting the wind turbine.

In the three to five years that Wisconsin's wind generators have been operating, there has been no known instance of a permit violation.

Impacts to Wildlife

About the only general truism one can say about windpower's risks to wildlife is that they are very location-specific. Consider California's Altamont Pass, for example, where bird kills are frequent relative to other areas with extensive windpower development. The topographical features and meteorological conditions that create such an excellent wind resource there, and the wildlife populations that inhabit that area, are not found east of the Golden State. Yet wind turbines are often thought to represent a threat to birds wherever they are proposed.

In approving the 20 MW of wind generation operating in Kewaunee County, the Public Service Commission ordered the applicants, Madison Gas & Electric and Wisconsin Public Service, to underwrite a two-year study on local wildlife. The report, prepared by Dr. Robert Howe and Amy Wolf of UW-Green Bay and issued in December 2002, attributed 25 bird deaths to collisions with wind generators, for a mortality rate of 1.29 birds per turbine. The nationwide mortality rate is estimated to be 2.19 birds per turbine per year. Windpower in Kewaunee County, that report concludes, is not a statistically significant threat to bird populations.

Wisconsin wind farms have had little effect on resident bat populations to date. That said, the outlook is a little less clear-cut than with birds, particularly for a 54 MW wind farm proposed in Dodge County. That development, to be owned by Illinois-based Midwest Wind Energy, represents the third project selected by We Energies last July. Its proposed location in the Town of Herman places it within several miles of the now-abandoned Neda Mine, one of the largest cave bat hibernacula in North America.

In January the Department of Natural Resources sent a letter to the Town of Herman Board recommending that biological studies be undertaken prior to construction. Unlike the Fond du Lac county projects, the Dodge County project has not been permitted. The developer has time to relocate some turbines away from the hibernaculum, thereby avoiding a possible showdown with the DNR.

Other Developments

Another windpower solicitation, a joint effort between Madison Gas & Electric (MGE) and Sun Prairie-based Wisconsin Public Power Inc., is coming to a conclusion. The utilities are seeking up to 80 MW of new capacity located in Wisconsin. In an unusual twist, bidders were asked to present their proposals in two ways, one assuming utility ownership and the other assuming third-party ownership. The utilities have narrowed the field to four contenders, and expect to make their selection(s) in April.

In December Alliant Energy released its five-year supply plan, which envisions purchasing the output from 100 MW of windpower located in Wisconsin, as well as 130 MW in Iowa. Serving a large swath of northern Iowa, Alliant is one of the two largest utility purchasers of windpower in the United States (Xcel is the other), but very little of its dedicated windpower capacity is located in its Wisconsin territory. Alliant's announcement offers proof that windpower here has become more than just a boutique resource.

Source: **Wind Turbines and Birds**
Mick Sagrillo for Focus on Energy

http://www.focusonenergy.com/data/common/pageBuilderFiles/turbines%20and%20birds.pdf. ✡

Solar Mining To Heat Pools for UW and DPI

Richard Lane, interviewed in the last issue of *Renewable Quarterly*, apparently knew what the future held when he said, "Right now we are concentrating on buildings that contain heated swimming pools, like schools, hotels, fitness centers, and YMCAs. If a hotel has an indoor pool, our systems can provide for all of its domestic needs. For now we have more than enough attractive prospects in the Green Bay area."

Only a few weeks after the interview, Lane's company Solar Mining won a state contract to supply heat to indoor swimming pools at the University of Wisconsin campuses at Green Bay, Milwaukee, and Parkside, as well as the pool at the Department of Public Instruction's School for the Visually Impaired in Janesville.

Under the contract with the Wisconsin Department of Administration (DOA), Solar Mining will design, install, maintain and own the systems and sell the solar thermal energy to the state at a price indexed to and competitive with the primary fuel source.

"This approach offers significant benefits to the state. In addition to reducing utility fund expenditures, incorporating renewable energy features into buildings will also reduce greenhouse gas emissions," according to an article on DOA's Web site. ✡

Renewables Producer Profile

GHD's Steve Dvorak: Farming Biopower from Manure

Steve Dvorak heads GHD, Inc., Chilton, Wisconsin, which provides an array of engineering services with a workforce of eight to 10 employees, depending on the season. Design and installation of anaerobic digesters for treating animal wastes accounts for about half of the firm's work. GHD received a boost in 2002 with a $15,000 feasibility study grant from Focus on Energy to evaluate the operation of three anaerobic digesters located in Wisconsin

Dvorak grew up as a "farm boy" near Manitowoc and earned an industrial engineering degree from UW -Madison, as well as the professional engineer title. His first job was with Packerland Packing in Green Bay, and he eventually assumed responsibilities that included waste management. In 1978 he became a farm implement dealer and in 1989 started GHD (Geo-Hydro Designs), focusing largely on petroleum clean-up projects.

GHD has installed five digesters in Wisconsin, including two farms with two digesters apiece. Dvorak also has projects pending in Ohio, Minnesota, Washington, Illinois, Indiana, and California.

The U.S. Department of Agriculture in 2003 awarded $1,211,580 to nine Wisconsin farms to install GHD-designed digesters. Wisconsin's Focus on Energy program funded an initial business plan for six of these projects.

Q. *Farmers, especially dairy farmers, seem to be looking favorably on biodigesters. What's motivating their interest?*

Manure management issues. Anaerobic digesters help solve a farmer's manure management problem. They give farmers another option for handling animal wastes. The wastes contain nitrogen and phosphorus, key ingredients in fertilizers, so the wastes have to be managed properly. A certain number of pounds of nitrogen and phosphorus can be spread on a farmer's fields, but it has to be carefully controlled so that it doesn't leach into the groundwater, doesn't run off, and doesn't carry over from year to year. Also, many farms don't have sufficient acreage to use all of the nutrients they produce. By separating the solids, which account for 8 percent of the waste, from the fluids which make up the other 92 percent, the farmer can dispose of the solids off the farm. They can sell the solids as soil supplements to a cash-grain farmer who doesn't have animals,. The solids also make good bedding for animals.

Of course, manure also means odor. As suburbs creep away from cities, closer and closer to farms, people can smell the odor. So a digester will solve another farm problem — odor. We burn the smell when we burn the biogas in the engine that runs the generator. Actually, the methane doesn't smell; it's odorless. Other "contaminants" mixed with the methane produce the odor. When the methane burns, the smell burns with it.

Q. *Then farmers should be beating a path to door, shouldn't they?*

You might think so, but biodigesters still aren't a certainty. A digester is a capital outlay, and they don't have a long track record yet; that is, we haven't had many in operation long enough to know with certainty how much revenue they'll generate, what costs a farmer could avoid, and how much revenue they'll bring to a farm operation.

Q. *What do you mean by avoided costs?*

I mentioned bedding. A farmer with a digester can use the solids for bedding on his own farm, saving the cost of buying bedding material -- as much as $40,000 a year for some farmers. Heat comes off the engine that burns the methane, and that heat can be captured to heat the barn and milking parlor. That saves on energy costs. Spreading the nutrients saves on the cost of buying fertilizer.

Q. *What kind of revenue are you talking about?*

We installed the anaerobic digester at Deere Ridge Dairy near Nelsonville in Portage County. Kyle Gordon, whose family owns the dairy, figures to come out ahead financially with the combination of avoided costs and the electrical sales revenue. But we only built that digester in 2001. So we go back to the issue of certainty. We just don't have enough data yet, and whatever data we get will be very specific to each particular farm.

Q. *If some farmers might not need a digester and some might be hesitant because of the uncertainties, then, who's buying digesters?*

The farmers who want to be among the leaders. The Type A personalities. Farming is going to keep changing and some farmers want to be proactive; they want to stay ahead of possible government regulations and avoid neighborhood issues regarding manure disposal.

Q. *Are these the same people who would want to put up wind turbines for their farms?*

Not necessarily. When you talk to farmers about wind turbines, they generally want to rent land to the big wind farms. [Editor's note: Farmers might receive as much as $4,000 in rent annually for every utility-sized turbine on their land.]

A farmer has a totally different mindset about a wind turbine. They're not doing it to solve a farm problem. They're doing it because they're environmentalists or for some other reason.

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GHD: Farming Biopower

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Q. *How do farmers find GHD? Do you advertise?*

They learn about us through word of mouth. GHD advertises in agriculture magazines and publications dealing with manure handling. GHD exhibits at various trade shows, and I speak when I'm invited.

Q. *We've covered some of the motivation and financial considerations, let's talk about the technology. Would you say it's mature, adolescent, or still in its infancy?*

I'd put it about medium. The technology itself is old. It's been around for a long, long time. We've just designed it to meet the needs of farmers, and they're more accepting than they used to be.

We've learned a lot in the last 20 years, especially about the "gen-set" -- the engine and generator. We've learned that the engine cannot contain metals that contain copper. The methane corrodes the copper. We've learned to run the engines hotter than they'd otherwise run, because the gas has moisture in it when it comes into the engine. If we keep the engine oil just under the boiling point for water, most of the water evaporates and doesn't dilute the engine oil, which is good because diluted engine oil leads to excess wear on engine parts.

We've learned to keep it simple, too. A successful system should require as little labor as possible for operation and maintenance. GHD holds patents on the heating and mixing processes, so we know we've got the process right from the start of any installation. And we can duplicate the installation at a new location and bring the farmer and his employees to the existing digesters for training. In other words, duplication of the systems adds simplicity.

We've put the total system together, and it will also adapt to new technologies. For example, we could burn the methane gas in a fuel cell to make electricity.

Q. *Okay, the farmers are interested, the technology is good. Can the government or utilities do anything to spur installation of more digesters?*

Every utility is different, of course, but by and large they're receptive. It would be a big help for utilities and state governments (or the federal government) to develop consistent rules and regulations, like some sort of national code, so that what we do in Indiana, for example, would be acceptable in Illinois and vice versa.

Also, the U.S. doesn't have an energy policy. Other than pursuing crude oil, we need some direction on where we're going to go. Germany, by comparison, greatly subsidizes anaerobic digesters for environmental reasons and for electrical production. Europe also has more people, living closer together, than the US does, so the urban encroachment on traditional agricultural land is even a bigger issue in Europe than in the US.

The Wisconsin Focus on Energy program has been very supportive on our anaerobic digester technology usage. Focus is currently working with the U.S. Environmental Protection Agency to do a detailed study of the Deere Ridge Dairy's anaerobic digester system and the total energy production from the usage of biogas generated by this system. Focus also provides statewide technology forums for public education concerning anaerobic digestion and provides financial assistance to farmers for renewable energy production and energy replacement projects.

Q. *One final "tough" question. Don't the digesters enable the development of larger and larger factory farms that wipe out family farms?*

I don't think so. The digester lets a farmer become an energy provider. It turns a waste into a viable product. Deere Ridge Dairy is a family farm and has a successful digester.

You're going to see more digesters on big and small farms because they solve a farm problem in a constructive way for all of us. ✡

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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Renewable and Energy Efficiency Events

March 4	**Wisconsin Wind Workshop.** Stayer Center, Marian College. Fond du Lac, Wisconsin. The workshop will outline the step-by-step process for developing commercial wind projects over 20 kilowatts. Includes site visits to wind turbine installations. More information from **Ed Blume, eblume@renewwisconsin.org** or **608.819.0748**.
March 28-31	**Global Windpower 2004.** McCormick Place, Chicago. International conference brings together the world's leading wind energy companies and professionals in wind energy. More information from the American Wind Energy Association at **http://www.awea.org/global04.html**.
May 22	**Byron Turbine Tour.** We Energies offers tours of its two wind turbines in Fond du Lac County. The first tour is available at 10 a.m. and the last tour begins at 1:30 p.m. No reservation necessary for small groups but groups of 5 or more should make reservations. Call **414.221.4264** or **800.558.3303**, **ext. 4264**, for reservations or more information.
June 18-20	**Renewable Energy & Sustainable Living Fair.** The world's largest and longest running event of its kind with workshops, exhibits, and displays on renewable energy and earth-friendly topics. Sponsored by the Midwest Renewable Energy Association. More information at **www.the-mrea.org**.

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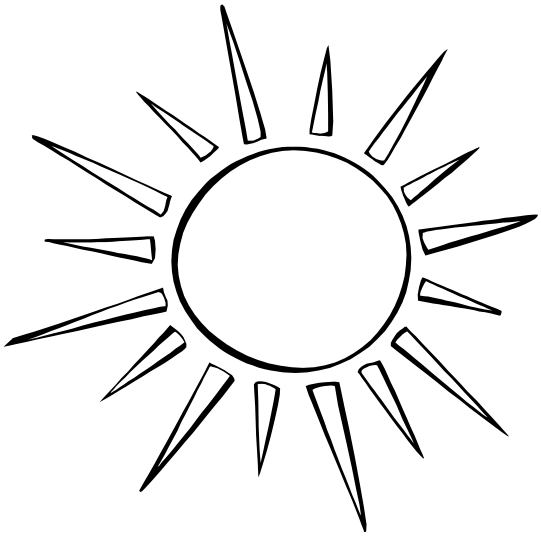

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