



## Reliability 2000 Lands in Budget

Despite the remarkably broad array of groups supporting Governor Thompson's Reliability 2000 Energy Plan, the State Assembly booted a chance this June to approve this landmark pact that would boost state support for clean energy and institute needed transmission reforms. The State Senate did manage to work Reliability 2000, in the form proposed by Governor Thompson and supported by Customers First! Coalition, into the state budget before recessing for the summer (see inset on page 2).

Before Reliability 2000 can go forward though, the Senate and the Assembly must resolve differences on two major components: (1) new funding for energy conservation and low-income weatherization initiatives (so-called public benefits issues) and (2) air emissions issues affecting western Wisconsin utilities.

As proposed by Governor Thompson, Reliability 2000 is a multifaceted proposal that essentially exchanges transmission divestiture and increased energy conservation funding for relieving asset cap constraints on utility holding companies. This agreement, which all the state's utilities support, would result in the formation of a single-purpose common carrier transmission company, the first of its kind created in any state. By transferring control of the grid from vertically integrated monopoly providers to a new regulated entity that has no vested interest in power generation, Reliability 2000 should usher in more robust competition at the wholesale level. The pancaking of tariffs levied by different transmission owners would be a welcome casualty of a unitary transmission system, leading to reductions in the cost of moving power around eastern Wisconsin.

Reliability 2000 also aims to reduce unwanted and wasteful energy consumption at the customer level, a prerequisite for providing more reliable electric service, especially on hot summer days. Energy efficiency spending, which has decreased by over 60% since 1993, would rise by \$20 million per year over this year's level, while low-income weatherization programs would see an increased contribution of \$27 million per year collected from state ratepayers to compensate for declining federal

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contributions. For residential customers, the impact of this increased support would translate to about \$1.50 a month.

Buyers and sellers of renewable electricity would also reap benefits from Reliability 2000. The Governor's package contains a renewable portfolio standard that incrementally increases the contribution of renewable power sources to the state's energy mix over a 10-year period (see inset on page 3). If Reliability 2000 is enacted in its present form, Wisconsin will be the first state to establish a long-term acquisition mechanism for renewable electricity independent of retail competition.

What do Wisconsin's utility holding companies receive for agreeing to these progressive policy initiatives? Limited relief from the asset cap provisions in the state's utility holding company act. Current law prohibits utility holding companies from holding more than 25% of its total asset base in unregulated subsidiaries, which restricts their ability to invest in or acquire business ventures not subject to PSC regulation.

Reliability 2000 would not repeal the asset cap, but it would loosen the definition of regulated assets. In so doing, the parent companies of Wisconsin Electric, Wisconsin Public Service, and Wisconsin Power & Light are spared from selling off their holdings in unregulated ventures as they appreciate in value.

### State Swelters As Budget Stalls

As everyone Wisconsinite over the age of five is aware, state budget conferees have been deadlocked since early July over tax issues, creating some uncertainty as to when negotiations will resume on Reliability 2000. Frustration over the roadblocks placed in Reliability 2000's path reached the boiling point in late July, when demand for electricity set new all-time highs, prompting editorial writers and

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citizens to call for a swift resolution to the legislative stalemate.

While underscoring the need for reliability improvements, this summer's heat wave once again illustrated the singular importance and effectiveness of energy conservation in averting unscheduled outages. Despite the oppressive heat, customers heeded appeals from Madison Gas & Electric and Alliant Energy to turn off unnecessary lights and, in some cases, take the afternoon off. Their actions spared the two utilities from initiating rolling blackouts in selected areas. Still, even with those demand reductions, the situation on July 29 and 30 was desperate enough to compel MG&E to activate its voluntary air-conditioning shut-off option for the first time in that program's history.

Outside of a 48-hour stretch in late July when two of Alliant's plants were shut down for repairs, power plants in Wisconsin have been going full-tilt this summer, in contrast to the summer of 1997, when electricity supplies were stretched thin due to an extended outage at the 1,000 MW Point Beach power station. Yet the August issue of *The Wire* (Customers First! Coalition's monthly newsletter) estimates that service interruptions this summer have exceeded the combined total from 1997 and 1998. If this assertion is confirmed, it suggests that Wisconsin's reliability situation is becoming

more tenuous. We do know that Alliant curtailed service to its interruptible customers more frequently this year than in past summers. True, the summer of 1999 has been warmer than 1997's and 1998's summers, but not as hot as the scorcher of 1995.

Ironically, the very component of Reliability 2000 that State Assembly leaders find most objectionable--increased support for energy conservation--happens to be the one reinforcement measure whose effect can be noticed almost immediately. While it takes at least two years for central station power plant or high capacity transmission lines to metamorphose from the proposal stage to physical reality, conservation measures can take effect whenever the building owner or occupant decides to make them happen. Quoth *The Wire*: "While some our problems will be solved by building additional capacity, others may lie outside our reach. Only conservation is guaranteed to work and is immediately available."

Furthermore, a more energy-efficient customer base can be served at lower overall cost than one that "leaks" energy like a sieve. For electricity customers, paying a modest \$1.50 per month charge for conservation programs is by far a better deal than reimbursing utilities when they have to purchase additional power at 100 times the typical spot market price.

In concluding its public benefits proceeding two years ago, the Public Service

Commission recommended increasing energy efficiency and environmental programs to \$112 million a year, \$30 million above the level Reliability 2000 would establish. Sen. Burke's public benefits bill, introduced last year, retained the PSC's funding recommendations. Before Reliability 2000 was announced two months ago, consumer and environmental organizations were asked to compromise on the funding level question in order to garner broad and bipartisan support for the package. This was done in good faith, and business groups responded to the move by supporting the entire Reliability 2000 package.

Regrettably, in the absence of any organized citizen or business opposition, the Assembly leadership decided to manufacture an issue out of the conservation provisions and test-market its appeal through the newspapers. Increases in conservation funding were described variously as "hush money" and as "a payoff to environmental groups." Even before the hot weather arrived, nobody was buying into their anticonservation rhetoric. Let's hope that July's recurring heat waves baked some sense into the Assembly leadership, and that they return to the budget conference committee with a newfound appreciation for energy conservation, still Wisconsin's best and most effective weapon against rolling blackouts.

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## It's Not Over Yet - A Recap of Reliability 2000's Wild Ride

March 19	Governor Thompson calls for a comprehensive electric reliability initiative. Negotiations among rival interest groups begin.
June 2	Supported by broad coalition of customer groups, utilities, and large industrial concerns, Governor Thompson unveils consensus energy plan. Titled "Reliability 2000", and urges swift approval of package.
June 9	At a Senate committee hearing, RENEW submits testimony supporting Reliability 2000.
June 10	Joint Finance Committee rejects attaching Reliability 2000 to state budget. The 8-8 vote is split along party lines (Republicans against, Democrats for).
June 15	Assembly Utilities Committee deletes \$47 million/year in new funding for conservation and low-income weatherization from Reliability 2000.
June 16	Senate Utilities Committee approves Reliability 2000 package without amendments.
June 25	After defeating motions to restore public benefits funding, Assembly leadership fails to approve Reliability 2000.
June 30	Senate attaches Reliability 2000 to state budget.
July 5	Budget conferees begin negotiations to reconcile differences.
????	Budget conferees settle differences. Budget forwarded to Governor.

## Reliability 2000 – What It Does for Renewable Energy

- A Renewable Portfolio Standard (RPS) is created. This provision requires Wisconsin electricity providers to add more renewable power to their resource mix over a 10-year period. The increase is expressed as a percentage of total electricity sales in Wisconsin.

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- Eligible renewable sources include biomass, fuel cells using renewable fuels, geothermal, hydro (under 60 MW), landfill gas, solar, and wind. (Note: the contribution from existing hydro generators (built before January 1, 1998) is capped; this restriction does not apply to hydro units placed into service after that date.)

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- Renewable generators located outside of Wisconsin are eligible, unless they are fulfilling another state's renewable mandate.

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- Starting December 31, 2000, Wisconsin electricity providers must add an aggregate of 0.35% to their existing renewable base every two years. That percentage corresponds to an aggregate increase of 200 million kWh for each biennium. Of the more than 60 billion kWh of electricity sold in Wisconsin, about 3 billion kWh were generated from renewable energy sources. By December 31, 2000, this mechanism will raise the annual contribution from renewable power sources to 4 billion kWh.

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- To comply with the standard, utilities can either build the renewable generation themselves, buy renewable power from other providers, or purchase renewable energy credits in a regional trading market.

## Windpower Projects Off and Spinning

It went down to the wire, but at 12:01 AM July 1, Wisconsin's newest power plants, composed of 33 wind turbines, were up and operating. Production started in time to qualify for a tax credit that expired the previous evening at the stroke of midnight. The last turbine to be placed into service, owned by Madison Gas & Electric, beat the deadline with only 36 hours to spare. Audible sighs of relief from everyone associated with the wind projects accompanied the initial flow of electrons across the wires.

Though the 33 turbines were installed for three different utilities, all are Vestas V-47 machines, rated at 660 kW, capable of producing a combined 22 megawatts at peak (30 mph) wind speeds. Like all new sources of power generation, the wind turbines will need a few months of adjustments, recalibration of sensors, and diagnostic work before they reach optimum operating efficiency. The selection of one manufacturer and model should greatly simplify operations and maintenance at

the installations. Vestas installations worldwide typically report availability ratings of 98% or better, or less than one week of downtime per turbine per year.

All but two of the wind generators are located in Kewaunee County, where obtaining local land use permits proved to be a more arduous process than anticipated. At the dedication ceremony July 1, memories of the contentious siting process seemed to recede into the distant past as over 200 people, most of them from the surrounding area, crowded into a balloon-filled tent at MG&E's Town of Red



MG&E Wind Turbines – Kewaunee County

Photos by Larry Krom

River installation to soak in the festivities and see the turbines in action. Some onlookers derived satisfaction from the sumptuous buffet lunch, highlighted by copious quantities of fried chicken, while others delighted in watching the 75-foot blades spin in response to the accelerating westerly winds.

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Once the machines started operating, we've noticed that the local residents who were neutral about our wind farm proposal last year are much more positive about it now," said Don Peterson, MG&E's windpower project manager. Another MG&E official reported hearing the machines referred to as "our turbines."

East of MG&E's 17 turbines, near the community of Rio Creek, stands a compact 14-turbine installation erected by Wisconsin Public Service. The towers, arrayed in three columns running north and south, evoke the precision of a pine tree plantation, providing a dramatic contrast with MG&E's more free-flowing and spread-out site plan. The installation's start-up was a quiet affair, with publicity confined to a company press release announcing the project's completion.

Towering along busy Highway 41 south of Fond du Lac are a pair of turbines owned by Wisconsin Electric. Company officials are decidedly upbeat about its initial foray into wind generation. "This is a very good location for wind generation," said Chris Schoenherr, Wisconsin Electric's renewable energy strategist. "As has happened with wind projects elsewhere, the surrounding community has come to adopt these turbines as its own."

According to Schoenherr, reactions from motorists have been uniformly positive. "Our turbines have prompted people to use terms like 'elegant' and 'forward-looking'. These are words

that you don't often hear in connection with power plants," Schoenherr said.

Both Madison Gas & Electric and Wisconsin Electric are selling their wind-generated output through their respective renewable power programs, while Wis-

consin Public Service has folded the entire cost of its project into its rate base. Wisconsin Electric's program, Energy for Tomorrow, has grown by about 3,000 customers since the beginning of the year. Its current subscription base of 12,000 residential and 30 small business customers accounts for about 1.4% of Wisconsin Electric's total customer base. Company officials anticipate selling about 45 million kilowatt-hours of renewable electricity this year, with annual growth rates averaging 15-25% over the next five years. Roughly 5% of Energy for Tomorrow's resource mix will be derived from the Town of Byron windpower installation.

The growth rate of Madison Gas & Electric's new windpower option has been nothing short of phenomenal. Sign-ups



Wisconsin Public Service Wind Turbines

have averaged 1,000 a month since the service was introduced last March, and the program is now serving over 5,000 residential and 90 commercial participants, or about 5% of MG&E's customer base. This is by far the highest rate of penetration for any renewable power option offered by a regulated utility. Only Colorado's Windsource program, a service available to several million customers, serves a greater number of businesses.

MG&E's windpower is sold in blocks of 150 kWh per month, with each unit commanding a \$5 premium. Currently over 9,000 blocks of power are now committed, about two-thirds of what is needed to subscribe its Kewaunee County project in full. MG&E has pledged to expand its windpower supplies if customer demand continues to grow. Unfortunately, moratoriums on new windpower construction have now taken effect in the Towns of Lincoln and Red River, leaving MG&E little alternative but to look elsewhere for developable sites. Given windpower's auspicious beginnings this summer, new sites should be fairly easy to come by. ° ° °

Summer 1999 Wind Power			
Company	Number of Turbines	Location	Households Served (est.)
Madison Gas & Electric	17	Kewaunee County	4,400
Wisconsin Electric	2	Fond du Lac County	500
Wisconsin Public Service	14	Kewaunee County	3,600

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# A Climate Scientist Takes His Computer Model Seriously

By Donella H. Meadows

*[Editor's note: This article originally appeared on an on-line energy news service in mid-August. Global climate change is an issue whose vastness can be overwhelming even to people predisposed to making environmentally responsible decisions. Yet if we as individuals don't take responsibility for the environmental consequences of our energy use, how can we expect larger societal forces to step in and change our behaviors for us?]*

*The article below, reprinted with permission from Donella H. Meadows, shows us that the road to responsible energy use need not result in personal discomfort and sacrifice. All that is required is an environmental ethic, some forethought and planning, and a belief that setting a good example will ultimately lead to broader actions. Note too the interplay between energy conservation, renewable electricity, and biomass in achieving a zero net carbon budget.]*

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At the University of Wisconsin's program on Climate, People and Environment, Dr. Jonathan Foley makes computer models to study what might happen if the human economy continues to emit greenhouse gases. Like hundreds of other climate scientists, he is deeply worried about global warming. Unlike most scientists I know, he carries that worry into his personal life.

For some time Jonathan and his wife Andrea and their three-year-old daughter Hannah have been cutting down the amount of carbon dioxide they produce -- which means the amount of coal, oil, and gas they burn.

They used to live 25 miles out in the country and drive two cars. Now they've moved to a house four miles from the uni-

versity with a bike lane at one end of the street and a bus line at the other. They've sold one car and rarely drive the other. "I was sick of all the driving anyway," Foley says. "Now I have more time, a beautiful bike ride and no car payments."

The Foleys have done "all the usual things" to their house to reduce its fuel and electric needs. Compact fluorescent light bulbs. Much better insulation and ventilation. They found an electric utility that makes power with windmills, so they're not contributing to climate change every time they flip on a switch. The house came fitted with a solar water heating system, so the sun heats about two-thirds of their showers and dishwasher, even in cold Wisconsin.

That is already climate responsibility well above the call of duty, but last New Year's Eve the Foleys decided to go all the way. They thought about the new millennium and decided to make a millennium-sized resolution to enter the 21st century emitting no net carbon dioxide.

How can you do that? I asked in disbelief.

Well, to start, Foley is compiling the numbers on how much carbon he emits with every mile he drives, every computer he buys, every plastic bag he throws away. He's constructed a spreadsheet to calculate his carbon budget and to integrate it with his money budget, so his family will march toward zero carbon emissions one step at a time, as they can afford it.

"This month we're trading in our electric washer and dryer for a more efficient front-load washer and a lot of clothesline. We'll get a gas dryer for wintertime. Next our goal is a more efficient refrigerator -- the new domestic models are pretty good. The EPA Energy Star web site lists all the alternatives."

Foley aims first at high energy efficiency, then renewable sources. He expects there will be unavoidable carbon dioxide emissions left, mainly embedded in things the family buys. He intends to offset those emissions with green plants that will absorb the carbon dioxide.

A group called American Forests, Foley tells me, has calculated that the average American would have to plant 30 new trees every year (and keep them all growing) to suck up the carbon dioxide he or she emits. There's not enough room for us all to do that. But Foley figures he's already cut his family's emissions in half and can get down considerably further, to a point where he

can pull off the necessary planting. Living in southern Wisconsin, he intends to plant not just trees, but prairie.

Every square meter of forest, Foley tells me, stores 10-15 kg of carbon in biomass above ground and 10-15 kg in the soil. A prairie stores only 3 kg above ground, but 30-40 below. Midwest soils are deep and fertile because the prairie built up humus there for millennia. Prairie restoration is a popular community activity around Madison, so the Foleys will help do the work and also contribute money to prairie and tree planting groups.

"It's not all that hard," Foley says. "Our quality of life has improved. We're saving time and money, though some things, like the wind electricity, are more expensive. Zero carbon emissions is something anybody can do, just by making a few simple choices. People choose to spend tens of thousands of dollars for a sports utility vehicle with leather seats and a CD player. They could just as easily choose to buy better insulation or an efficient refrigerator or a solar water heater. Helping to prevent climate change isn't a matter of our ABILITY, just our CHOICE. We're not stuck. It's not impossible."

"But whenever I talk about this stuff at scientific meetings, my colleagues look at me dumbfounded. We seem to think we should testify to Congress about the Kyoto protocol and do nothing else. I'm surprised that other scientists aren't more personally aware of their own actions. Airline travel to climate meetings is still my single largest emission of carbon dioxide -- I'm counting work-related emissions in a separate budget. Isn't it crazy that 100 scientists will fly to some remote place to discuss changes in the global carbon cycle?"

"I know my personal actions are only a drop in the bucket (or in this case the atmosphere). But as a scientist and teacher I feel I have a moral obligation to lead, even in a small way, to show you can achieve a zero net carbon budget and still live comfortably and productively. Maybe if I set this kind of example, folks will begin to take the science I do a little more seriously."

"Something about putting your emissions where your mouth is."

(Donella H. Meadows is director of the Sustainability Institute and an adjunct professor of environmental studies at Dartmouth College.)

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**After September 15, use the new URL --**  
<http://www.renewwisconsin.org>

## NEXT RENEW BOARD MEETING

Tuesday September 28,  
1999 —  
11:00 a.m.

RENEW Wisconsin  
222 South Hamilton St.  
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Meetings are open to  
RENEW members. If you're  
planning to attend, please call  
Michael Vickerman at  
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