Wisconsin
Renewable Quarterly

December 2005 Volume 10, No.3

Time Is Ripe for Renewable Tariff Reform

by Michael Vickerman
RENEW Wisconsin

The bad old days of selling renewable power to the local utility at rock-bottom prices have past, never to return. What had been for many years a low-return proposition is becoming a more rewarding enterprise, a result of (a) RENEW's strenuous advocacy on behalf of higher renewable energy tariffs, (b) higher coal and natural gas prices, and (c) the emergence of a more transparent wholesale power market.

Through 2004, the pricing environment for distributed renewable energy generators was downright bleak, save for a few bright spots such as Alliant Energy's 6.1 cents/kWh tariff for qualifying biogas installations. The prevailing buyback rates in 2004 ranged from 3 to 4 cents/kWh, which was sufficiently discouraging for all but the most committed of customer-generators. Even with U.S. Department of Agriculture grants and Focus on Energy incentives in hand, most renewable project developers found themselves stymied by unfavorable project economics. Until this year.

Solar Tariff Unveiled

Since then, significant progress has been made on the pricing front, led by one willing utility stepping up to encourage more customer generation. We Energies, which is committed to sourcing 5% of its system power from renewable energy by 2011, has instituted a new tariff through which it buys solar electricity from its customers at 22.5 cents/kWh. That amount is two and a half times higher than its retail electricity rate. Once the solar power starts flowing to We Energies under this tariff, the 22.5 cent/kWh rate remains in effect for 10 years.

The Milwaukee-based utility is also seeking approval to raise the net energy billing ceiling for wind turbines up to 100 kW as well as institute a biogas tariff equal to that of Alliant. The Public Service Commission (PSC) will decide in December whether to allow We Energies to offer those rates to customer-generators. In testimony submitted in We Energies' pending rate case, RENEW expressed strong support for the higher tariffs and urged the PSC to adopt them. By proposing these forward-looking tariffs, We Energies is creating room in its renewable energy supply portfolio to accommodate growth in mid-size customer-owned generation.

RENEW also intervened in Alliant Energy's and Wisconsin Public Service Corporation's rate cases this year on the issue of fair and just buyback rates for distributed renewable systems. In both proceedings RENEW argued in favor of higher buyback rates for windpower. An upward revision is needed, RENEW contended, to properly account for wind's contribution to price stability and system reliability, and to overcome barriers that penalize a lower-capacity energy source like wind.

Unlike Alliant, Wisconsin Public Service (WPS) does not offer a special tariff to encourage biogas generation from livestock manure, even though the utility is well-endowed with large dairy operations within its territory. Throughout the rate case, WPS argued that the absence of a special tariff was not a deterrent to dairy operators planning to generate electricity from manure.

Both utilities opposed RENEW's recommendations to the PSC, dismissing them as subsidies that would impose unreasonable costs on the rate base. Yet RENEW's proposed tariffs called for participant caps that would limit any resulting rate increase to less than 10 cents per month per customer.

Surcharges Tell the Story

Contrast that paltry amount with the fuel-based surcharges that either have been approved or are pending before the PSC. Not long after the PSC approved an increase in Alliant's base rates (taking effect in July 2005), Alliant sought—and received—approval to collect an additional $41 million through a surcharge amounting to about four-tenths of a cent on every kWh sold. For a typical residential ratepayer, the monthly increase comes to $2.30.

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New RENEW Members

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

Burns Best • GHD, Inc. • Gver Properties • Invenergy • Sigrid Knuti Midwest Wind Energy Finance • Miller Engineers & Scientists • Robin Mittenthal • Mary Steinke • Union of Concerned Scientists • Mike Wagner

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

Renewable Tariff Reform

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Alliant attributed the need for a surcharge to extraordinary increases in fuel expenses this summer. However, it turns out that Alliant's revised estimates understated actual third quarter fuel expenses to the tune of $55 million, and the utility is back before the PSC seeking additional relief. If the utility's request for a fuel adjustment is granted, the current surcharge will more than double, adding about nine-tenths of a cent on every kWh sold, for an increase of about $5 per month.

Surcharges are added not only to retail rates, but also to parallel generation tariffs. The Commission in July set Alliant's base tariffs at 6 cents/kWh for on-peak sales, and 2.4 cents/kWh for off-peak sales. Therefore, if the PSC allows Alliant to increase the surcharge in effect to nine-tenths of a cent, Alliant's buyback rates go up to 6.9 cents/kWh on-peak and 3.3 cents/kWh off-peak until the next time the PSC adjusts Alliant's base rates.

Wisconsin's other investor-owned utilities have pending rate cases, which gives the PSC time to incorporate these inflationary pressures into base rates. Including Alliant's surcharges, the rising cost of energy should add between $250 and $300 million to state electric bills in 2006.

In testimony presented in two separate rate cases, John Feit, a PSC economist, said that both We Energies and WPS had underestimated their fuel expenses in their initial filings. What makes that statement significant for renewable generators is that any upward revision in marginal energy costs has to be translated into higher buyback rates.

Therefore, even if the PSC rejects RENEW's proposed buyback rates for renewable generation, the base parallel generation rate will be substantially higher in 2006, reflecting the higher price of energy at the margin. And as marginal energy costs push ever higher, the rate impact of special renewable energy tariffs diminish. To illustrate: When established in 2002, Alliant's biogas tariff was 2.5 to 3 cents/kWh above the utility's avoided cost of energy. Heading into 2006, the subsidy value of that tariff is now less than half a penny.

The MISO Factor

As coal and natural gas prices began marching upward, a new regional grid operator, the Midwest Independent System Operator (MISO) took control over the dispatching of power generation stations. As the system operator, MISO is principally concerned with making sure utilities have enough electricity to serve their loads. Under the new regime, which took effect April 1st this year, the wholesale cost of electricity in Wisconsin is set by the highest-cost generation source that MISO schedules for operation a day in advance. MISO also operates a real-time market that is updated every five minutes. One can very easily track the Day Ahead market and real-time prices by logging onto *www.midwestmarket.org/page/LMP+Contour+Map+%26+Data.*

When congestion occurs somewhere on the grid, MISO is empowered to redispatch power plants to facilitate the flow of power to those areas that need it. The warmer weather that prevailed this summer triggered record demand for electricity, which coincided with natural gas prices advancing from $6 to $9 per dekatherm. Serving that additional load with gas generators sent wholesale electricity prices climbing well above summer 2004 levels by about 1.5 cents/kWh.

In fact, MISO data indicate that wholesale electricity prices in Wisconsin from April to August averaged about 5.7 cents/kWh. If wholesale power costs continue to track at that level, then utility buyback rates should be raised in 2006 to match that level. No one is predicting coal or natural gas to return to pre-2005 pricing levels any time soon.

But if wholesale power prices continue along their upward journey, a power contract at 6.1 cents/kWh becomes a bargain from the utilities' perspective. At that point it may become more advantageous for the renewable generator to sell directly into the wholesale market than to the local utility under contract, especially if the utility's tariffs are pegged at a lower level.✡

WISCONSIN RENEWABLE QUARTERLY
November 2005, Volume 10, Number 3

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.

The *Wisconsin Renewable Quarterly* is published four times a year by RENEW Wisconsin, 222 S. Hamilton St., Madison, WI 53703, www.renewwisconsin.org.

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

Church Energized by Clean, Renewable Electricity

by Dennis Briley

There's no green glow as you drive past the Unitarian Universalist Church on North Avenue in Brookfield this fall, but perhaps there should be. As of October 9th it became the first church in southeastern Wisconsin to begin purchasing 100% "green power" from the We Energies' Energy For Tomorrow renewable energy program.

Why would a church take such action? "Because we value the earth," says the Rev. Suzelle Lynch. "Unitarian Universalists hold high the principle that all of life is connected in one interdependent web, and we work to live this principle." The decision to use electric power from renewable power sources was applauded by the congregation. "We know other churches share these earth ministry values," says Lynch, "The religious community knows how beautiful and sacred our planet is, and that we can make a difference. We hope all religious congregations and organizations are considering this type of response to global warming, pollution, and future fossil-fuel supply limitations."

At Unitarian Universalist Church West the lights look the same. The heating and air conditioning still operate in the same way. The electric bill is estimated to be a little higher, approximately $900 per year, but sometimes a real change isn't clearly visible to our eyes. It becomes evident in behavior and in spirit.

In 2004 the church became accredited as a "Green Sanctuary" congregation because of a demonstrated commitment to earth care education and environmental action in worship, child and adult programming, and in the wider community. "Purchasing 'green' power is just another step toward making our church a model of sustainable living and spiritual connectedness to the earth," says Amy Taivalkoski, chair of the church's Green Sanctuary Committee. "We call it putting your money behind your principles. Our members feel good that when a light goes on here, or a refrigerator door is opened, that no fossil fuels will be used and no green–house gases released into the atmosphere."

A four-year church lighting efficiency program that preceded the decision gave the church a gain now estimated to amount to $550 per year.

Michael Vickerman, RENEW executive director, complimented the church's action. "A sustainable energy future begins with personal decisions that break with business as usual, which in turn can inspire others to do the same.'

"This congregation is, through its own house of worship, staking a claim in a sustainable energy future, which we hope will set off a chain reaction with other congregations."

Lynch invites people to come and experience the spirit of this energizing decision. "The church may look no different," she says, "But you can feel the earth-honoring energy of this congregation in every room and see it in every face."✡

Rev. Suzelle Lynch *(left) stands with Dennis Briley, member of the church and RENEW's Board, who first suggested green power to the congregation in 1999.*

Renewables Producer Profile

John Katers: Professor, Consultant, Biofuels Wizard

John Katers is an Associate Professor of Natural and Applied Sciences (Engineering) at the University of Wisconsin - Green Bay (UWGB) and consultant to Focus on Energy and STS Consultants, covering the business and technology of burning wood for energy.

Katers teaches courses on industrial pollution control, waste management/resource recovery, pollution prevention, resource management strategies, and solar and alternate energy systems.

His research interests include water and wastewater treatment, waste management, recycling and renewable energy.

Prior to joining the faculty at UWGB, Katers spent four years working for the University of Wisconsin-Extension Solid and Hazardous Waste Education Center (SHWEC) as an Industrial Recycling Specialist and is currently an adjunct faculty member of SHWEC.

He also serves as a Senior Consultant at STS Consultants, LTD., primarily working with the thermal renewable program within Focus on Energy.

Katers received a doctorate in Civil and Environmental Engineering from Marquette University, a master's degree in Environmental Science and Policy, and a bachelor's degree in Environmental Science and Business Administration both from UWGB.

John Katers' expertise runs the gamut *of renewables and materials handling and reuse -- from tire chips to sawdust for bedding at Quantum Dairy, a 1,300-cow dairy operation near Weyauwega that recently installed a manure digester and 400 kW generator.*

Q. *Wood hasn't gotten much attention as a renewable energy source for some time. Yet, Focus on Energy (wifocusonenergy.com) set a goal for this fiscal year to increase non-residential wood burning. Why the new interest?*

Fuel costs. We've had companies say they'd be out of business if it weren't for wood. They couldn't stay profitable with the current cost of natural gas.

Q. *We should back up a minute. Are we talking about burning wood for heat or for electricity?*

We're talking primarily about wood for heat -- heat for commercial and industrial use.

For example, Superior Kilns dries green hardwood before fashioning it into standard and custom-size boards, annually producing 5,600 tons of shavings and saw dust. An electronically controlled feed auger sends the wood waste to a 230 HP steel fire tube Burnham boiler that supplies low pressure steam (15 psi) to the kilns to continue the drying process.

The Barron Area School District, as another example, has a commercial/industrial automated boiler control system that runs three steam boilers, one Swede Stoker wood-chip boiler, and two back-up gas boilers. These boilers heat the Barron High School, Barron Woodland Elementary School, the Barron Hospital and Medical Center, and Maple Crofts Senior Rest Home — all of which are located in the northern village of Barron,

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where the January temperature averaged 13 degrees Fahrenheit last winter.

Q. *Both of those operations save money compared to other fuel options?*

That's always the key question. At first, Superior Kilns was concerned about the higher initial cost of a wood-fired system as opposed to a comparable natural gas system. After considering the energy requirements and other operating costs, the company calculated the payback period to be about three years. The King Coal Furnace and other system components would save approximately $186,000 a year compared with the natural gas costs to produce 275,000 therms. (In total, the kilns require 540,000 therms a year.)

A $35,000 Implementation Grant from Focus on Energy in 2004 cut the payback time.

The Barron school district had to shut down its existing wood-fueled boiler a couple of winters ago and rely solely on natural gas to heat the boiler. The cost of heat from the natural gas boiler was double that of the previous year when they used the wood boiler.

A $15,000 Implementation Grant from Focus on Energy helped offset some of the costs for the $70,000 project.

Q. *Those are impressive savings. It sounds like any commercial or business operation should look at wood as an option.*

It's well worth looking into, but an operation probably should generate its own wood supply. That helped make the system ideal for Superior Kilns.

When the operation produces its own supply, quality assurance is not as much of an issue. The company knows where the wood comes from; it can be cut or ground to a standard size; and, it has often already been kiln dried to lower moisture content.

A business could buy the wood, but the price of wood or wood pellets may increase at a rate parallel to that of natural gas. Additionally the wood may come from decentralized sources, and quality could be an issue.

Even with these considerations, the market for wood as fuel could get bigger, growing significantly each year as natural gas prices continue to increase.

Q. *What happened to the option of using wood and other wastes to co-fire electricity generation plants?*

Wood still works, but coal is so much simpler -- from sourcing to having a higher energy content than wood. That's why our economy switched from wood to coal in the first place.

Switchgrass, another possible biomass product for co-firing with coal, has some issues too, primarily in the area of materials handling.

Tires can be a waste source for electricity generation. They burn well, as we saw with that huge fire in Jefferson County in July. Unfortunately, the fuel market generally demands that the steel belting from the tires be removed, which requires additional equipment and energy for processing. Processors, therefore, must handle larger numbers of tires to justify the cost of the additional equipment, thereby limiting the number of tire recycling companies. Even with those issues, probably 90% of the old tires in the United States go into fuel markets.

Q. *What kind of response do you get from UWGB students to renewable energy -- whether it's wood, wind, solar, or whatever?*

At UWGB I teach nine different courses in a two-year cycle of offerings in the undergraduate program in Environmental Science and Policy, so I see a lot of different students.

In my Energy and Society course, most of the students are non-scientists, engineers, and I try to poke and prod them a bit so they see that renewable energy can potentially be an option.

In the upper level and graduate courses, I'm trying to bridge the gap between environmental perspectives and those usually associated with business and industry.

For both groups of students, this might be the only opportunity to give them an awareness of renewable energy, so connecting with them is important because these students are going to be the decision-makers in the future.

I hope that these students leave UWGB with a solid understanding that we can have a stronger economy and better environment at the same time.☼

RENEW Lauds Forward Wind's Land Payment

RENEW Wisconsin hailed a wind farm developer's voluntary decision to directly compensate nearby landowners who won't have turbines on their property.

Invenergy, LLC, developer of the 200 megawatt (MW) Forward Wind Project in Fond du Lac and Dodge counties, unveiled an innovative plan to pay landowners a set annual fee if they live within one-third of a mile from one or more turbines.

The plan was disclosed at several local meetings as town land use officials and the developer discussed a cooperative agreement to address community concerns.

"RENEW has been encouraging wind developers to channel wind power's economic benefits to a broader group of landowners in the area of wind farms," said Michael Vickerman, RENEW executive director.

"This will be the most high profile wind development in Wisconsin when completed next year. Invenergy's decision sets the standard for other Wisconsin wind developers," Vickerman added.

A neighboring landowner will receive $500 a year for each turbine within one-third of a mile from the landowner's property, and $750 a year for two or more turbines.☼

China Pins Hopes on Three Gorges Hydro

RENEW member Peter Lee, Milwaukee, shares his thoughts on electricity generation in the People's Republic of China.

I had a wonderful time on my summer vacation this year. I got to spend six weeks in China with a group of 30 teachers recruited through Ohio State University to spend a month at the University of Wuhan, in central China, teaching English to 900 undergraduates in a special Intensive English Program.

Each teacher prepared a set of four lessons around four topics that we would repeat to different groups of students over the four weeks of teaching.

I was inspired to use some of the materials I had developed as part of the RENEW Wisconsin Wind Power Community Education group here in the Milwaukee area in my lessons. I was intrigued to find out how these university undergraduates would respond to the arguments for alternative and renewable energy.

I was particularly intrigued in light of the information that China's economy has been growing in double digits over the last several years and that the status symbol of the burgeoning middle class is an Audi. I was in China teaching in 1980-81 and never saw a gas station. Now, they appear on every fifth block. The number of cars has gone from nonexistent to major traffic jams in the same period.

Student response was gratifying. They readily recognized the need for moderating demands for energy use. Most all of them showed clear understanding of the growing problems of energy shortage and environmental damage. Several pointed to the huge Three Gorges hydroelectric project going up on the Yangtze River as the answer to many of their ever growing energy and environmental needs.

After the teaching was finished in early August, the group traveled up the Yangtze River to see the famous 'Gorges' and then back down to where this new dam is under construction.

It was an amazing trip. The gorges are beautiful. More so to us surely because of the knowledge that this landscape is about to be irrevocably changed by the water backed up from the new dam.

Over the last several years the Chinese government has been engaged in some serious 'social engineering' to relocate over a million people out of harm's way, off the about-to-be 'inundated' land. We saw a great deal of new government-built housing up the river bank from older now abandoned buildings. About two thirds of the population was able to be resettled in this fashion, above the new high water mark. About one third was moved to new housing in nearby cities and towns. Yes, there are still a lot of questions about how successful this has all been in terms of not only new housing but new livelihoods for many of these people.

And then the dam. It is hard to describe something of this scale. It is similar in size and scope to Grand Coulee Dam here in the U.S. When completed in 2009, it is designed to provide three major benefits: flood control, an annual problem all through this central China region, will now be possible for all but a 1,000-year flood; navigation improvements, the deepening of the river and the construction of a large five-step lock system at the dam will mean that larger ocean going ships will have access to China's interior. And finally, hydro-electric power generation.

The dam is 2,309 meters wide and 180 meters high. It will house 26 turbines with a total generating capacity of 18,200 MW, average annual output of 84.7 trillion kWh. It will be able to immediately supply the electricity needs for east and central China, as well as parts of the west. In the future, it is expected to tie into the grids for north and south China as well. The greatest benefit here is that it will mean a greatly decreased dependency on coal burning power plants for the whole area, a major environmental improvement. For the sake of all of us, let's hope it all works out as planned!☼

Peter Lee (above), an active speaker *in RENEW's Milwaukee-area Wind Power Community Education group, stands atop the Three Gorges Dam in China. Below him, spillways release up to 102,500 cubic meters per second.*

New Federal Tax Credits Cut Solar Costs Beginning January 1

In August the Energy Policy Act of 2005 was signed into law, creating a new 30% federal tax credit for solar electric and solar hot water systems.

The Solar Energy Industries Association (SEIA, www.seia.org) prepared a Q&A and chart to summarize provisions of the new tax credit legislation.

	Old incentive	New incentive	Credit window	Cap	Eligible technologies
Business credit	10%	30%	1/1/06-12/31/07 at 30%; reverts to permanent 10% thereafter	No cap	PV, CSP, solar hybrid lighting, solar domestic water heating (excluding pool)
Residential credit	None	30%	1/1/06-12/31/07	$2,000 per system for each solar technology	PV, solar domestic water heating (excluding pool heating)

1. *What are the dates of the credit? Is it applicable to existing systems?*

The credits become available for systems that are "placed in service" between January 1, 2006, and December 31, 2007. If the installation is on a new home, the "placed in service" date is the date of occupancy by the homeowner. Systems that have already been installed are not eligible.

2. *What about systems that have been purchased but not installed?*

Should you sell or buy a system and even start work this year, but do not complete "original installation" of the system or "place it in service" until January 1, it will qualify for the credit.

3. Can this credit be applied to capacity additions? (i.e. I have a 1.5 kW system and I want to add 1.5 kW more.) Similarly, can I apply this credit to used equipment going into a new installation?

This is not entirely clear at present. However, the language would suggest that both scenarios are allowed - the credits apply to the amount of expenditure on solar energy property in a given year. SEIA will work with the IRS to develop regulations favorable to the solar industry and pass on additional information as it becomes available.

4. How does the residential cap on expenditures operate?

An individual can take the 30% credit up to a $2,000 cap for photovoltaics, while also taking the credit up to a separate $2,000 cap for solar water heating. The credit may be carried over to future years.

Business entities have no cap on the total credit amount, provided they have a sufficient tax liability. Businesses have two years in which to take the credit.

5. How does the credit work with existing state credits or utility incentives?

The credit applies to the basis remaining after any state or utility incentives available to the taxpayer have been taken. Example: a $10,000 system that receives $5,000 in state incentives from Wisconsin's Focus on Energy program would be eligible for a $1,500 Federal credit.

6. Are there any changes to the business solar tax credit other than percent?

The business solar tax credit will continue to be administered as before; the only change is the percentage increase to 30%. Operation and legal technicalities of the business credit are well established. An accountant or tax professional familiar with these rules should be able to inform you on any specific issues.☼

RENEW Backs Ethanol Mandate for Gasoline

RENEW's Board of Directors voted unanimously for the organizaiton to go on record in support of Assembly Bill 15, which would require that "automotive gasoline contain not less than 9.2 percent nor more than 10 percent ethanol."

"We see increased ethanol production as a step towards creating an integrated farm-based energy economy, one in which farms power themselves and their neighbors with fuel and electricity derived from a combination of solar, wind, crops, and animal wastes," said Michael Vickerman, RENEW executive director.

"RENEW strongly supports the development and use of bioenergy sources for lessening the state's dependence on imported petroleum, natural gas, and coal," Vickerman added.

A broad coalition of agriculture, environmental, and business groups also support the bill.

David Jenkins, manager of the Wisconsin Electric Cooperative Association, thanked RENEW for its support.

"I recognize that there are arguments against ethanol within the environmental community," Jenkins wrote in a letter to Vickerman. "However, I also believe we must find ways to begin to displace oil as the predominant transportation fuel in the world."

AB 15, introduced by Rep. Stephen Freese (R-Dodgeville), cleared the Assembly Committee on Agriculture and now awaits action by the full Assembly.☼

Renewable and Energy Efficiency Events

Jan. 25, 2006	**Conservation Lobby Day.** State Capitol, Madison, WI. Help advocate on behalf of the majority of Wisconsin citizens who value clean air, clean water, special places, and sporting opportunities. Sponsored by Wisconsin League of Conservation Voters and its members, including RENEW Wisconsin**.** More information at www.conservationvoters.org.
Jan. 30-31, 2006	**Better Buildings: Better Business.** Kalahari Resort and Convention Center, Wisconsin Dells, WI. High performance knowledge and tools. First-rate learning, networking and business development opportunity for rsidential buidling and remodeling industry. Several sponsors. More information at www.ecw.org/betterbuildings.
Jan. 31, 2006	**Exploring the Profit Potential of Cow Manure.** Monona Terrace, Madison, WI. Tested strategies on "how to make money from manure." Intended for producers, cooperatives, and local communities. Sponsored by the Wisconsin Department of Agriculture, Trade, and Consumer Protection. More information at www.datcp.state.wi.us/arm/agriculture/land-water/bioconversion_conference/index.jsp.
Feb. 24-26, 2006	**Upper Midwest Organic Farming Conference and Organic University.** La Crosse Center, La Crosse, WI. The Upper Midwest Organic Farming Conference is the largest organic farming conference in the nation, drawing more than 1,800 participants from the around region and across the nation. More information at http://www.mosesorganic.org/umofc/umofc06intro.htm.
June 23-25, 2006	**Renewable Energy and Sustainable Living Fair.** Custer, WI. The world's oldest and largest fair of its kind. Sponosred by the Midwest Renewable Energy Association. More information at www.the-mrea.org.

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