



# THE INVESTOR'S VOICE

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## Wisconsin Power and Light Announces Major Programs

Wisconsin Power and Light Company (WPL), a subsidiary of Alliant Energy Corporation, has proposed reducing its greenhouse gas emissions by retiring a coal-fired generating unit, dramatically increasing its wind power portfolio, doubling its commitment to utilizing biomass, and aggressively building upon its energy efficiency measures, when its proposed expansion at the Nelson Dewey Generating Station becomes operable in 2013. The proposed changes to WPL's generation fleet have been filed with the Public Service Commission of Wisconsin (PSCW) as part of WPL's testimony related to the proposed expansion of the Nelson Dewey Generating Station in Cassville, Wisconsin, and are subject to the approval of the PSCW.



**"ALLIANT ENERGY IS COMMITTED TO REDUCING GREENHOUSE GAS EMISSIONS..."**

*Barbara Swan, President-WPL*

"Alliant Energy is committed to reducing greenhouse gas emissions in Wisconsin and throughout our service territory," according to Barbara Swan, President-WPL. "We believe our proposal addresses the critical balance of meeting important environmental objectives with the equally important goal of providing reliable and affordable power to our customers."

As part of its proposal, WPL would retire Edgewater Generating Station's coal-fired unit 3. The facility is the oldest coal plant in WPL's generation fleet. The company would also increase its commitment to develop new wind power resources. The company had previously announced plans for approximately 300 megawatts of new wind by the end of 2010. If the Nelson Dewey expansion is approved, the company would add 200 megawatts to that total by the time the new facility begins commercial operation. While the sites for the future wind farms have not yet been determined, it is possible that one of the sites could be located in southwestern Wisconsin.

WPL would also double the amount of renewable resource fuels to be used at the new third unit of Nelson Dewey, to twenty percent. As a result of utilizing fuels such as switch grass, waste wood, or corn stalks, CO2 emissions would be reduced and Wisconsin farmers and foresters would have access to new economic markets, an ecologically friendly crop and better land and forest management practices. Analysis by researchers from the University of Wisconsin has shown that the 20 percent biomass at Nelson Dewey unit 3 could create economic development revenues for the State of Wisconsin to exceed an estimated \$50 million annually.

This proposal, along with a fifty percent increase in WPL energy efficiency savings, is projected to more than offset the carbon emissions from the new Nelson Dewey unit. The potential increased capital costs associated with these changes in WPL's generation fleet are expected to be \$500-\$550 million, and are contingent upon the company receiving all applicable regulatory approvals related to the expansion of the Nelson Dewey Generating Station.

# Nuclear Waste

By Bruce Barnaby

*This is the fourth article in a four part series about nuclear energy.*

## "I think nuclear energy would be great if they could only solve the waste problem."

That often heard comment certainly sums up an issue facing the nation and the world in the universal desire to get the energy we all need at a cost we are willing to pay. In the hope of adding some perspective, let's start by addressing just what the waste is.

What we call waste starts out as the nuclear fuel uranium dioxide compressed into pellets about 1/3 inch in diameter and about 1/2 inch long. These pellets are stacked in metal tubes called fuel rods about 12 feet long. Two to three hundred rods are assembled in a square array. Several hundred of these fuel assemblies, depending on the size of the reactor, form the reactor core. Thus, the core is a big heavy thing requiring special handling equipment. As inserted into the nuclear reactor, the core is not hazardous.

The fission reaction that heats water also converts some of the uranium to other elements such as strontium and cesium that are radioactive. At the end of useful energy generating life, the fission process is terminated by reinserting control rods. The radioactive elements are not only hazardous due to the radioactivity, but that radioactivity generates heat and the fuel assemblies must be cooled. These large fuel assemblies, that now include radioactive waste, must be carefully removed from the reactor and placed into a pool of water to keep them cool as the radioactivity decays. Fortunately, the decay is initially rapid and the waste cools so that the fuel assemblies may be removed from the water and stored in large casks. The assemblies are still radioactive and must be handled as hazardous waste, but they can be transported...Now where should the fuel assemblies be taken and what should be done with them when they get there?

In the early days of nuclear reactors, reprocessing was used to recover the remaining uranium, which was still useful as fuel, and to separate radioactive waste from other material such as the metal tubes and support structure that were not hazardous. Thus the amount of hazardous material could be reduced to a much smaller and more easily handled volume. However,

reprocessing was not simple. Reprocessing used strong chemicals that required careful handling.

In 1982, The US Congress enacted the Nuclear Waste Policy Act establishing permanent storage of the entire fuel assemblies as the preferred choice. What seemed a straightforward technical decision has since become a highly contested issue because it seems no one wants the waste stored in his or her backyard. The history of the Nuclear Waste Program is chronicled on the web site [www.ocrwm.doe.gov](http://www.ocrwm.doe.gov).

For many years, permanent storage has been the favored solution. Store the waste safely forever. But, forever is a long time. Studies tried to show just how safe it would be forever, but that was difficult. And moving all those large fuel assemblies from the reactor to the storage site is also challenging.

Yucca Mountain, a long low ridge in Nevada, has been chosen as the permanent site for "Civilian Radioactive Waste". It has been the location of choice for most everyone except people living in Nevada. Incidentally if you are in Las Vegas, you can visit a museum with a good display of the technology and even take a guided tour of Yucca Mountain about 90 miles northwest.

Given the resistance to "storage in my backyard", reprocessing is being reconsidered. Perhaps a more technically friendly process can be developed.

Presently waste is stored at the reactor sites or nearby temporary sites in water pools or in dry casks. These are safe and adequate but temporary. A permanent solution will require progress on both technical and political issues.

## THE HISTORY OF THE NUCLEAR WASTE PROGRAM IS CHRONICLED ON THE WEB SITE [WWW.OCRWM.DOE.GOV](http://WWW.OCRWM.DOE.GOV).



BRUCE BARNABY IS A PHD PHYSICIST, A MEMBER OF THE AMERICAN NUCLEAR SOCIETY AND DEDICATED TO FOLLOWING NUCLEAR ENERGY. HE IS A MEMBER OF THE NEW MEXICO UTILITY SHAREHOLDER ASSOCIATION.

## Dane County Judge Rejects Mercury Lawsuit Arguments

Dane County Circuit Judge Stephen Ebert has rejected a lawsuit brought by Wisconsin Utility Investors, Inc. and other business groups that had argued the Wisconsin Department of Natural Resources (DNR) had not followed proper procedures in preparing its proposed mercury emissions rules. The rules, which now go to the DNR Board, would require utilities to cut mercury emissions by 90 percent in the next seven years.

Parties bringing the suit are considering several options, including appealing the decision or fighting the rules once they are approved by the DNR Board.

## Upper Peninsula Power to Rebuild Silver Lake

After five years of studies, reviews, and discussions, Upper Peninsula Power Company, a subsidiary of Integrys Energy Group, has begun the rebuilding of Silver Lake in the upper peninsula of Michigan. The project consists of constructing a new 150' long concrete spillway, lengthening and raising the existing dikes, and building a new 450' wide x 400' long x 40' tall earthen dam at the site of the breach. The company has approved up to \$17.6 million for the project, of which \$4.5 has already been spent on development and design.

## Integrays Determines Causes of October Lightning Strike Damage At Weston 3

After a thorough review of the events surrounding the October, 2007, lightning strike that damaged the Weston 3 power plant, a committee comprised of Wisconsin Public Service employees and members of two expert consulting groups has issued its findings.



The report indicates that one of the root causes of the damage was an intense lightning strike to an on-site transmission tower not owned by Public Service, which was properly grounded but not bonded to the Weston plant grounding system. The resulting power surge through the ground impacted several pieces of equipment as well as the plant's computerized control system and led to millions of dollars in damage to the plant.

The investigation committee found that the Public Service lightning protection system met applicable industry standards. Transmission poles are not commonly grounded to generation plant's systems. However, the company's lightning protection consultant found unusually high soil resistivity at Weston and recommended that the towers be bonded to the Weston Plant's grounding system, which has now been completed.

## We Energies Wind Project Begins Commercial Operation

We Energies' Blue Sky Green Field wind project has been placed into commercial service. The 88 turbines have a demonstrated capacity of 145 megawatts and are expected to generate more than 328 million emission-free kilowatt hours annually — enough to power 36,000 homes.

"Blue Sky Green Field is one of several targeted efforts we're undertaking to generate more energy from renewable resources," according to Rick Kuester, executive vice president of Wisconsin Energy Corporation, the parent of We Energies. "We appreciate the support we have received from our customers and from the communities of Calumet and Marshfield and northeast Fond du Lac County in making the project a reality."



At a cost of approximately \$300 million, the Blue Sky Green Field project consists of 88 Vestas Wind Systems turbines spread across 10,600 acres. Each turbine is capable of producing 1.65 megawatts of electricity. The V82 turbines have a hub height of approximately 262 feet and a blade length of 134 feet. From the foundation to the tip, each tower has a height 397 feet. Construction of Blue Sky Green Field began in June, 2007. The project was built largely with the talents of Wisconsin companies and craft labor. Collectively, more than 400,000 labor hours were devoted to completing the project. Although the turbines are now in operation, We Energies will be working with the landowners in the area to ensure that proper restoration from construction activity is completed.

**"BLUE SKY GREEN FIELD IS ONE OF SEVERAL TARGETED EFFORTS WE'RE UNDERTAKING TO GENERATE MORE ENERGY FROM RENEWABLE RESOURCES."**

*Rick Kuester, executive vice president of Wisconsin Energy Corporation*

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# Mark Your Calendar Now

## The 2008 Wisconsin Utility Investors Annual Meeting of Members to Be Held in Green Bay!

The 2008 WUI Annual Meeting of Members will be in Green Bay, Wisconsin on September 25th. It will be held in an interesting landmark and promises to be the most exciting and informative annual meeting ever. Your Board is exploring ways to make access for out-state members easier, and a record turn-out is expected. Watch for more details in next month's Legislative/Regulatory Update.



Check our website at  
[wuiinc.org](http://wuiinc.org)

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