



Firstline



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Midwest warms up to the use of alternative energy sources

by Laura Kliever

The production and use of traditional fossil fuel-based energy accounts for 95 percent of all air pollution in America. Renewable energy sources such as wind, sun and biomass offer states a way to reduce harmful emissions and clean up the earth's atmosphere.

Electricity restructuring, waning nuclear power and commitments to reduce global emissions have created an atmosphere that forces utilities to diversify and allows new businesses to create a market for renewable energy sources.

At the same time, prices for these renewable energy sources have also dropped dramatically. Over the past 20 years, the cost for wind energy has declined from 40 cents per kilowatt-hour to about five cents. And photovoltaic, or solar, electricity systems can now be manufactured for about \$2.20 per watt — almost half of what it cost in 1980.

Support for using renewable energy resources has gained momentum at the federal level. In November, 1998, the United States committed to the reduction in ozone-depleting greenhouse gases when it signed the Kyoto Protocol. According to the National Renewable Energy Laboratory, the production and use of conventional, fossil fuel-based energy accounts for 95 percent of all air pollution in the nation.

In its FY 2000 budget, the Clinton Administration increased the funds targeted for renewable energy and

energy efficiency by over 28 percent from FY 1999. This represents just part of a \$4.1 billion "climate change technology initiative."

But, Midwestern states have a long way to go. Almost all of the electricity produced in the Midwest comes from coal or nuclear plants. However, a number of new programs, regulatory policies and tax incentives in the region are aimed at encouraging the use of alternative energy sources.

Wind farms are sprouting up from Iowa to Michigan. Illinois recently opened a plant to produce wind turbines and North Dakota will soon be home to a plant that produces wind turbine blades. A company in Minnesota has launched a project to build the largest wood waste biomass cogeneration plant in the United States.

Through a combination of the region's public policies, physical attributes and economic development programs, the Midwest is poised to become the national leader in renewable energy generation. By efficiently harnessing two ancient sources of energy — wind and organic materials — the region is shifting electric energy generation towards a more sustainable future.

Next month:

Workforce Development

Workforce development policies take center stage as states integrate worker training with economic development and welfare reform initiatives.





States look at alternative sources for power generation

Iowa, Kansas, Nebraska, Minnesota, North Dakota and South Dakota are six of the states in the central region of the country referred to as the “Saudi Arabia of wind energy” by wind power advocates. Experts have stated that North Dakota alone has enough wind to supply 35 percent of the country’s total electricity demand.

Due in part to a July cutoff date for a federal subsidy that reduces the cost of wind power, wind farms have been cropping up all over the region. The typical wind machine produces 56 times more electricity than earlier versions of a decade ago, and the cost of the electricity it produces has dropped 90 percent. Still, by the end of the year, wind-generated electricity nationwide will only equal that of two of the largest nuclear plants.

The interest in this renewable energy source is taking off, however. The world’s largest wind plant (112.5 megawatts) is being built in Iowa. Wisconsin has mandated that its four major utilities construct wind farms producing a total of 50 megawatts of power. The utilities are planning to use “green pricing” — where customers agree to pay more for electricity made from renewable sources — to make the machines profitable.

Wind machine manufacturing is escalating, too. According to a recent *Chicago Tribune* article, “by midsummer, the nation’s capacity for making electricity from wind will have increased a whopping 50 percent in 18 months.” The nation’s second wind turbine assembly plant recently opened in Illinois. A European company that produces wind turbine

blades is opening a plant in North Dakota this spring.

Biomass

Biomass is any organic material that can be converted into energy or a source of energy. Common sources include wood, agricultural residues and crops. Although biomass supplies totaled just four percent of the country’s total energy consumption in 1992, the Electric Power Research Institute projects that as much as 50,000 megawatts of biomass energy could be online by 2010 — about half of the current nuclear power plant generation.

At the beginning of this century, biomass — mainly wood — provided about half of the nation’s energy. By 1970, as coal and oil replaced wood, biomass provided less than 10 percent of the nation’s total energy consumption. Now states are showing a renewed interest in supplying energy from biomass sources, with new technologies making the shift feasible.

Biomass is plentiful and can be continually replenished. Its fuels produce virtually no sulfur emissions and return no more carbon dioxide to the atmosphere than the amount that was removed as the organic matter grew.

Trigen-Cinergy Solutions and District Energy St. Paul have launched a wood waste biomass cogeneration project with Northern States Power — the largest of its kind in the United States. The facility will provide 25 megawatts of electricity to up to 20,000 homes in

Alternative Energy Leader

In 1994, as part of an agreement to allow Minnesota-based Northern States Power (NSP) to store waste in dry casks at its Prairie Island plant, the state required NSP to make large commitments to alternative energy development. The legislation requires NSP investment of 425 megawatts of wind energy over eight years and a 125-megawatt investment in biomass conversion power. According to Sen. Steve Novak, chief author of the legislation, when the wind energy project is completed in 2002, “wind energy will make up an estimated four percent of NSP’s power generation.”

The Minnesota Public Utilities Commission (PUC) ruled in January that NSP must double the amount of electricity its system receives from wind machines by 2012. PUC ordered the additional megawatts from wind power under a mandate that more wind-generated electricity be required if it proves to be a “least cost” source of electricity. The PUC decided that the extra requirement was in the public interest, although it didn’t rule precisely on the “least cost” issue.



the St. Paul area and heat 450 downtown offices through low-pressure steam.

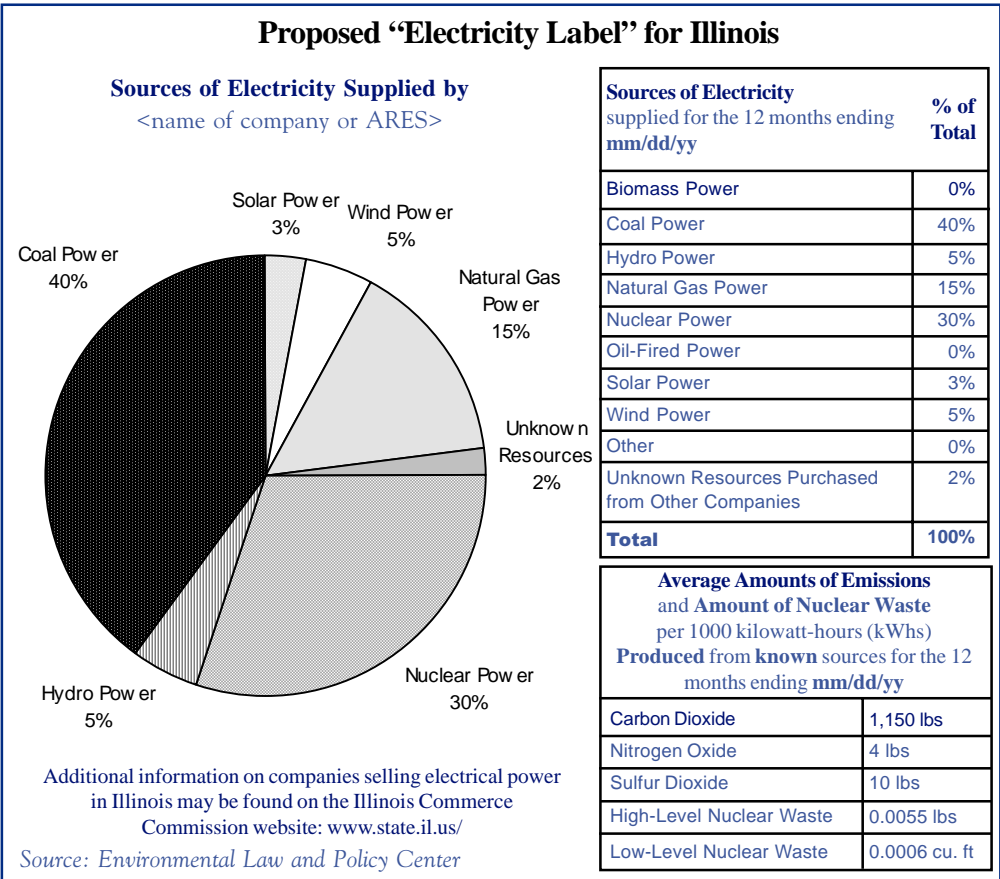
A study by the Union of Concerned Scientists asserts that Illinois could meet more than 40 percent of the state's power demands by using advanced gasification technology to convert switchgrass and crop residues to electricity at six cents per kilowatt-hour.

Funded by the U.S. Department of Energy, the Great Lakes Regional Biomass Energy Program is supporting biomass energy research, economic analysis, environmental assessments and other projects in Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio and Wisconsin.

State Programs and Laws

Most Midwestern states offer some type of financial incentives for renewable energy development, from tax breaks to grants or loans. This February, **ILLINOIS** Gov. George H. Ryan announced the establishment of a Renewable Energy Resources Program, offering \$3.9 million in rebates and grants. Eligible projects include solar thermal energy, wind-generated energy, photovoltaic systems, dedicated crops grown for energy production, organic waste biomass and some hydropower.

Other less traditional methods are also spurring renewable energy development in the states.



IOWA’s renewable energy mandate requires that about 1.2 percent of the state’s electricity be generated from renewable sources. Known as renewable portfolio standards, this requirement that a certain percentage of electricity generation come from renewable sources is gaining popularity. Iowa and Minnesota were only two of seven states to have set this standard by the end of 1998. Yet several states, including Nebraska in the Midwest, are considering such legislation this year.

Illinois has mandated that electric utilities begin listing the sources of their power, as well as environmental impacts. The Illinois environmental disclosure inserts are to begin appearing on consumers’ utility bills

this month (see proposed insert above). Advocates hope that these disclosures will help educate the public about energy choices and prepare them for the transition to a more competitive electric industry. Michigan and Nebraska are considering similar legislation.

Net metering laws and rules make it easier and more affordable for consumers to use alternative energy electricity generators. Customers have one meter and utilities must purchase net excess generation. While Minnesota is the only state in the Midwest with a net metering law, public utilities commissions in Indiana, Iowa, North Dakota and Wisconsin have issued rulings.

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1999 Alternative Energy Legislation

State	Bill #	Intent
IL	SB 534	Allows net metering for small energy generators
KS	HB 2497	Creates Kansas energy commission to address state energy policy.
MI	HB 4293	Requires electric utilities to report fuel sources & total emissions.
NE	LB 116	Requires fair price to be paid for customer-produced renewable energy.
NE	LB 771	Changes electrical energy rate & other wind energy provisions.
NE	LB 808	Requires electric utilities to report fuel sources & total emissions.
NE	LB 339	Sets percent of generation that must come from in-state renewable resources.
ND	HCR 3044	Directs Legislative Council to study ND's wind energy resources.
WI	SB 56	Creates a clean energy rebate program.

Source Guide

For more information on alternative energy:

Center for Renewable Energy & Sustainable Technology
solstice.crest.org (phone: 202-530-2202)

Database of State Incentives for Renewable Energy
www.solar.mck.ncsu.edu/dsire.htm

Energy Efficiency & Renewable Energy Clearinghouse
www.eren.doe.gov (phone: 800-363-3732)

Environmental Law & Policy Center
www.elpc.org (phone: 312-759-3400)

National Association of State Energy Officials
www.nasco.org (phone: 703-299-8800)

National Renewable Energy Laboratory
www.nrel.gov (phone: 303-275-3000)

If you would like an information packet on this topic, please call CSG Midwest at (630)810-0210.

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