

Charting a New Path for Wisconsin's Electricity Generation and Use



Wisconsin's energy future is at a crossroads

One path leads to increased dependency on fossil fuels—threatening our economy and fueling global warming. The other leads to a new, smarter energy future for Wisconsin. Investing in clean energy alternatives—like solar and wind power—can create and protect jobs in Wisconsin, save families and businesses money, and make America more energy independent. Clean energy is also the most effective solution to the threat of global warming. We can start making progress right away using proven technology, and then draw on American innovation to take us the rest of the way with new technologies.

How does Wisconsin generate electricity today?

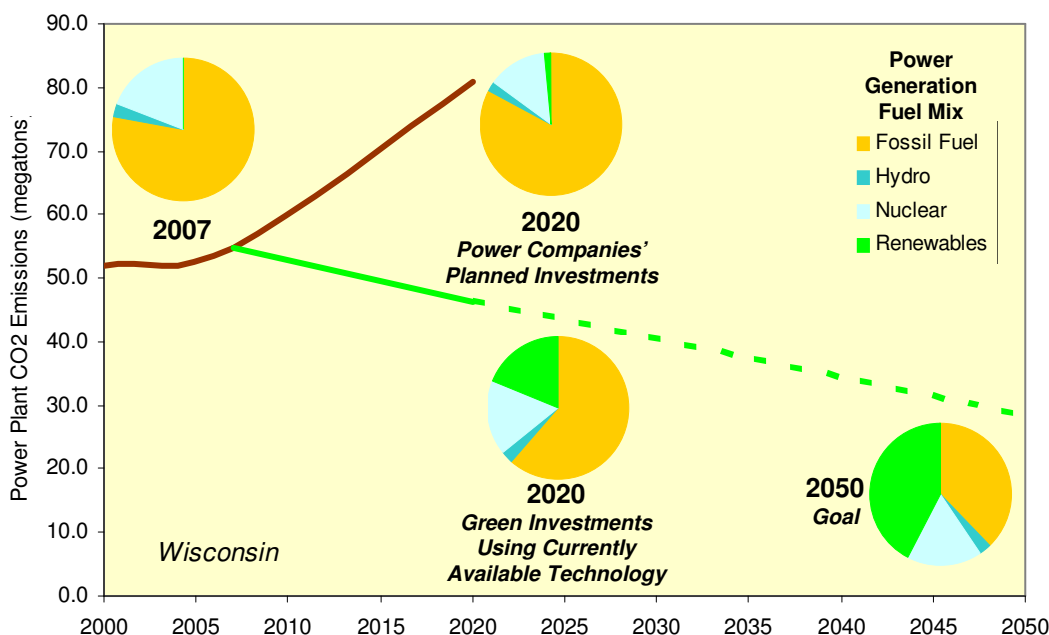
In 2007, electric power generated in Wisconsin primarily came from coal (65.0 percent), gas (9.1 percent), and nuclear (19.0 percent). Most utilities intend to continue relying heavily on fossil fuels in the coming decade. Wisconsin power companies plan to increase the energy generation from coal by 35.0 percent, gas by 86.0 percent. Only about 0.1 percent of electricity generated in Wisconsin is expected to come from renewable sources like wind, solar, geothermal, and biomass under current plans.

Wisconsin has a choice to invest in a cleaner energy future

Wisconsin can achieve a new energy future by making better investments as utilities replace increasingly aged infrastructure and expand capacity. An important first step is for Wisconsin to generate at least 20 percent of electricity from renewable sources by 2020, a goal readily achievable with today's technology. Continuing to convert 15 percent of the state's energy portfolio to renewable energy sources each decade could yield an energy profile of at least 65 percent renewables by 2050.

Wisconsin can also benefit from improved energy efficiency. Technologies are available that could reduce demand nationally by 20 to 30 percent over the next decade. Innovations in energy efficiency should allow us to keep demand constant after 2020, even as the population grows.

Today, Wisconsin is ranked 12th in the nation for energy efficiency, largely because the state's utilities are already spending \$54 million annually to improve energy efficiency.



About the chart: 2000, 2007 and 2020 Power Companies' Planned Investments from CARMA 1.0 (www.CARMA.org). The 2020 Green Investments projection assumes that, using currently available technology, Wisconsin makes (1) improvements in efficiency to reduce overall demand by 25 percent and (2) shifts away from fossil fuels so that 20 percent of power generation is from renewable energy sources. The 2050 Goal assumes (1) hydro and nuclear are unchanged, (2) continued efficiency improvements keep total demand flat, and (3) renewable energy replaces at least 65 percent of power generation formerly done through fossil fuel burning. Note that the projection of future CO₂ emissions from fossil fuels assumes no investment in carbon capture and storage.

Making a Difference in Wisconsin

In 2006, Wisconsin enacted a legally binding renewable portfolio standard, which states that each utility in Wisconsin must create 10 percent of its electricity by 2015. The Union of Concerned Scientists published a report analyzing the projected effects of the new standard and found them to be overwhelmingly positive. Renewable projects and facilities should create 2,160 jobs by the year 2020. This 960 more jobs than if the state produced the same amount of energy through fossil fuels. These projects will provide \$80 million in income, and add \$110 million to the gross state profit. Much of this would benefit rural residents, including millions of dollars in tax revenue and lease payments for farmers and landowners. In addition to these tangible benefits, the state will have more reliable energy sources and will be less affected by fluctuations in traditional energy costs.



Sources:

http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=WI05R&state=WI&CurrentPageID=1&RE=1&EE=0
http://www.ucsusa.org/clean_energy/clean_energy_policies/increase-wisconsin-rps.html

Making a dent in global warming pollution

Simply by shifting to renewable energy sources and improving energy efficiency over the next decade or so, Wisconsin can reduce its future carbon dioxide (CO₂) emissions from electricity generation by 43 percent compared to the business-as-usual path that utilities are following now.

Given that 41 percent of Wisconsin's CO₂ emissions come from electricity generation, diversifying and updating our power sources is critical for cutting the state's total global warming pollution.

Increasing Wisconsin's energy and economic security

Investing in renewable energy sources will reduce Wisconsin's dependence on fossil fuels and at the same time create new green collar jobs. A new energy future in Wisconsin could include:

Expanded solar power. Wisconsin has enough solar resources to produce 4,000 to 4,500 Whr per square meter using photovoltaic systems and 3,500 to 4,000 Whr per square meter using concentrating solar power systems.

This means that devoting just 1 square mile in Wisconsin to solar power can provide enough electricity for about 1,000 households each year.

Expanded wind power. Wisconsin is currently ranked 15th for wind power, with 327 MW of existing electricity generation capacity and 122 MW under construction. The American Wind Energy Association ranks Wisconsin 18th in terms of its future wind potential, with 6,440 MW of potential capacity.

Biomass power. Wisconsin has 15.0 million dry tons of biomass available each year that could be used to generate about 3,000 MW of electricity.

A stronger economy. Wisconsin could realize as many as 6,956 jobs and \$2.32 billion investment in the wind industry alone if 50,000 MW of new wind energy is created on a national level.

How does Wisconsin use electricity?

Wisconsin's energy is used to power:

- homes (31 percent),
- businesses (33 percent), and
- industry (36 percent).

Per capita residential electricity use is 3,908 kilowatt hours per year, 14 percent less than the national average.

References and Additional Reading:

American Council for an Energy-Efficiency Economy, www.aceee.org.

American Wind Energy Association, www.awea.org.

Bioenergy Feedstock Information Network, bioenergy.ornl.gov

CARMA (Carbon Monitoring for Action), www.CARMA.org.

Database of State Incentives for Renewables and Efficiency, www.dsireusa.org.

Department of Energy, Energy Efficiency and Renewable Energy, apps1.eere.energy.gov/states/alternatives/electricity.cfm.

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Environmental Protection Agency, Energy CO₂ emissions by state, www.epa.gov/climatechange/emissions/state_energyco2inv.html.

Geothermal Energy Association, www.geo-energy.org.

McKinsey Global Institute, 2007: *Wasted Energy: How the U.S. Can Reach its Energy Productivity Potential*.

Political Economy Research Institute, www.peri.umass.edu.

Renewable Energy Policy Project, www.repp.org.

For more information, visit www.nwf.org/globalwarming.