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

Illinois'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 Illinois. Investing in clean energy alternatives—like solar and wind power—can create and protect jobs in Illinois, 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.

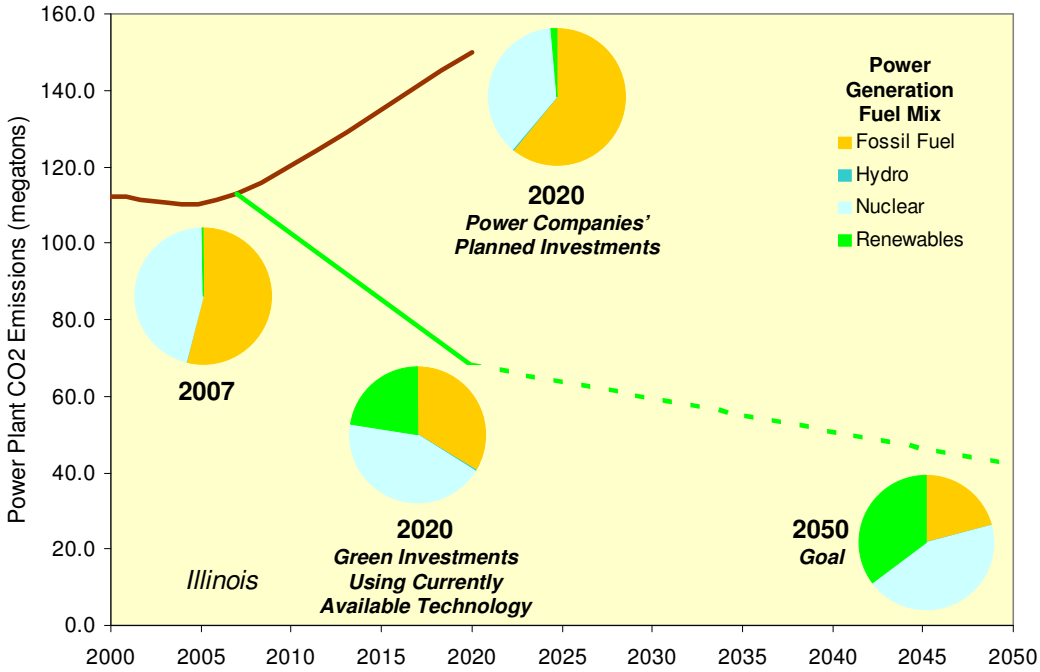
How does Illinois generate electricity today?

In 2007, electric power generated in Illinois primarily came from coal (46.7 percent), gas (4.6 percent), and nuclear (45.9 percent). Most utilities intend to continue relying heavily on fossil fuels in the coming decade. Illinois power companies plan to increase the energy generation from coal by 32.2 percent. Only about 0.2 percent of electricity generated in Illinois is expected to come from renewable sources like wind, solar, geothermal, and biomass under current plans.

Illinois has a choice to invest in a cleaner energy future

Illinois 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 Illinois to generate at least 25 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.

Illinois 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.



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, Illinois makes (1) improvements in efficiency to reduce overall demand by 25 percent and (2) shifts away from fossil fuels so that 25 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 CO_2 emissions from fossil fuels assumes no investment in carbon capture and storage.

Making a Difference in Illinois

Wind power is an important growing industry in Illinois. Currently, 8th amongst U.S. states in wind power production with 735.66 megawatts of existing capacity and another 171 MW under construction, Illinois has the potential capacity of almost 7,000 MW if wind energy.

Wind manufacturing is taking off in Illinois. Siemens Energy and Automation is the leading U.S. manufacturer of wind turbine gear drives, an essential component of modern windmills. Siemens has an existing gear drive plant in Elgin, employing 150 people, and it has announced a second plant on the same location. Expected to open in March 2009, this new plant should create 355 new jobs and greatly increase Siemens's ability to fulfill the demand for wind turbines.

Sources:

http://www.zibb.com/article/3477555/New+Multi+Million+Dollar+Siemens+Plant+Will+Increase+Production+of+Mechanical+Drives+for+Wind+Turbine+Industry

http://www.awea.org/projects/Projects.aspx?s=Illinois

Making a dent in global warming pollution

Simply by shifting to renewable energy sources and improving energy efficiency over the next decade or so, Illinois can reduce its future carbon dioxide (CO_2) emissions from electricity generation by 55 percent compared to the business-as-usual path that utilities are following now.

Given that 39 percent of Illinois's CO_2 emissions come from electricity generation, diversifying and updating our power sources is critical for cutting the state's total global warming pollution.

Increasing Illinois's energy and economic security

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

Expanded solar power. Illinois has enough solar resources to produce 4,000 to 5,000 Whr per square meter using photovoltaic systems and 3,000 to 4,500 Whr per square meter using concentrating solar power systems. This means that devoting just 1 square mile in Illinois to solar power can provide enough electricity for about 1,100 households each year.

Expanded wind power. Illinois is currently ranked 8th for wind power, with 736 MW of existing electricity generation capacity and 171 MW under construction. The American Wind Energy Association ranks Illinois 16th in terms of its future wind potential, with 6,980 MW of potential capacity.

Biomass power. Illinois has 33.4 million dry tons of biomass available each year that could be used to generate about 6,700 MW of electricity.

New jobs. Committing to a 30 percent growth in solar energy use in the United States will bring 1,368 jobs and $1,104 million investment to Illinois.

A stronger economy. Illinois could realize as many as 8,530 jobs manufacturing wind turbines and $2.84 billion investment in the wind industry alone if 50,000 MW of new wind energy is created on a national level.

How does Illinois use electricity?

Illinois's energy is used to power:

- homes (33 percent),
- businesses (36 percent), and
- industry (32 percent).

Per capita residential electricity use is 3,630 kilowatt hours per year, 20 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

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Environmental Protection Agency, Energy CO_2 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.