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

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

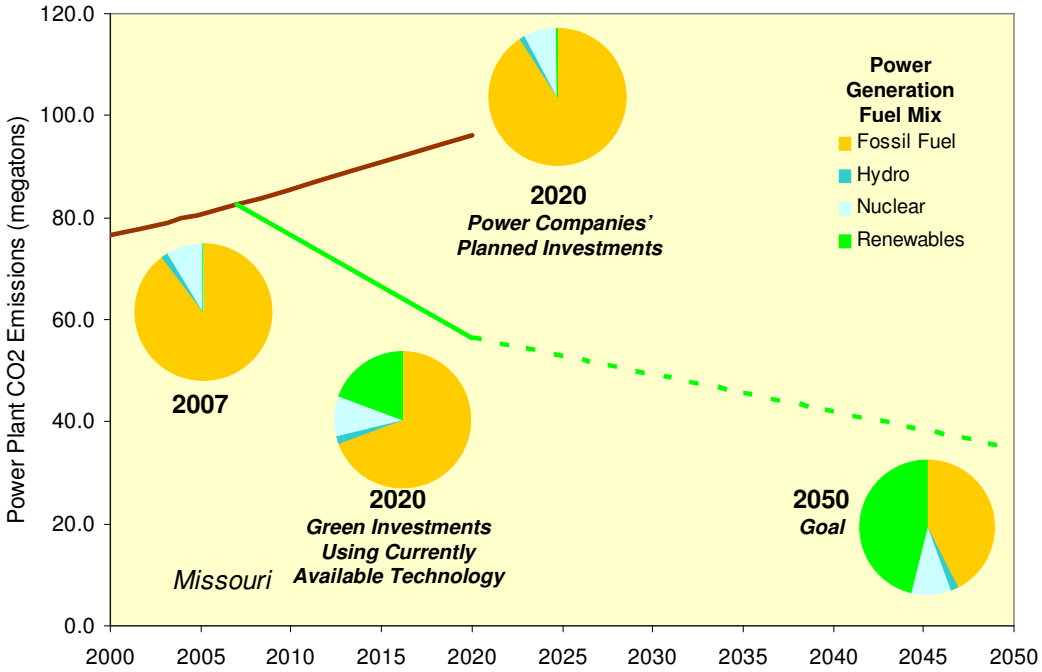
How does Missouri generate electricity today?

In 2007, electric power generated in Missouri primarily came from coal (80.7 percent), gas (7.0 percent), and nuclear (8.6 percent). Most utilities intend to continue relying heavily on fossil fuels in the coming decade. Missouri power companies plan to increase the energy generation from coal by 17.4 percent, gas by 8.1 percent. Less than 0.1 percent of electricity generated in Missouri is expected to come from renewable sources like wind, solar, geothermal, and biomass under current plans.

Missouri has a choice to invest in a cleaner energy future

Missouri 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 Missouri 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.

Missouri 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, Missouri 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 CO_2 emissions from fossil fuels assumes no investment in carbon capture and storage.

Making a Difference in Missouri

With the help of the Wind Capital Group, John Deere, and community support, Missouri has started building a greener future. In 2006, the Wind Capital Group, with funding from John Deere, started production of the first wind farm in the state. Located in Gentry County, the farm consists of 27 turbines that produce enough energy to power approximately 34,000 homes. This project received strong community support, as it brought new jobs and financial gains for the citizens. The popularity and success of this first wind farm led to the construction of three more in the state by the Wind Capital Group/John Deere partnership, all of which went online in 2008.

Sources:
http://windcapitalgroup.com/projects.html
http://www.sierraclub.org/planet/200606/bigmissouriwind.asp

Making a dent in global warming pollution

Simply by shifting to renewable energy sources and improving energy efficiency over the next decade or so, Missouri can reduce its future carbon dioxide (CO_2) emissions from electricity generation by 42 percent compared to the business-as-usual path that utilities are following now.

Given that 53 percent of Missouri'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 Missouri's energy and economic security

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

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

Expanded wind power. Missouri is currently ranked 18th for wind power, with 0,163 MW of existing electricity generation capacity. The American Wind Energy Association ranks Missouri 20th in terms of its future wind potential, with 5,960 MW of potential capacity.

Biomass power. Missouri has 19.5 million dry tons of biomass available each year that could be used to generate about 3,900 MW of electricity.

New jobs. Committing to a 30 percent growth in solar energy use in the United States will bring 545 jobs and $440 million investment to Missouri.

A stronger economy. Missouri could realize as many as 3,234 jobs manufacturing wind turbines and $1.08 billion investment in the wind industry alone if 50,000 MW of new wind energy is created on a national level.

How does Missouri use electricity?

Missouri's energy is used to power:

- homes (41 percent),
- businesses (36 percent), and
- industry (22 percent).

Per capita residential electricity use is 5,804 kilowatt hours per year, 28 percent greater 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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Renewable Energy Policy Project, www.repp.org.

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