

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



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

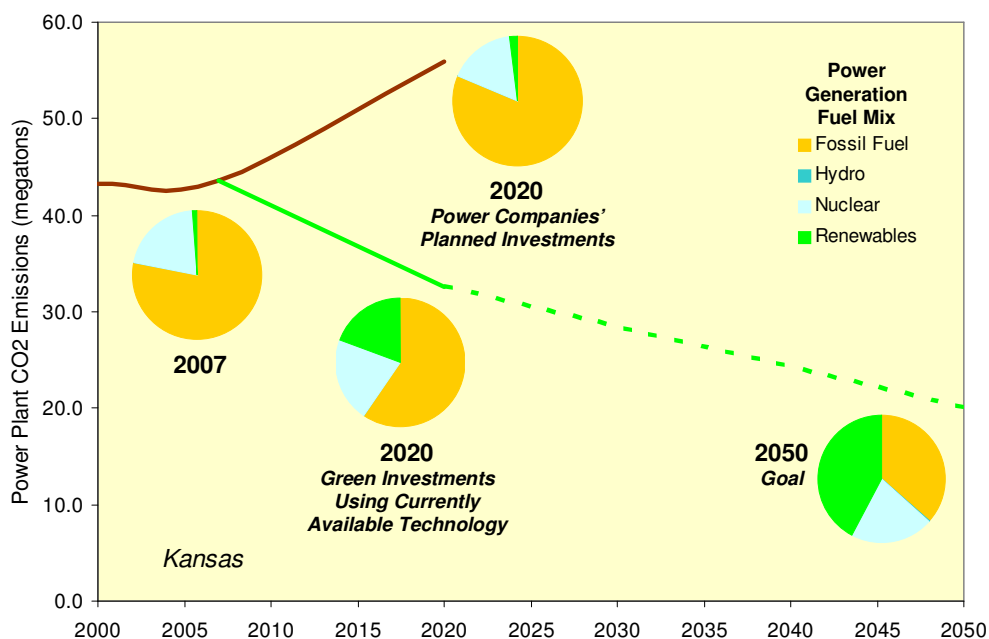
How does Kansas generate electricity today?

In 2007, electric power generated in Kansas primarily came from coal (70.7 percent), gas (6.0 percent), and nuclear (21.0 percent). Most utilities intend to continue relying heavily on fossil fuels in the coming decade. Kansas power companies plan to increase the energy generation from coal by 30.8 percent, gas by 26.8 percent. Only about 1.0 percent of electricity generated in Kansas is expected to come from renewable sources like wind, solar, geothermal, and biomass under current plans.

Kansas has a choice to invest in a cleaner energy future

Kansas 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 Kansas 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.

Kansas 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, Kansas 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 Kansas

The open plains of Kansas provide some of the best wind for energy production in the country. Kansas ranks third in potential wind capacity, after Texas and North Dakota, yet ranks only 11th in current wind energy production. Plans are in place to nearly double wind production in the state, adding 448 megawatts to the current 465 MW of wind energy. The largest project under construction is the Meridian Way Wind Farm, which expects to produce 201 MW—enough to power 45,000 average Kansas homes—by the end of 2008. Kansas is also the home of TradeWind Energy, based out of Lenexa. TradeWind has built wind farms in Kansas and Missouri and is “actively pursuing and developing numerous wind power projects in several states throughout the Heartland.”



Sources:

<http://www.awea.org/projects/Projects.aspx?s=Kansas>

<http://domesticfuel.com/2008/04/09/westar-to-break-ground-on-kansas-wind-farm/>

<http://www.kansaswindpower.com/projects.aspx?id=94>

Making a dent in global warming pollution

Simply by shifting to renewable energy sources and improving energy efficiency over the next decade or so, Kansas can reduce its future carbon dioxide (CO₂) emissions from electricity generation by 42 percent compared to the business-as-usual path that utilities are following now.

Given that 48 percent of Kansas'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 Kansas's energy and economic security

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

Expanded solar power. Kansas has enough solar resources to produce 4,500 to 6,000 Whr per square meter using photovoltaic systems and 4,000 to 6,000 Whr per square meter using concentrating solar power systems. This means that devoting just 1 square mile in Kansas to

solar power can provide enough electricity for about 1,400 households each year.

Expanded wind power. Kansas is currently ranked 12th for wind power, with 465 MW of existing electricity generation capacity and 549 MW under construction. The American Wind Energy Association ranks Kansas 3rd in terms of its future wind potential, with 121,900 MW of potential capacity.

Biomass power. Kansas has 21.3 million dry tons of biomass available each year that could be used to generate about 4,300 MW of electricity.

New Jobs. A nationwide investment in green infrastructure of \$100 billion over the next two years could yield 1,313 jobs in solar power and 1,125 jobs in wind power for Kansas. That's 2,036 more jobs than an equivalent investment in conventional power would create.

How does Kansas use electricity?

Kansas's energy is used to power:

- homes (34 percent),
- businesses (37 percent), and
- industry (29 percent).

Per capita residential electricity use is 4,900 kilowatt hours per year, near 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,
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www.eia.doe.gov/emeu/states/_seds_updates.html.

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.