

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



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

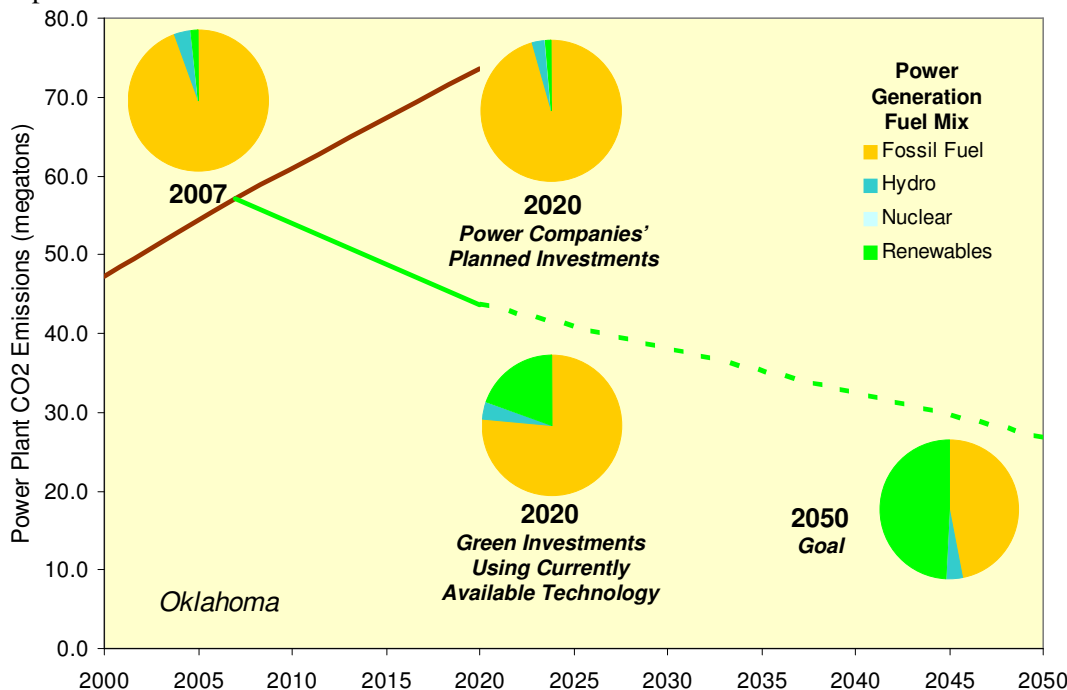
How does Oklahoma generate electricity today?

In 2007, electric power generated in Oklahoma primarily came from coal (51.1 percent), gas (36.0 percent), and hydro (4.0 percent). Most utilities intend to continue relying heavily on fossil fuels in the coming decade. Oklahoma power companies plan to increase the energy generation from coal by 43.6 percent, gas by 12.3 percent. Only about 1.5 percent of electricity generated in Oklahoma is expected to come from renewable sources like wind, solar, geothermal, and biomass under current plans.

Oklahoma has a choice to invest in a cleaner energy future

Oklahoma 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 Oklahoma 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.

Oklahoma 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, Oklahoma 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 Oklahoma

The future of wind energy in Oklahoma is looking bright. According to the National Renewable Energy Laboratory (NREL), Oklahoma has the potential to produce 9 percent of the nation's electricity and could become the second-largest producer of wind energy by the year 2030. Gov. Brad Henry says "we are embracing the industry and want to do all we can to harness every bit of capacity we can deliver." In May 2008, the governor signed a bill that allows companies to recoup some of their investment in wind farms and new transmission systems related to wind energy. Oklahoma is currently the 10th largest producer of wind energy, with 689 megawatts being produced.

Sources:

http://www.ok.gov/newsroom.php?page_id=2001&type=1

<http://www.awea.org/projects/projects.aspx?s=North+Dakota>



Making a dent in global warming pollution

Simply by shifting to renewable energy sources and improving energy efficiency over the next decade or so, Oklahoma can reduce its future carbon dioxide (CO₂) emissions from electricity generation by 41 percent compared to the business-as-usual path that utilities are following now.

Given that 45 percent of Oklahoma'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 Oklahoma's energy and economic security

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

Expanded solar power. Oklahoma has enough solar resources to produce 5,000 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 Oklahoma to solar power can provide enough electricity for about 1,400 households each year.

Expanded wind power. Oklahoma is currently ranked 10th for wind power, with 689 MW of existing electricity generation capacity and 19 MW under construction. The American Wind Energy Association ranks Oklahoma 8th in terms of its future wind potential, with 82,700 MW of potential capacity.

Biomass power. Oklahoma has 12.7 million dry tons of biomass available each year that could be used to generate about 2,500 MW of electricity.

How does Oklahoma use electricity?

Oklahoma's energy is used to power:

- homes (40 percent),
- businesses (33 percent), and
- industry (27 percent).

Per capita residential electricity use is 6,063 kilowatt hours per year, 34 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

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.