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

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

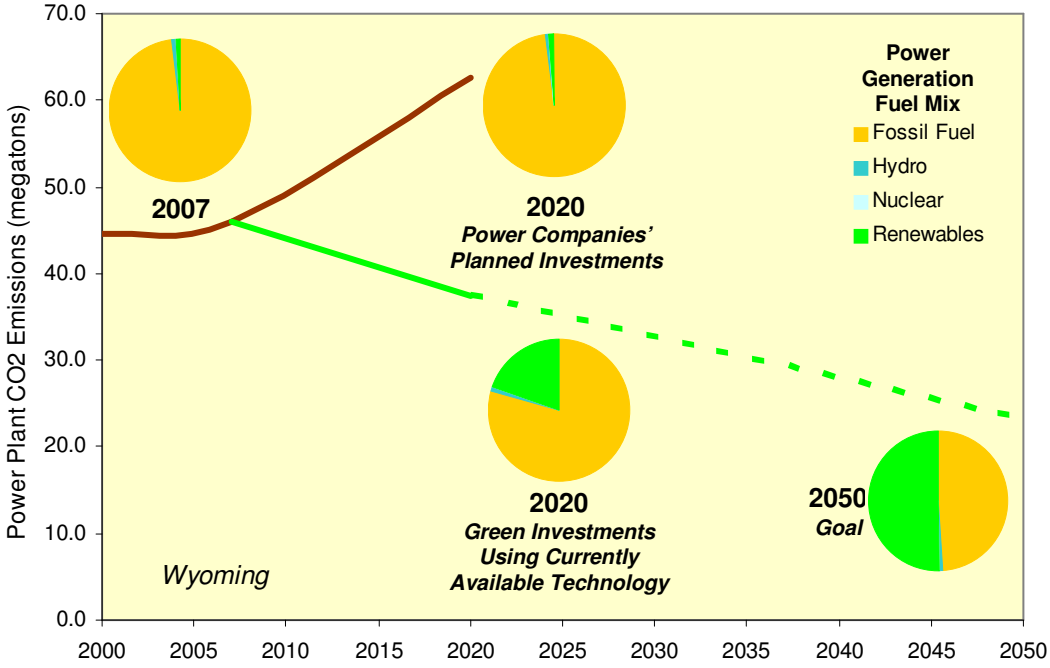
How does Wyoming generate electricity today?

In 2007, electric power generated in Wyoming primarily came from coal (94.6 percent). Most utilities intend to continue relying heavily on fossil fuels in the coming decade. Wyoming power companies plan to increase the energy generation from coal by 18.5 percent. Only about 0.9 percent of electricity generated in Wyoming is expected to come from renewable sources like wind, solar, geothermal, and biomass under current plans.

Wyoming has a choice to invest in a cleaner energy future

Wyoming 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 Wyoming 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.

Wyoming 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, Wyoming 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 Wyoming

Wyoming's vast landscape and bright sunlight provide it with some of the best renewable energy resources in the country. Wyoming ranks 7th for potential wind production and also has significant solar potential. If just 0.5 percent of the total state area, including rooftops, was used for solar panels, Wyoming could produce 72 billion kWh of electricity. The average home uses between 10,000 and 11,000 kWh a year. In addition to the wind farms currently running in the state, plans are in place to build what could become the world's largest wind farm, in southern Wyoming. With continued effort, renewable energy will help the state become less reliant on fossil fuels and preserve the awe-inspiring natural beauty of the region.

Sources:
http://www.eere.energy.gov/states/alternatives/resources_wy.cfm
http://www.treehugger.com/files/2008/07/2000-megawatt-wind-farm-planned-wyoming.php
http://tonto.eia.doe.gov/state/state_energy_profiles.cfm?sid=WY

Making a dent in global warming pollution

Simply by shifting to renewable energy sources and improving energy efficiency over the next decade or so, Wyoming can reduce its future carbon dioxide (CO_2) emissions from electricity generation by 40 percent compared to the business-as-usual path that utilities are following now.

Given that 69 percent of Wyoming'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 Wyoming's energy and economic security

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

Expanded solar power. Wyoming has enough solar resources to produce 5,000 to 5,500 Whr per square meter using photovoltaic systems and 4,500 to 5,500 Whr per square meter using concentrating solar power systems. This means that devoting just 1 square mile in Wyoming to solar power can provide enough electricity for about 1,300 households each year.

Expanded wind power. Wyoming is currently ranked 13th for wind power, with 349 MW of existing electricity generation capacity and 109 MW under construction. The American Wind Energy Association ranks Wyoming 7th in terms of its future wind potential, with 85,200 MW of potential capacity.

Biomass power. Wyoming has 1.5 million dry tons of biomass available each year that could be used to generate about 300 MW of electricity.

Geothermal power. Wyoming has 1 geothermal project under development.

How does Wyoming use electricity?

Wyoming's energy is used to power:

- homes (17 percent),
- businesses (28 percent), and
- industry (56 percent).

Per capita residential electricity use is 4,813 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, www.dsireusa.org.
Department of Energy, Energy Efficiency and Renewable Energy. apps1.eere.energy.gov/states/alternatives/electricity.cfm.
Energy Information Administration, State Energy Data System, www.eia.doe.gov/emeu/states/_seds_updates.html.
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.