

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



Oregon's energy future is at a crossroads

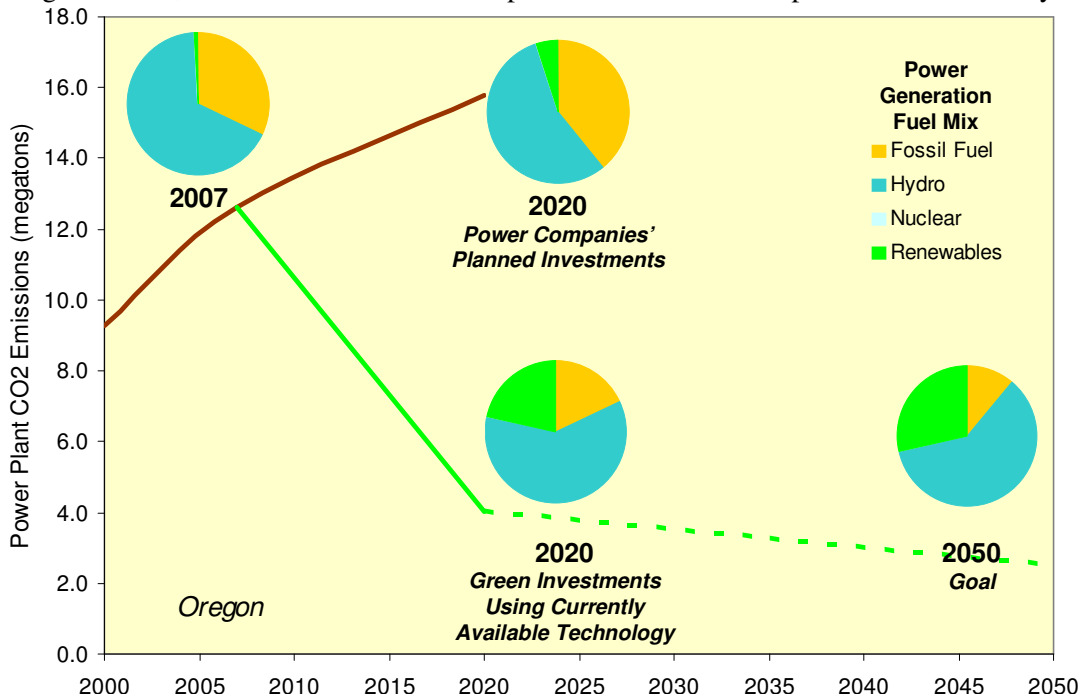
One path leads to increased dependency on fossil fuels—threatening our economy and fueling global warming. The other leads to a new, smarter energy future for Oregon. Investing in clean energy alternatives—like solar and wind power—can create and protect jobs in Oregon, save families and businesses money, 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 Oregon generate electricity today?

In 2007, electric power generated in Oregon primarily came from coal (6.7 percent), gas (17.4 percent), and hydro (66.9 percent). Most utilities intend to continue relying heavily on fossil fuels in the coming decade. Oregon power companies plan to increase the energy generation from gas by 60.4 percent. Only about 0.8 percent of electricity generated in Oregon is expected to come from renewable sources like wind, solar, geothermal, and biomass under current plans.

Oregon has a choice to invest in a cleaner energy future

Oregon 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 Oregon 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.



Oregon 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.

Today, Oregon is ranked 3rd in the nation for energy efficiency, largely because the state's utilities are already spending \$63 million annually to improve energy efficiency.

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, Oregon 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 CO₂ emissions from fossil fuels assumes no investment in carbon capture and storage.

Making a Difference in Oregon

Oregon has abundant renewable energy resources. In 2004 the Renewable Northwest Project released an economic report showing how one of the first wind farms built in the state, the Klondike Wind Project, had a large positive impact on the local economy. The planning and construction of Klondike provided a number of jobs in the community and the tax revenues added up to about \$20,000 per turbine. Landowners with windmills on their property are receiving royalty payments of \$2,000 to \$4,000 a year per turbine on their land, providing a second reliable source of income. There are opportunities for similar projects throughout the state. Oregon currently produces 887 megawatts through wind power, and has 201 MW more under construction, making it the 7th largest producer of wind power in the U.S.



Sources:

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

Ouderkirk, Brad and Meghan Pedden, "Windfall from the Wind Farm Sherman County, Oregon." Renewable Northwest Project (2004)

Making a dent in global warming pollution

Simply by shifting to renewable energy sources and improving energy efficiency over the next decade or so, Oregon can reduce its future carbon dioxide (CO₂) emissions from electricity generation by 75 percent compared to the business-as-usual path that utilities are following now.

Given that 19 percent of Oregon'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 Oregon's energy and economic security

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

Expanded solar power. Oregon has enough solar resources to produce 3,500 to 5,500 Whr per square meter using photovoltaic systems and 2,500 to 5,500 Whr per square meter using concentrating solar power systems. This means that devoting just 1 square mile in Oregon to solar power can provide enough electricity for about 1,300

households each year.

Expanded wind power. Oregon is currently ranked 7th for wind power, with 964 MW of existing electricity generation capacity and 298 MW under construction. The American Wind Energy Association ranks Oregon 23rd in terms of its future wind potential, with 4,870 MW of potential capacity.

Biomass power. Oregon has 9.8 million dry tons of biomass available each year that could be used to generate about 2,000 MW of electricity.

Geothermal power. Oregon has 11 geothermal projects under development, with the potential to produce as much as 322 MW of new power capacity.

New jobs. Committing to a 30 percent growth in solar energy use in the United States will bring 1,193 jobs and \$960 million investment to Oregon.

How does Oregon use electricity?

Oregon's energy is used to power:

- homes (39 percent),
- businesses (33 percent), and
- industry (27 percent).

Per capita residential electricity use is 5,142 kilowatt hours per year, 14 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.

Energy Information Administration, State Energy Data System, 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.