

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



Washington'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 Washington. Investing in clean energy alternatives—like solar and wind power—can create and protect jobs in Washington, 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 Washington generate electricity today?

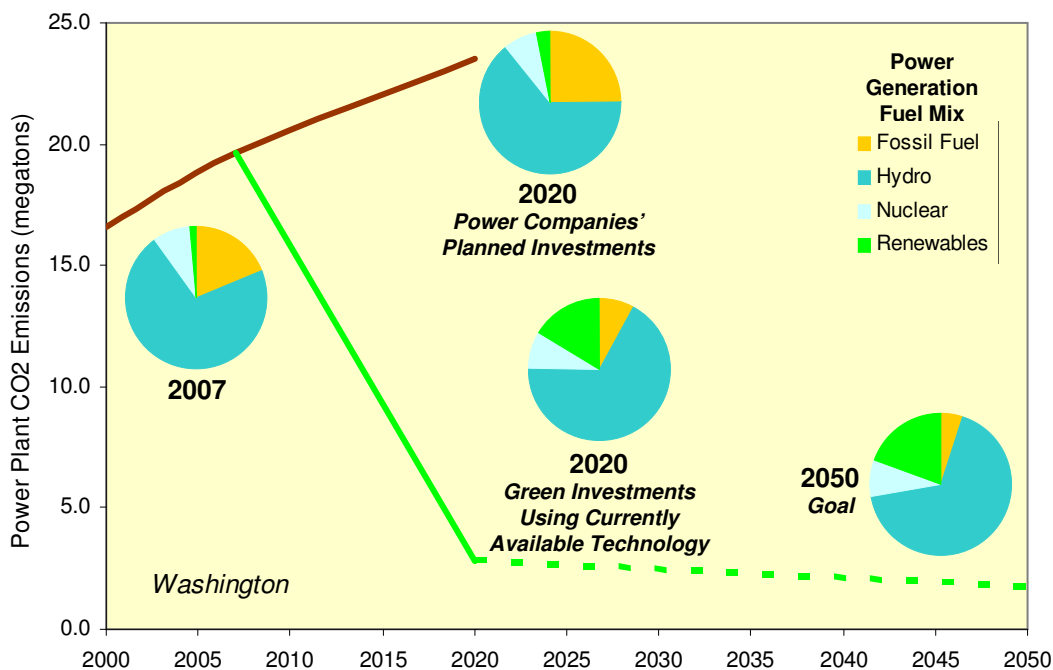
In 2007, electric power generated in Washington primarily came from coal (8.5 percent), gas (6.1 percent), hydro (71.5 percent), and nuclear (8.7 percent). Most utilities intend to continue relying heavily on fossil fuels in the coming decade. Washington power companies plan to increase the energy generation from gas by 92.3 percent. Only about 1.3 percent of electricity generated in Washington is expected to come from renewable sources like wind, solar, geothermal, and biomass under current plans.

Washington has a choice to invest in a cleaner energy future

Washington 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 Washington 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.

Washington 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, Washington is ranked 5th in the nation for energy efficiency, largely because the state's utilities are already spending \$89 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, Washington 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 Washington

Despite having only average wind resources, Washington has managed to become one of the largest producers of wind energy in the country. Ranked 24th for potential wind production, the state produces the 5th highest amount of wind energy in the U.S. Wind farms throughout the state currently produce 1,289 megawatts of electricity. The 228 MW Wild Horse Wind Facility alone produced enough power for 55,000 homes, and is planning to expand to power another 10,000 homes in the near future. The success of wind power in Washington is the result of public support and the state government's dedication to renewable energy. Washington's Renewable Portfolio Standard requires utilities to produce 15 percent of their power from renewable sources by 2020.



Sources:

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

<http://seattle.bizjournals.com/seattle/stories/2008/08/11/focus4.html>

<http://www.dsireusa.org/library/includes/map2.cfm?CurrentPageID=1&State=WA&RE=1&EE=0>

Making a dent in global warming pollution

Simply by shifting to renewable energy sources and improving energy efficiency over the next decade or so, Washington can reduce its future carbon dioxide (CO₂) emissions from electricity generation by 88 percent compared to the business-as-usual path that utilities are following now.

Given that 17 percent of Washington'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 Washington's energy and economic security

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

Expanded solar power. Washington has enough solar resources to produce 3,500 to 5,000 Whr per square meter using photovoltaic systems and 2,500 to 5,000 Whr per square meter using concentrating solar power systems. This means that devoting just 1 square mile in Washington to solar power can provide enough electricity for about

1,200 households each year.

Expanded wind power. Washington is currently ranked 5th for wind power, with 1,289 MW of existing electricity generation capacity and 77 MW under construction. The American Wind Energy Association ranks Washington 24th in terms of its future wind potential, with 3,740 MW of potential capacity.

Biomass power. Washington has 9.9 million dry tons of biomass available each year that could be used to generate about 2,000 MW of electricity.

Geothermal power. Washington has 1 geothermal project under development, with the potential to produce as much as MW of new power capacity.

New jobs. Committing to a 30 percent growth in solar energy use in the United States will bring 660 jobs and \$531 million investment to Washington.

How does Washington use electricity?

Washington's energy is used to power:

- homes (41 percent),
- businesses (34 percent), and
- industry (26 percent).

Per capita residential electricity use is 5,402 kilowatt hours per year, 19 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.