

Charting a New Path for New Hampshire's Electricity Generation



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

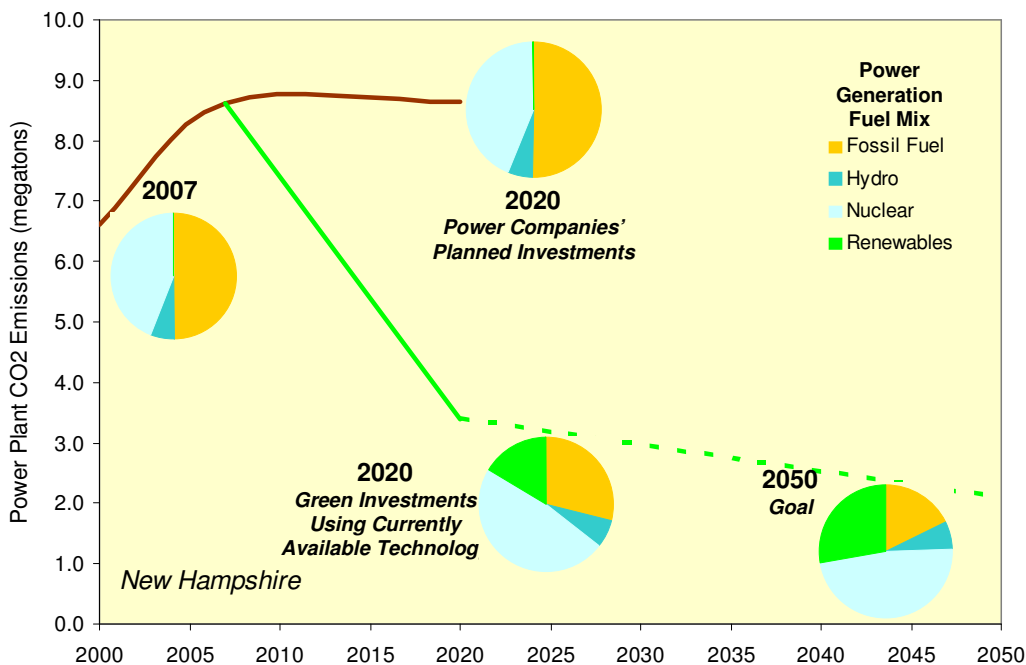
In 2007, electric power generated in New Hampshire primarily came from coal (13.8 percent), oil (8.9 percent), gas (13.9 percent), hydro (6.1 percent), and nuclear (44.1 percent). Most utilities intend to continue relying heavily on fossil fuels in the coming decade. New Hampshire power companies plan to increase the energy generation from Less than 0.1 percent of electricity generated in New Hampshire is expected to come from renewable sources like wind, solar, geothermal, and biomass under current plans.

New Hampshire has a choice to invest in a cleaner energy future

New Hampshire 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 New Hampshire 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.

New Hampshire 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, New Hampshire is ranked 7th in the nation for energy efficiency, largely because the state's utilities are already spending \$15 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, New Hampshire 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 New Hampshire

Individuals and businesses in New Hampshire are hurting from rising energy costs. Fraser Papers laid off 80 employees in April 2008 after high energy costs forced it to close one paper machine. The company is hoping to solve some of its energy problems by switching from gas burning to renewable biomass wood-fired boilers. By converting to biomass, Fraser Papers hopes to have a buffer from rising gas prices. The paper company has already converted one plant and has received a \$1 million grant to convert a second. Biomass is getting another boost in the state at the site of the old paper plant. The facility has been purchased with the intent to turn it into a biomass power plant, which will employ 40 people when complete and produce 60 megawatts of renewable power.



Sources:

http://www.boston.com/news/local/new_hampshire/articles/2008/06/22/1_million_grant_for_nh_biomass_burner_project/

<http://www.masshightech.com/stories/2008/05/12/daily1-Developers-buy-Berlin,-N.H.-paper-mill-for-biomass-power-plant.html>

Making a dent in global warming pollution

Simply by shifting to renewable energy sources and improving energy efficiency over the next decade or so, New Hampshire can reduce its future carbon dioxide (CO₂) emissions from electricity generation by 61 percent compared to the business-as-usual path that utilities are following now.

Given that 35 percent of New Hampshire'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 New Hampshire's energy and economic security

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

Expanded solar power. New Hampshire has enough solar resources to produce 4,000 to 5,000 Whr per square meter using photovoltaic systems and 3,500 to 4,000 Whr per square meter using concentrating solar power systems. This means that devoting just 1 square mile in New

Hampshire to solar power can provide enough electricity for about 1,100 households each year.

Expanded wind power. New Hampshire is currently ranked 33rd for wind power, with 1 MW of existing electricity generation capacity. The American Wind Energy Association ranks New Hampshire 35th in terms of its future wind potential, with 502 MW of potential capacity.

Biomass power. New Hampshire has 2.0 million dry tons of biomass available each year that could be used to generate about 400 MW of electricity.

New Jobs. A nationwide investment in green infrastructure of \$100 billion over the next two years could yield 573 jobs in solar power and 487 jobs in wind power for New Hampshire. That's 899 more jobs than an equivalent investment in conventional power would create.

How does New Hampshire use electricity?

New Hampshire's energy is used to power:

- homes (40 percent),
- businesses (41 percent), and
- industry (19 percent).

Per capita residential electricity use is 3,355 kilowatt hours per year, 26 percent less 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.