

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



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

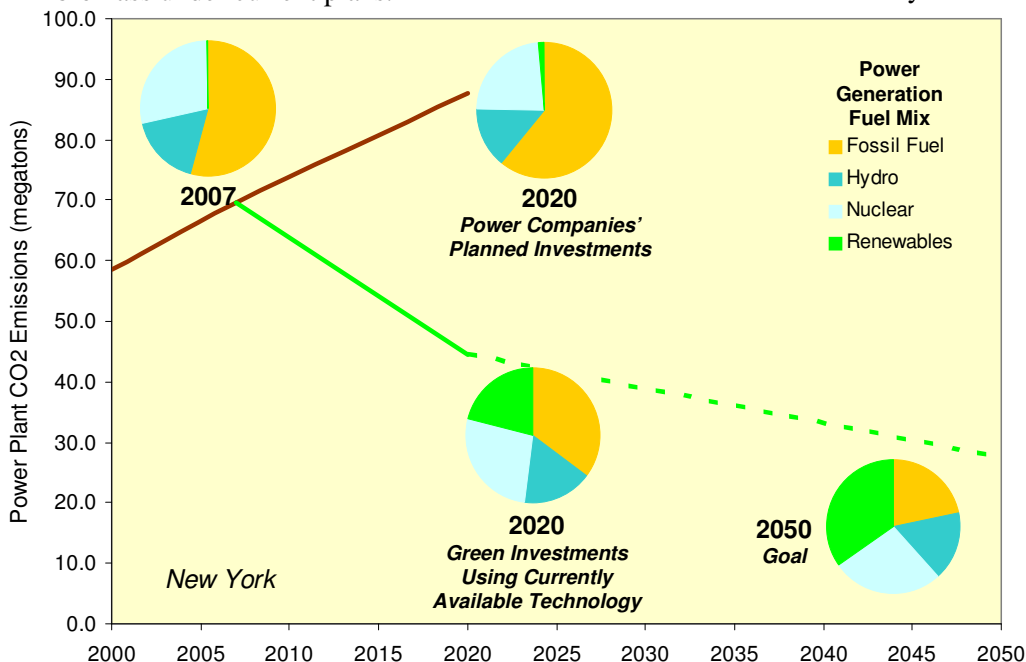
In 2007, electric power generated in New York primarily came from coal (15.3 percent), oil (13.3 percent), gas (19.6 percent), hydro (17.3 percent), and nuclear (28.2 percent). Most utilities intend to continue relying heavily on fossil fuels in the coming decade. New York power companies plan to increase the energy generation from coal by 43.8 percent, oil by 0.5 percent, and gas by 48.9 percent. Only about 0.4 percent of electricity generated in New York is expected to come from renewable sources like wind, solar, geothermal, and biomass under current plans.

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

New York 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 York to generate at least 24 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 York 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 York is ranked 15th in the nation for energy efficiency, largely because the state's utilities are already spending \$147 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 York makes (1) improvements in efficiency to reduce overall demand by 25 percent and (2) shifts away from fossil fuels so that 24 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 York

New York has set a state goal to produce 24 percent of its power through renewable sources by 2013. To reach this goal, the state has made it easier and more cost effective to implement small-scale wind and solar projects. Corporate tax credits up to \$2 million are available for green building practices and individuals can be credited up to \$5,000 for small-scale solar projects.

Harnessing wind power will be integral in reaching the state's renewable energy goal. New York currently produces about 424 megawatts of electricity through existing wind farms and another 600 MW are under construction. However, the state has the potential to produce 5,000 MW of wind power, enough to provide 10 percent of the state's power needs.



Sources:

<http://www.awea.org/projects/projects.aspx?s=New+York>

http://www.powernaturally.org/Programs/Wind/UtilityScale_LargeWind.asp?i=8

<http://www.dsireusa.org/library/includes/map2.cfm?CurrentPageID=1&State=NY&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, New York can reduce its future carbon dioxide (CO₂) emissions from electricity generation by 49 percent compared to the business-as-usual path that utilities are following now.

Given that 25 percent of New York'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 York's energy and economic security

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

Expanded solar power. New York has enough solar resources to produce 4,000 to 4,500 Whr per square meter using photovoltaic systems and 3,300 to 3,500 Whr per square meter using concentrating solar power systems. This means that devoting just 1 square mile in New York to solar power can provide enough electricity for about

0,900 households each year.

Expanded wind power. New York is currently ranked 9th for wind power, with 707 MW of existing electricity generation capacity and 589 MW under construction. The American Wind Energy Association ranks New York 15th in terms of its future wind potential, with 7,080 MW of potential capacity.

Biomass power. New York has 8.4 million dry tons of biomass available each year that could be used to generate about 1,700 MW of electricity.

New jobs. Committing to a 30 percent growth in solar energy use in the United States will bring 2,035 jobs and \$1,652 million investment to New York.

A stronger economy. New York could realize as many as 6,549 jobs manufacturing wind turbines and \$2.18 billion investment in the wind industry alone if 50,000 MW of new wind energy is created on a national level.

How does New York use electricity?

New York's energy is used to power:

- homes (34 percent),
- businesses (53 percent), and
- industry (11 percent).

Per capita residential electricity use is 2,512 kilowatt hours per year, 44 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.