Charting a New Path for Massachusetts's Electricity Generation

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

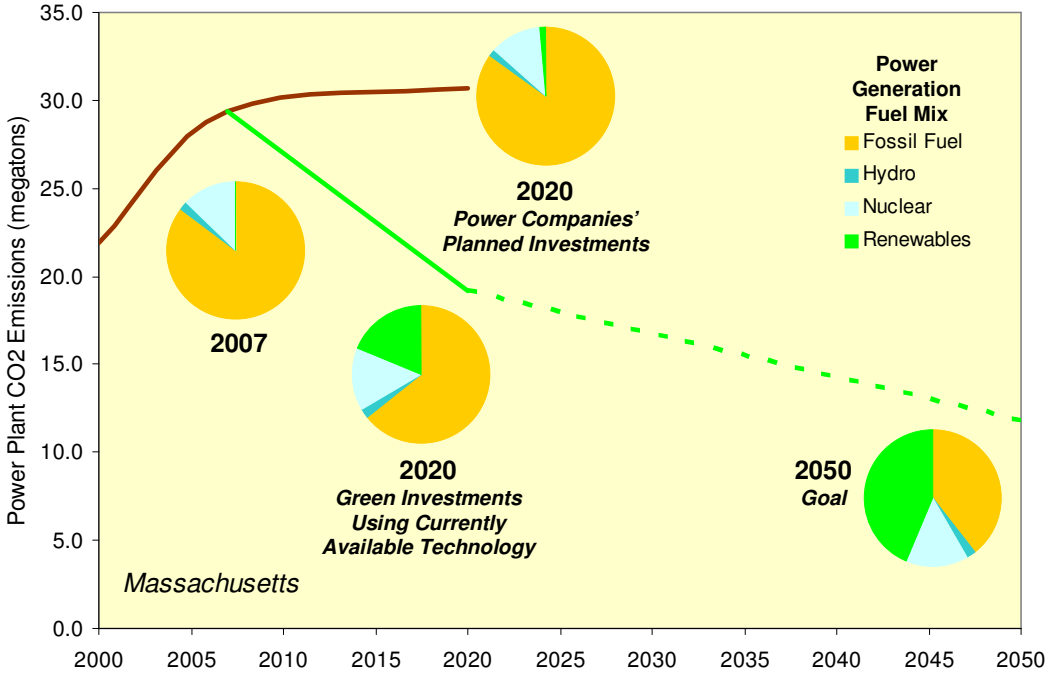
In 2007, electric power generated in Massachusetts primarily came from coal (16.1 percent), oil (27.6 percent), gas (29.9 percent), and nuclear (12.9 percent). Most utilities intend to continue relying heavily on fossil fuels in the coming decade. Massachusetts power companies plan to increase the energy generation from oil by 1.6 percent, gas by 15.0 percent. Less than 0.1 percent of electricity generated in Massachusetts is expected to come from renewable sources like wind, solar, geothermal, and biomass under current plans.

Massachusetts has a choice to invest in a cleaner energy future

Massachusetts 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 Massachusetts 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.

Massachusetts 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, Massachusetts is ranked 2nd in the nation for energy efficiency, largely because the state's utilities are already spending $133 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, Massachusetts 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 Massachusetts

When the citizens of Hull saw an opportunity for wind power in their community, they rallied into action. The town's peninsula, aptly named "windmill point," seemed an obvious place to install modern wind turbines. Hull's citizens formed volunteer groups, conducted research, and proposed the project. In 2002, the town built its first 150-foot tall turbine. The second turbine went up in 2006. Together, the turbines have cut the town's street lighting bills dramatically and provide about 10 percent of the town's electricity. The success of the project has inspired the town to plan for four more offshore turbines that could supply enough electricity for the entire town.

Outside of Hull, there are many opportunities for individuals in Massachusetts to do their part to advance renewable power. The state provides millions of dollars annually in grants, tax exemptions, and rebates for renewable energy. These incentives make it much more affordable to use renewable power throughout Massachusetts.

Sources:
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Making a dent in global warming pollution

Simply by shifting to renewable energy sources and improving energy efficiency over the next decade or so, Massachusetts can reduce its future carbon dioxide (CO_2) emissions from electricity generation by 38 percent compared to the business-as-usual path that utilities are following now.

Given that 28 percent of Massachusetts'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 Massachusetts's energy and economic security

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

Expanded solar power. Massachusetts has enough solar resources to produce 4,000 to 5,000 Whr per square meter using photovoltaic systems and 3,000 to 4,000 Whr per square meter using concentrating solar power systems. This means that devoting just 1 square mile in Massachusetts to solar power can provide enough electricity for about 1,100 households each year.

Expanded wind power. Massachusetts is currently ranked 31st for wind power, with 5 MW of existing electricity generation capacity and 3 MW under construction. The American Wind Energy Association ranks Massachusetts 25th in terms of its future wind potential, with 2,880 MW of potential capacity.

Biomass power. Massachusetts has 1.4 million dry tons of biomass available each year that could be used to generate about 300 MW of electricity.

New jobs. Committing to a 30 percent growth in solar energy use in the United States will bring 1,586 jobs and $1,286 million investment to Massachusetts.

A stronger economy. Massachusetts could realize as many as 3,210 jobs manufacturing wind turbines and $1.07 billion investment in the wind industry alone if 50,000 MW of new wind energy is created on a national level.

References and Additional Reading:

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For more information, visit www.nwf.org/globalwarming.