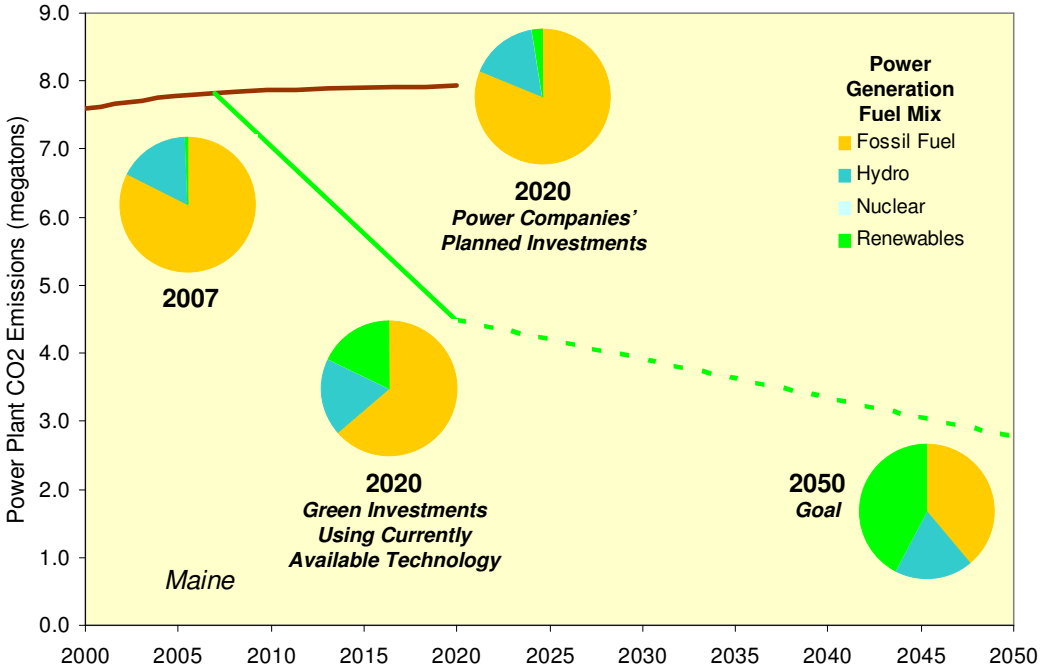
Charting a New Path for Maine's Electricity Generation and Use

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

In 2007, electric power generated in Maine primarily came from coal (4.5 percent), oil (7.7 percent), gas (37.2 percent), and hydro (16.9 percent). Most utilities intend to continue relying heavily on fossil fuels in the coming decade. Maine power companies plan to increase the energy generation from gas by 3.2 percent. Only about 0.6 percent of electricity generated in Maine is expected to come from renewable sources like wind, solar, geothermal, and biomass under current plans.



Maine has a choice to invest in a cleaner energy future

Maine 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 Maine 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.

Maine 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, Maine is ranked 11th in the nation for energy efficiency, largely because the state's utilities are already spending $13 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, Maine 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 Maine

In recent years, soaring costs of diesel, gas and home heating oil have hit Maine hard. With 80 percent of houses in Maine using heating oil and ¾ of the state's electricity coming from oil or natural gas, it is time for Maine to embrace renewable energy and its new energy future.

Many people in Maine, including former Gov. Angus King, are looking to wind power to help solve Maine's energy problems. Maine is currently home to New England's largest wind farm, the Mars Hill Wind Farm, and two other small-scale sites. A larger farm is under construction in Washington County that will have 36 wind turbines when completed. To help solve the technical issues of Maine's electricity transmission system, two state utility companies have proposed plans for revamping the grid to accommodate more wind farms in northern Maine.

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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, Maine can reduce its future carbon dioxide (CO_2) emissions from electricity generation by 44 percent compared to the business-as-usual path that utilities are following now.

Given that 20 percent of Maine'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 Maine's energy and economic security

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

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

Expanded wind power. Maine is currently ranked 26th for wind power, with 42 MW of existing electricity generation capacity and 57 MW under construction. The American Wind Energy Association ranks Maine 19th in terms of its future wind potential, with 6,390 MW of potential capacity.

Biomass power. Maine has 2.2 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 622 jobs in solar power and 544 jobs in wind power for Maine. That's 993 more jobs than an equivalent invesmtent in conventional power would create.

How does Maine use electricity?

Maine's energy is used to power:

- homes (35 percent),
- businesses (34 percent), and
- industry (31 percent).

Per capita residential electricity use is 3,309 kilowatt hours per year, 27 percent less than the national average.

References and Additional Reading:

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