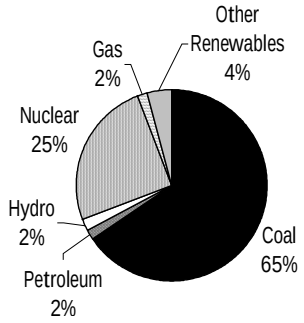
Union of Concerned Scientists
Citizens and Scientists for Environmental Solutions

Renewing Minnesota

A National Renewable Energy Standard Will Benefit Minnesota's Economy

America's energy choices affect our national security, our economy, our family budgets, and our environment. UCS examined a national policy to increase the United States' use of renewable energy to 20% of electricity supplies by 2020, called a renewable portfolio standard (RPS). This fact sheet shows that under a national standard of 20%, Minnesota has the potential to meet a significant portion of its electricity needs with renewable energy while generating substantial economic and environmental benefits for the state. See our briefing *Renewing Where We Live* for more information on the benefits of a renewable energy standard for the Plains States.

Minnesota's Electricity Mix, 2000



Current Electricity Mix. Minnesota is heavily reliant on coal and nuclear power to generate its electricity. All of the coal, nuclear fuel, natural gas and oil is imported into the state, exporting dollars and jobs in the process. Renewable energy sources such as wind and bioenergy currently provide a small amount of the state's electricity. In 2000, Minnesota imported about 14% of the electricity used in the state.

Minnesota's Renewable Energy Potential

Resource	Generation (billion kWh)	% of 2000 Electricity Sales
Wind	991.3	1,656%
Bioenergy	30.3	51%
Landfill Gas	0.3	1%
Total	1,021.9	1,708%

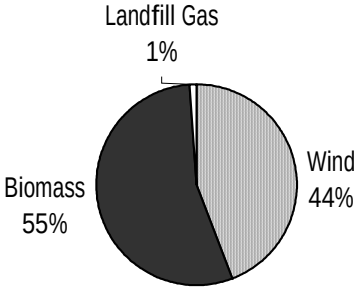
Renewable Energy Potential. Minnesota has the technical potential to generate over 17 times its current electricity needs from renewable energy. The resources with the greatest potential in Minnesota are wind and bioenergy. Emerging renewable technologies such as solar photovoltaics also have the potential to play a smaller but important part in the state's electricity supply. Not all of Minnesota's renewable potential will be developed due to economic, physical, and other limitations.

Renewable Energy Development. The UCS analysis found that under the 20% national standard, Minnesota would produce the equivalent of 12% of its electricity use from renewable energy (not including hydro) in 2010 and 33% in 2020. By 2020, renewable generation in Minnesota would be more than 1.5 times the national standard. If electricity generation grows at the same rate as electricity use in the state, renewable energy would provide 39% of Minnesota's electricity generation in 2020. The vast majority of the development would come from Minnesota's plentiful wind and farmer-grown bioenergy sources.

Economic Development. Renewable energy development would bring significant economic benefits to Minnesota. Between 2002 and 2020, a 20% national standard would produce

- $2.4 billion in new capital investment in Minnesota
- $144 million in new property tax revenues for local communities
- $39 million in lease payments to farmers, ranchers, and rural landowners from wind power
- $1.2 billion in additional revenues from the export of renewable energy credits[1]

Renewable Energy Mix in Minnesota under 20% RPS



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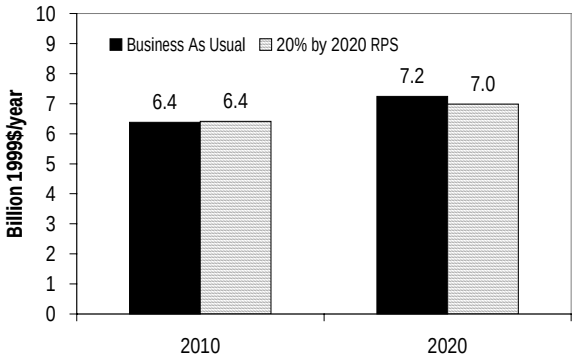
Consumer Costs and Benefits. A national standard of 20% would reduce energy costs to Minnesota consumers. Total annual consumer energy bills (not including transportation) would be virtually the same as business as usual in 2010, but $265 million or nearly 4% lower in 2020. The present value of total consumer savings would be $150 million between 2002 and 2020. Revenues from renewable energy credit exports and a reduction in natural gas prices more than offset any incremental costs of meeting the renewable energy standard in the state.

Total Consumer Energy Bills, Minnesota[a]



[a]Excludes transportation

Environmental Benefits. The increased use of renewable energy in Minnesota would help reduce air pollution in the state and surrounding region. Power plant emissions of carbon dioxide, which is fueling global warming, would be over 28% lower in the Plains States by 2020 than without the renewable energy standard. Other pollutants that harm human health would also be reduced by a national standard of 20% by 2020.

Additional Renewable Energy and Energy Efficiency Policies Increase Benefits

UCS examined the impact of increasing energy efficiency along with a renewable energy standard. The Renewable Energy and Energy Efficiency Act of 2001 (S. 1333) combines a 20% standard, net metering, and a public benefits fund. Combining these policies greatly increases consumer savings and economic development benefits, significantly reduces natural gas prices, generates a similar amount of environmental benefits, and provides additional diversity benefits compared to the 20% standard alone. Increasing both energy efficiency and renewable energy is the best option for Minnesota.

A 10% Renewable Energy Standard Would Have Fewer Benefits

UCS also looked at what would happen under a renewable energy standard of 10% by 2020, similar to a provision in the Senate's Energy Policy Act of 2002 (S. 1766), introduced by Senators Daschle (D-SD) and Bingaman (D-NM). Under a 10% standard, Minnesota would realize greater cumulative savings on consumer energy bills, but much less diversity, capital investment, and environmental benefits than under a 20% standard alone. The added diversity, economic development, environmental, and long-run consumer benefits make the 20% renewable energy standard the preferred option for Minnesota.

Impact of National RPS Proposals in Minnesota

In 2020:	20% RPS	Combined Policies of S. 1333[a]	10% RPS
Cumulative New Capital Investment	$2.4 billion[b]	$3.4 billion[c]	$1.0 billion
Cumulative Consumer Energy Bill Savings[d]	$0.2 billion	$1.9 billion	$0.4 million
Changes in Annual Consumer Energy Bills[d]	-$265 million -4%	-$950 million -13%	-$158 million -2%
Changes in Annual CO_2 Emissions from regional power plants	-28%	-28%	-8%

Notes
a. Includes 20% RPS, 2 c/kWh public benefits fund charge, and net metering.
b. All dollars presented in 1999$.
c. Includes investments in energy efficiency.
d. Excludes transportation.

The Union of Concerned Scientists is a nonprofit partnership of scientists and citizens combining rigorous scientific analysis, innovative policy development, and effective citizen advocacy to achieve practical environmental solutions. For more information, visit our web site at www.ucsusa.org/energy.

[1] Results presented are in 1999$. Cumulative results are in net present value using a 5% real discount rate.