



Union of
Concerned
Scientists

FACT SHEET

Cashing In on Clean Energy

A National Renewable Electricity Standard Will Benefit the Economy and the Environment

October 2007 Update

A national renewable electricity standard would require electric utilities to supply a minimum percentage of their electricity from renewable sources such as wind, solar, geothermal, and bioenergy.¹ Similar policies have already been enacted in 25 states and the District of Columbia.

In August 2007, the U.S. House of Representatives passed energy legislation (H.R. 3221) that included a 15 percent by 2020 national standard. Although the Senate passed an energy bill in June 2007 that did not include a national standard, it has supported the policy three times since 2002 (most recently in June 2005). House and Senate negotiators will have to decide whether to include a national standard in the final bill.

In a July 2007 report—*Cashing In on Clean Energy*—the Union of Concerned Scientists (UCS) used an Energy Information Administration (EIA) model to examine the long-term effects on the economy and the environment from a 20 percent by 2020 national standard that was under consideration in the House of Representatives at that time.² Here we provide an update to that analysis by examining the effects on consumers and the environment of the 15 percent by 2020 national standard that passed the House in August.

We present results under two scenarios—a “higher renewable energy case” and a “lower renewable energy case”—in order to account for the range of impacts that could occur depending on how states implement provisions that (1) allow energy efficiency to count toward a portion of the annual targets, and (2) allow additional renewable energy generation from states with targets that are higher than the national standard.³ Under both cases, our analysis found that the House-passed 15 percent national standard would provide important consumer and environmental benefits for America.

Consumer Savings

Under the 15 percent national standard higher renewable energy case, consumers in all sectors of the economy would experience a reduction in both their cumulative electricity and natural gas costs compared with business as usual. Cumulative savings would reach \$13 billion by 2020 and, by 2030, would grow to \$27.7 billion (\$8.6 billion for

Benefits of a 15 Percent by 2020 National Renewable Electricity Standard

Consumer Savings

- \$13 billion to \$18.1 billion in lower electricity and natural gas bills by 2020 (growing to \$27.7 billion to \$31.8 billion by 2030)

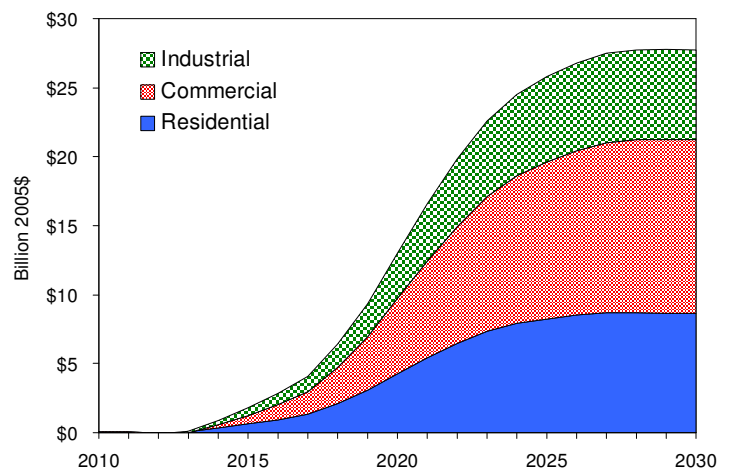
Energy Diversity

- Increase in clean, renewable energy capacity to between 3.6 and 4.5 times over 2005 levels

Global Warming Down Payment

- Reductions in global warming pollution equal to taking between 13.7 and 20.6 million cars off the road

Cumulative Natural Gas and Electricity Bill Savings*



*Under a 15 percent by 2020 renewable electricity standard, higher renewable energy case.



Photo: PPM Energy

households, \$12.6 billion for commercial customers, and \$6.5 billion for industrial customers).⁴ In addition, *energy bills would be lower in every state* (see table on page 4).

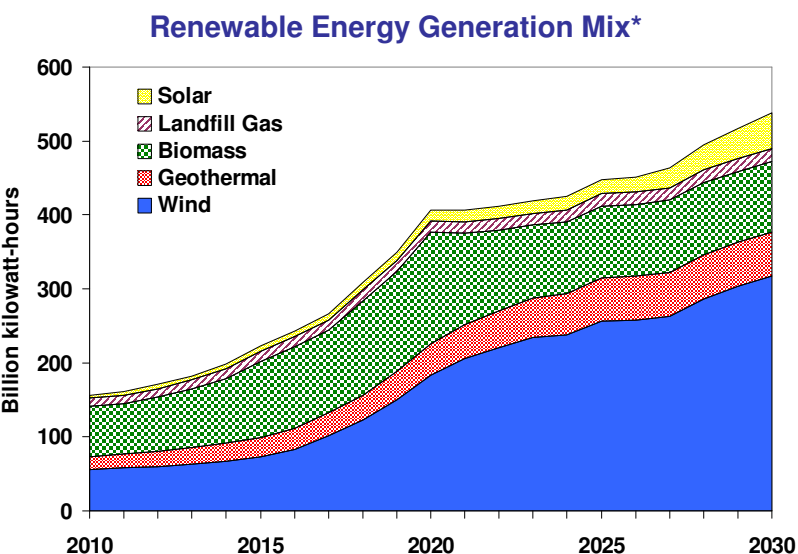
The national renewable standard saves consumers money by reducing the demand for fossil fuels through energy efficiency and renewable energy, creating new competitors in the U.S. energy market. As a result, energy companies are limited in their ability to raise fossil fuel prices in the future. Compared with business as usual, natural gas (and coal) therefore cost less for electricity generation as well as for other purposes (e.g. home heating), benefiting both electricity consumers and natural gas consumers. Under the 15 percent national standard higher renewable energy

case, average consumer prices for both electricity and natural gas would be slightly lower than business as usual in nearly every year of the forecast, with an average annual reduction of 1.1 percent for electricity and 0.6 percent for natural gas.

Energy Diversity

America's heavy reliance on fossil and nuclear fuels makes American consumers and the U.S. economy vulnerable to potential energy supply shortages and interruptions, as well as price spikes and price manipulation. Increasing our use of renewable energy and energy efficient technologies helps diversify our energy mix by meeting a larger portion of U.S. power demand and reducing the projected growth in coal and natural gas use for electricity.

Our analysis found that under the 15 percent national standard higher renewable energy case, America would increase its total homegrown renewable power generating capacity to more than 91,000 megawatts (MW) by 2020—79 percent higher than business as usual and 4.5 times the capacity levels in 2005 (about 20,000 MW).



*Under a 15 percent by 2020 renewable electricity standard, higher renewable energy case.

This development would come from wind, bioenergy, geothermal, and solar power resources, providing enough electricity to serve the needs of nearly 68 million typical U.S. homes. The renewable capacity needed to meet a 15 percent national standard is nearly 45 percent greater than what would be needed to achieve full compliance with existing state-level renewable electricity standards through 2020. In addition, the new energy efficiency supported by the national standard under the higher renewable energy case would displace the equivalent of more than six average (600 MW) coal and natural gas plants by 2020. After 2020, renewable energy development would continue to grow rapidly, with significant additional contributions from wind, solar photovoltaics, and solar thermal.

All regions of the country would see an increased use of local renewable resources for generation that would often displace the need for importing fossil fuel. For example, by 2020, a 15 percent standard would displace the need for up to 2 trillion cubic feet of natural gas and 242 million short tons of coal compared with business as usual. To put this in perspective, the amount of coal saved would fill the equivalent of 26,600 miles' worth of coal railcars—more than enough to circle the earth's equator.

A Smart Climate Solution

If left unchecked, heat-trapping emissions such as carbon dioxide (CO₂) are expected to cause dangerous global warming that threatens our health and environment. Increased energy efficiency and renewable energy use would provide an affordable global warming solution by reducing fossil fuel demand, thereby reducing CO₂ emissions from the largest U.S. source: power plants. The 15 percent national standard would provide a down payment on addressing global warming by reducing power plant CO₂ emissions by 126 million metric tons (MMT) per year by 2020 (4.6 percent below business as usual and a 41 percent reduction in EIA's projected growth of power plant CO₂ emissions from today's levels), equivalent to taking 20.6 million cars off the road.

Benefits Under The Lower Renewable Energy Case

The 15 percent standard lower renewable energy case assumes more energy efficiency and that additional renewable energy generation from state standards is used to meet the annual targets. This case would provide important—and in some instances, greater—consumer and environmental benefits. For example, as a result of the additional use of energy efficiency, consumers in most states would see greater savings on their electricity and natural gas bills. Cumulative savings would reach \$18.1 billion by 2020 and, by 2030, would grow to \$31.8 billion. However, because fewer renewable resources are needed overall to meet the annual targets, the lower renewable energy case would result in less energy diversity and power plant CO₂ emission reductions (84 MMT per year by 2020) than the higher renewable energy case.

A Cleaner, Safer Energy Future

A national renewable electricity standard would make America's energy supply more reliable and secure. It would use energy efficiency and local, clean energy sources to put dollars back into the pockets of consumers, and reduce the dangers of global warming. Using existing technologies, we can shift away from our dependence on an unstable, dirty fossil fuel supply, and toward a future built on the efficient use of clean, renewable energy. We have a responsibility and a compelling financial interest to make the renewable electricity standard a cornerstone of America's national energy policy.



Photos (top to bottom): Craig Miller Productions and DOE, NREL; Warren Gretz, NREL; Pacific Gas & Electric, NREL

Cumulative Electricity and Natural Gas Bill Savings, by State (2020) 15 percent by 2020 National Renewable Electricity Standard

State	Higher Renewable Energy Case	Lower Renewable Energy Case	State	Higher Renewable Energy Case	Lower Renewable Energy Case
Alabama	\$140 million	\$370 million	Nebraska	\$20 million	\$40 million
Arizona	\$550 million	\$570 million	Nevada	\$280 million	\$310 million
Arkansas	\$160 million	\$140 million	New Hampshire	\$20 million	\$40 million
California	\$1.28 billion	\$1.35 billion	New Jersey	\$600 million	\$810 million
Colorado	\$510 million	\$520 million	New Mexico	\$190 million	\$210 million
Connecticut	\$100 million	\$130 million	New York	\$1.36 billion	\$1.81 billion
Delaware	\$40 million	\$60 million	North Carolina	\$130 million	\$530 million
Florida	\$490 million	\$940 million	North Dakota	\$20 million	\$30 million
Georgia	\$280 million	\$530 million	Ohio	\$270 million	\$620 million
Idaho	\$150 million	\$170 million	Oklahoma	\$210 million	\$190 million
Illinois	\$260 million	\$600 million	Oregon	\$130 million	\$130 million
Indiana	\$160 million	\$370 million	Pennsylvania	\$870 million	\$1.27 billion
Iowa	\$70 million	\$130 million	Rhode Island	\$20 million	\$30 million
Kansas	\$60 million	\$120 million	South Carolina	\$160 million	\$300 million
Kentucky	\$120 million	\$310 million	South Dakota	\$10 million	\$20 million
Louisiana	\$500 million	\$400 million	Tennessee	\$100 million	\$220 million
Maine	\$30 million	\$40 million	Texas	\$2.03 billion	\$1.59 billion
Maryland	\$180 million	\$350 million	Utah	\$200 million	\$220 million
Massachusetts	\$160 million	\$220 million	Vermont	\$10 million	\$20 million
Michigan	\$200 million	\$460 million	Virginia	\$260 million	\$500 million
Minnesota	\$110 million	\$180 million	Washington	\$180 million	\$190 million
Mississippi	\$80 million	\$190 million	West Virginia	\$80 million	\$150 million
Missouri	\$100 million	\$210 million	Wisconsin	\$120 million	\$280 million
Montana	\$130 million	\$130 million	Wyoming	\$120 million	\$130 million

Endnotes

¹ The renewable electricity standard is also known as a renewable portfolio standard or RPS.

² For more information about the *Cashing In on Clean Energy* analysis, and our modeling assumptions, see http://www.ucsusa.org/clean_energy/clean_energy_policies/cashing-in.html.

³ Under our “lower renewable energy case”: (1) all states opt into a provision that allows electric service providers to use energy efficiency to meet up to 27 percent of their annual targets, and (2) additional renewable energy generation from electric power providers having to meet higher targets under state standards is eligible. Under the “higher renewable energy case”: (1) states with renewable standards that are higher than the federal targets (there are 18) do not opt into the energy efficiency provision, and (2) additional renewable energy generation used to meet state standards is retired and not eligible for use under the national standard.

⁴ Results are presented in cumulative net present value 2005\$ using a seven percent real discount rate.



The Union of Concerned Scientists is the leading science-based nonprofit organization working for a healthy environment and a safer world.

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