

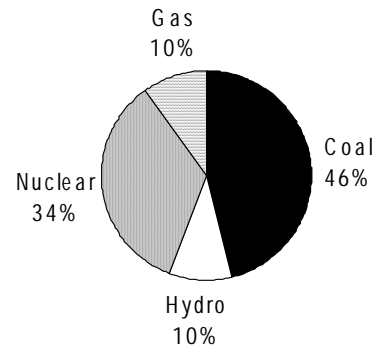


Renewing Arizona

A National Renewable Energy Standard Will Benefit Arizona'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%, Arizona 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 Mountain States.

Arizona's Electricity Mix, 2000



Current Electricity Mix. Arizona is heavily reliant on coal and nuclear power to generate 80% of its electricity. All of the natural gas and over half of the coal is imported into the state, exporting dollars and jobs in the process. Renewable energy sources such as solar energy provide a negligible amount of the state's electricity. In 2000, Arizona exported about 31% of the electricity generated in the state.

Arizona's Renewable Energy Potential

Resource	Generation (billion kWh)	% of 2000 Electricity Sales
Solar	>61.5	>100%
Wind	6.9	11%
Geothermal	7.0	11%
Bioenergy	1.7	3%
Landfill Gas	0.5	1%

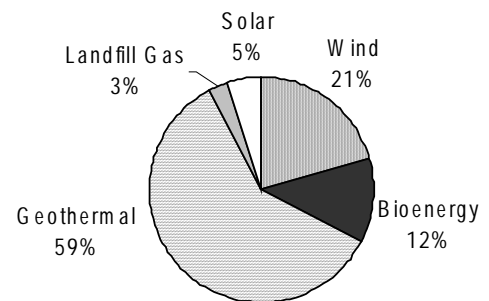
Renewable Energy Potential. The resources with the greatest potential in Arizona are solar, wind, and geothermal energy. Arizona has excellent solar resources that could theoretically provide all of the state's electricity use. In addition, Arizona has the technical potential to generate over a quarter of its current electricity needs from wind, geothermal, and other renewable energy sources. Not all of Arizona'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, Arizona would produce the equivalent of 12% of its electricity use from renewable energy (not including hydro). Arizona meets or exceeds the national target through 2012. By 2020, the state meets nearly 60% of the national target with its own renewable energy. Arizona could minimize the cost of the standard by meeting the remainder of the target through renewable energy credit trading. Arizona would develop a diverse mix of its geothermal, wind, bioenergy, solar energy, and landfill gas to help meet the national target. If electricity generation grows at the same rate as electricity use in the state, renewable energy would provide 8% of Arizona's electricity generation in 2020.

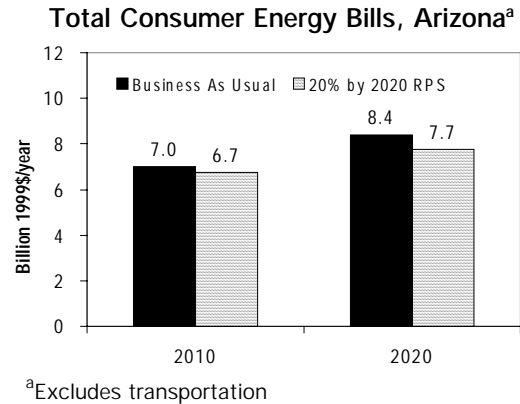
Economic Development. Renewable energy development would bring significant economic benefits to Arizona. Between 2002 and 2020, a 20% national standard would produce

- \$1.4 billion in new capital investment in Arizona
- \$117 million in new property tax revenues for local communities
- \$7 million in lease payments to farmers, ranchers, and rural landowners from wind power¹

Renewable Energy Mix in Arizona under 20% RPS



Consumer Costs and Benefits. A national standard of 20% would reduce energy costs to Arizona consumers. Total annual consumer energy bills (not including transportation) would be \$235 million or 3% lower than under business as usual in 2010 and \$656 million or nearly 8% lower in 2020. The present value of total consumer savings would be over \$2.5 billion between 2002 and 2020. Lower natural gas prices caused by increased competition from renewable energy more than offset the slightly higher costs of generating renewable electricity in the state.



Environmental Benefits. The increased use of renewable energy in Arizona 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 40% lower in the Mountain 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% renewable standard, net metering, and a public benefits fund. Combining these policies greatly increases consumer savings and environmental benefits, significantly reduces natural gas prices, augments economic development benefits, and provides additional diversity benefits compared to the 20% standard alone. These policies would also allow Arizona to capture a larger share of its solar energy potential. Increasing both energy efficiency and renewable energy is the best option for Arizona.

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, Arizona would achieve less diversity and savings on consumer energy bills and fewer environmental benefits than under a 20% standard. The added diversity, economic development, environmental, and long-run consumer benefits make the 20% renewable energy standard the preferred option for Arizona.

Impact of National RPS Proposals in Arizona

In 2020:	20% RPS	Combined Policies of S. 1333 ^a	10% RPS
Cumulative New Capital Investment	\$1.4 billion ^b	\$3.7 billion ^c	\$0.3 billion
Cumulative Consumer Energy Bill Savings ^d	\$2.5 billion	\$4.5 billion	\$2.2 billion
Changes in Annual Consumer Energy Bills ^d	-\$0.7 billion -8%	-\$1.5 billion -18%	-\$0.5 billion -5.5%
Changes in Annual CO ₂ Emissions from regional power plants	-41%	-53%	-18%

- Notes
- a. Includes 20% RPS, 2 ¢/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.