



## A 20 Percent National Renewable Electricity Standard Will Create Jobs and Save Consumers Money

A national renewable electricity standard would require electric utilities to supply a minimum percentage of their electricity from renewable sources such as wind, solar, and bioenergy.<sup>1</sup> Similar policies have already been enacted in Arizona and 21 other states.

The U.S. Senate has passed a 10 percent by 2020 national standard three times since 2002—most recently in June 2005. Congress has also considered a national standard of 20 percent by 2020.

In September 2004, the Union of Concerned Scientists (UCS) used the Energy Information Administration's (EIA) National Energy Modeling System computer model to examine the costs and benefits of a 20 percent by 2020 national standard.<sup>2</sup> We modified the model using more optimistic assumptions for renewable energy technology costs and performance that are more in line with projections by the Department of Energy's national laboratories.<sup>3</sup> Our analysis found that a 20 percent standard would reduce electricity and natural gas prices and provide significant economic and environmental benefits for the Grand Canyon State.

### New Jobs and Income

Our analysis found that under a 20 percent national standard, Arizona would increase its total home-grown renewable power to more than 2,800 megawatts (MW) by 2020. The majority of this development would be powered by Arizona's strong wind and solar resources. This level of renewable development would produce enough electricity to meet the needs of two million typical homes, provide nearly 15 percent of the electricity sales in the state that are covered by the national standard, and reduce the use of imported natural gas and coal.<sup>4</sup> Arizona has the technical potential to generate more than twice its current electricity needs from renewable energy.

Renewable energy development would create high-paying jobs and other economic benefits in Arizona. By 2020, the 20 percent standard would generate more than 6,300 jobs in manufacturing, construction, operation, maintenance, and other industries—2.6 times as many as fossil fuels, representing a net increase of more than 3,900 jobs by 2020.<sup>5</sup> It would also generate an additional \$140 million in income and \$120 million in gross state product in Arizona's economy.

### Arizona Benefits from a 20 Percent by 2020 National Renewable Electricity Standard

#### Job Creation

- 6,320 new jobs—2.6 times as many as generating electricity from fossil fuels

#### Economic Development

- \$1.6 billion in new capital investment
- \$115 million in new local tax revenues
- \$73 million in income to ranchers and rural landowners

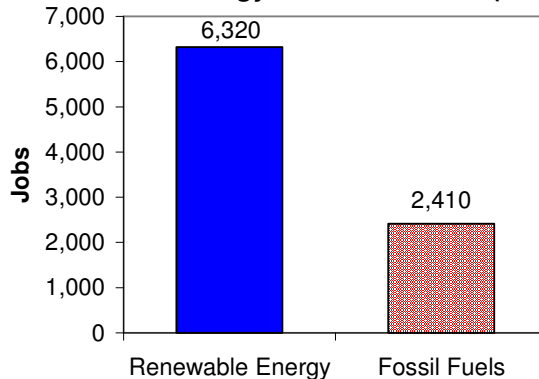
#### Consumer Savings

- \$1.6 billion in lower electricity and natural gas bills

#### Healthier Environment

- National reductions in global warming pollution equal to taking nearly 71 million cars off the road
- Less air pollution, damage to land, and water use

Job Creation in Arizona, Renewable Energy\* vs. Fossil Fuels (2020)



\*Under a 20 percent by 2020 renewable electricity standard

## Economic Benefits for Rural Communities

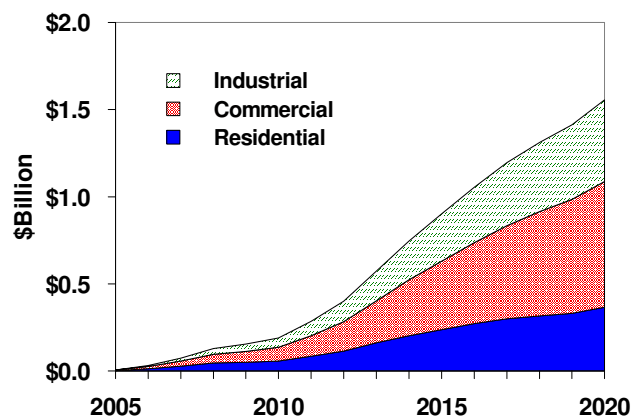
Many of the jobs identified above would be created in rural areas where the renewable energy generating facilities would be located. By 2020, the 20 percent national standard would also provide a boost to Arizona's economy in other ways:

- \$1.6 billion in new capital investment
- \$115 million in new property tax revenues for local communities
- \$53 million in payments to rural areas resulting from biomass energy production
- \$20 million in lease payments to ranchers and rural landowners resulting from wind power generation<sup>6</sup>

## Consumer Savings

The 20 percent by 2020 standard would also increase competition in the marketplace, reducing long-term energy costs for homes and businesses by gradually lowering natural gas and electricity prices. By 2020, the savings in Arizona alone would amount to \$1.6 billion. Every sector of the state's economy would benefit, with commercial, industrial, and residential customers saving a total of \$720 million, \$470 million, and \$370 million respectively by 2020.

**Cumulative Energy Bill Savings in Arizona, by Sector\***



\*Under a 20 percent by 2020 renewable electricity standard. Excludes transportation.

## Public Health and Environmental Protection

Increased renewable energy use would reduce toxic air pollution from power plants that threaten people's health by burning coal, oil, and natural gas. It would also reduce carbon dioxide (CO<sub>2</sub>) emissions, which cause global warming by trapping heat in the atmosphere. The 20 percent national standard will reduce CO<sub>2</sub> emissions by 434 million metric tons per year by 2020—a reduction of 15 percent below "business-as-usual levels", equivalent to taking nearly 71 million cars off the road. And by reducing the need to extract, transport, and consume fossil fuels, a national renewable electricity standard would limit the damage done to our water and land and conserve our natural resources for future generations.

## A Cleaner, Safer Energy Future

A national renewable electricity standard would make Arizona's energy supply—and the energy supply of the entire United States—more reliable and secure. It would use local energy sources to create high-skilled jobs in Arizona, improve the state's rural economies, and put energy dollars back into the pockets of Arizona's consumers. Even under a 10 percent national standard, both UCS and EIA analysis shows Arizona would see all of these important benefits, but at lower levels than what would occur under a 20 percent standard.<sup>7</sup> A 20 percent national renewable electricity standard is a common-sense step away from our dependence on an unstable, dirty fossil fuel supply, and toward a future built on clean, renewable energy.

*For additional information, visit the UCS Clean Energy web site at [www.ucsusa.org/clean\\_energy](http://www.ucsusa.org/clean_energy).*

<sup>1</sup> The renewable electricity standard is also known as a renewable portfolio standard or RPS.

<sup>2</sup> An update to our 2004 analysis is currently underway, and is scheduled for release in Summer 2007.

<sup>3</sup> UCS evaluated a 20 percent by 2020 national standard proposal by Senator Jeffords (I-VT) and the tax credits for renewable energy that were supported by the Senate energy bill conference committee in November 2003. More information about UCS's modeling approach can be found at [www.ucsusa.org/clean\\_energy/renewable\\_energy/page.cfm?pageID=1505](http://www.ucsusa.org/clean_energy/renewable_energy/page.cfm?pageID=1505) and in the October 2001 report *Clean Energy Blueprint*, available online at [www.ucsusa.org/clean\\_energy/renewable\\_energy/page.cfm?pageID=44](http://www.ucsusa.org/clean_energy/renewable_energy/page.cfm?pageID=44).

<sup>4</sup> Electricity sales from small utilities and hydroelectric facilities are exempt from the national renewable electricity standard.

<sup>5</sup> We conservatively assume that 33 percent of the manufacturing for the wind and solar technologies installed in Arizona is produced by businesses located in the state. We also do not include any jobs or economic development from Arizona manufacturers exporting equipment to other states or countries. If Arizona is able to attract renewable energy manufacturers to produce equipment for facilities in the state and for export, the jobs and income from the renewable electricity standard would increase significantly.

<sup>6</sup> Results are presented in cumulative net present value 2002\$ using a seven percent real discount rate. Job results are for the year 2020.

<sup>7</sup> For more information, see *Renewing Arizona's Economy: A 10 Percent National Renewable Electricity Standard Will Save Consumers Money and Create Jobs*, available online at [www.ucsusa.org/clean\\_energy/renewable\\_energy\\_basics/renewing-americas-economy.html](http://www.ucsusa.org/clean_energy/renewable_energy_basics/renewing-americas-economy.html)