



EIA Study: National Renewable Energy Standard of 20% is Easily Affordable

A national renewable portfolio standard (RPS) to provide 20% of US electricity from wind, solar, geothermal, and biomass energy by 2020 would cost energy consumers almost nothing, according to a recent study by the U.S. Department of Energy's Energy Information Administration (EIA).¹ A national RPS increasing these resources from 2% today to 20% by 2020 is included in the Renewable Energy and Energy Efficiency Act of 2001 (S. 1333), proposed by Sen. Jeffords (I-VT) and five other Senators.

The EIA report, using high estimates of renewable energy costs (see discussion below), shows that under a 20% RPS, total consumer energy bills (other than for transportation) would be roughly the same as business as usual through 2006 and only \$2.8 billion or 0.7% higher in 2010. By 2020, total bills would be \$580 million (0.1%) *lower* with an RPS (Figure 1, 1999 dollars).

Other studies using more realistic assumptions and incorporating the energy efficiency incentives in S. 1333 show that consumers could receive 20% of their electricity from renewable sources and save billions of dollars (see below).

EIA found that a 20% RPS would increase average electricity prices (the cost per unit of electricity) by only 3% over business as usual levels in 2010 and 4% in 2020 (Figure 2). With a 20% RPS, electricity prices in 2020 are still projected to be nearly 7% lower than they are today.

Even these small increases in electricity prices are largely offset, however, by lower natural gas prices. Because an RPS creates a more diverse and competitive market for energy supply, EIA finds that these market forces would reduce natural gas prices and bills.

Diversifying the electricity mix with renewable energy also helps stabilize electricity prices by easing pressure on natural gas prices and supplies. Under a 20% RPS, average consumer natural gas prices are 3% lower than business as usual in 2010 and 9% lower in 2020. These lower prices would save gas consumers \$10 billion per year by 2020.

The net present value cost of a 20% RPS would be only \$14 billion over the next 18 years. With ongoing natural gas savings after 2020, an RPS would likely produce net savings for consumers.

Figure 1. National RPS Cost - 20% by 2020

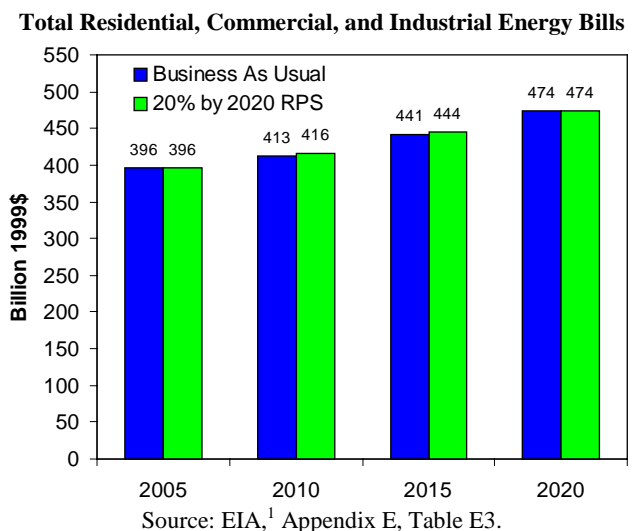
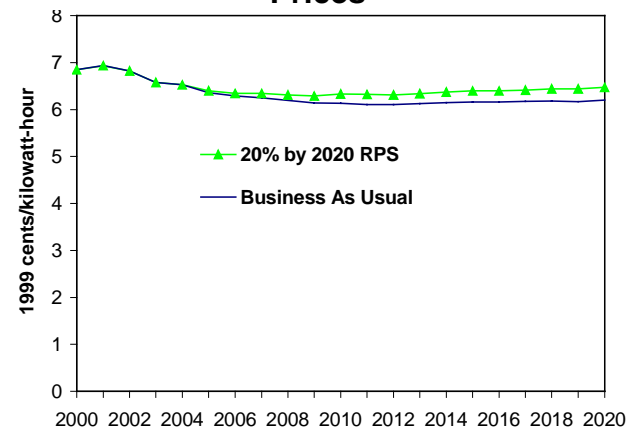


Figure 2. Average Consumer Electricity Prices



A 20% RPS would also help reduce emissions from power plants. Under an RPS, carbon emissions from power plants would be 55 million metric tons or 8% lower than business as usual in 2010 and 137 million metric tons or 18% lower in 2020, according to EIA.

Correcting EIA Assumptions and Combining an RPS with Efficiency Produces Additional Savings

Several other studies have found that using more realistic assumptions and combining an RPS with strong energy efficiency policies would produce additional savings for consumers.

- The DOE Interlaboratory Working Group (IWG), consisting of the five national energy research labs, corrected a number of EIA's assumptions (see below) and found that, when combined with energy efficiency programs, an RPS of 7.5% by 2010 would save consumers over \$65 billion per year by 2020 (1997\$).²
- At the request of Senator Jeffords, EIA used IWG assumptions and found that the combination of an RPS of 7.5% by 2010, advanced energy efficiency measures, and four-pollutant emission reduction targets similar to those proposed by Senator Jeffords in S. 556 would save consumers \$64 billion per year by 2020 on their energy bills.³
- UCS' *Clean Energy Blueprint* report, which used similar assumptions to the IWG for renewable energy technologies, shows that an RPS of 20% by 2020, with the energy efficiency incentives in S. 1333, would save consumers \$35 billion per year by 2020 or a net present value of \$70 billion over 18 years.⁴
- The *Clean Energy Blueprint* found that additional efficiency incentives, including for combined heat and power plants, would increase annual savings to \$105 million per year in 2020 and net present value savings to \$440 billion over 18 years.

EIA Overestimates the Costs of Renewable Energy

The DOE Interlaboratory Working Group found that EIA significantly overestimates the cost of adding renewables to the system.⁵ The EIA

- Uses higher cost and worse performance assumptions for most renewable technologies than recent experience and projections by the utilities' Electric Power Research Institute and DOE;
- Arbitrarily increases the capital cost of wind, biomass, and geothermal technologies by up to 200% in a given region after a fairly small amount of the regional potential is met;
- Limits the penetration of variable output resources like wind and solar power to 15% of a region's electricity generation; in parts of Germany, Denmark and Spain, wind power is already providing more than 20% of total electricity generation;
- Assumes that renewable energy generation will cost 4 to 5 cents more per kilowatt-hour than electricity from natural gas plants between 2010 and 2020.

UCS also found that both the EIA and the IWG limit the amount of biomass that can be co-fired in existing coal power plants to 5% of the plant's input. Recent experience from around the world has shown coal plants can be co-fired with up to 10-15% biomass.

¹ Energy Information Administration, *Analysis of Strategies for Reducing Multiple Emissions from Electric Power Plants: Sulfur Dioxide, Nitrogen Oxides, Carbon Dioxide, and Mercury and a Renewable Portfolio Standard*, SR/OIAF/2001-03, June 2001. [http://www.eia.doe.gov/oiaf/servicerpt/epp/pdf/sroiaf\(2001\)03.pdf](http://www.eia.doe.gov/oiaf/servicerpt/epp/pdf/sroiaf(2001)03.pdf)

² This does not include net savings in the transportation sector.

³ Energy Information Administration, *Analysis of Strategies for Reducing Multiple Emissions from Power Plants with Advanced Technology Scenarios*, SR/OAIF/2001-05, October 2001, Table D3. <http://tonto.eia.doe.gov/FTP/ROOT/service/oiaf2001-05.pdf>. This does not include net savings in the transportation sector or savings that would occur from auctioning carbon allowances and returning the proceeds to consumers.

⁴ Union of Concerned Scientists, *Clean Energy Blueprint: A Smarter National Energy Policy for Today and the Future*, October 2001. <http://www.ucsusa.org/energy/blueprint.html>

⁵ Interlaboratory Working Group, *Scenarios for a Clean Energy Future* (Oak Ridge, TN; Oak Ridge National Laboratory and Berkeley, CA; Lawrence Berkeley National Laboratory), ORNL/CON-476 and LBNL-44029, November 2000. http://www.ornl.gov/ORNL/Energy_Eff/CEF.html