



The Southeastern United States Can Benefit from a National Renewable Electricity Standard

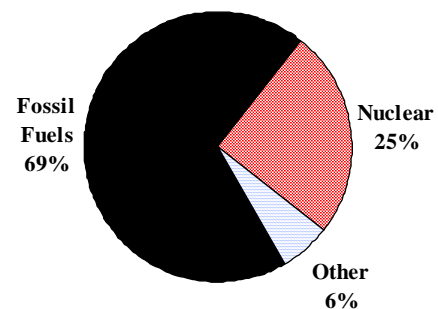
A renewable electricity standard requires electric utilities to gradually increase their use of clean, homegrown renewable energy sources such as wind, solar, and bioenergy. Representatives Tom Udall (D-NM) and Todd Platts (R-PA), along with more than 120 bipartisan co-sponsors, have introduced legislation (H.R. 969) to create a national renewable standard of 20 percent by 2020. A national standard is achievable and affordable for all regions of the country, including states in the Southeast.¹ A national renewable electricity standard can help the Southeast:

- Reduce the billions of dollars spent every year importing fuels from other states and countries by developing local renewable energy resources;
- Create thousands of manufacturing jobs and increase global export opportunities;
- Reduce natural gas costs and reduce or stabilize electricity costs; and
- Purchase the least-expensive renewable energy available, anywhere in the country.

Reducing Fuel Imports

The Southeast sends billions of dollars out of the region each year in order to import fuels for power generation. The region depends on fossil fuels and nuclear power for 94 percent of its electric power generation (Figure 1). However, most of the states have little or no fossil fuel resources, and no nuclear resources, to tap into, leaving them dependent on other states and countries for fuel. More than 93 percent of the coal distributed in the region for electric power in 2005 had to be imported from other states and countries, sending \$7.3 billion out of the region (Figure 2). Wyoming alone accounted for 37 percent of the imports that year, and more than \$700 million was spent on coal from Columbia, Venezuela and Poland. In addition, more than \$1.1 billion was spent in 2004 on importing the nuclear fuel used to generate one-quarter of the region's electricity (Table 1).

Figure 1. Electric Power Generation Mix, Southeast States (2005)



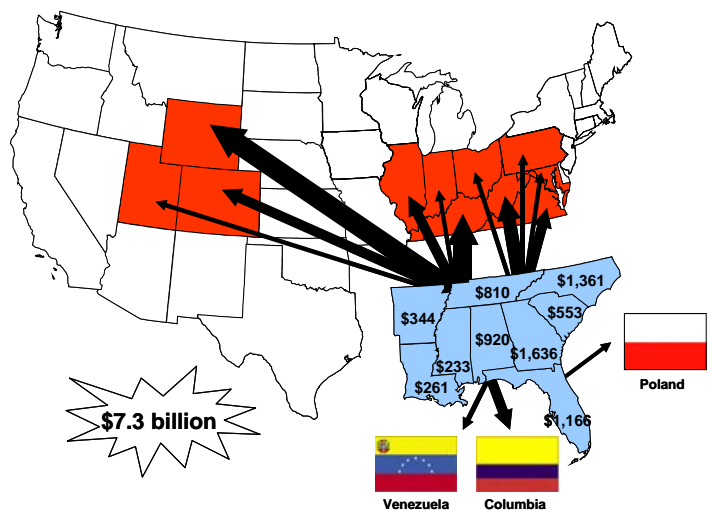
Source: EIA, Electric Power Annual 2006.

A national renewable standard would reduce the need to import coal and other fossil fuels, keeping energy dollars in the Southeast and boosting regional energy self-reliance.

Boosting Energy Independence in the Southeast

Unlike fossil and nuclear fuels, every state—including those in the Southeast—has renewable energy supplies that can help it reduce fuel imports and become more energy independent. Southeastern states have enough potential bioenergy, incremental hydro, solar, wind, and landfill gas resources to meet at least 50 percent of their current electric power needs. In fact, existing non-hydro renewable energy

Figure 2. Annual Coal Import Expenditures, 2005 (million \$)



Map created using EIA and FERC data.

generation, which can be used to meet the national standard, already accounts for about 2.5 percent of the southeast region’s electric sales—*more than the national average*.

Hydropower. The Southeast has the potential to add nearly 3,000 megawatts of incremental hydropower at existing dams—*second only to the Northwest/Rocky Mountain region*, according to the National Hydropower Association.² Increasing the output of existing dams can be a cost-effective source of renewable energy to meet a national renewable electricity standard.

Biomass. Several types of biomass feedstocks have excellent potential in the Southeast, including energy crops such as switchgrass, mill wastes from the forestry industry, urban wood wastes, and agricultural residues such as corn stover and wheat straw (Figure 3). Biomass resources can be burned directly to generate electricity or gasified prior to combustion. There is also significant potential to co-fire biomass in any of the region’s many existing coal-fired power plants. Up to 15 percent of the fuel burned at a coal power plant can come from biomass—directly displacing a polluting power source and reducing the need to import coal from outside the region.

Emerging wind, geothermal, solar, wave, and tidal technologies. Several Southeast states—including Tennessee and North Carolina—have strong land-based wind energy potential, but recent research has found that offshore wind resources in the Gulf of Mexico and the South Atlantic are among the *very best in the country* (Figure 4).³ New technology can allow the region to tap geothermal energy cost-effectively at existing oil and gas wells.⁴

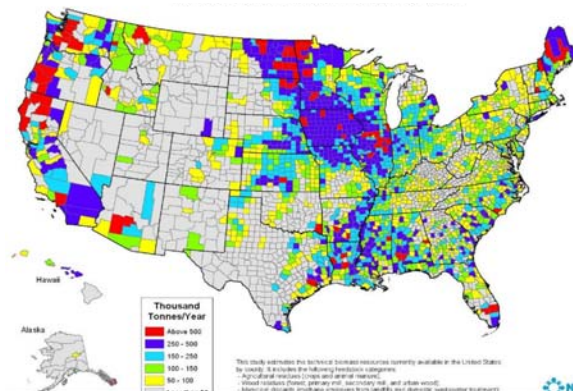
In most of the region, the potential of solar photovoltaic technology to help meet peak electricity demand is equal to the best or second best in the country, and much better than many regions that are doing far more to develop solar (Figure 4). Wave and tidal energy sources are also beginning to be developed, and could be deployed along the region’s extensive coastline.⁵ With the incentives for innovation provided by the renewable electricity standard, the Southeast can tap into these abundant resources to produce its own renewable energy.

Table 1. Annual Expenditures on Nuclear Fuel Imports, (2004)

State	Expenditures (million \$)
Alabama	\$142
Arkansas	\$80
Florida	\$144
Georgia	\$151
Louisiana	\$85
Mississippi	\$43
North Carolina	\$176
South Carolina	\$215
Tennessee	\$101
Regional Total	\$1,137

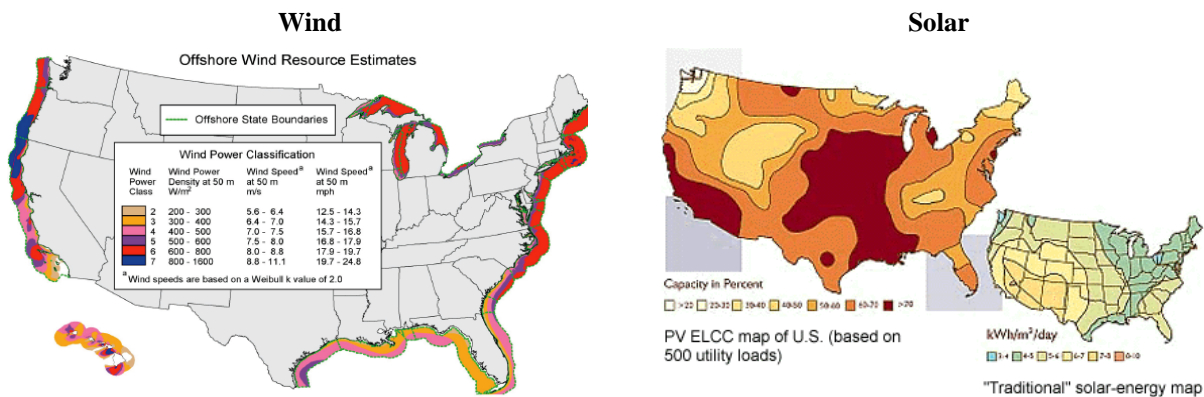
Source: EIA

Figure 3. Available U.S. Biomass Resources



Source: NREL

Figure 4. Southeast States Have Significant Offshore Wind and Solar Potential



Sources: Wind – Musial, NREL. Solar - NREL.

Reducing and Stabilizing Southeast Natural Gas and Electricity Prices

Government and independent studies have found that increased renewable energy development nationwide will reduce the price of natural gas by reducing the demand for gas relative to supply.⁶ A 2004 analysis by the Union of Concerned Scientists (UCS) found that a 20 percent by 2020 renewable electricity standard could reduce gas prices by as much as 9 percent;⁷ other studies show up to a 17 percent price reduction.⁸ This reduction will directly benefit residential, industrial, and utility gas consumers in the Southeast, as well as nationwide.

As a result of lower natural gas prices, all the energy independence, environmental, and other economic development benefits of a national renewable electricity standard can be achieved at virtually no cost, or even a savings, to consumers in the Southeast as well as other regions. A 2004 UCS analysis found that consumers in the Southeast would see cumulative electricity and natural gas savings of \$6.5 billion, or 0.7 percent, through 2020 under a 20 percent national standard. A more recent UCS analysis, using much more pessimistic assumptions from the U.S. Department of Energy's Energy Information Administration, found that a 20 percent national standard would increase electricity and gas costs by a cumulative total of \$1.1 billion through 2030, or *less than one-tenth of 1 percent* of electricity and natural gas expenditures during that period.⁹

Diversifying our energy mix with renewable resources also reduces the risk of fuel price spikes or long-term increases, as well as the risk of fuel supply interruptions or shortages—whether from market or natural forces or from manipulation by companies or other countries.

Creating a Southeast Renewable Energy Manufacturing Powerhouse

With a national renewable standard, the Southeast will become a manufacturing leader in the U.S. renewable energy industry. The Southeast already has a strong base of companies that can make and assemble the key components of wind turbines and other renewable energy equipment. Developing a strong manufacturing base can also create enormous export opportunities, given a global renewable energy market that hit \$55 billion in 2006 and is forecast to reach \$220 billion by 2017.¹⁰

A strong national renewable electricity standard would create more than 29,000 jobs in wind power component manufacturing and more than 3,000 jobs in solar manufacturing *in the Southeast states alone*, representing close to \$12.2 billion in new investment, according to a study by the Renewable Energy Policy Project. Six Southeast states are *ranked among the top 20 states* for jobs created and dollars of investment—North Carolina, South Carolina, Tennessee, Florida, Georgia, and Alabama (Table 2).^{11,12}

The renewable energy industry is already bringing jobs to the Southeast. For example, a Chattanooga, Tennessee, plant that was once used to manufacture equipment for nuclear power plants now annually produces up to 200 steel towers that support the rotor and generator of commercial-size wind turbines. The facility, which opened in 2005 after Wisconsin-based Aerisyn invested more than \$7 million into equipment and capital improvements, employs a workforce of 133 employees supplying towers for wind facilities in Wisconsin, California, and Arizona. In addition, hundreds of General Electric employees at facilities in Pensacola, Florida, and Greenville, South Carolina, are involved with the design, assembly, and service of wind turbine generators.

Table 2. Renewable Energy Creates New Jobs and Investment Potential

State	Total Jobs	Investment (\$ Billion)	U.S. Rank
North Carolina	5,537	\$2.25	10
South Carolina	5,221	\$1.86	11
Tennessee	4,473	\$1.60	13
Florida	4,154	\$1.75	14
Georgia	3,809	\$1.40	16
Alabama	3,785	\$1.36	17
Louisiana	1,969	\$0.74	28
Arkansas	1,892	\$0.69	29
Mississippi	1,466	\$0.55	33
Regional Total	32,306	\$12.20	

Figures reflect jobs and investment potential for wind and solar only. Source: REPP 2004 and 2005.

Creating a Low-cost National Renewable Standard Compliance Market

The renewable electricity standards currently proposed in Congress would create a national market for renewable energy credits as a means of compliance. Under a national market, the cost of compliance is about the same in every state, giving the Southeast and all other regions access to the cheapest renewable energy generated anywhere in the country, without having to build as many expensive transmission facilities.

In this way, the renewable standard would function much like the Clean Air Act credit-trading system, which permits lower-cost, market-based compliance with air pollution regulations. Electricity suppliers can generate renewable electricity themselves, purchase renewable electricity and credits from generators, and/or buy the least-cost credits from any state. This market-based approach creates competition among renewable electricity generators, providing the greatest amount of clean power for the lowest price, and creates an ongoing incentive to drive down costs. Lower renewable energy costs will not only mean greater net benefits in the future, but also more energy choices available to individuals, businesses and utilities.

An alternative compliance mechanism gives utilities additional flexibility, paying only two cents (under a Senate proposal) to three cents (under HR 969) per kilowatt-hour into a fund that is given back to the states to produce more local renewable energy and energy efficiency.

Exemptions and Provisions Provide Flexibility to States

Most of the national renewable standards that have been considered by Congress, including H.R. 969, offer several provisions that ease the burden on states and provide greater flexibility for utilities to comply with the annual targets. For example, under H.R. 969, only large investor-owned utilities (IOUs) are obligated to meet the requirements; smaller IOUs, municipal utilities, and rural electric cooperatives are encouraged to participate. Less than 5 percent (26) of the more than 600 electric utilities in the region are large IOUs (and therefore) covered by the requirements of H.R. 969, reducing the renewable energy generation obligation of the Southeast states by 38 percent. Further reducing the region's obligation is a provision that allows for existing hydroelectric generation to be excluded from a utility's baseline power sales used to calculate the annual target. Combined with the utility exemptions, the hydroelectric exclusion provision would reduce the Southeast region's effective target under H.R. 969 from 20 percent to about 11.6 percent in 2020.

In addition, H.R. 969 allows for the banking (up to five years) and near-term borrowing (for up to three years, if initiated prior to 2012) of renewable energy credits. Finally, credit multipliers provide incentive to develop targeted resources, and can also help lower a utility's annual requirement. Under H.R. 969, two-for-one credits are available for renewable energy generation occurring on Indian lands, and three-for-one credits are offered for on-site customer generation from eligible resources.

For more information, visit www.ucsusa.org/clean_energy

¹ Southeast states are defined as Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee.

² National Hydropower Association. 2002. Averting disaster: Keeping the lights on with hydropower. Issue Brief, Tables 2 and 3.

³ Musial, W. 2006. Offshore Wind Energy Technology. Presentation given at Georgia Wind Energy Conference. October 24. Online at <http://www.gawwg.org/WaltMusialGAWindEnergyEvents.pdf>.

⁴ Petty, S., and G. Porro. 2007. Updated U.S. Geothermal Supply Characterization. NREL/CP-640-41073. Washington, DC: National Renewable Energy Laboratory. March.

⁵ Anderson, L., and T. Gardner. 2005. Cities Eye Ocean Waves for Power Supplies. Reuters, February 13.

⁶ Wiser, R., M. Bolinger, and M. St. Clair. 2005. Easing the natural gas crisis: Reducing natural gas prices through increased deployment of renewable energy and energy efficiency. Berkeley, CA: Ernest Orlando Lawrence Berkeley National Laboratory. January. Online at <http://www.lbl.gov/Science-Articles/Archive/sabl/2005/February/assets/Natural-Gas.pdf>.

⁷ Union of Concerned Scientists (UCS). 2004. Renewing America's economy. Cambridge, MA: UCS. September.

⁸ Wiser, Bolinger, and St. Clair, 2005.

⁹ Union of Concerned Scientists (UCS). 2007. A 20 percent national renewable electricity standard will save consumers money and reduce global warming emissions. Fact sheet. May.

¹⁰ Clean Edge. 2007. *Clean-Energy Trends 2007*. Online at <http://www.cleandge.com/story.php?nID=4595>.

¹¹ Sterzinger, G., and M. Svrcek. 2005. Solar PV development: Location of economic activity. Renewable Energy Policy Project (REPP). January.

¹² Sterzinger, G., and M. Svrcek. 2004. Wind turbine development: Location of manufacturing activity. Washington, DC: REPP. September.