

FACTS

SOUTH CAROLINA

A M E R I C A N S E C U R I T Y P R O J E C T

Pay Now, Pay Later: South Carolina

Elevating South Carolina's coastal roads, streets, and bridges by 20 inches to avoid flooding sea waters is expected to cost at least \$4.2 billion, plus billions more in sand replenishment costs.¹

Insurance premiums for coastal homes increased 56.4% from 2001-2007 due to predictions of increased hurricane activity and strength.²

Investment in clean energy would produce approximately 3.5 more jobs per dollar spent than equivalent investments in fossil fuel energy.³

According to a new study, a failure to mitigate the effects of climate change could begin to cause serious gross domestic product and job losses within the next several decades. Between 2010 and 2050, it could cost South Carolina \$24.2 billion in GDP and over 235,000 jobs.*

**GDP numbers are based on a 0% discount rate. Job losses are measured in labor years, or entire years of fulltime employment. Backus, George et al., "Assessing the Near-Term Risk of Climate Uncertainty: Interdependencies among the U.S. States," Sandia Report (Sandia National Laboratories, May 2010), 141. https://cfwebprod.sandia.gov/cfdocs/CCIM/docs/Climate_Risk_Assessment.pdf (accessed March 23, 2011).*

Admittedly, the effects of climate change, a complex and intricate phenomenon, are difficult to predict with precision. Informed scientific and economic projections, as we have used in our research, however, allow us to see that South Carolina faces significant losses in industries crucial to its economy if no action is taken.

Moreover, data shows South Carolina is poised to benefit from the research, development, and distribution of renewable energy technologies. It has few conventional energy resources, such as oil and coal, and derives nearly half of its energy from nuclear power. Therefore, South Carolina can transition to renewable energy sources more easily than other states. Should we fail to take action against climate change, South Carolina has much to lose.

Pay Later: The Cost of Inaction

There is ample evidence that South Carolina will face significant losses as a result of climate change. Agriculture, forestry, and tourism form the foundation of the state's economy; tourism and travel is responsible for roughly \$18.4 billion each year in total economic demand.⁴ Its coastline is home to major ports of entry and exit for manufactured goods. Unfortunately, the consequences of climate change will devastate these industries, potentially eliminating thousands of jobs and costing the state billions of dollars in lost revenue.

Costs to Coastal Communities, as well as Tourism and Recreation

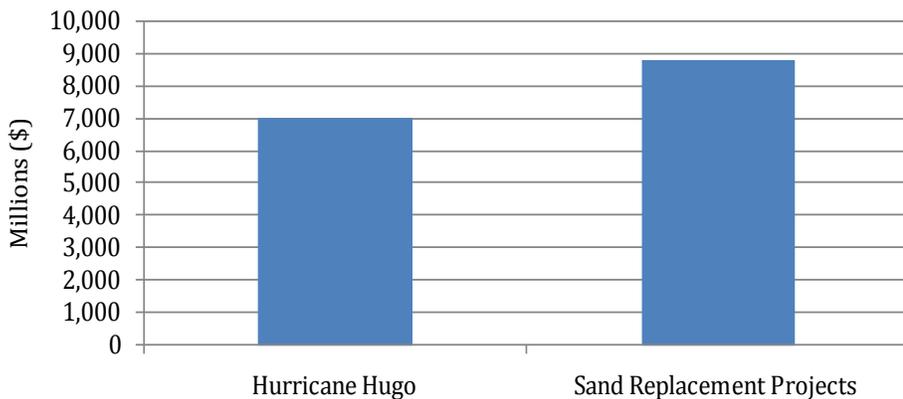
Every year, approximately 30 million tourists flock to South Carolina's beaches and forested areas. As such, tourism is one of the state's most profitable industries. In 2007, it was responsible for approximately 10% of the state's jobs, generated \$18.4 billion in business, and contributed \$1.2 billion in state and local taxes.⁵

With nearly 2,900 miles of shoreline, South Carolina is jeopardized by rising seas. The coast houses \$150 billion in insured South Carolinian coastal property and threatens nearly a quarter of state residents.⁶

The coastal counties of Horry, Charleston, and Beaufort provide 60% of the state's tourism revenue.⁷ However, rising sea levels, intensifying storms, floods, and heat waves will make South Carolina a less attractive tourist destination. Furthermore, the National Wildlife Federation estimates that climate change will endanger the jobs of the 39,700 state residents who work in the hunting, wildlife watching, and fishing industries which contribute \$2.1 billion annually.⁸

A hub for international trade, **South Carolina's ports contributed \$18.5**

Estimated Costs of Hurricane Hugo Compared to the Cost of Readjustment Projects



Sources: Art Von Lebe; Pew Environmental Group

Furthermore, pests and plant diseases often coincide with extreme and anomalous weather such as early or late rains and increased humidity.

Moreover, the rise in global temperatures may make South Carolina's climate inhospitable to the crops it currently produces and will increase the state's susceptibility to drought, floods, wind erosion, and reduced rainfall—all of which could devastate the state's forestry and agriculture sectors. As a result, those employed in the state's tourism, recreation, agricultural, and forestry industries will be disproportionately affected by climate change.

Costs to South Carolinians

If recent trends are an indicator, state residents will feel the effects of climate change economically. **“Between 2001 and 2006, homeowner insurance premiums in South Carolina climbed an average of 56.4%.”**¹⁵ As climate change is expected to enhance the destructive capabilities of subsequent hurricanes and tropical storms, insurance agencies are casting a nervous eye on coastal properties.¹⁶ Problematic for the public at large, only one insurer continues to cover wind damage costs.¹⁷ South Carolinians may also have to ration their water usage.¹⁸

Pay Now: The Benefits of Taking Action

Since South Carolina lacks the capacity to produce conventional energy, it can transition more easily to green energy. Furthermore, South Carolina currently generates 48.9% of its energy using nuclear power (coal

billion to the state's gross state product (GSP), generated \$11.7 billion in take home pay, and created 260,800 jobs in 2007.⁹ Given a warmer climate and its consequences, these ports (including Charleston) will have to implement several readjustment projects, which may cost tens of billions of dollars.¹⁰

To protect its developed coastal areas from rising sea levels, South Carolina will need to develop an intricate system of bulkheads and dams. Elevating coastal roads, streets, and bridges in the southeast by 20 inches is estimated to cost at least \$4.2 billion, and concomitant sand replacement projects are predicted to cost as much as \$8.8 billion in South Carolina.¹¹

Costs to Agriculture and Forestry

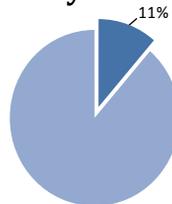
Agriculture and forestry account for 14.8% and 9.6% of South Carolina's GSP, respectively. One-quarter of the state's 19 million acres has been converted to farmland; **agriculture**

accounts for around \$17 billion annually and employs approximately 115,000 South Carolinians.

The state's forestry industry generates \$11 billion per year and employs approximately 84,000 residents.¹²

Climate change will devastate both industries, leaving South Carolina desperate to recover the lost profits. Expected temperature increases are likely to hasten the maturation of plants, thus reducing their total yield potential. The U.S. Environmental Protection Agency projects that **South Carolina's soybean and wheat yields will fall by 42%, and its corn yields by 32%**, should rising temperatures exceed the tolerance of the crops.¹³

South Carolinian Labor Force Projected to be Directly Affected

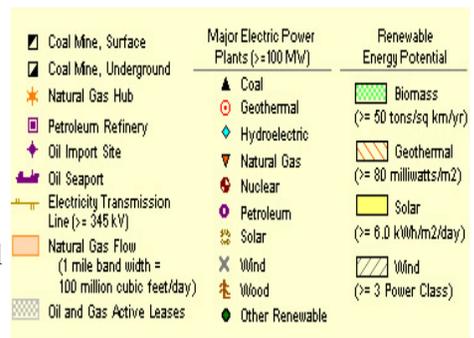
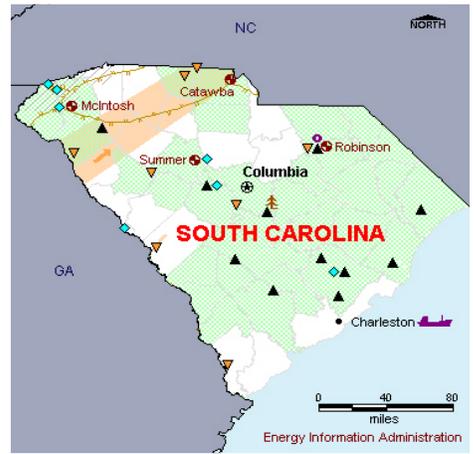


Source: Bureau of Economic Analysis¹⁴

accounts for nearly all of the remainder), and **as a smaller state with correspondingly small energy demands, South Carolina will have an easier time weaning itself off of fossil fuels than other states.**¹⁹

South Carolina would benefit greatly if it chose to develop a wind turbine construction industry. Depending on the level of investment, the development of an offshore wind farm in southern South Carolina could create anywhere from 939 to 1,789 jobs and contribute \$47-96 million to the state's economy.²⁰

South Carolina will also benefit from the implementation of a nation-wide renewable energy plan. Companies that are contracted to build wind turbines could hire approximately 5,000 South Carolinians and attract over \$1.65 billion in investments.²¹



Conclusion

South Carolina must consider action on climate change not just in terms of cost, but also in terms of opportunities. If we give South Carolina's population, businesses, and investors clear and consistent signals by properly offering initiatives and cultivating demand, investment and innovation in renewable technologies will follow.

South Carolinians will have to pay for the effects of climate change. The only remaining question is whether they will pay now, or pay later and run the risk of paying significantly more.

(Endnotes)

- 1 Pew Environmental Group, *The Effects of Sea Level Rise on South Carolina*, 1-2. http://www.pewglobalwarming.org/resources/SC_sea_level_rise.pdf (accessed June 20, 2010).
- 2 Environmental Defense Fund, *Clean Energy Jobs in South Carolina*. <http://www.edf.org/page.cfm?tagID=44130> (accessed September 14, 2010).
- 3 Robert Pollin and Ben Zipperer, *Carbon Cap Critics Predict Healthy Economy under Cap-and-Trade*, April 1, 2009, 2. http://www.peri.umass.edu/fileadmin/pdf/other_publication_types/green_economics/fact_sheets/SouthCarolina.pdf (accessed June 20, 2010).
- 4 See the sections below on "Coasts to the Coast, Tourism and Recreational Sectors" and "Costs to Agriculture and Forestry."
- 5 South Carolina Department of Parks, *Economic Contribution of Tourism in South Carolina*, January 1, 2010. <http://www.scprt.com/files/Research/SC%20Tourism%20Update%204-15-09.pdf> (accessed June 20, 2010).
- 6 Art Von Lehe, "Climate Change and South Carolina's Economy," *Environmental Law Journal* 16, no. 2 (2008), pp. 358-90. <http://www.usclimatenetwork.org/resource-database/200811-vonlehe.pdf> (accessed September 9, 2010); Environmental Defense Fund.
- 7 Von Lehe, 366.
- 8 National Wildlife Federation, *Global Warming and South Carolina*, 2. <http://cf.nwf.org/globalwarming/pdfs/southcarolina.pdf> (accessed September 14, 2010).
- 9 Wilbur Smith Associates, Inc., *South Carolina State Ports Authority Economic Impact Study*, October 2008, 28. http://www.port-of-charleston.com/spa/news_statistics/Economic_Impact_2008.pdf (accessed September 23, 2010).
- 10 Von Lehe, 368-9.
- 11 Pew Environmental Group, 1-2.

- 12 The figures here include direct, indirect, and induced effects; they are somewhat conservative figures. Ibid; Miley, Gallo, and Associates, *The Economic Impact of the Agribusiness Industry in South Carolina*, September 1, 2008, 20-24. <http://agriculture.sc.gov/User-Files/file/PDFS/Econ%20Impact%20of%20Agribusiness%20Sept%20162.pdf> (accessed June 20, 2010).
- 13 Environmental Defense Fund.
- 14 Based on the 2008 employed labor force and includes the farm, forestry and hospitality sectors. Bureau of Economic Analysis, *SA25N Total full-time and part-time employment by NAICS industry 1/ -- South Carolina*, September 20, 2010. <http://bea.gov/regional/spi/default.cfm?selTable=SA25N&selSeries=NAICS> (accessed October 18, 2010).
- 15 Environmental Defense Fund.
- 16 Von Lehe, 371.
- 17 Environmental Defense Fund.
- 18 Von Lehe, 375-6.
- 19 National Wildlife Federation.
- 20 Roger Flynn, *The Potential Economic Impact of an Off-Shore Wind Farm to the State of South Carolina*, February 2007, 9. <http://www.clemson.edu/scies/wind/Paper-Flynn.pdf> (accessed June 20, 2010).
- 21 National Wildlife Federation, *Charting a New Path for South Carolina's Energy Generation*, September 1, 2008, 2. http://www.nwf.org/Global-Warming/-/media/PDFS/Global%20Warming/Clean%20Energy%20State%20Fact%20Sheets/SOUTH_CAROLINA_10-22-2.ashx (accessed September 9, 2010).