

# ***Offshore Wind Energy for Georgia***



## ***Offshore Wind Energy and Why We Need It***

Offshore wind energy is produced from wind turbines that are located off of the shoreline. State governments generally regulate the siting of offshore wind farms from their shoreline up to 3 miles offshore; the federal government regulates areas from 3 miles to 200 miles offshore.

Using existing technology, offshore wind turbines have been built in shallow waters less than 30 meters deep. Technology improvements are expected in the future to make deeper water offshore wind farms feasible so that stronger, steadier winds can be tapped farther out at sea. In the event of severe weather at sea, the blades of the turbine are designed to turn out of the wind and slow down for safety reasons when wind speeds reach 50 miles per hour and above.

In the Southeast, much of the offshore wind potential lies near coastal cities that are experiencing rapid growth, leading to increased energy demand. Offshore wind farms can benefit the economy, environment, and energy security because they use a source of clean, domestic, inexhaustible energy to help meet electricity demand. Also, unlike the increasing costs of electricity from traditional fuel sources such as fossil fuel and nuclear power, offshore wind power can provide coastal areas with energy at a price that can remain steady for years to come.

## ***Compared with onshore wind, offshore wind has:***

- Higher wind speeds
- Smoother, less turbulent air flows
- Larger amounts of open space available
- The ability to build larger wind turbines that produce more electricity than onshore turbines
- Less visual impact
- No worries of multi-party property ownership, since only the state and federal governments have control over offshore surface rights

<sup>1</sup> [http://govinfo.library.unt.edu/oceancommission/documents/prelimreport/primer\\_jurisdictions.pdf](http://govinfo.library.unt.edu/oceancommission/documents/prelimreport/primer_jurisdictions.pdf)

**Developed by the Georgia Wind Working Group**

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## ***The Economics of Offshore Wind***

It is estimated that the cost of offshore wind will be about twice the amount of the current cost of onshore wind, primarily because of the costs of foundations, transportation and installation at sea. However, similar to the trend for onshore wind, these prices are expected to lower as technology improves and more experience is gained. Offshore wind can benefit the economy by:

- Providing numerous jobs through the assembly, staging, construction, and maintenance of the turbines
- Reducing the need for and risk of using fossil and nuclear fuels
- Helping to stabilize and reduce electricity prices by reducing conventional power plant operations and creating long term power contracts for cleaner alternatives

## ***Current Developments for Offshore Wind in Georgia***

To see a map of Georgia's offshore wind potential, visit

<http://gawwg.org/resources/georgiawindresourcemap.html> . According to a study conducted by Southern Company and Georgia Tech's Strategic Energy Institute, "the available wind resources and the extent of the shallow water continental shelf [gives] considerable ultimate potential for wind power generation off the coast of Georgia."<sup>2</sup> To see the results of this study, visit

<http://www.southerncompany.com/planetpower/pdfs/WindReport.pdf> .

In Cape Cod, Massachusetts and also in Delaware, offshore wind farms are already in the planning process, soon to be developed. Offshore farms are also being planned in the southeastern United States, notably North and South Carolina and Georgia. South Carolina is currently conducting a research study to measure wind off of the state's coast with weather buoys, which is a significant step towards the beginning of offshore wind in this area. Also, Southern Company continues to pursue the potential for development of feasible wind energy generation in the coastal areas of the Southeast. Note that some projects may move faster than others in places where the potential wind farm area is located in state waters.

## ***Offshore Wind and the Environment***

From a study conducted on Nysted and Horns Rev, the largest offshore wind farms that are both in Denmark, the environmental impacts of the farms were minimal.<sup>3</sup>

- Most birds seemed to fly around offshore wind turbines rather than into them, and many species avoided the areas altogether.
- The seals and porpoises in the area were generally unaffected; no behavior changes could be linked to the construction or operation of the wind farms.
- Fish were often found swimming around the artificial reefs created by the farms.

<sup>2</sup> Sam Shelton, Strategic Energy Institute, from <http://www.energy.gatech.edu/news-events/release.php?id=1437>

<sup>3</sup> "Danish Offshore Wind – Key Environmental Issues" (2006). Published by DONG Energy, Vattenfall, The Danish Energy Authority, & The Danish Forest and Nature Agency.

*Additional sources used to compile this information include: The American Wind Energy Association ([www.awea.org/faq](http://www.awea.org/faq)); The British Wind Energy Association ([www.bwea.com/offshore/faqs.html](http://www.bwea.com/offshore/faqs.html)); The South Carolina Institute for Energy Studies at Clemson University ([www.clemson.edu/scies/wind.htm](http://www.clemson.edu/scies/wind.htm))*

