

Introduction to Offshore Wind Energy: Considerations for Georgia

Offshore wind and other potential renewable energy sources will likely play an increasingly important role in our nation's energy supply. Although development of offshore wind power in the United States is still in its infancy compared to land-based wind, offshore wind resources are advantageously

located near heavily populated coastal areas with rapidly growing electrical demands. These areas have large regional power markets that are able to facilitate the integration of wind power into the overall electrical grid system¹.

While the U.S. has no offshore wind generating capacity as yet, offshore winds from the Atlantic Ocean possibly contain up to 1,000 gigawatts (GW) of energy². As a result, interest in offshore wind development is beginning to grow in the U.S. Plans were recently approved for the nation's first offshore wind farm, the Cape Wind Project. Located off the Massachusetts coast in Nantucket Sound,

the project will consist of 130 wind turbines expected to produce an average of 174 megawatts of power. This amount of energy would supply up to three quarters of the electrical needs for Cape Cod and nearby islands³.

Many states along the Eastern coast are showing interest in offshore wind development, including Georgia. The Southern Company has applied for federal permits to install two meteorological towers for data collection to assess the wind energy potential of an area about 10 miles off Tybee Island⁴. A recent Department of Energy study estimated that Georgia's offshore wind resources could supply about six percent of the energy generated by the state⁵.

In order to speed up the development of U.S. offshore wind power, in 2011, the Department of Energy announced a National Offshore Wind Strategy designed to lower the cost of offshore wind power and reduce the timeline for deploying offshore wind farms. The Strategy's overall goal is to promote development of 10 GW of offshore wind capacity by 2020 and 54 GW by 2030⁶.



Middelgrunden wind farm,
Copenhagen, Denmark

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Offshore Wind in Europe

Development of offshore wind power began in Europe, where, in 1991, Denmark installed a wind turbine off its southern coast, becoming the first nation to generate electricity from offshore wind. By 2006, wind power was providing 20 percent of Denmark's total electrical needs. Offshore wind has since spread to several other European countries including the UK, the Netherlands, Belgium, Sweden, Germany, Ireland, Finland, and Norway. As of 2010, the European Union's (EU) total offshore wind capacity was 2,964 megawatts; supplying 2.9 million EU households with electricity.

¹ Schroeder, Erica. 2010. Turning Offshore Wind On. *Calif. L. Rev.* 98: 1631.

² 'Smart from the Start' Atlantic OCS Offshore Wind Initiative.

³ Cape Wind Project website: <http://www.capecwind.org/article24.htm>.

⁴ *Southern Winds: Summary Project Report 2007*

⁵ NREL website: <http://www.nrel.gov/wind/pdfs/40745>

⁶ *Overview: National Offshore Wind Strategy*

For more information, see the Georgia Coastal Resource Council's report, [Offshore Wind Energy: Considerations for Georgia](#).