



## Offshore Wind: America's New Energy Opportunity

We must act urgently to support the development of the first generation of offshore wind projects in the United States in order to capture a new American manufacturing opportunity and create thousands of new American jobs. Newly created manufacturing facilities and the associated jobs will be located in some of the areas of our country where they are needed most, near ports along the Eastern Seaboard, the Gulf Coast and in the Great Lakes region. In addition, offshore wind will allow us to tap a vast new source of clean domestic energy that will help to stabilize energy prices.

### Offshore wind energy development will create American jobs

- Once a pipeline of projects is established, there is a tremendous opportunity for regional port and supply chain development in support of the offshore wind industry. Substantial industrial manufacturing jobs are expected to be created to manufacture turbines, foundations, blades, substations, and cables.
- The U.S. Department of Energy (DOE) estimates that by 2030, the development of 54,000 MW of offshore wind projects in the U.S. could create more than 43,000 permanent operations and maintenance jobs and approximately 20.7 direct jobs per annual megawatt (MW).<sup>i</sup>
- The success of the land-based wind industry in the U.S., which has created over 75,000 jobs and contributed to the placement of over 400 manufacturing facilities across 43 states,<sup>ii</sup> demonstrates the economic development potential for offshore wind.
- For the wind sector overall, including both land-based and offshore, DOE estimates that the wind industry will support 500,000 American jobs by 2030.<sup>iii</sup>

### Offshore wind is an established global industry and a new opportunity for the United States

- The U.S. National Renewable Energy Laboratory estimates that the potential for offshore wind power in the U.S. is four times greater than the country's current total generating capacity from all sources.<sup>iv</sup>
- The first offshore wind farm was installed off the coast of Denmark in 1991 and in Europe today, 4,000 MW of offshore wind capacity has been constructed<sup>v</sup>. This is enough electricity to power the equivalent of almost 1.3 million homes in the U.S.<sup>vi</sup>
- By 2020, with an annual investment of the equivalent of \$10.76 billion, Europe is expected to have installed 40,000 MW of offshore wind capacity,<sup>vii</sup> enough electricity to power the equivalent of almost 13 million homes in the U.S.<sup>viii</sup>
- China plans to increase the combined installed capacity of its offshore wind power sector to 5,000 MW by 2015 and 30,000 MW by 2020<sup>ix</sup>, enough electricity to power the equivalent of 1.6 million and almost 10 million U.S. homes respectively.<sup>x</sup>

### Offshore wind is a vast source of American energy that is close to major population centers and corresponds to periods of high power demand

- Offshore wind is a vast energy resource close to major cities and electricity load centers. The 28 coastal and Great Lakes states use 78% of the nation's electricity.<sup>xi</sup>
- Strong and constant ocean winds correspond to periods of high power demand.
  - Specifically, on hot days ocean breezes often blow more strongly. This phenomenon resulted in land-based wind farms installed along Texas's Gulf Coast playing a crucial role in meeting peak demand during a power emergency in the summer of 2011.<sup>xii</sup>
  - Cape Wind's meteorological tower confirmed that its project would have been operating at or near full capacity during a heat wave in the summer of 2011.<sup>xiii</sup>

### Offshore wind is a source of stable, inexhaustible and clean energy

- With zero fuel cost, utilities can lock in at a determined price for at least 20 years, which acts as a hedge on volatile fossil fuel prices.
- When operating, offshore wind energy generates no air or water pollution or hazardous or radioactive wastes, does not deplete fresh water resources, and requires no mining, transportation, or refining of a feedstock or fuel.
- Offshore wind will provide clean electric power to major urban U.S. population centers that are faced with air quality problems.<sup>xiv</sup> Particulate matter in the air, often as a result of power plant emissions, has been shown to affect cardiovascular and respiratory health even in otherwise healthy people.<sup>xv</sup>
- The environmental benefits from the development of land-based wind in the U.S. demonstrate the tremendous potential for offshore wind energy to help reduce greenhouse gas emissions. When new land-based wind projects installed in 2011 produce power for a full year, the U.S. wind fleet will avoid over 70 million metric tons of CO<sub>2</sub>, the equivalent of reducing power sector emissions by 3%, or taking nearly 12.4 million cars off the road.<sup>xvi</sup>

<sup>i</sup> W Musial and B. Ram. Large-Scale Offshore Wind Power in the United States: Assessment of Opportunities and Barriers. Golden, CO: National Renewable Energy Laboratory (NREL) 2010. Note: NREL is in the process of updating its jobs and economic development impacts model for the U.S. The jobs analysis in the 2010 report is based upon data from European projects.

<sup>ii</sup> American Wind Energy Association. Federal Production Tax Credit for Wind Energy Fact Sheet 2011. [http://awea.org/issues/federal\\_policy/upload/PTC-Fact-Sheet.pdf](http://awea.org/issues/federal_policy/upload/PTC-Fact-Sheet.pdf)

<sup>iii</sup> Department of Energy. 20% Wind Energy by 2030: Increasing Wind Energy's Contribution to the U.S. Electricity Supply. Golden, CO: Department of Energy 2008

<sup>iv</sup> M. Schwartz, D. Heimiller, S. Haymes, W. Musial. Assessment of Offshore Wind Energy Resources for the United States. Golden, CO: National Renewable Energy Laboratory (NREL), 2010

<sup>v</sup> European Wind Energy Association. Wind in our Sails. November 2011. [http://www.ewea.org/fileadmin/ewea\\_documents/documents/publications/reports/23420\\_Offshore\\_report\\_web.pdf](http://www.ewea.org/fileadmin/ewea_documents/documents/publications/reports/23420_Offshore_report_web.pdf)

<sup>vi</sup> Calculation based upon a 40% capacity factor

<sup>vii</sup> European Wind Energy Association. Wind in our Sails. November 2011. [http://www.ewea.org/fileadmin/ewea\\_documents/documents/publications/reports/23420\\_Offshore\\_report\\_web.pdf](http://www.ewea.org/fileadmin/ewea_documents/documents/publications/reports/23420_Offshore_report_web.pdf)

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<sup>ix</sup> European Wind Energy Association. Wind in our Sails. November 2011. [http://www.ewea.org/fileadmin/ewea\\_documents/documents/publications/reports/23420\\_Offshore\\_report\\_web.pdf](http://www.ewea.org/fileadmin/ewea_documents/documents/publications/reports/23420_Offshore_report_web.pdf)

<sup>x</sup> Calculation based upon a 40% capacity factor

<sup>xi</sup> Department of Energy. 20% Wind Energy by 2030: Increasing Wind Energy's Contribution to the U.S. Electricity Supply. Golden, CO: Department of Energy 2008

<sup>xii</sup> <http://www.statesman.com/news/texas/state-electric-grid-operator-says-outages-not-likely-1713893.html>

<sup>xiii</sup> <http://www.capewind.org/news1208.htm>

<sup>xiv</sup> American Lung Association. (2011). State of the Air: 2011. <http://www.stateoftheair.org/2011/facts/>

<sup>xv</sup> American Lung Association. (2011). State of the Air: 2011. <http://www.stateoftheair.org/2011/health-risks/health-risks-particle.html>

<sup>xvi</sup> AWEA U.S. Wind Industry Annual Market Report Year Ending 2011