

Advanced Technology Demonstration

The program recently announced seven technology demonstration partnerships with broad consortia that are developing breakthrough offshore wind energy generation projects. The primary goals of these projects are to achieve large cost reductions over existing offshore wind technologies and develop viable and reliable options for the United States. The demonstrations will help address key challenges associated with installing utility-scale offshore wind turbines, connecting offshore turbines to the power grid, and navigating new permitting and approval processes.

Each project will receive up to \$4 million to complete the engineering, site evaluation, and planning phase of their project. Upon completion of this phase, the DOE Wind Program will select up to three of these projects to advance the follow-on design, fabrication, and deployment phases to achieve commercial operation by 2017. These projects will be eligible for up to \$47 million over four years, subject to congressional appropriations.

The seven projects selected for the first phase of this six-year initiative are:

- Baryonyx Corporation, based in Austin, Texas, plans to install three 6-megawatt direct-drive wind turbines in state waters near Port Isabel, Texas. The project will demonstrate an advanced jacket foundation design and integrate lessons learned from the oil and gas sector on hurricane-resistant facility design, installation procedures, and personnel safety.
- Fishermen's Atlantic City Windfarm plans to install up to six direct-drive turbines in state waters three miles off the coast of Atlantic City, New Jersey. The project will result in an advanced bottom-mounted foundation design and innovative installation procedures to mitigate potential environmental impacts. The company expects this project to achieve commercial operation by the end of 2014.
- Lake Erie Development Corporation, a regional public-private partnership based in Cleveland, Ohio, plans to install nine 3-megawatt direct-drive wind turbines on "ice breaker" monopile foundations designed to reduce ice loading. The project will be installed on Lake Erie, seven miles off the coast of Cleveland.
- Seattle, Washington-based Principle Power plans to install five semi-submersible floating foundations outfitted with 6-megawatt direct-drive offshore wind turbines. The project will be sited in deep water 10 to 15 miles from Coos Bay, Oregon. Principle Power's semi-submersible foundations will be assembled near the project site in Oregon, helping to reduce installation costs.
- Statoil North America of Stamford, Connecticut plans to deploy four 3-megawatt wind turbines on floating spar buoy structures in the Gulf of Maine off Boothbay Harbor at a water depth of approximately 460 feet. These spar buoys will be assembled in harbor to reduce installation costs and

then towed to the installation site to access the Gulf of Maine's extensive deep water offshore wind resources.

- The University of Maine plans to install a pilot floating offshore wind farm with two 6-megawatt direct-drive turbines on concrete semi-submersible foundations near Monhegan Island. These concrete foundations could result in improvements in commercial-scale production and provide offshore wind projects with a cost-effective alternative to traditional steel foundations.
- Dominion Virginia Power of Richmond plans to design, develop, and install two 6-megawatt direct-drive turbines off the coast of Virginia Beach on innovative "twisted jacket" foundations that offer the strength of traditional jacket or space-frame structures but use substantially less steel.