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Floating Wind Turbines Heading to Portugal

Principle Power and European utility EDP say they will try erect the first floating wind turbine in the deep waters off Portugal, but the exact details remain vague.

by: Michael Kanellos
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Energias de Portugal and Principle Power have signed a memorandum of understanding to move forward on a project that will lead to the world's first commercial floating wind turbines.

Principle isn't providing many details with regard to how many floating turbines will be planted in the wind farm or when the first floaters might start producing power. Nonetheless, the two companies have committed to build these types of turbines, said Principle's president Jon Bonnano.

The float, by the way, isn't just a giant inner tube connected to the seabed by a rope. It is a three-legged structure that's been adapted from the architecture of modern oil drilling platforms. The design, structure and sheer size of the float keep it in place. Principle licensed the technology from other companies.

The Portugal project will actually take place before another project Principle has been trying to put together to plant 150-megawatts worth of floating turbines off the coast of Oregon (see [Blowing Offshore Power Into Oregon](#)).

Two factors prompted the switch: Interest in wind projects is higher in Europe and the financing there is easier, he said. (Last year, Principle also said it would raise a funding round in the first quarter of 2009. Bonnano says that, although money is tougher to come by, the company is continuing to raise that round.)

The push to plant wind turbines far out to sea – near stronger winds and away from the whiny cries of NIMBY coastal dwellers – is prompting changes in how turbines are erected. The conventional, familiar monopole used by land-based turbines isn't adequate for deep water. Monopiles work in water that's 15 meters deep or shallower. After that, monopoles require too much steel and can cost too much to erect, say critics.

One of the chief ideas for deep-water turbines is the jacket, a four-legged stool that has also been adapted from the oil industry. The jacket is first planted in the seabed on its own. The turbine is then erected on land, towed out to the jacket, and plopped on top. In monopole designs, the turbine is assembled at sea.

Two jacket turbines exist now, off the coast of Aberdeen, Scotland (see [When Oil Rig Met Wind Turbine](#)). A company that make jackets, however, says it has orders for 44 more and will be producing up to 200 a year in the near future. [SeaEnergy Renewables](#), a wind power provider that plans to use jacket turbines, is part of two consortiums that collectively won the right to build 2 gigawatts of wind farms off the coast of the U.K. Larger jackets that can allow developers to plant turbines further out to sea will come.

Floats will be cheaper, argues Bonnano, and they can go further out to sea. The Beatrice turbines are in 45-meter deep water. Floats only start to make sense in 45 meters.

"We start to install at 45 meters because our draft requires it," he said. "There are few

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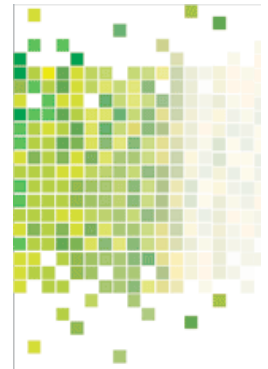
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