

# Study shows stability and utility of floating wind turbines (w/ Video)

June 29 2010

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Wind turbines may be one of the best renewable energy solutions, but as turbines get larger they also get noisier, become more of an eyesore, and require increasingly larger expanses of land. One solution: ocean-based wind turbines. While offshore turbines already have been constructed, they've traditionally been situated in shallow waters, where the tower extends directly into the seabed. That restricts the turbines to near-shore waters with depths no greater than 50 meters -- and precludes their use in deeper waters, where winds generally gust at higher speeds.

An alternative is placing turbines on floating platforms, says naval architect Dominique Roddier of Berkeley, California-based Marine Innovation & Technology. He and his and colleagues have published a

feasibility study of one platform design -- dubbed "WindFloat" -- in the latest issue of the *Journal of Renewable and Sustainable Energy*.

By testing a 1:65 scale model in a wave tank, the researchers show that the three-legged floating platform, which is based on existing gas and oil offshore platform designs, is stable enough to support a 5-megawatt wind turbine, the largest turbine that currently exists. These mammoth turbines are 70 meters tall and have rotors the size of a football field. Just one, Roddier says, produces enough energy "to support a small town."

*WindFloat: Artist rendered animation of WindFloat fabrication, installation and operations.* The next step, says Roddier, is building a prototype to understand the life-cycle cost of such projects and to refine the economics models. The prototype, which is being built in collaboration with electricity operator Energias de Portugal, "should be in the water by the end of summer 2012," he says.

**More information:** The article, " Windfloat: a Floating Foundation for Offshore Wind Turbines" by Dominique Roddier et al will appear in the *Journal of Renewable and Sustainable Energy*. See: [jrse.aip.org/](http://jrse.aip.org/)

Provided by American Institute of Physics

Citation: Study shows stability and utility of floating wind turbines (w/ Video) (2010, June 29) retrieved 25 April 2024 from <https://phys.org/news/2010-06-stability-turbines-video.html>

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