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Massachusetts

## 'Deep-water' wind technology unveiled

BOURNE — Blue H USA this week gave Cape Codders their first serious taste of a proposed deep-water wind farm project.

Raymond A. Dackerman, general manager for the US branch of the Netherlands-based company, spoke before about two dozen people Wednesday morning (November 12) at a special forum sponsored by the Hyannis Chamber of Commerce. His presentation gave the audience a general overview of the company's cornerstone product, the "floating" wind turbine.

The so-called floating turbine is, in fact, a tension-legged platform similar to those already used by the oil industry for some offshore drilling rigs, and that platform may be installed in seas 30 to 300 meters deep. The bulk of the platform is below sea level and is anchored to the sea floor, which keeps the unit stable even in high seas.

A two-thirds scale prototype platform installed in December 2007 about 11 miles off the coast of Puglia, Italy, sits in water 371 feet deep and, according to Mr. Dackerman, has handily endured 40-foot seas.

A full-size commercial turbine is scheduled for installation next summer.

The turbine itself differs from the conventional turbines now being used in offshore wind farms, which Mr. Dackerman described as adapted land-based models. The Blue H turbines feature two blades instead of three, and those blades may be leveled flat in extremely high winds to prevent the turbine from spinning. Also, the Blue H models adjust on their yaw (up and down) axis as well as their pitch (left and right) axis to better catch the wind.

The tower upon which the turbine sits is shorter than those used in shallow-water turbines, which adds to their durability.

Mr. Dackerman said Blue H filed earlier this year a "nomination for lease" with the US Department of the Interior's Minerals Management Service (MMS), and hoped to get the green light to conduct site testing and data collection on a site 23 miles off the southwest coast of Martha's Vineyard. The MMS could issue a decision on that application before the end of the year.

The entire Massachusetts Congressional delegation submitted to the MMS in June a letter of support for the application.

The testing and data collection would be the first step in determining whether the site would be suitable for a 120-turbine deep water wind farm. The "Project Belinda" facility would, when fully operational, generate 420 megawatts of power at peak output.

In comparison, the proposed Cape Cod Wind Farm, sited for Nantucket Sound, would generate an estimated 468 MW of power at peak output with 130 turbines.

Mr. Dackerman said the Blue H project would be more cost-effective than a shallow-water wind farm, estimating that each turbine would cost 20 percent less to manufacture and install than its shallow-water counterpart. The savings would be found in the materials, as the floating turbines use less steel; in construction costs since the turbines are manufactured entirely on land and towed out to sea by tug boats; and installation costs since the platforms do not need a monopile base driven directly into the sea floor upon which to mount the turbine.

According to Mr. Dackerman, deep water turbine technology is improving quickly, making the turbines ever more efficient and, by replacing the steel components with composite materials, less costly and more durable.

Other advantages of the deep-water approach: the facility is less disruptive to nautical and aerial navigation, and to avian and marine life; and, because the units are installed without disrupting the sea floor as with monopiles, they are more environmentally friendly.

The facility would be connected to the mainland by a high efficiency HVDC (high voltage direct current) cable about 60 miles long, Mr. Dackerman said.

Mr. Dackerman could not provide specific figures as to the cost of power production, but said the company would have to provide “a competitive price” in order to secure a power supply contract. He added that the project would need a federal production tax credit in its early stages of operation, but would become cost-effective more quickly than a shallow-water facility due to the lower overhead costs and higher energy production rate.

Wednesday’s presentation also included an overview of the work being conducted by the New York-based Verdant Power, which specializes in tidal and hydroelectric technologies—or, as company founder Trey Taylor called it, “marine renewables.”

The company is developing a variety of technologies that rely on moving bodies of water, from large rivers to small streams to man-made canals, to generate electricity. In his presentation, Mr. Taylor focused mostly on the company’s Roosevelt Island Tidal Energy (RITE) Project in New York City’s East River, which was launched in 2002.

That project has logged 7,000 hours of operation and generated 40 megawatt hours of electricity. When the full system is up and running in late 2009, the unit is expected to generate up to 10 MW, enough to power about 8,000 New York homes, according to the company’s official website.

According to Mr. Taylor, other renewable energy technologies such as wind and solar could be integrated with the tidal units to diversify and expand a particular system’s production potential.

Mr. Taylor said the company is conducting a resource assessment in Massachusetts to gauge the energy potential in its various waterways, and so far the potential is proving higher than the company believed.

For more information, visit the Blue H USA website at [www.bluehgroup.com](http://www.bluehgroup.com) and the Verdant Power

website at [www.verdantpower.com](http://www.verdantpower.com).

By Michael C. Bailey

[The Enterprise](#) <sup>[1]</sup>

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URLs in this post:

[1] The Enterprise: <http://capecodnow.net/artman/publish/bourne/Deep-Water-Wind-Technology-Unveiled.shtml>

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