A rendering of Seawind turbines Photo: Seawind
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Two-bladed pioneer Seawind lands Greek islands deal

Two-bladed offshore wind turbine pioneer Seawind has landed a breakout deal with Greek renewables developer WRE Hellas to build arrays of bottom-fixed offshore and floating wind farms to power islands in the Aegean Sea, Recharge can reveal.

The project, expected to lead to developments of 50-100MW, is being advanced under the European Union's Clean Energy for EU Islands Programme, which has the long-term target of switching over the bloc's 2,000-plus inhabited islands to renewable energy.

"The development of economic, clean energy sources is of vital importance for many small Greek islands that rely heavily on tourism," says WRE Hellas managing director Victoria Alexandratou. "Seawind's technology will enable us to meet this objective at a cost comparable to the wholesale price on the mainland and independent from government subsidies."

Seawind chief executive Martin Jakubowski adds: "We look forward to showcasing how 100% green energy systems will work on Greek islands and other smaller economies."

The innovative Seawind turbine design features a twin-blade rotor fitted to a hybrid mechanical-elastomeric hinge that is engineered to filter out wind-driven gyroscopic loads and so cushion the impact on the machine's two-stage geared drivetrain. Power control is finessed by yawing rather than by adjusting blade pitch.

First full-scale Seawind prototype ‘installed off Norway in 2018’

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A 6.2MW prototype with a 126-metre-diameter rotor and concrete gravity base (CGB) foundation is being developed for installation as a flagship demonstration project off Norway slated to start next year. And the design is about to be “implemented” for a 10.4MW model, flying a 210-metre rotor, which is calculated able to deliver a levelized cost of energy under $30/MWh.

A unit of this scale would also make more of the relatively benign offshore wind regime, says Jakubowski. “The Mediterranean Sea does not have the winds of the North Sea but the Seawind 10.4 will produce almost 45 million kWh in winds of about 8.5 metres per second with medium wind speeds as in the Mediterranean Sea,” he notes.

Both CGB and floating concepts, being developed with Norwegian North Sea engineering outfit Olav Olsen, are designed as “completely assembled offshore wind energy units” launched at site by a semi-submersible vessel rather than built by a crane jack-up. All in-field O&M will be carried out onboard — with access via helicopter or supply boat.

“Our approach to assemble the entire system onshore and launch at sea by semi-submersible vessels is the key to bringing down the cost of offshore wind and being able to install one or 100 turbines in a very economical way,” says Jakubowski.

“Seawind’s complete offshore units always have concrete support structures, bottom fixed or floating,” he adds. “We assisted the recent basin testing of Olav Olsen’s floating foundation, which confirmed the high degree of stability of this concrete semi-floater design even under very significant waves.”

Along with the Norwegian pilot and Greek island-array project, Seawind is also in discussions to progress developments using its turbine off countries including India, China and the US.

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