Siemens’ shareholding in A2Sea

Siemens is the most experienced and leading supplier of offshore wind turbines today. Over the past 20 years the company has installed nearly 1,000 wind turbines with a total generating capacity of about three gigawatts in European waters.

For the success story of offshore wind energy to continue into the future, electricity production costs must be considerably reduced. One leverage factor for this is the systematic industrialization of offshore logistics.

For this reason, Siemens has since 2010 owned a stake in A2Sea, a company specializing in vessels for the offshore installation of wind turbines. Siemens contributes to A2Sea in the form of the know-how in offshore installation and shipbuilding that it has gained over many years.

Optimized vessels help cut the time taken to erect wind turbines and in this way further reduce the costs for offshore wind energy.

An outstanding example of this is the SEA INSTALLER, A2Sea’s new installation vessel which was developed specifically for large wind turbines.

The vessel’s very first installation job was a pioneering feat. It was used to install Siemens’ new 6-megawatt wind turbines at sea for the first time.
Offshore installation vessels

Large installation vessels are required in order to erect the growing number of offshore wind turbines. These vessels need special capabilities for installation at sea. They must be able to operate independently of the water level and the seabed and in terms of size must be large enough to transport the individual components of several wind turbines. A2SEA designed and had built the SEA INSTALLER specifically for installation of the new generation of large-scale offshore wind turbines.

SEA INSTALLER

The vessel belongs to the Danish company A2Sea which is headquartered in Fredericia. Siemens holds 49 percent of the shares, with DONG Energy retaining 51 percent.

Type: self-lifting vessel
Length: 132 meters
Width: 39 meters
Maximum speed: twelve knots (~ 22 km/h)
Loading capacity: up to 5000 metric tons / transport of up to ten wind turbines simultaneously
Draft: 5.3 meters

Capacities:
Fuel: 1,000 cubic meters
Fresh water: 450 cubic meters
Holding tank: 300 cubic meters

Crew and equipment:
35 persons making up two operations teams
Facilities include 35 single cabins, canteen, fitness studio and recreation room

Installation:

*What exactly does the SEA INSTALLER transport and install?*

Foundations, towers, nacelles, rotor blades

The SEA INSTALLER can install wind turbines in the tidal range and under difficult seabed conditions in water depths down to 45 meters.
Is the rotor lifted as an entire unit or are blades mounted individually?
The SEA INSTALLER can install rotor blades individually or the complete rotor with blades pre-mounted. On its very first deployment in the Gunfleet Sands III project the vessel successfully installed the complete rotor with premounted blades.

How long does it take to install a wind turbine offshore?
The length of time for installation of a wind turbine at sea depends on the location and the weather conditions. As a rule of thumb, installation takes about eight hours for each major component (tower, nacelle and rotor) making a total of approximately 24 hours.

In the case of the installation of the two 6 MW offshore turbines by DONG Energy in the Gunfleet Sands III demonstration project, however, the first turbine was erected in the record time for a prototype of under 24 hours.

Sails under the Danish flag
Was built at the COSCO shipyard in Qidong, China

What Siemens components are installed in the vessel?
Automation and drive systems (diesel-electric drive unit and the vessel's automation system)
Main generators and distribution transformers for the on-board medium-voltage distribution system

Offshore installation vessels:
AZSea has currently five vessels for installing wind turbines offshore?

SEA ENERGY
SEA INSTALLER
SEA JACK
SEA POWER
SEA WORKER

The SEA INSTALLER is due to acquire a sister, the NB 002, in 2014. This installation vessel is currently under construction at the COSCO Shipyard Group.

How many vessels are there worldwide capable of installing wind turbines offshore?
The number of operational installation vessels worldwide currently stands at eleven. 15 more are currently under construction and will be completed over the next few years.
Quotes: Michael Hannibal, Head of offshore wind for the EMEA region:

“Siemens is now offshore with its next wind turbine generation.”

“Siemens performed trail-blazing work for installation of Gunfleet Sands III under difficult conditions: we installed our direct-drive, 6-MW wind turbine offshore for the first time, along with a complete rotor assembly at the same time. And we accomplished this all using a completely new installation vessel - the SEA INSTALLER.”

“Applying consistent industrialization of offshore logistics together with continued turbine innovation, we aim to reduce the costs for offshore wind power even further. The medium-term goal is to make offshore wind power competitive with conventional energy sources.”

“Siemens has more than 20 years of experience with offshore wind power – more than any other supplier.”

“We are convinced that our new direct-drive wind turbine, with a capacity of 6 megawatts, will set the standard for future offshore wind projects around the globe.”

“The 6-MW wind turbine is a true game changer for the offshore wind industry.”