
Green Investment Bank

In pictures: The construction of Westermost Rough

On 31 March 2014, the UK Green Investment Bank (GIB) purchased a 50% stake in the Westermost Rough offshore wind farm alongside our partner, Japan's Marubeni Corporation. The project is now in the construction phase. To mark the project's latest milestone our in-house Technical Director, Martin Langham (pictured), talks through the latest photographs.



The first three Siemens 6 MW turbines have been successfully 'loaded-out' aboard the specialist installation vessel – the Sea Challenger.

The project is situated approximately 8km off the Yorkshire coast and 25km north of Spurn Head, and will consist of 35 Siemens SWT-6.0-154 turbines with a hub height of 102 metres above mean sea level.

The load-out marks a hugely significant milestone and a step change in offshore wind technology with the first time that the next generation Siemens 6 MW turbine will be used on a commercial scale – an important step towards the industry's goal of reducing the cost of energy produced from offshore wind. The wind farm will have a capacity of 210 MW, producing enough electricity to power approximately 200,000 homes.

It is expected that all turbines will be installed by early 2015. Offshore work is being carried out by one of the world's most advanced installation vessels, the Sea Challenger, owned by A2SEA.



Here we see the 360 tonne 'nacelle' being prepared for lift.

The nacelle is the covered housing that encloses the generating components in a wind turbine, including the generator, drive train, and brake assembly. The nacelle is mounted on top of the tower and the turbine blades are in turn attached to front section of the nacelle called the hub.

The Siemens Direct Drive technology has 50% fewer moving parts than comparable geared machines. The red structure on top of the turbine is the helicopter hoist platform where technicians can be winched down to undertake service activities.

IN PICTURES: THE CONSTRUCTION OF WESTERMOST ROUGH

Another nacelle being lifted aboard using the Sea Challenger's main crane. The vessel's main crane has a lifting capacity of 900 tonnes and can jack itself up to 40 metres clear of the water to provide a stable lifting platform.



88 metre turbine towers being secured to the deck of the Sea Challenger. The spiral wraps seen on the towers are temporarily fitted to reduce vortex forming (which could cause instability) above the towers during transportation.



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Here we can see nine Siemens B75 blades loaded in to the blade rack and secured ready for transport. The B75 blade, which measures 75 metres in length, is the world's largest fiberglass component cast in one piece.

To give an idea of scale, if you look closely you can see a technician working on the second row of blades. Also another technician is just exiting the base of a tower on the right.



The Sea Challenger sailing away to begin installation activities. The voyage from Denmark to the UK is expected to take two days, with each turbine expecting to take three days to install (subject to weather conditions).

