



Sheringham Shoal

by Scira Offshore Energy

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The vessels of Sheringham Shoal

The construction, operation and maintenance of an offshore wind farm requires the use of many different vessels designed to carry out a wide range of tasks. Many of these are state-of-the-art vessels built especially for the offshore wind farm industry.

At the Sheringham Shoal Offshore Wind Farm site, 17 to 22 kilometres off the coast of Norfolk in the Greater Wash, the first vessels arrived in 2004 to undertake bird, marine mammal, seismic and other surveys for the initial development phase.

It was in early 2010 that the first actual construction vessel arrived – the 164-metre long bulk carrier *Nordnes* that placed rocks around the locations of 79 of the 90 foundation sites to reduce the likelihood of scour and therefore protect the cables at the base of each turbine.

With the wind farm due for completion by late summer 2012, several vessels have finished their work including the impressive 183m crane-vessel *Oleg Strashnov*, that installed the last foundations in mid 2011. With her went the *Reykjanes* guard vessel, host to the marine mammal observers on duty during that work phase. Earlier this year two fleet stalwarts demobilised – the 86m *Team Oman* responsible for laying infield and export cables, and 77m *Smit Constructor*, which readied the foundations for cable installation.

Each vessel - those which have left and those still in operation (below) – is integral to this complex engineering feat and ultimately, in enabling the supply of green energy to the equivalent of 220,000 British homes.

Construction Vessels

The GMS Endeavour

The *GMS Endeavour* is a self propelled, self-elevating jack-up barge built in 2010, and operated by Gulf Marine Services. The *Endeavour* can accommodate around 60 people on board, and specialises in turbine transportation and installation, carrying two turbines at a time.

Year of build:	2010	Variable load:	1895 tonne (elevated)
Length:	76m	Leg length:	94.2m
Draft:	3.65m	Beam:	36m



Seajacks Leviathan

The state-of-the-art, self-propelled 62m jack-up vessel *Seajacks Leviathan*, owned by Great Yarmouth-based firm Seajacks and operated out of the local port, has been contracted until the end of July.

She is a technically similar turbine installation vessel to the *Endeavour*, with both carrying two turbines at a time from Great Yarmouth to the site. She complies with the most stringent safety and quality standards and can operate with a significant wave height of 2m and when wind is up to 10.8 metres per second.

Year of build:	2009	Length:	62m	Leg length:	84m
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Toisa Warrior

Toisa Warrior is now onsite and responsible for burying all the infield cables between the turbines and the offshore substations, and the export cable between the wind farm and shore. The remotely operated trencher CT-1 which is equipped with the latest in technology including surveillance cameras, an echosounder and sonar will be housed onboard.

Year of build:	2011	Length:	87m	Breadth:	19m
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Jan Steen

The 78m *Jan Steen* arrived this month to begin the next phase of scour protection work. This follows on from the laying of an initial filter layer of rock by the *Nordnes* in early 2010.

This second stage involves precision placement of a three to five inch deep cushion layer of stone around the base of most of the foundations to shield the infield cables from potential scour. With accommodation for 45 workers and crew, *Jan Steen* has two cranes enabling her to place the stone around up to four foundations each day.

Length:	78m	Breadth:	20m
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HAM 602

The third and final stage of the scour protection work will be carried out by the 83m *HAM 602*, which arrives on site in May. A side stone placement vessel, the *HAM 602* will put the final armour layer of larger rocks around the base of the foundations. She can accommodate up to 20 people, has a capacity of 2435 tonnes and can place armour layers of rocks around two foundation bases each day.

Length Overall:	83m	Breadth:	20m
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Support Vessels



Multicats

Multicats are smaller, highly versatile vessels, providing support for a variety of roles. The *Gray Mammoth* arrives in the field during April to support with lifting equipment. With a powerful 110 ton.mtr hydraulic Seacrane, a 40 tonne deck winch, and four 5 tonne mooring winches she will be a useful member of the wind farm fleet.

Length: 26.92m **Breadth:** 10.847m **Crew:** 3 persons
Speed: 9 knots **Bollard Pull:** 14 tonnes



Personnel Transfer Vessels

Various personnel transfer boats, including the high speed craft *Dorothea* and *Dulcinea*, amongst others, are in operation now and will continue during the operation and maintenance phase. These vessels transfer the wind farm workers and visitors from the Wells-next-the-Sea outer harbour to the various installations in the field, and to and from the floating hotel. There are a maximum of 18 personnel transfer vessels operating in the field during the construction phase and each vessel can transfer up to 12 personnel at a time.

Length (average): 15m **Crew:** 2



Regina Baltica

Replacing previous "floatel" the 153m *Wind Ambition*, which was required elsewhere, the latest addition to the Sheringham Shoal fleet is the 145m *Regina Baltica*, a former cruise ferry. She has been contracted for at least six months to act as a temporary home to the workers who install and commission the remaining wind turbines and electrical infrastructure at the wind farm. Around 100 workers at a time are based on the vessel during their work rotas. She boasts facilities that include single-berth cabins, cafeteria, restaurants, conference and meeting rooms, lounge areas and a sun deck.

Length: 145m **Breadth:** 25m



Frank T

Owned by Wells-next-the-Sea Harbour, the *Frank T* is a workboat used for logistical transportation purposes. This includes carrying spare parts and tools for the turbines, and provisions for the crew to the personnel transfer vessels that are based in the outer harbour. This means that road usage from the town to the outer harbour is significantly reduced.

Length: 14m

Environmental Monitoring Vessels



Fruitful Harvest

As an Investor in Wildlife with the Norfolk Wildlife Trust, and with an overriding commitment to Health, Safety and the Environment, Scira is committed to a sustained environmental monitoring programme. Small vessels like the *Fruitful Harvest* are employed on regular ornithological surveys, typically following Sandwich Terns as the birds forage and move through the site.

Bird surveys were initiated well before construction work started, and will continue during the construction phase and subsequently when the wind farm is fully operational. This work will provide real field data to verify predictions of bird behaviour within the wind farm area.

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The Sheringham Shoal Offshore Wind Farm is owned equally by Statoil and Statkraft through the joint venture company Scira Offshore Energy Limited.