



by courtesy of Seascope Energy/Dong Energy

Burbo Bank Offshore Wind Farm

The Burbo Bank Offshore Wind Farm situated 6.4 miles from Sefton coast in Liverpool Bay, UK consists of twenty-five 3.6 MW Siemens turbines with a rotor diameter of 107 m and a hub height of 83.5 m above sea level, installed in a water depth between 0.5 m and 8.0 m at low tide. Monopiles with a diameter of 4.7 m and an overall length of 52 m were chosen as foundation for the turbines and were to be placed 530 m to 720 m from each other. MENCK was contracted with the provision of a MENCK MHU 800S hammer and associated equipment, consisting mainly of a surface power pack MHP 1100 on a rental basis to drive the 400 t heavy monopiles 25 m into the

challenging soil. Due to the high variation of soil conditions, the client was prepared to use the drive-drill-drive solution to reach target pile penetration into the underlaying rock. However, no drilling was necessary as the MHU 800S drove all piles successfully to target penetration ahead of schedule. Due to the large tidal range and depending on the driving status at high tide level, some monopiles had to be driven several metres under water. This challenge was solved for the first time world-wide with the MENCK MHU 800S equipped with an underwater ballast to keep the hammer stable on top of the pile head during underwater driving.

Project name	Burbo Bank Offshore Wind Farm
Client (end customer)	Seascope Energy/Dong Energy
Contractor	MT Højgaard a/s
Location	Burbo Bank, Liverpool Bay, UK
Turbines	3.6 MW Siemens
MENCK operational start	April 28th, 2006
MENCK operational end	July 27th, 2006
Water depth	0.5–8.0 m
Installation vessel	Jumping Jack
Quantity of piles	25
Pile diameter	4.7 m
Pile soil penetration	20–24 m
Number of blows per pile	2,500–4,000
Hammer	MHU 800S, 5.2 m with ballast for underwater driving
Power pack	MHP 1100
Mobilisation/Demobilisation by	MENCK GmbH
Mobilisation harbour	Schiedam, The Netherlands
Demobilisation harbour	Schiedam, The Netherlands
MENCK's scope	Mobilisation/Demobilisation and rental of hammer, associated equipment and Service Technician
MENCK engineering	Driveability analysis, sea fastening calculations



MENCK MHU 800S with 5.2 m pile sleeve



Monopiles waiting for windmills



Installation of windmill towers on monopiles

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