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Offshore industry

WINDEUROPE 2017

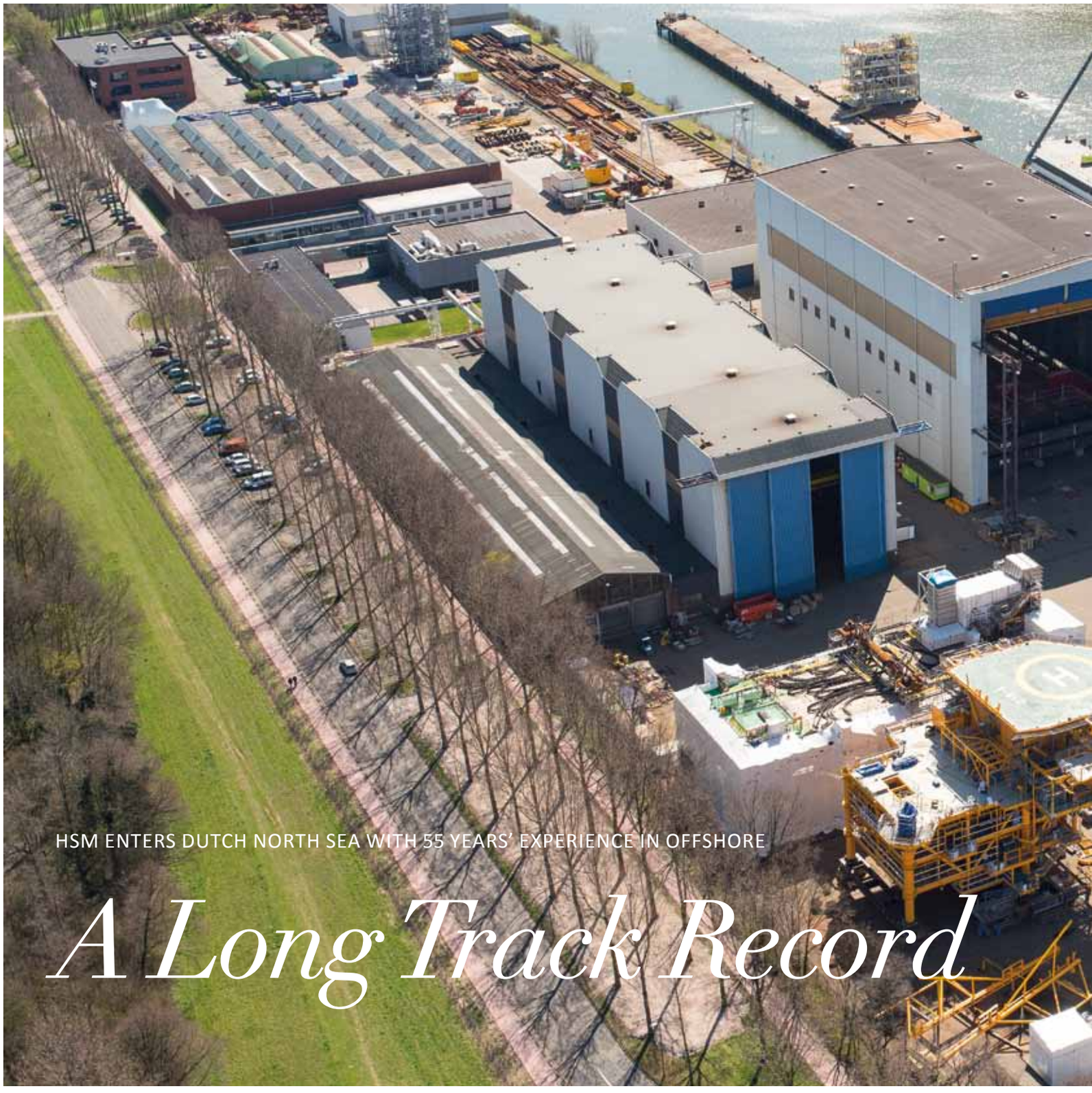
FOCUS ON LOCAL IMPACT AND GLOBAL LEADERSHIP

Pipe & Cable Laying

MAREA, THE HIGHEST-CAPACITY ATLANTIC SUBSEA CABLE

Deep-Water

REDUCING RISKS OF ANNULAR PRESSURE BUILD-UP

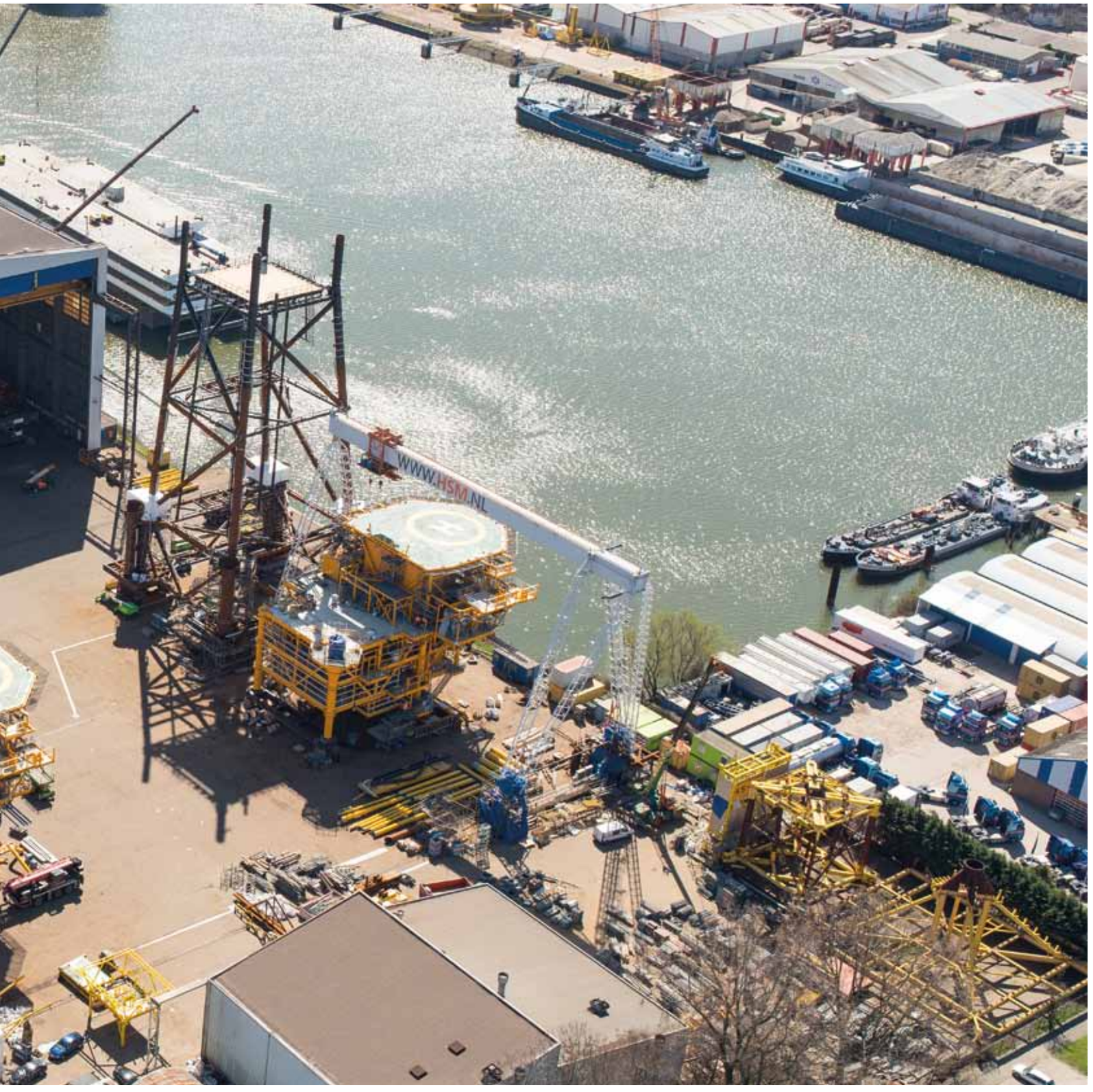


HSM ENTERS DUTCH NORTH SEA WITH 55 YEARS' EXPERIENCE IN OFFSHORE

A Long Track Record

HSM yard in Schiedam, the Netherlands.

EVER SINCE HSM DELIVERED THEIR FIRST JACKETS IN 1962, THEY HAVE BEEN CONTINUOUSLY ACTIVE AS A REPUTABLE EPCI SUPPLIER OF PLATFORMS, JACKETS, modules and special steel structures including subsea hardware. Being active in the Oil & Gas market, the company expanded their portfolio at an early stage towards the booming Offshore Wind industry.

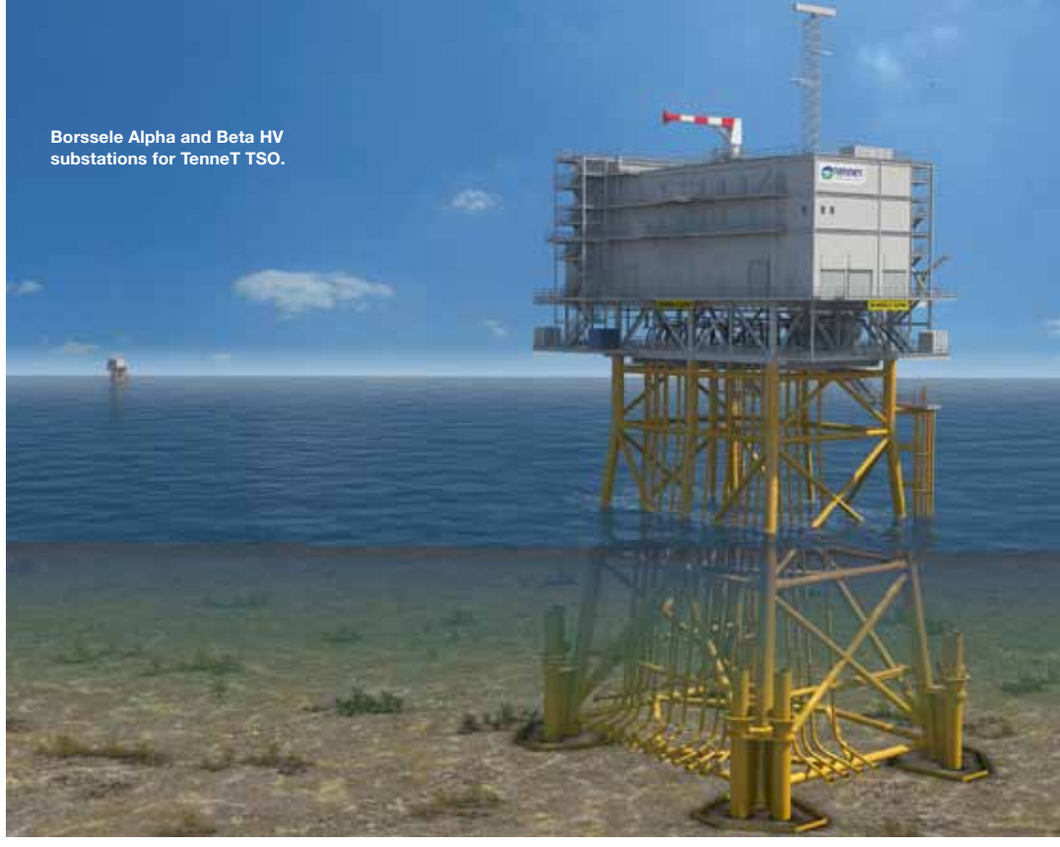


In 2002, HSM delivered the offshore high-voltage substation for the Horns Rev A Offshore Windfarm under an EPCI contract awarded by Eltra (Energinet). This was the first-ever offshore wind substation to be delivered, and was followed by many more in a market which has seen strong growth, both in size and in quantity. Given the cyclic character of Oil & Gas, this was of strategic importance for HSM. Today, the current orderbook comprises three substation projects. The 450MW substation for the Ørsted Borkum Riffgrund 2 Offshore Windfarm is the first one for the German sector. The scope of work features a 2,500mt topside and a 1,700mt jacket. The jacket was delivered and installed earlier this year, whilst the topside is scheduled for sailaway first half of 2018.

Borssele Substations

By far the largest project with an extensive EPCI scope of work, and the first HSM project in the Dutch North Sea, >>

This is the first large-scale offshore wind project in the Netherlands.



Borssele Alpha and Beta HV substations for TenneT TSO.

covers the provision of two identical 700MW substations for the Borssele 1 & 2 Offshore Windfarms. This is the first large-scale offshore wind project in the Netherlands. Client for this project is TenneT TSO, who have been assigned by the Dutch Government to establish and operate the grid connections associated with all current and future Dutch offshore windfarms. The total weight per project of 8,000t is divided into a 3,700t topside, a 2,900t six-legged jacket and six 1,400t piles. In additional to the general activities as covered by an EPCI contract, HSM will also be responsible for soil investigations, anti-scour protection by means of rock dumping, full HV integration and the provision of a jack-up unit to support offshore hook-up and commissioning activities. Construction has recently started on the Borssele Alpha Substation, a special first-cut-of-steel event was attended by customer TenneT TSO, which coincided with the formal contract-signing for the Borssele Beta Substation.

Mono Tower Platform

In upstream Oil & Gas, signs of recovery are visible, mostly associated with the development of (sub) marginal or otherwise challenging reservoirs with development solutions ranging from minimal facility platforms (MFP) to subsea manifolds and FPSO conversions. Shell/NAM took delivery this year of a mono-tower platform for development of the L13-FI-1 gas field, being the fifth mono-tower platform built by HSM for this customer. In the current market, this mono-tower concept proves to be a very viable solution for marginal field development, featuring low CAPEX/OPEX and being capable of unmanned operation, requiring a maximum of two maintenance visits per year and thus ensuring minimum exposure of personnel to safety hazards. Another feature is the electrical power, which is fully supplied from renewable sources consisting of wind turbines and solar panels, being backed up by battery banks. Despite its compact design, this

Monotower platform NAM L13-FI-1.

Photo courtesy of Iain Murdoch

platform can accommodate up to six wells and a maximum daily gas production of 6m^3 million and has a 25-year design life. Finally, the concept benefits to a large extent from recent developments in the Offshore Renewables sector, in particular large-scale production of large-diameter monopiles as well as a significant growth in the fleet of specialised vessels for transport, installation and flowline/umbilical laying and burial.

Subsea Hardware

HSM have previously delivered subsea hardware to facilitate development by means of subsea tie-backs of marginal and satellite fields, ranging from a 2,500t subsea manifold to a pipeline-end manifold. Work in progress includes a contract for the provision of a subsea crossover manifold, which will facilitate the re-routing of gas from a pipeline to shore to a host platform. For FPSO conversion and redeployment projects, HSM have built up a great deal of experience in the provision of dedicated modules with various functions, including compression, processing and accommodation.

Potential Synergies in the Offshore Energy Market

Having been actively involved in both the offshore Oil & Gas and Renewables industries for decades, HSM is ideally positioned to actively pursue projects and developments which seek to combine both. HSM are keen to take on the challenges associated with these prospects and to further enhance their role in the energy transition for many years to come.

i. **www.hsmoffshore.com**