



Offshore Wind Meets Oil & Gas

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an **ACTEON** company

Agenda

- ▶ Introduction to Acteon
- ▶ Introduction to Seabed Foundations Technologies Cluster
- ▶ Evolution of Technology from Oil & Gas into Offshore Wind
- ▶ The New Way of Procurement

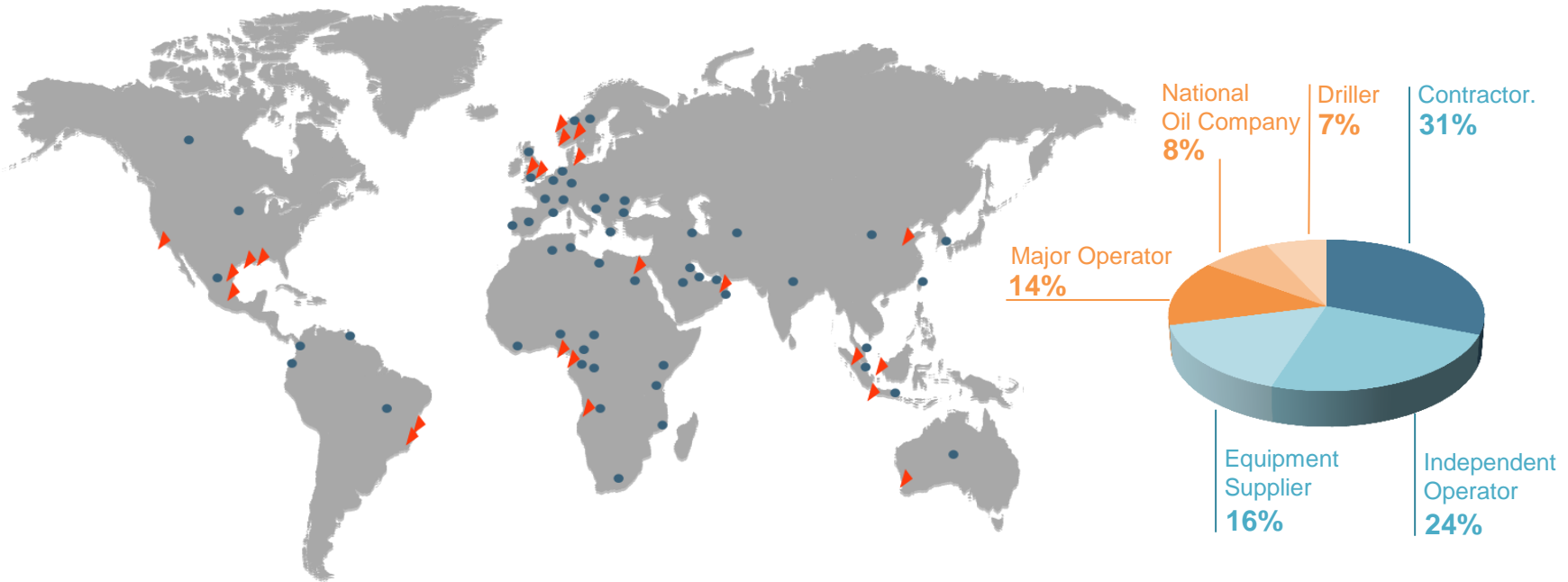
ACTEON *companies*

Defining Subsea Services

Our aim is to define, shape and lead Subsea Services through best-in-class expertise in our expert capabilities

Acteon’s expert capabilities provide the geographical coverage and depth of expertise our clients need.

▲ Acteon Locations ● Acteon Work Regions



Reach and depth of resource:

- ▶ 20 Specialist branded service companies
- ▶ 85 locations, 15 countries
- ▶ 2,500 staff
- ▶ Local content >97% national employees

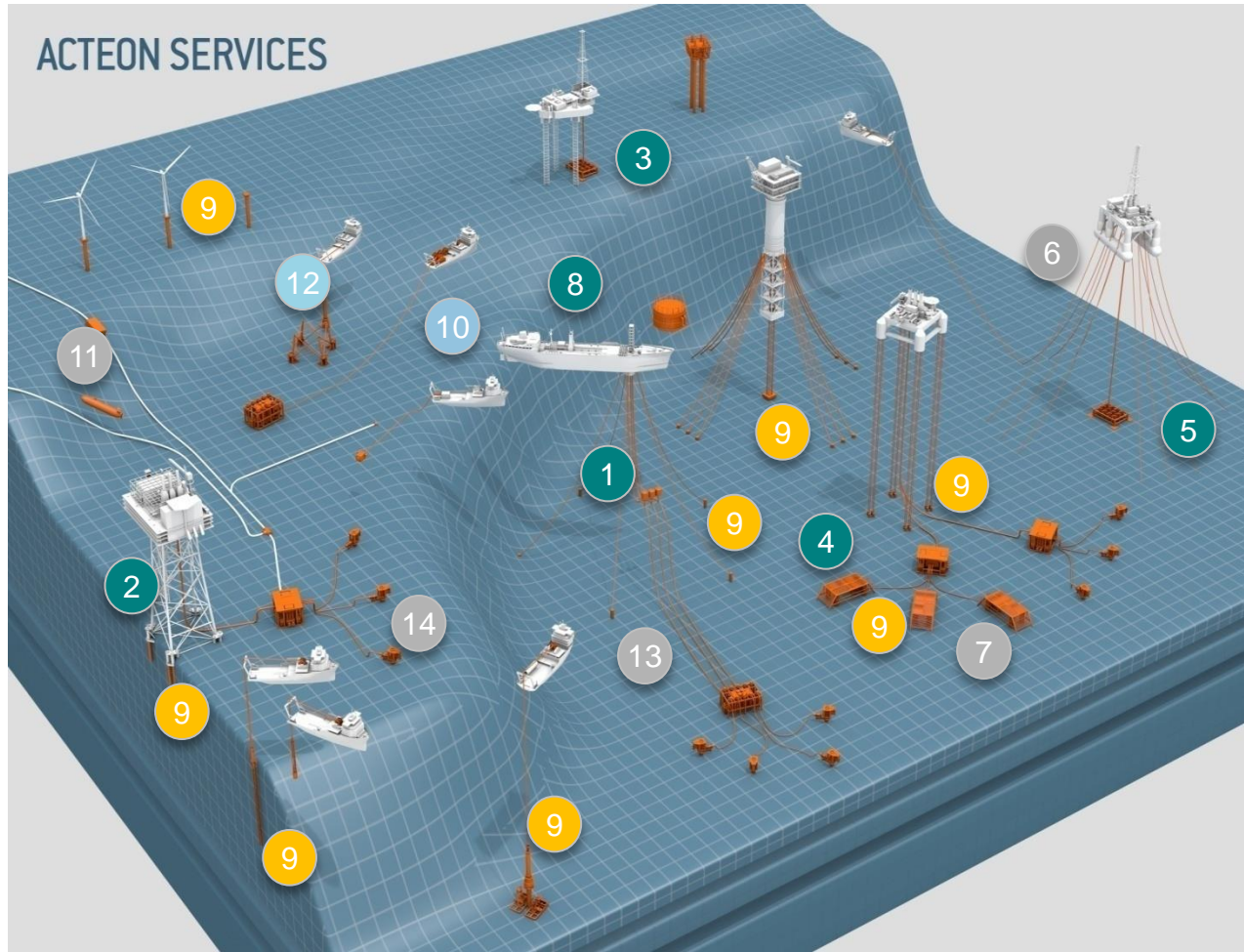
Four expert capabilities:



Seabed Foundations Technologies Cluster

Selected examples of Acteon's services:

- 1 Deepwater riser design, jack-up and platform conductor design, supply and through life monitoring
- 2 Conductor, Template, tieback design and installation including full minimal facility platform supply.
- 3 Mooring systems design, rental and maintenance
- 4 Rig moves and positioning
- 5 Rental of subsea electronic and monitoring equipment
- 6 FPSO mooring system design, rental, installation and recovery
- 7 **Drilled and driven pile installation equipment and support**
- 8 Flow line and umbilical installation and recovery
- 9 Survey of subsea pipelines and pipeline repair
- 10 Well plugging and abandonment
- 11 AUV surveys and ROV Tooling/Sensor support
- 12 Subsea infrastructure lifetime data management with engineered intelligence



Survey, Monitoring and Data	Risars and Moorings	Seabed Foundation Technologies	Project Support Services
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Seabed Foundations Technologies Cluster



MENCK: Provides a wide range of hydraulic hammers, an after-sales service and highly experienced offshore service technicians;



LDD: Designs, engineers, builds and operates world class pile installation and drilling equipment to deliver a complete foundation service;



LMH: Provides a comprehensive lifting and handling service for offshore installation and subsea construction works.



CORE: Provides grouting for offshore foundations & structural strengthening for conductor and well integrity services

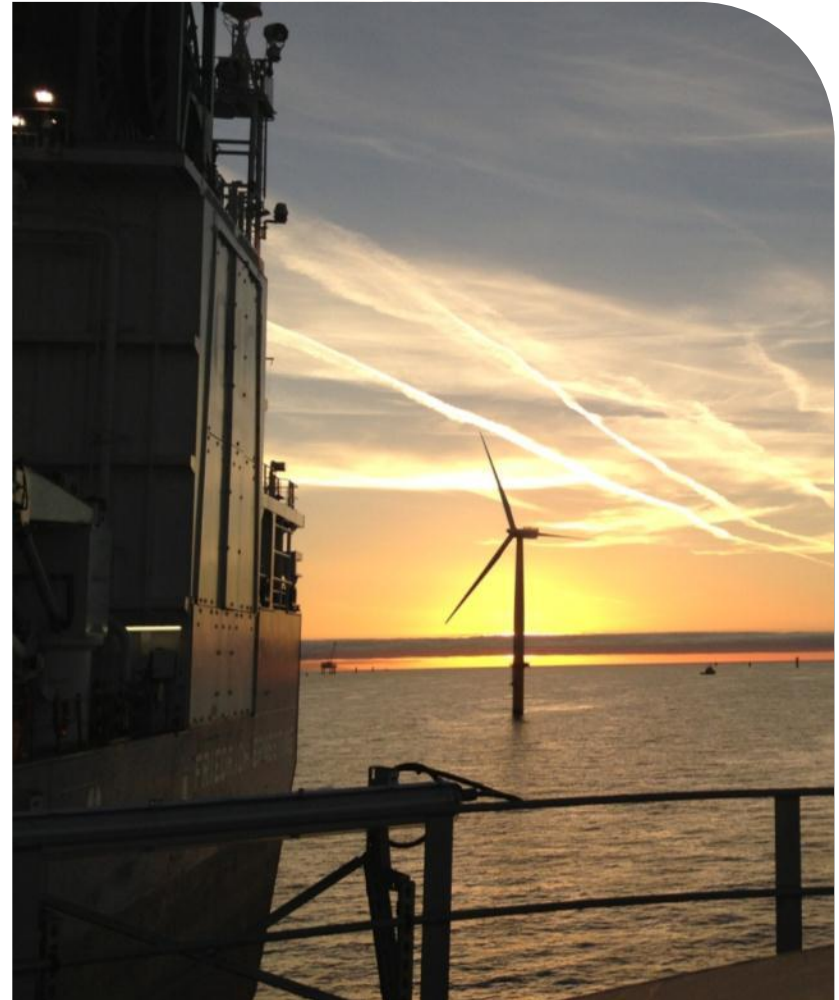


CIS: Provides full project management of high quality conductor installations.

Evolution of Technology

Equipment development to Offshore Wind application

- ▶ Reverse circulation drill from 1m to 8.5m diameter
- ▶ MHU 100kJ to 3500kJ
- ▶ 20*20m subsea piling template



World's largest Construction Drill @ 8.5m

MENCK New Products

Meeting Market Requests and Expanding MENCK Portfolio



2003: MNRS: MENCK Noise Reduction System

2010: MHU 100C

2011: Subsea Noise Protection System

2011: Subsea Piling Frame: LM StabFrame

2013: MHU 3500S – World Largest Piling Hammer



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PKW
1,3t
1,5m

LKW
20t
4m



MHU 270T
30.0t
12.7m

MHU 300T
49.0t
14.5m

MHU 800S
79.0t
17.1m

MHU 1200S
119.0t
18.9m

MHU 1900S
137.0t
22.1m

MHU 3500S
423t
24m



World's largest Hydraulic Hammer @ 3500 kJ



World's largest subsea piling template @ 20*20m

The New Way of Procurement

Acteon's Foundations Cluster aims to deliver significant cost savings, whilst maintaining the highest standards in QHSE, by delivering bundled service offerings in the Offshore Construction Sector.

- ▶ *Key Account Management: Cross company tender and project management efficiencies;*
- ▶ *Single contracting entity: Reduced commercial, contractual and interface risk;*
- ▶ *Resource optimisation: reduced crews and ancillary equipment;*
- ▶ *Access to world leading domain expertise in pile driving, drilling and socketing, grouting, lifting, handling and engineering services.*