Van Oord
Marine ingenuity

Lunch Lecture - Van Oord

Delft S.E.A. 5th Dec 2018

Nikolaos Xyloudis

150 years of
Marine ingenuity

Lunch Lecture – Van Oord

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Speaker

Name	: Nikolaos Xyloudis
Date/Place of birth	: 27 December 1988, Kavala (Greece)
Languages	: Greek, English
Job title	: Project Engineer at Van Oord Offshore Wind Projects B.V.
Education	2014-2016 MSc European Wind Energy Master (EWEM), TU Delft, NTNU
	2012-2014 MSc in Hydraulic Engineering, DUTH, Xanthi, Greece
	2006-2012 Diploma in Civil Engineering, DUTH, Xanthi, Greece

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Content

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Profile

- Our Marine ingenuity is all about smart and innovative solutions
- Independent family-owned business
- Long-term view to provide marine solutions of value
- Safety, sustainability and continuity go hand in hand
- Specialised in:

Dredging

Offshore oil & gas

Offshore wind

Activities – Dredging

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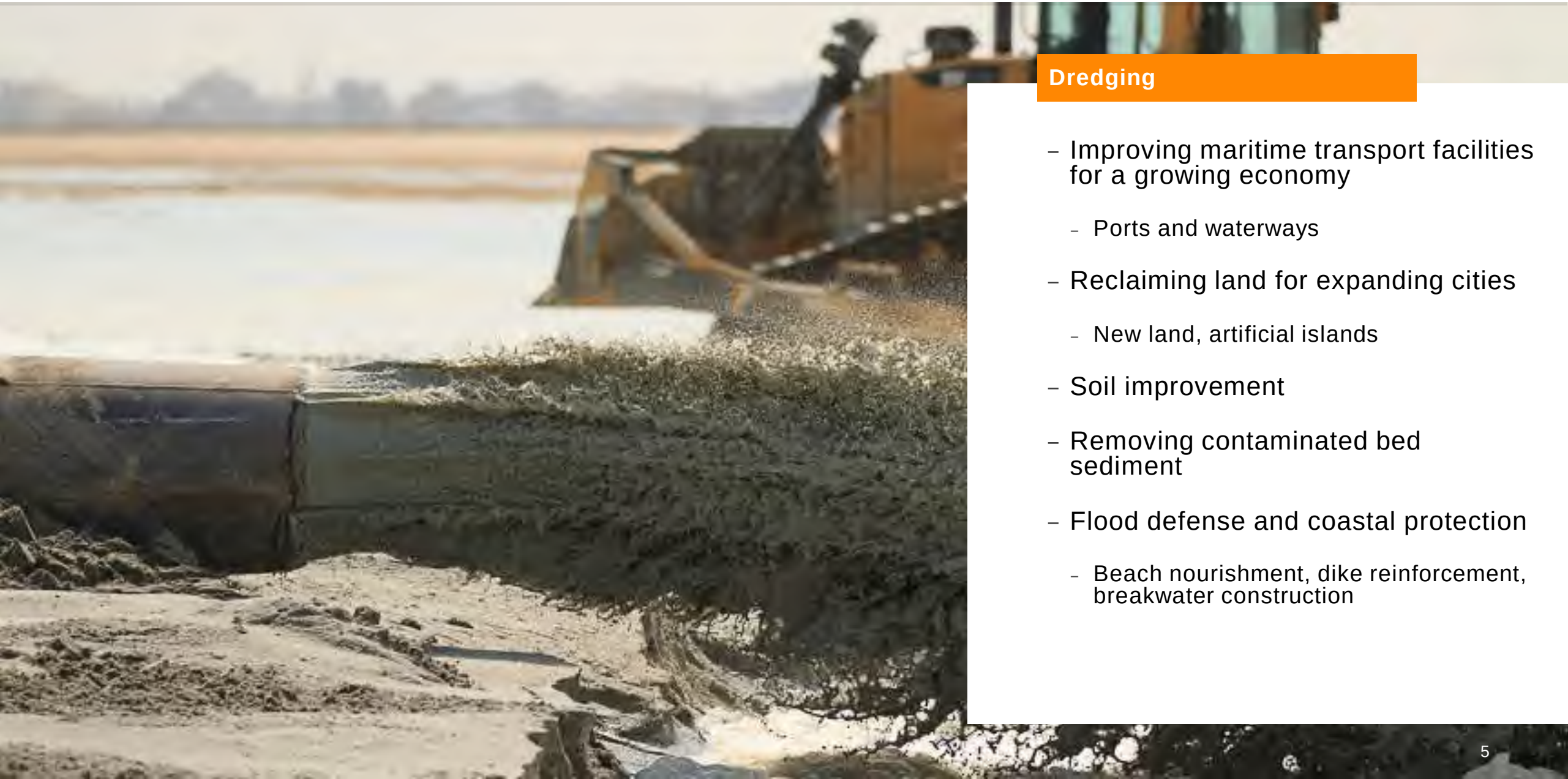

Dredging

- Improving maritime transport facilities for a growing economy
  - Ports and waterways
- Reclaiming land for expanding cities
  - New land, artificial islands
- Soil improvement
- Removing contaminated bed sediment
- Flood defense and coastal protection
  - Beach nourishment, dike reinforcement, breakwater construction

Activities – Offshore oil & gas

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Offshore oil & gas

- Oil and gas engineering, procurement and construction (EPC) contractor to install, protect and maintain your offshore infrastructure
- Integrated solutions for shallow water pipeline projects
- Market leader in subsea rock installation

Activities – Offshore wind

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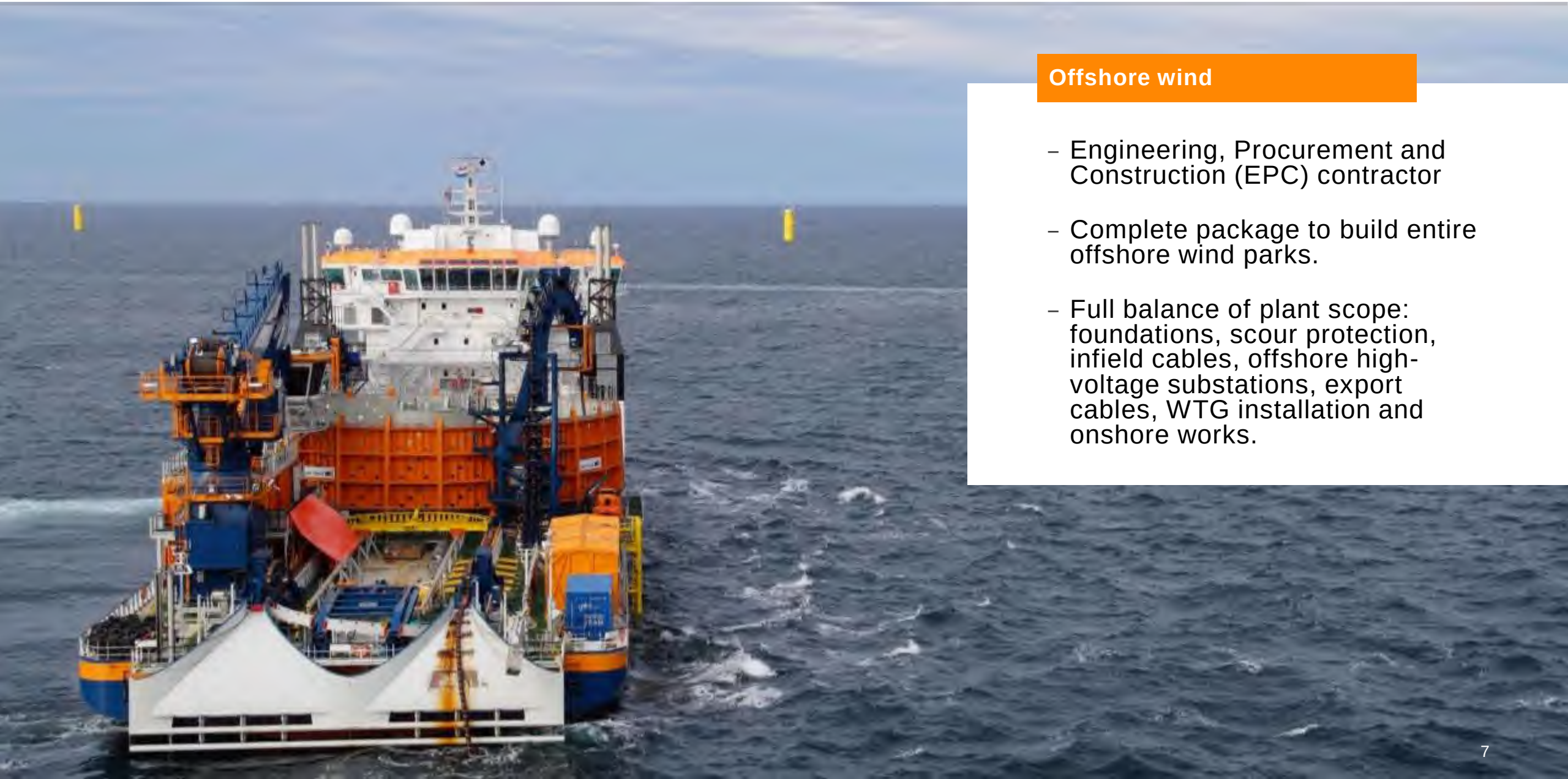

Offshore wind

- Engineering, Procurement and Construction (EPC) contractor
- Complete package to build entire offshore wind parks.
- Full balance of plant scope: foundations, scour protection, infield cables, offshore high-voltage substations, export cables, WTG installation and onshore works.

Van Oord worldwide presence

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Our projects

Our people

2017
2016

Van Oord equipment types

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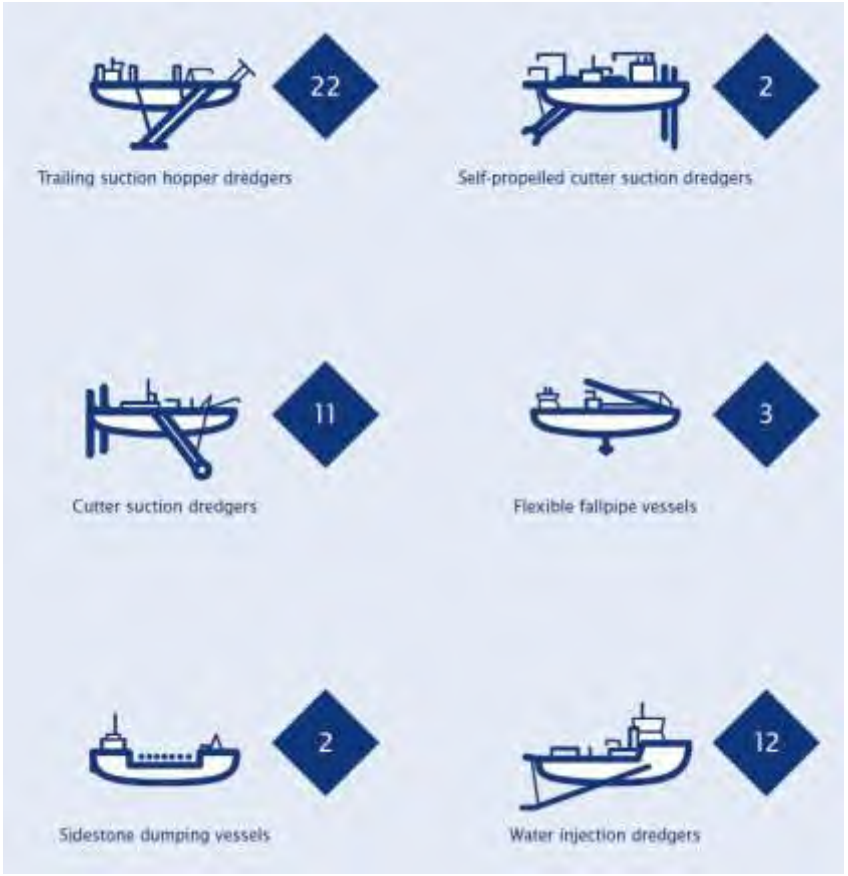
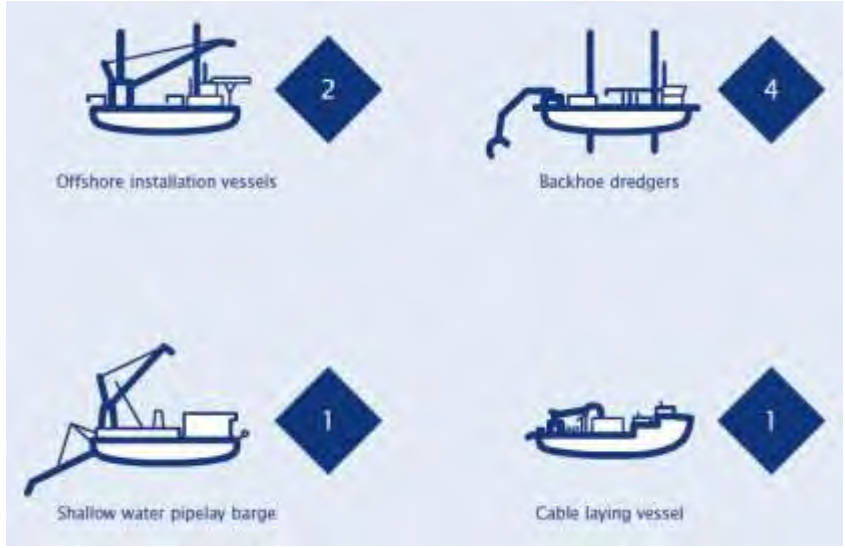
Equipment

- We operate the world's most advanced equipment
- State-of-the-art vessels
- Highest quality and safety and sustainable standards
- Continuous investment programme





*2017 figures

2018: A special year for Van Oord

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Important milestones

- In 2018 we celebrate Van Oord's **150th anniversary**. Our roots go back to 1868. Govert van Oord took his first step towards entrepreneurship that year. The fifth generation of the Van Oord family is now active in the company.

150 years of
Marine ingenuity

- Rotterdam, the Netherlands, 23 November 2018: His Majesty King Willem Alexander of the Netherlands has conferred the right to use the designation Koninklijk (‘**Royal**’) on Van Oord.

“We didn't receive this company from the previous generation, but we borrowed it from the next."

Pieter van Oord, CEO

Sustainability – Focus areas

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Value creation

Through Marine ingenuity: improving our value for our clients by innovation.

Energy Efficiency

Reducing the carbon footprint of our equipment and offices.

Attractive employership

Providing a safe working culture and being the employer of choice in order to retain and attract the best possible talent.

Sustainable Supply Chain

Enhancing the overall sustainability of our supply chain.

U.N. Sustainable Development Goals

Our activities mainly have an impact on the following 7 U.N. Sustainable Development Goals:

Sustainability – Energy efficiency

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Carbon footprint

- Carbon footprint reduction of **10%** in 2014 compared with 2010
- **Two thirds** of the self-propelled fleet awarded the International Energy Efficiency Certificate
- Van Oord calculates its carbon footprint **every six months** and issues internal and external reports on the progress of energy-saving measures, such as operating our vessels in a smarter way.
- **Level-5** certification on C02 performance ladder: Work proactively with stakeholders to further reduce CO2 emissions throughout the value chain.

$C0_2$ reduction policy

CO_2 reduction policy statement

Van Oord is an independent, privately-owned marine contractor that executes dredging, offshore and marine engineering projects around the world. This CO_2 reduction policy statement forms part of its general Environmental Policy.

Climate change due to CO_2 emissions is having a significant impact on our world and the areas in which we operate. There will be stricter regulations concerning the sustainable operation of equipment. Van Oord will therefore gradually introduce more sustainable operations and technologies.

Most of Van Oord's CO_2 footprint can be attributed to its equipment's fuel consumption. The company's main aim will be to improve the energy efficiency of its fleet. Van Oord intends to reduce CO_2 emissions by increasing the energy efficiency of its operations by at least 7% between 2010 and 2020.

Due to the varying project conditions in which its equipment operates and the fluctuating capacity utilisation of its fleet, Van Oord reports on its Energy Performance using practical indicators that yield reproducible and comparable energy management data. In assessing possible energy reduction measures, Van Oord considers the return on investment in terms of both energy performance and economic lifetime performance.

Van Oord is making efforts to develop methods and measures that will lead to a better understanding of how to reduce CO_2 emissions and fuel consumption. Energy management will be embedded in the Van Oord Management System.

As from 2010, Van Oord will:

- determine its CO_2 footprint annually,
- systematically reduce CO_2 emissions by improving the energy efficiency of its operations,
- communicate the results of its energy management programme and CO_2 reduction efforts, both internally and externally.

Rotterdam, November 27, 2015

Pieter van Oord
CEO

Energy transition

Crane vessel “Werkendam” became the first LNG-powered vessel of the company (2018)

Sustainability – Sustainable supply chain

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Eco-friendly collection of waste

For each vessel Van Oord has a special garbage management plan that describes how waste should be stored on board and disposed of in port. The plan divides waste into eight categories, which are collected separately, and devotes separate attention to re-usable and recyclable materials.

Sustainable vessel recycling


Vessel Recycling Policy

Ballast water management

As a global marine contractor with more than 100 seagoing vessels, Van Oord has taken responsibility by developing its own tailor-made ballast water management system.

Why?

Minimise any undesirable environmental impact resulting from our activities.

Prequalification of suppliers and subcontractors

System to register and monitor its suppliers and subcontractors. The system is reviewed every year by an impartial party, which assesses its compliance with international quality, safety, and environmental standards.

Sustainability – Value creation

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Efficient ecodesign

Building with Nature

- Philosophy based on working with nature instead of against it.
- Focused on optimizing positive effects instead of mitigating negative effects.
- Van Oord is main partner in EcoShape

Sustainability – Re-use of materials

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VO Store App

One of the **Value Creation** ideas that started in 2017 was the setup and launch of a Van Oord store for re-usable products/materials/items.

Objective is to reduce **total Cost of Work** at projects by re-using available materials as much as possible.

The Van Oord Store App is to make items (available and good quality) **visible** for Van Oord employees, so the re-use of items is **stimulated**

Sustainability – Value creation

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Guards programme

Plumeguard: measuring quality

Mobile measurement frame to measure the water quality (turbidity)

Reefguard: breeding coral

Mobile laboratory for coral breeding techniques with the aim to promote assisted reef rehabilitation

Faunaguard: preventing hearing loss

Instrument that uses species-specific underwater acoustic signals to keep the sealife temporarily out of a construction zone.

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Van Oord Offshore Wind

Van Oord Offshore Wind

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Focus on:

- Balance of Plant (BoP) contracts
  consisting of foundations, scour protection, infield cables, offshore high-voltage substations, export cables, WTG installation and onshore works
- Transport and installation (T&I) projects
- Market leader North West Europe
- Specialized offshore wind equipment
- Looking at other parts in the world as well

Offshore Wind market

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1st Project in Taiwan

Dutch offshore builder Van Oord wins Taiwanese wind contract

Reuters Staff

1 MIN READ

AMSTERDAM, May 30 (Reuters) - Dutch marine contractor Van Oord said on Wednesday it had won a 500 million euros ($579 million) contract to build a 640 megawatt (MW) offshore wind farm in Taiwan.

Van Oord will design, manufacture and install the eighty foundations for the wind farm, to be constructed eight kilometres (5 miles) off the coast of Yunlin prefecture.

Installation will begin in 2020, Van Oord said, with a capacity of 350 MW connected to the Taiwan power grid that year and the remaining part in 2021.

The project is part of the Taiwanese government's plans to install offshore wind farms with a total capacity of 5,500 MW by 2025, in a push to phase out nuclear energy.

Van Oord Offshore Wind

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Foundations

Turbine installation

Electrical scope

Balance of Plant
development, design, engineering, procurement, transport and installation

Contract philosophy

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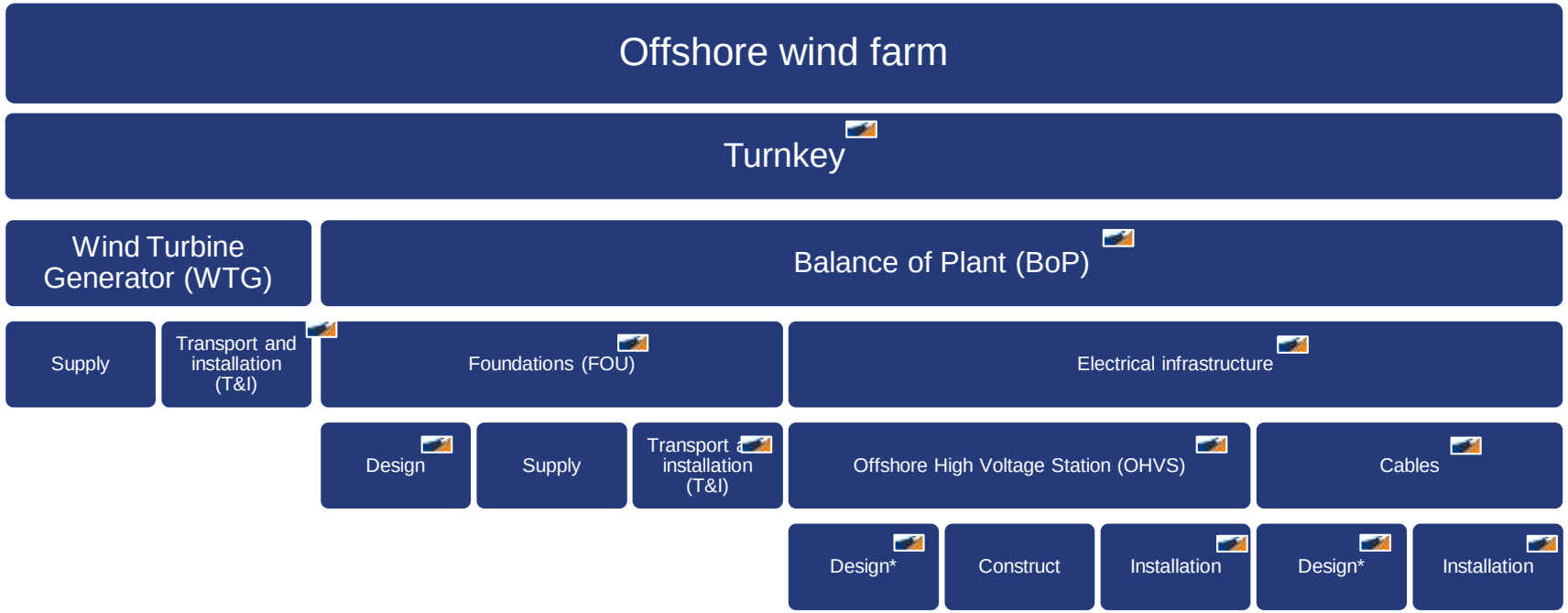
Marine contractor

- We provide all-round solutions
- Including the engineering, the procurement and the construction in order to take the care of the whole project for the client



* Design of OHVS and cables is a cooperation with subcontractor

Van Oord Offshore Wind – typical scope

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Development | Concession Auction (if applicable) | Financial Close Phase | Engineering | Fabrication | Transport | Construction / Installation

Foundations, WTG installation, OSS, Inner Array Grid, Export cable, Onshore substation

BoP projects
(involvement from development phase with varying scopes)

Gemini (600 MW), **Belwind** (165 MW), **Deutsche Bucht** (252 MW), **Borssele III & IV** (700 MW)

BoP project
(involvement after financial close with varying scopes)

Luchterduinen (129 MW), **Norther** (370 MW)

EPC packages
EPC Foundations + WTG installation (former Bilfinger/BNO)

Nordergründe, Westermeerwind

T&I projects
Foundations
Burbo extension, Walney 3+4, Arkona, East Anglia ONE

T&I projects
Cables
Merkur, Borkum Riffgrund 2

Care for the environment

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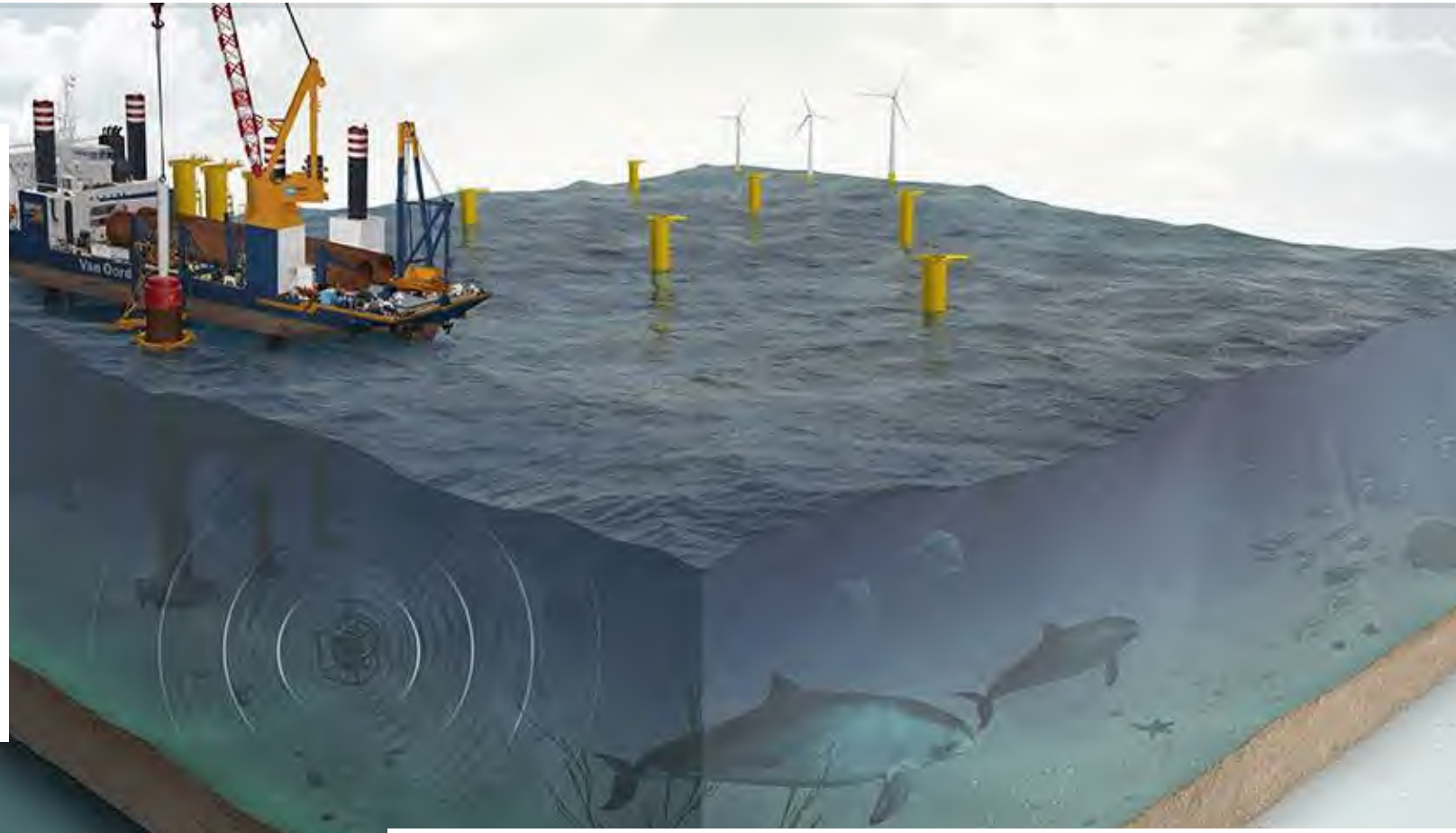
Mitigating impacts of (piling) noise

- Noise mitigation
  - At the source
  - Near-field (screens, innovative solutions)
  - Far-field (bubble screens)
- Modelling sound spreading
- Active deterrence using species specific safe acoustics - FaunaGuard



Van Oord is active in various research and test projects to (further) develop these mitigation measures

Naturalis Biodiversity Center
TNO innovation for life
Diergaarde Blijdorp
Florida State University
TU Delft
Universiteit Leiden
SEAMARCO

Van Oord Offshore Wind Projects – East Anglia ONE

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East Anglia ONE

T&I scope

- 102 jacket foundations
- 306 piles

East Anglia ONE

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Storage + Transportation

East Anglia ONE

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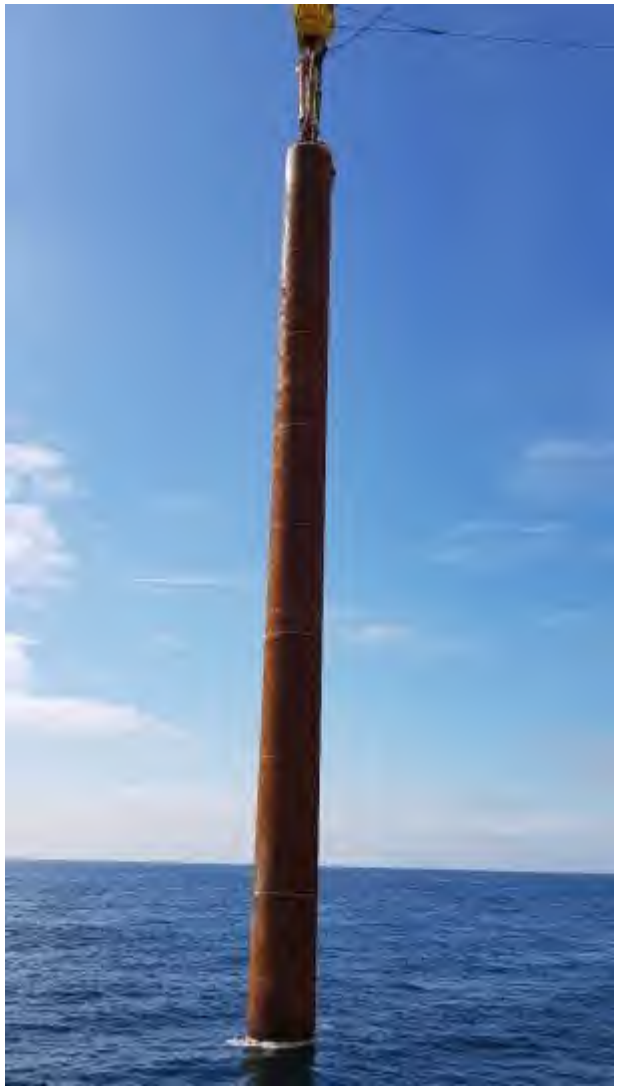
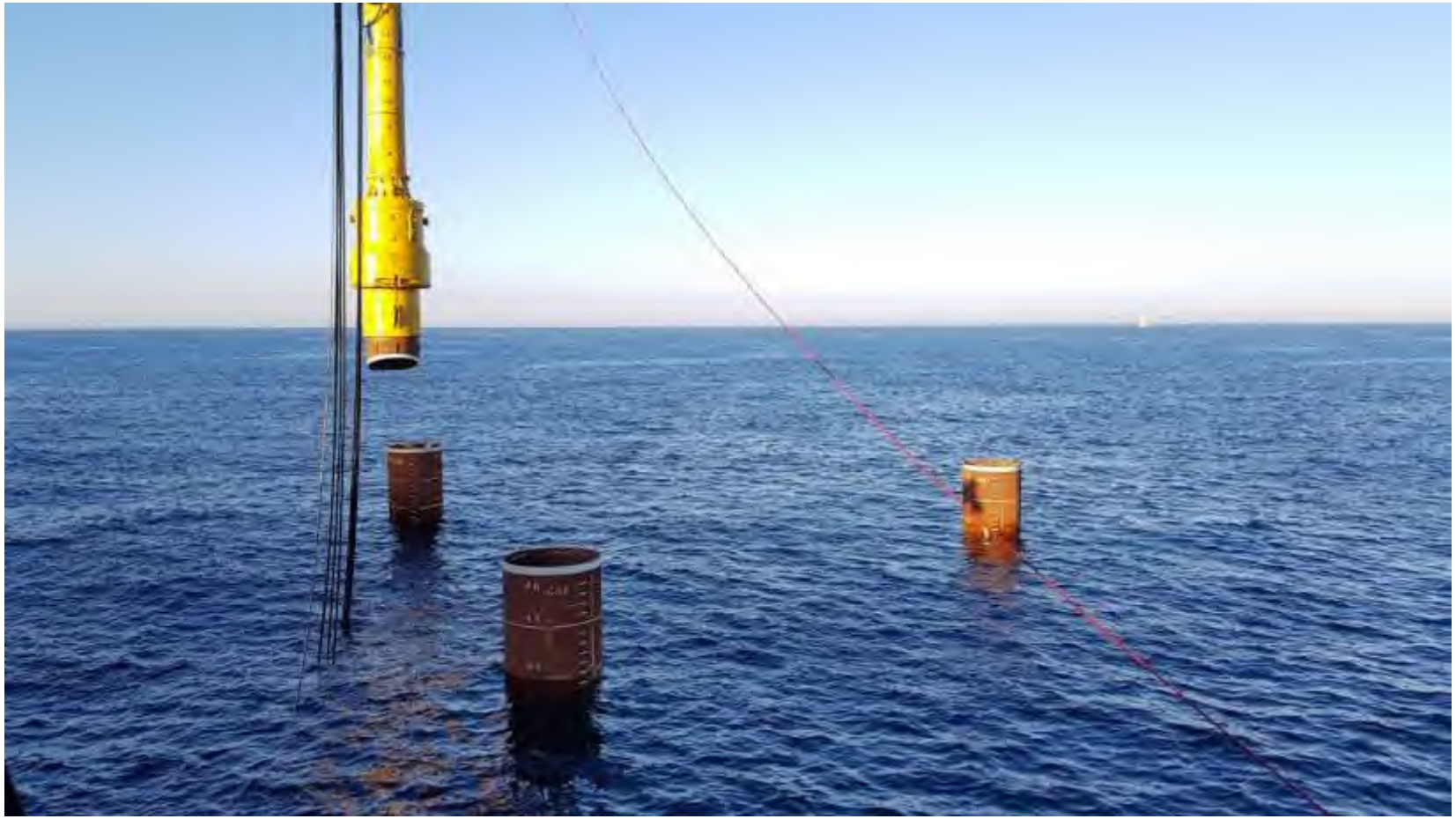
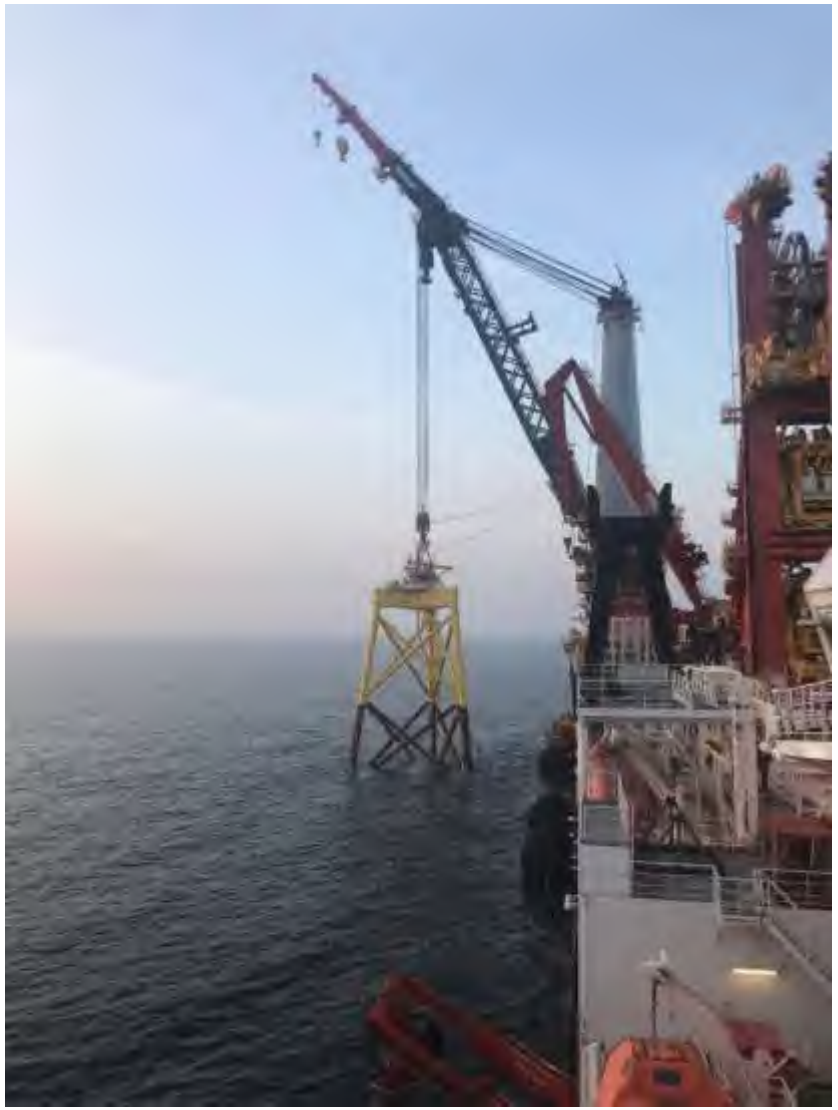
Pile Upending + stabbing



Pile hammering



Jacket Installation



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Technical Traineeship

Technical Traineeship - overview

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Over the year

- 12 months (1 or 2 times/year)
- Group of 10-12 trainees
- Full-paid position
- 14 different trainings

(team building, cultural awareness, personal development, first aid, working offshore etc.)

- 2x2 months project periods abroad
- 3x4weeks department assignments of your choice
- Guidance and mentorship by the best
- Investment for the future

What we have learned

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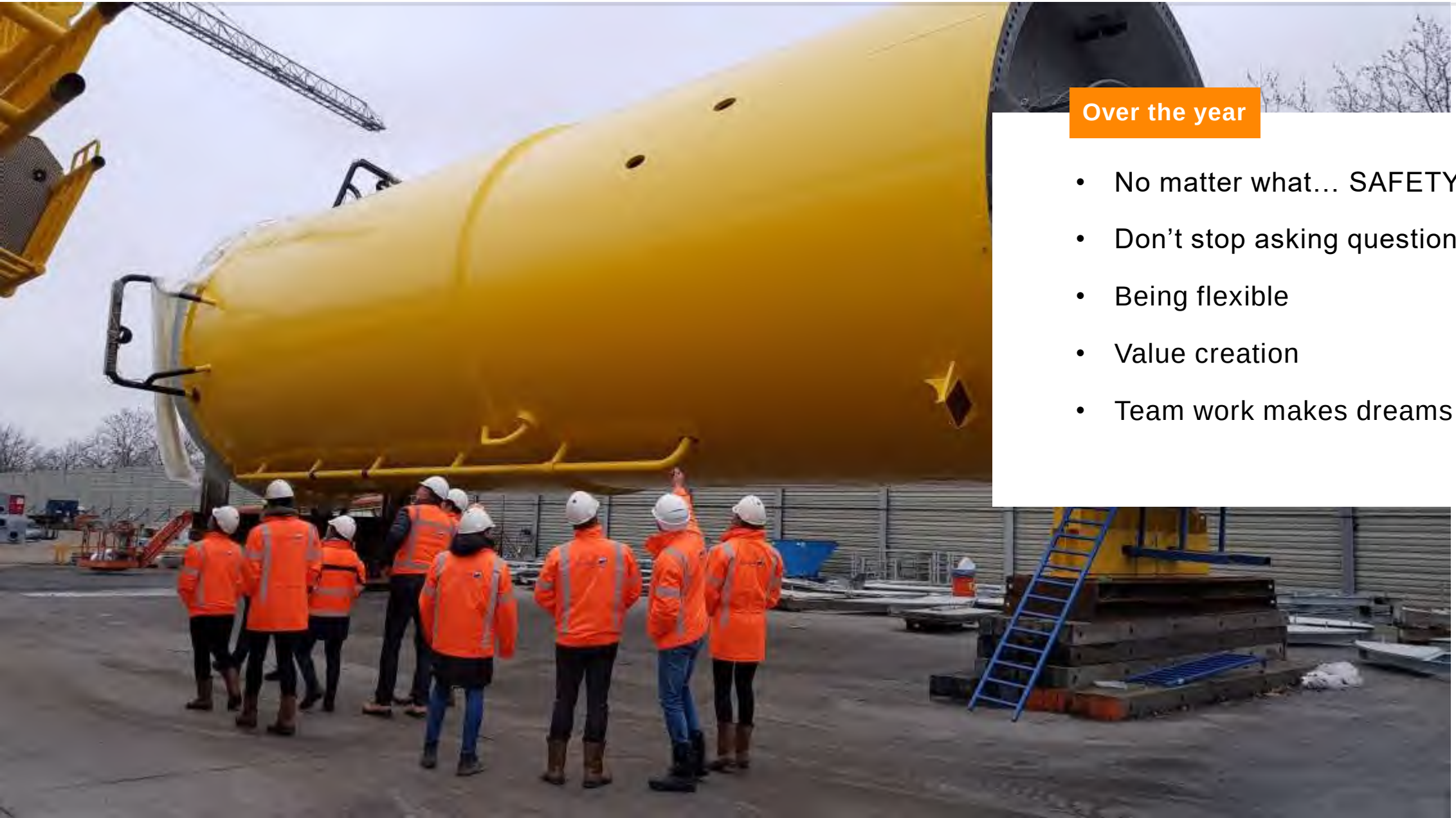

Over the year

- No matter what… SAFETY FIRST
- Don’t stop asking questions
- Being flexible
- Value creation
- Team work makes dreams work

Technical Traineeship

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Technical Traineeship - Application

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Application procedure

- 4-5 months before start date
- Application+CV+video
- 1st Interview
- Online assessment
- 2nd Interview
- …welcome!

Thank you for your attention!

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