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Brno dos Países Baixos

Participação

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Associação Brasileira
de Energia Eólica

SBM
OFFSHORE

Van Oord
Marine Ingenuity

Web série Novas Energias: Desenvolvimento de Eólicas Offshore no Brasil e a Experiência Holandesa

Introduction

Our Vision

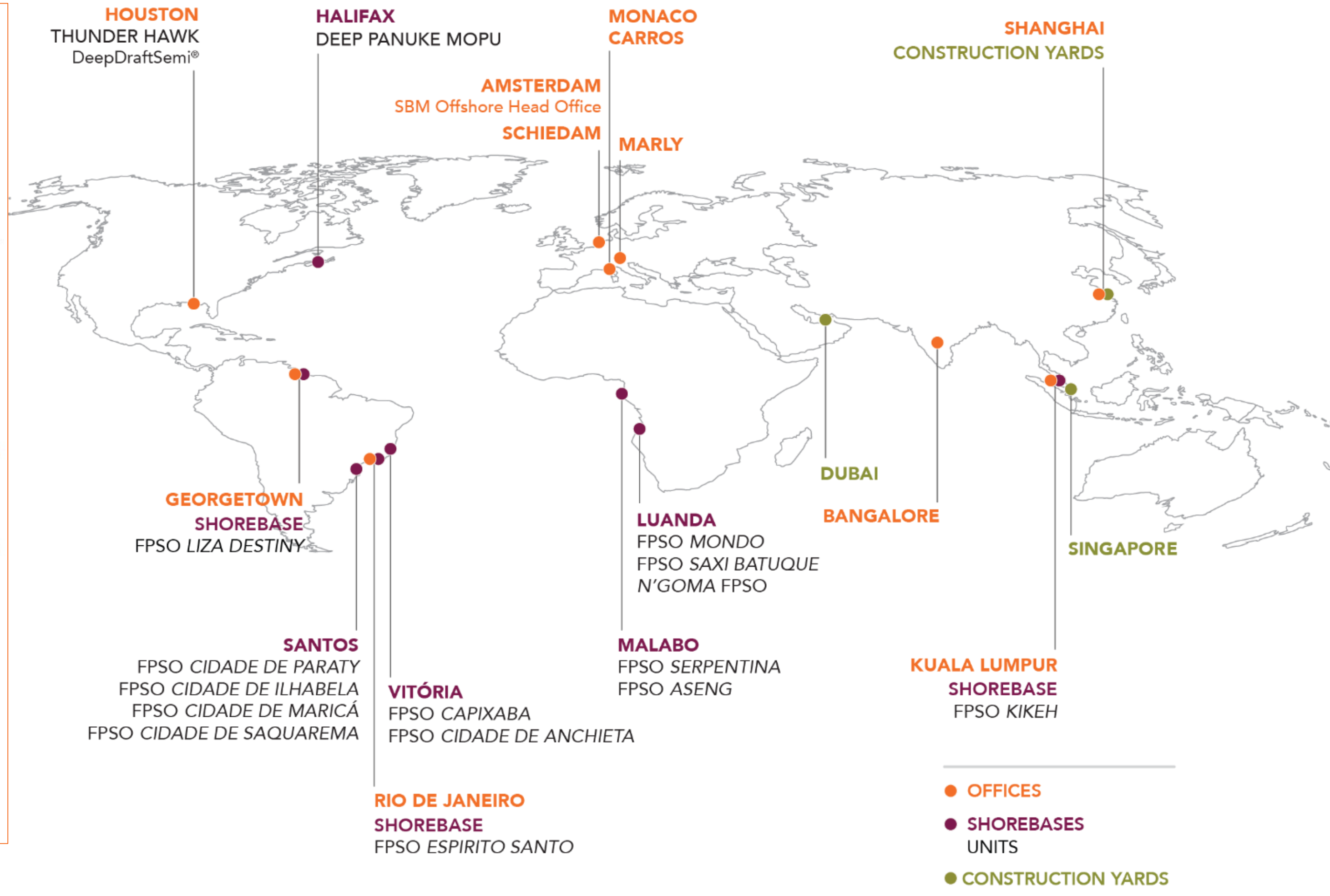
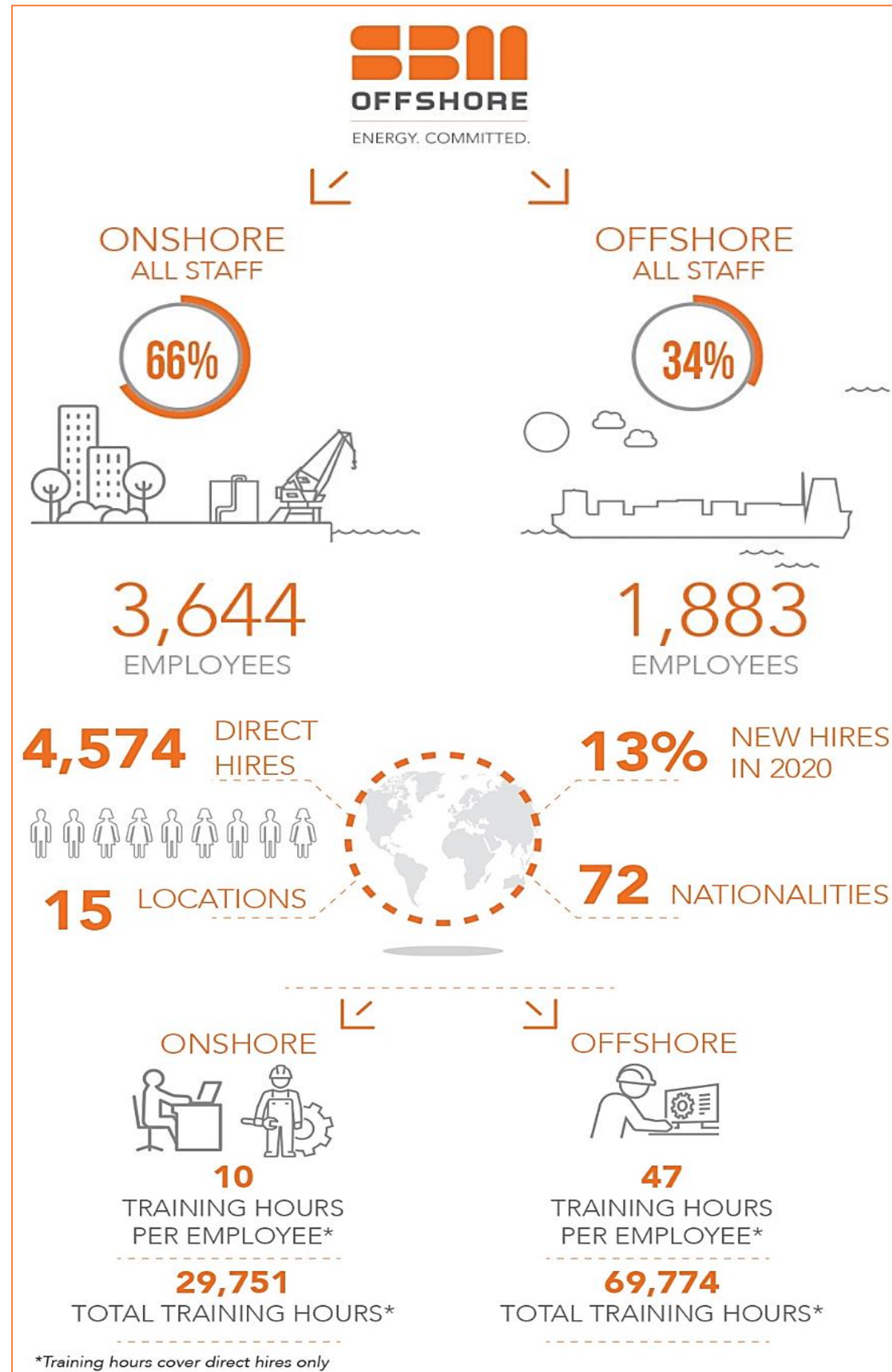
SBM Offshore believes the oceans will provide the world with safe, sustainable and affordable energy for generations to come. We share our experience to make it happen.
























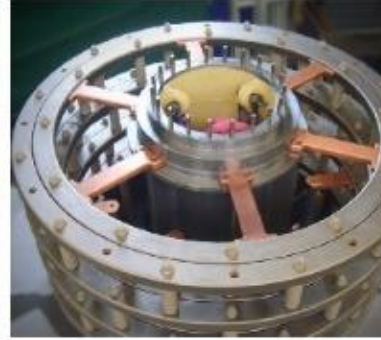







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SBM Offshore around the world



History of Innovation - Floating Industry Pioneer

1959  CALM Buoy	1960  Drilling Jack-up	1972  DP Drillship	1973  SBS Mooring System	1977  SALS Mooring System	1981  Leased FPSO	1985  Jacket Soft Yoke	1985  External Turret	1986  Disconnectable Turret	1993  Internal Turret
1996  Turnkey North Sea FPSO	1999  Deepwater CALM Buoy	2002  Delivery of the first Generic FPSO	2003  Delivery of the largest Seastar™ TLP	2005  New Build LPG FPSO	2006  Deepest Semi-Submersible in the GoM	2006  Offshore Offloading Line : Trelline™ Installed	2007  GAP™ mid water Fluid Transfer System	2007  Largest Internal Turret with 75 risers	2009  First turret-moored FPSO using steel risers
2011  COOL™ LNG Transfer System	2012  HV-AC Electric Swivel rated at 65kV and 150 MW	2013  VHP Fluid Swivel rated at over 800 bar	2013  1st Generation 3 FPSO (Paraty)	2015  ARCA™ Mooring System	2016  GoM Disconnectable Turret FPSO	2017  FAST WARD® NEXT GENERATION FPSO	2018  Wind Floater design approved in principal ABS	2019  S3® Wave Energy Converter registered trademark	

New Energies & Services

Renewables Product Line

Floating Offshore Wind

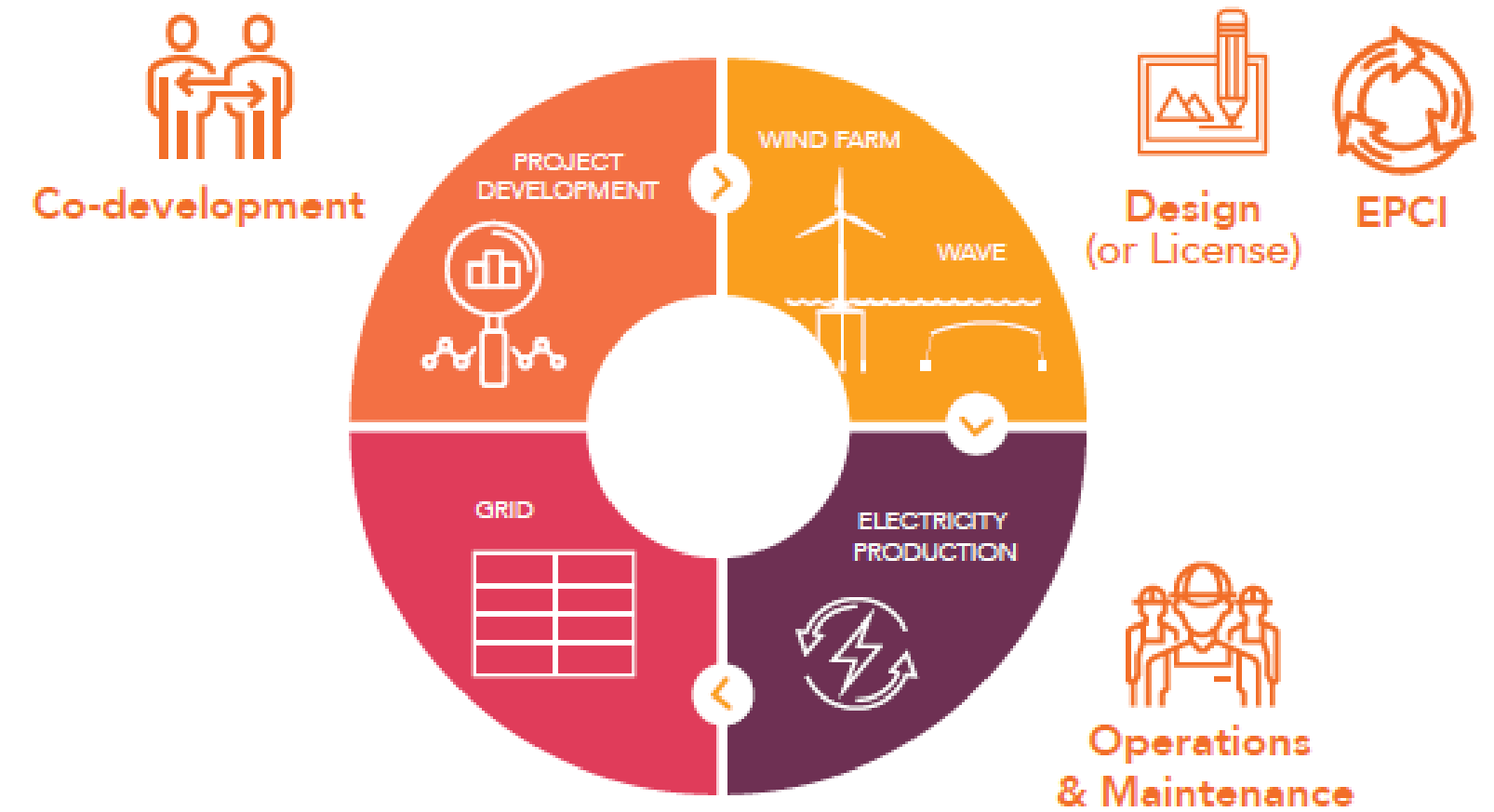


Valuable Chain

SBM OFFSHORE'S BUSINESS MODEL



RENEWABLE VALUE CHAIN



Why

Why floating offshore wind ?

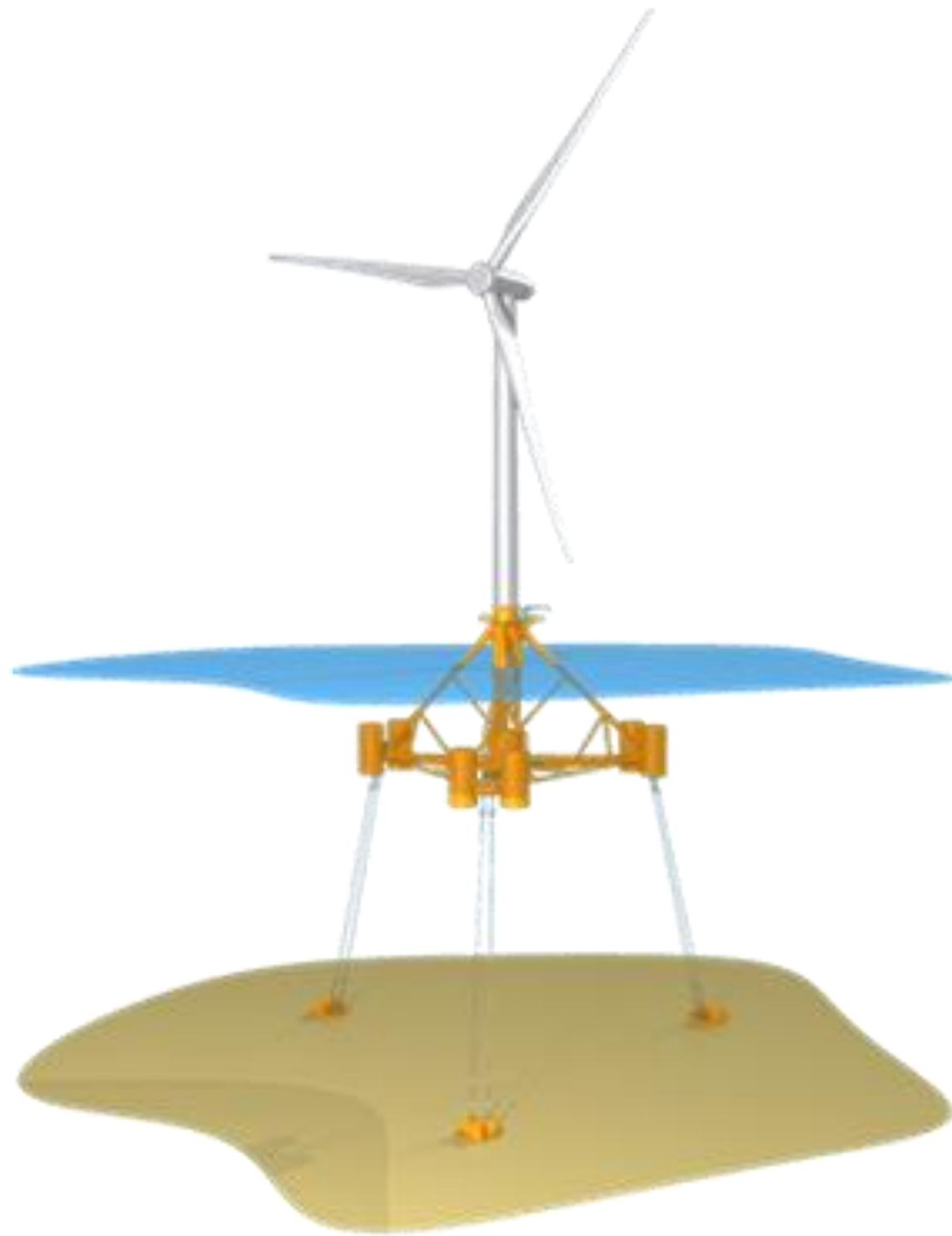
- Winds are stronger and more consistent far from the coast
- Around 80% of the world's offshore wind resource potential is in waters deeper than 60 m
- Designing suitable floaters for deeper waters allows to select the best sites in terms of wind resource
- Our goal is to make floating offshore wind competitive against bottom-fixed by 2030
- We expect floating offshore wind to be the next game changer in the renewables sector

Why SBM is going to floating offshore wind?

- Our 60 years experience from the offshore O&G will directly help our clients to meet their goals in the wind sector
- Energy transition is part of SBM's commitment & strategy for the future
- Our personnel's expertise is similar, available & quickly deployed to serve projects in the floating offshore wind



Benefits of our TLP concept



Reduced footprint

- Marine space / lay-out better optimization
- Avoid mooring lines / subsea cables challenging subsea arrangement

Low motion & counter pitch

- Higher AEP (Annual Electricity Production)
- Reduction of tower base moment

Impact on turbine

- No specific controller development vs bottom-fixed
- Mast design optimization (lower load at interface with floater)

O&M optimization

- No active ballast management
- Turbine maintenance close to bottom-fixed operation

FOW Roadmap



FLOATING WIND DEVELOPMENT PLAN



2016 - 2018



CONCEPT
CERTIFICATION

2018 - 2022



DEMOS
PROJECT(S)

2022 - 2025

1ST FLOATING
WIND FARM(S)

>2025

COMMERCIAL
PIPELINE



Technologie development and demonstration

Industrialisation and calibration to LCOE

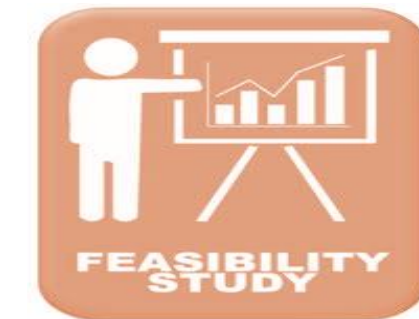
SBM offshore short-term objectives from 2021 to 2024



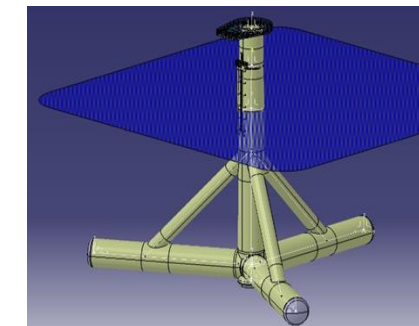
Deliver Provance Gran Large project on time and at expected cost
Build experience & portfolio from this project



Qualify SBM and its TLP concept for major future FOW projects
Position SBM as a Top contractor for all targeted FOW projects



Design cost effective TLP V2.0 to be tested in the water by 2023/24
De-risk future commercial farms which are selecting SBM concept



Prepare execution scenario in every location related to targeted prospects
Progress on cost-out program to meet LCOE target by 2024



Identify opportunities to develop FOW farms
Find partners to co-development identified projects



Obrigado

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