NnG Supply Chain Events
Welcome & introduction

David Sweenie, NnG Development Manager

02 – 05 March 2020 - East Lothian, Fife, Dundee, **Aberdeen**

Announcements

- Welcome
- House keeping
- Safety moment
- Today's format

Aberdeen Agenda: 09:30 - 12:30

Major Theme	Times	Minor Theme
Networking	08:30 - 09:30	**Registration, networking and share fair stand engagement**
	Who:	Facilitating Change / NnG Project Team
Developer / Project	09:30 - 09:40	**Welcome and introduction to event format**
	Who:	David Sweenie, NnG Development Manager
	09:40 - 09:55	**Overview of EDF and NnG project**
	Who:	Matt Haag, NnG Project Director
Turbines	09:55 - 10:10	**Turbine OEM Package**
	Who:	TBC on behalf of Siemens Gamesa Renewable Energy
	10:10 - 10:25	**Turbine Installation Package**
	Who:	Henrik Mork, Fred. Olsen Windcarriers, Head of Project Execution
		Gry Arnet, Fred. Olsen Wincarriers, Procurement Manager
	10:25 - 10:35	**Turbine Q&A (Slido - pre-submitted and interactive questions)**
	Who:	David Sweenie, Facilitating Change
Electrical Balance of Plant - Cables	10:35 - 10:50	**Cable Installaton Package**
	Who:	Colin Smith, DEME Offshore (Tideway), Project Manager
	10:50 - 10:55	**Cables Q&A (Slido - pre-submitted and interactive questions)**
	Who:	David Sweenie, Facilitating Change
Networking	10:55 - 11:15	**Break**
Foundations & Electrical Balance of Plant - Structures	11:15 - 11:30	**Foundation Package**
	Who:	Vincenzo De Rosa, Saipem, Project Procurement Interface Manager
		Claire Sternfalt, Saipem, Project Procurement Coordinator (Renewables)
	11:30 - 11:45	**Substation Package**
	Who:	Adrian Carter, GE Grid Solutions, Lead Tender & Project Sourcing ACS
		Martin Oliver, GE Grid Solutions, Project Director
	11:45 - 11:50	**Structures Q&A (Slido - pre-submitted and interactive questions)**
	Who:	David Sweenie, Facilitating Change
Developer / Project	11:50 - 12:05	**NnG Project Procurement Lookahead**
	Who:	Sioban Butler, NnG Procurement Manager
Supply Chain - Scottish Clusters	12:05 - 12:20	**Forth & Tay Offshore / Deepwind Cluster Overview**
	Who:	Alan Duncan (Scottish Offshore Wind Energy Council)
		Paul O'Brien (Deepwind Lead)
Networking	12:20 - 12:30	**Close (Final Q&Q, Overview of PM session, NnG Activity Lookahead)**
	Who:	David Sweenie, Facilitating Change
	12:30 - 13:00	**Networking Buffet Lunch**
	Apologies:	Cable Package - Prysmian (Viral travel restrictions)

What good hygiene principles can help to avoid germs spreading around a workplace? How well do you implement them?

Advice from the NHS and EDF Energy includes:

- Wash your hands often with warm water and soap
- Use tissues to trap germs when you cough or sneeze
- Bin used tissues as quickly as possible ('catch it, bin it, kill it!')
- Clean surfaces such as your work equipment (e.g. keyboard, mouse and phone). Do you do this?
- If you have flu-like symptoms, consider your decision to come to work. See NHS advice.
- Consider a flu vaccination (available from pharmacies).

CATCH IT

Germs spread easily. Always carry tissues and use them to catch your cough or sneeze.

BIN IT

Germs can live for several hours on tissues. Dispose of your tissue as soon as possible.

KILL IT

Hands can transfer germs to every surface you touch. Clean your hands as soon as you can.

Context

- My NnG journey
- Industrial context

NNG CONSTRUCTION

2008
Site selection

2009
The Crown Estate exclusivity agreed and original offshore Scoping Report submitted

2010
Grid connection signed

2011
Agreement for Lease (AFL) signed

2009-2012
Surveys and Environmental Impact Assessment

2012
Onshore planning application submitted and original offshore consent application submitted

2013
Onshore planning permission granted

2014
Original offshore consent granted

2015
Contract for Difference (CfD) signed and RSPB commenced Judicial Review proceedings

2016
Original offshore consent variation granted and Outer House Judicial Review decision

2017
New offshore Scoping Report submitted, Inner House Judicial Review appeal decision, RSPB sought leave to appeal to Supreme Court and new offshore consent submission expected

2018
EDF purchase NnG project and new offshore consent granted for 8MW turbines

2019
Financial Close, Manufacture and Onshore construction to start

2020
Manufacture, Onshore works and Offshore construction to start with install of piles

2021
Install Foundations, OTMs, Export Cables, Arrays and First Power to Offshore

2022
Install WTGs, Commercial Operation and COD

EDF Renewables, ESB and NnG Overview

Matthias Haag, NnG Project Director

02 – 05 March 2020 - East Lothian, Fife, Dundee, Aberdeen

EDF group's aim is to be the **leading electricity company** and global **leader for low-carbon energy** production.

World's number 1 electricity Company

The Group is an established player in Europe, especially France, the United Kingdom, Italy and Belgium.

A marked increase in the use of renewables is bringing change to its energy production operations, which are underpinned by a diversified low-carbon energy mix founded on nuclear power capacity.

EDF covers all electricity Activities

- Number 1 producer of nuclear electricity in the world.
- Number 1 producer of renewables in Europe.
- Number 3 European operator of energy services.

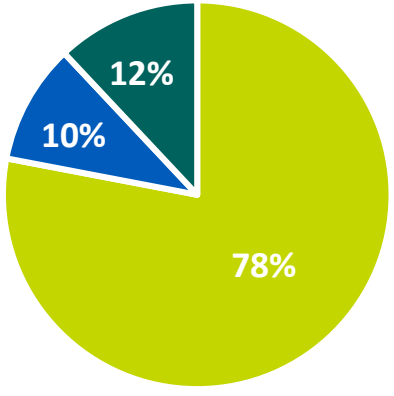
Leader in low-carbon Production

- Generation.
- Transmission and distribution.
- Supply.
- Energy services.

Research & Development | Production & Engineering | Transmission & Distribution | Products & Services | Optimization & Trading

PRODUCTION CAPACITY

Key figures at 2018

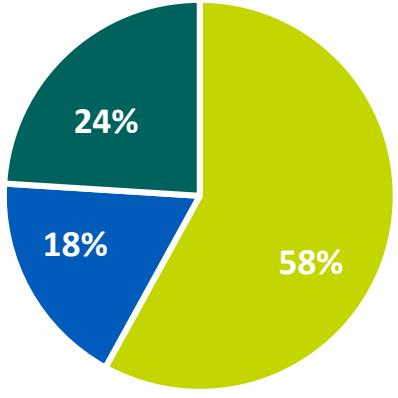


ELECTRICITY OUTPUT

584 TWh (2)

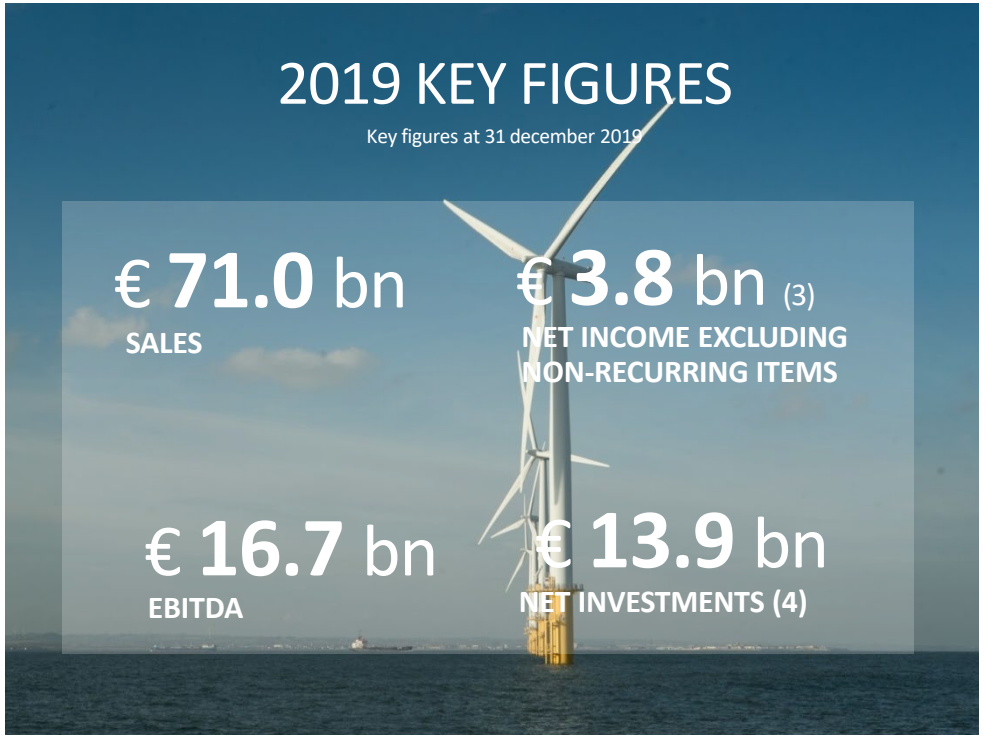
INSTALLED CAPACITY

126.5 GW (1)



Nuclear Thermal Renewables

(1) Consolidated capacities of the EDF group
(2) Output from fully consolidated entities



(3) Net income excluding non-recurring items is not defined by IFRS, and is not directly visible in the consolidated income statement. It corresponds to the Group net income excluding non-recurring items and net changes in fair value on Energy and Commodity derivatives, excluding trading activities, and excluding net changes in fair value of debt and equity securities, net of tax. (4) Total net investments excluding acquisitions and "2019-2020 Group disposals".

CAP 2030

– Increase capacity to reach **50 GW** by **2030**.

Against the backdrop of the energy transition, EDF has defined a strategy called CAP 2030.

The Group wants to be the leader in large low-carbon electricity facilities that are safe and competitive. Achieving this goal will require doubling its global capacity in renewable energy – wind, solar, marine and hydro with a target of up to 50 GW of capacity by 2030.

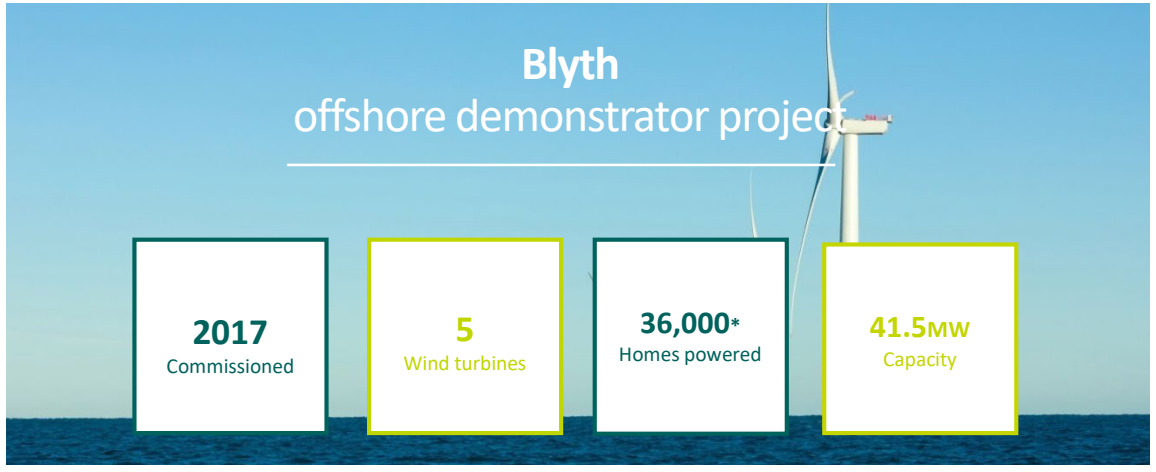
EDF RENEWABLES

EDF Renewables is a subsidiary of EDF, helping the Group to achieve its renewable energy goals.

EDF Renewables is a world leader in renewable energy electricity. The company develops, builds and operates clean energy power plants in more than 20 countries both for our own account and for third parties.

EDF Renewables UK operates about 1GW of green energy.

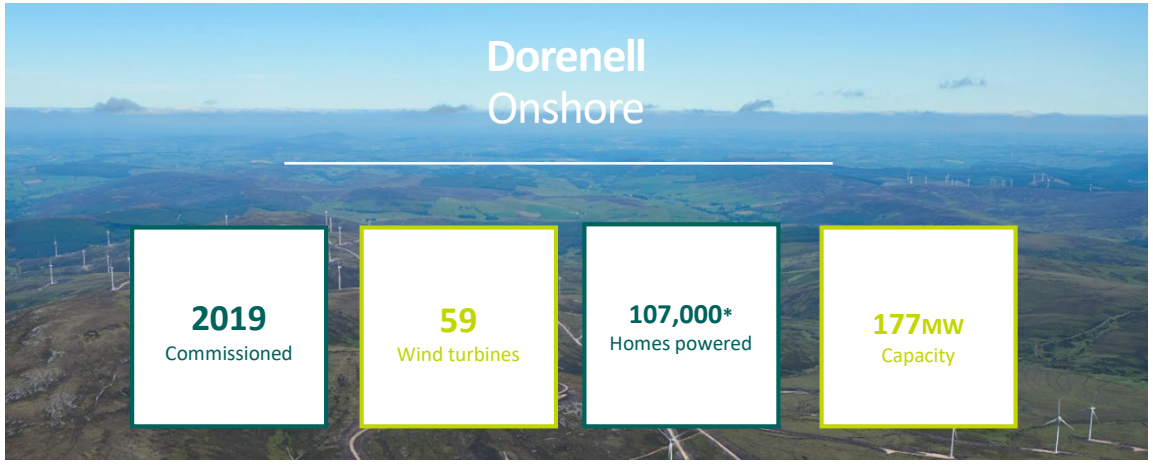
ABOUT EDF PROJECTS



The Blyth Offshore Demonstrator project incorporates a number of new and innovative features as part of its role in testing and proving new and emerging offshore installation methods and technologies.

It uses “float and submerge” technology - a gravity based foundation (GBF) design method.

It has a 66kV rated inter array and export cable to connect the turbines to the grid. At the time of building it had the most powerful turbines in the world at 8.3 MW.



Dorenell is the biggest onshore wind site in Europe for EDF Renewables.

We take a long term approach to the wind farms we develop and we recognise the importance of supporting the communities in which we operate.

Local initiatives in the area will now be able to share in the success of the wind farm and benefit from the community package worth around £12 million over its lifetime.

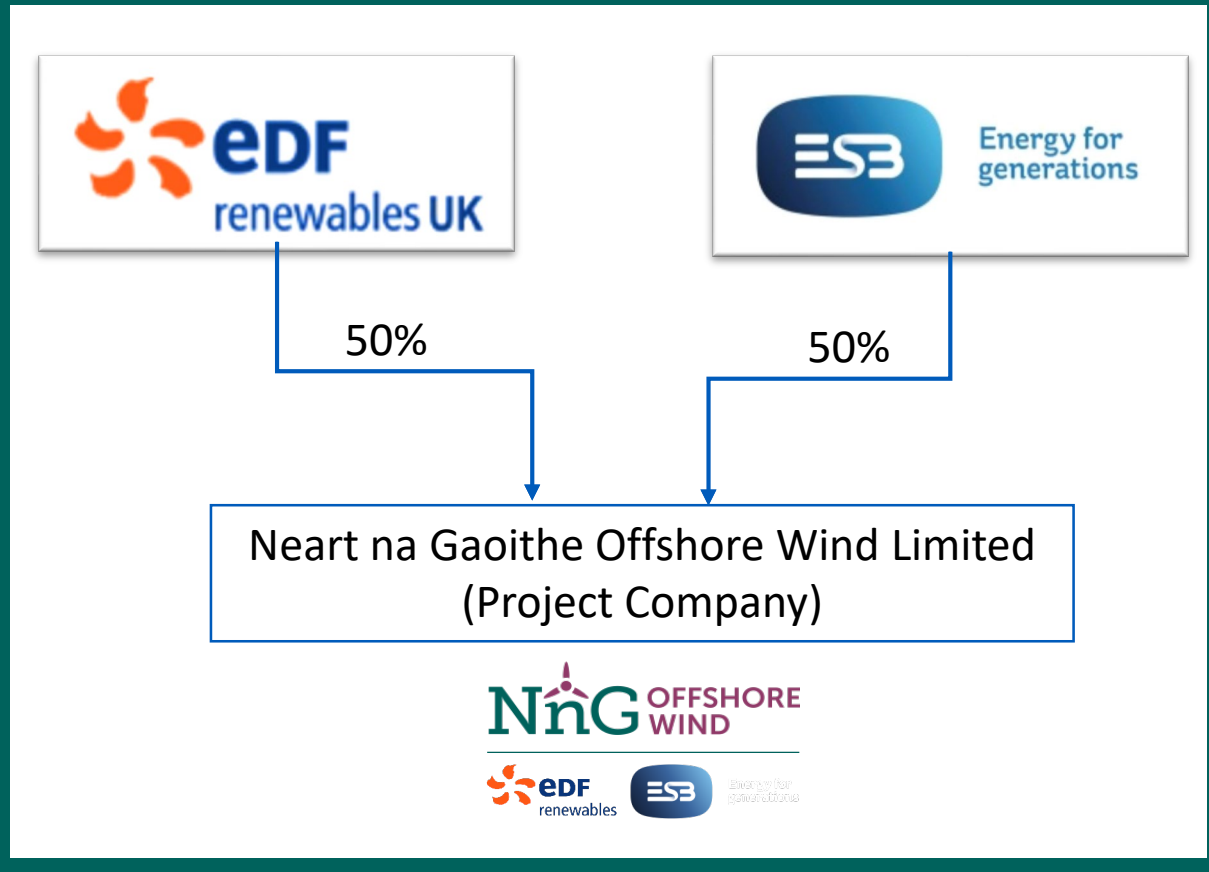
*Load factors based on the five year rolling averages on unchanged configuration basis using Table 6.5 of 'Digest of UK Energy Statistics' - July 2019 Based upon the average domestic electricity consumption per home (temperature corrected) per the Energy Consumption in the UK.

NNG Project

In 2018, the EDF Group, via EDF Renewables in the United Kingdom, a joint subsidiary of EDF Energy and EDF Renewables, bought the Neart na Gaoithe wind farm project. The construction of the NnG offshore wind farm is now underway; the wind farm is expected to be operational by 2023.

In May 2019, EDF Renewables UK opened an extension to its existing office in Edinburgh to accommodate 60 new jobs created on the project.

In November 2019, the EDF Group launched the construction of the Scottish Neart na Gaoithe offshore wind farm project along with its new partners, the Irish electricity company ESB, which is taking a 50% stake in the project.



E S B O V E R V I E W

REGULATED NETWORKS

ESB NETWORKS | NIE NETWORKS

- Owner of the Regulated Republic of Ireland transmission & distribution networks (2018 RAB €7.9bn)
- Owner of the Regulated Northern Ireland transmission & distribution networks (2018 RAB €1.7bn)

GENERATION

GENERATION & TRADING

- Portfolio 5.6 GW. Irish* capacity 4.2 GW and 38% market share in 2018. GB capacity 1.4 GW
- Diversified fuel mix. Benefits from capacity and regulatory supports

CUSTOMER SOLUTIONS

ELECTRIC IRELAND | ESB ENERGY

- Customer facing businesses including supply of electricity, gas and smart energy services in Ireland and GB
- 33% Irish* electricity supply market share in 2018 and 1.25 million customers accounts

ESB

- Established 1927, Leading Irish Utility, 95% Government-owned. Markets Ireland and Great Britain
- Regulated Networks Businesses account for three quarters of EBITDA and assets
- Solid EBITDA €1,175m for 2018 (2017 €1,276m), Assets €13.1bn, Gearing 56%
- Strong liquidity position and credit ratings A- and A3

* Irish = Republic of Ireland and Northern Ireland

ESB's purpose:

Create a brighter future for our customers by leading the transition to reliable, affordable, low carbon energy

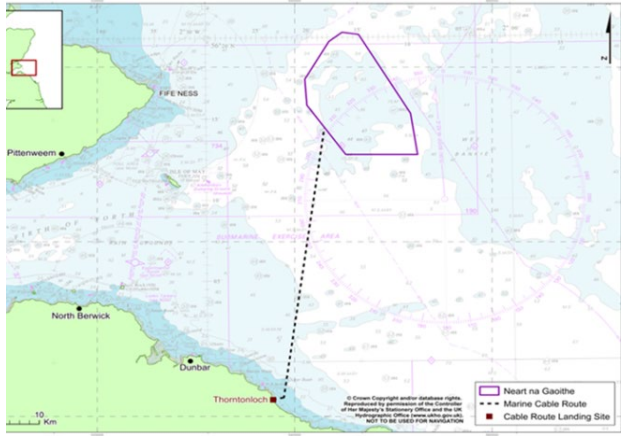
- Meet customers' energy needs through diverse businesses across energy value chain
- Increase renewables to 50% of generation capacity (generating 40% electricity) by 2030
- 50% reduction in carbon intensity by 2030

Investment Focus

- Smart reliable networks
- Low carbon energy
- New business growth potential


“to lighten human burdens, to brighten human lives”
ESB Advertisement 1928

NNG PROJECT



375,000* Homes powered

2022 Turbine installation

448MW Capacity

54 Wind turbines

Construction started in 2019 and is expected to last 3 years until commissioning in 2022.

The NnG offshore wind farm will be located 15.5 km off the Fife coast and covers an area of approximately 105 km2. The NnG site was chosen because it combines technical, economic and environmental deliverability.

2019
Onshore Construction Starts

2020
Offshore Pile Installation Starts

2021
Offshore Jacket Installation
Grid Connection
Offshore Cable Installation
Offshore Substation Installation

2022
Offshore Turbine Installation

*Load factors based on the five year rolling averages on unchanged configuration basis using Table 6.5 of 'Digest of UK Energy Statistics' - July 2019 Based upon the average domestic electricity consumption per home (temperature corrected) per the Energy Consumption in the UK.

NNG PROJECT

£2 billion
Capital project

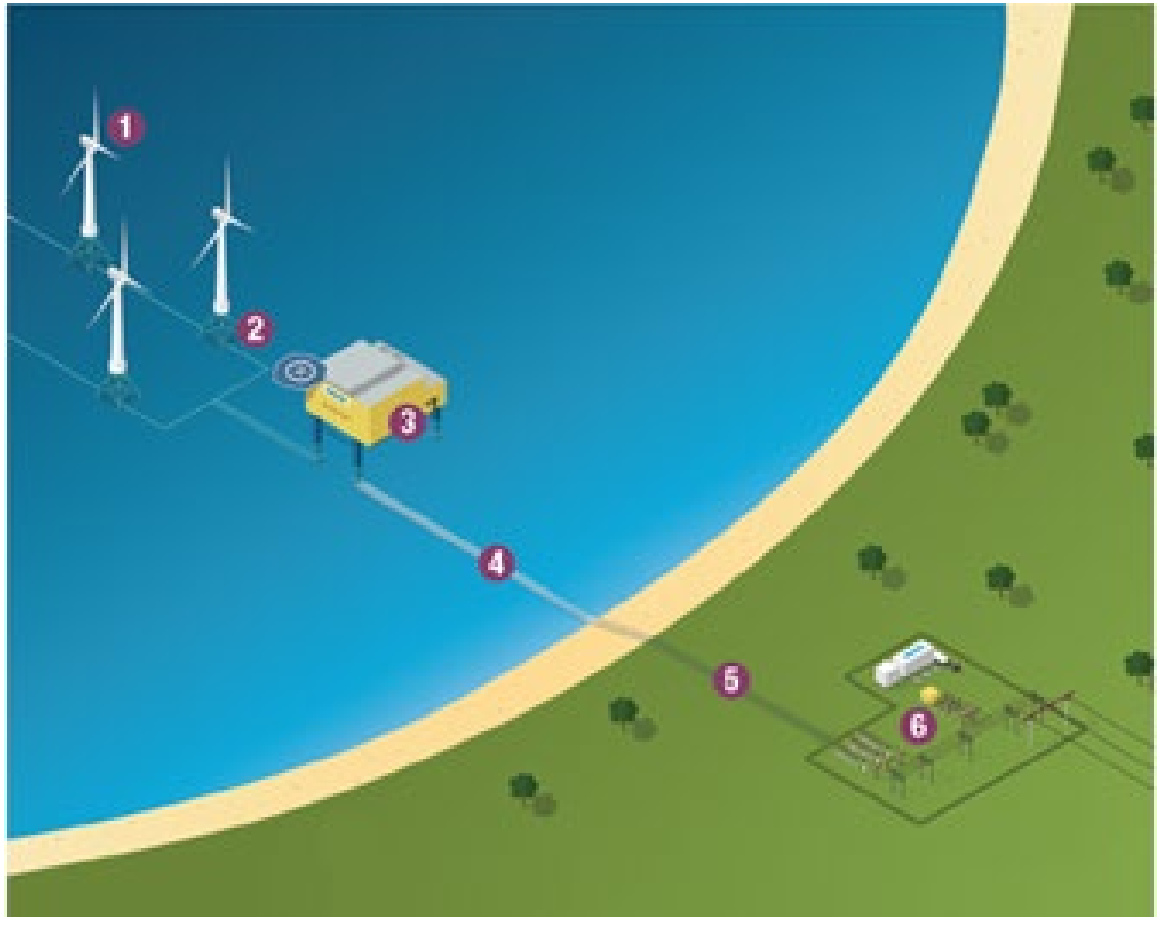
IMPACT ON SCOTTISH ECONOMY

NnG is a £2 billion capital project that will have a major positive impact on the Scottish economy. It is anticipated there will be a few hundred million spent in Scotland in construction and operations and maintenance. It is estimated that over the lifetime of this project NnG will support the equivalent of 0.6% of the total value of Scottish Onshore GDP in 2016.

CONSENT

54 Turbines	**450MW capacity**	**Turbine height Maximum 208m above LAT to tip**
Space between turbines 800m minimum	**Site area 105km2 maximum**	**Water depth: Between 45m and 55m**

KEY COMPONENTS OF AN OFFSHORE WIND FARM



1. **Turbine**
   Three bladed turbines will be attached to the seabed using the turbine foundation.

2. **Turbine Foundation**
   The turbines will be constructed using steel jacket foundations, with cables from each turbines connected via subsea ‘inter-array’ cables.

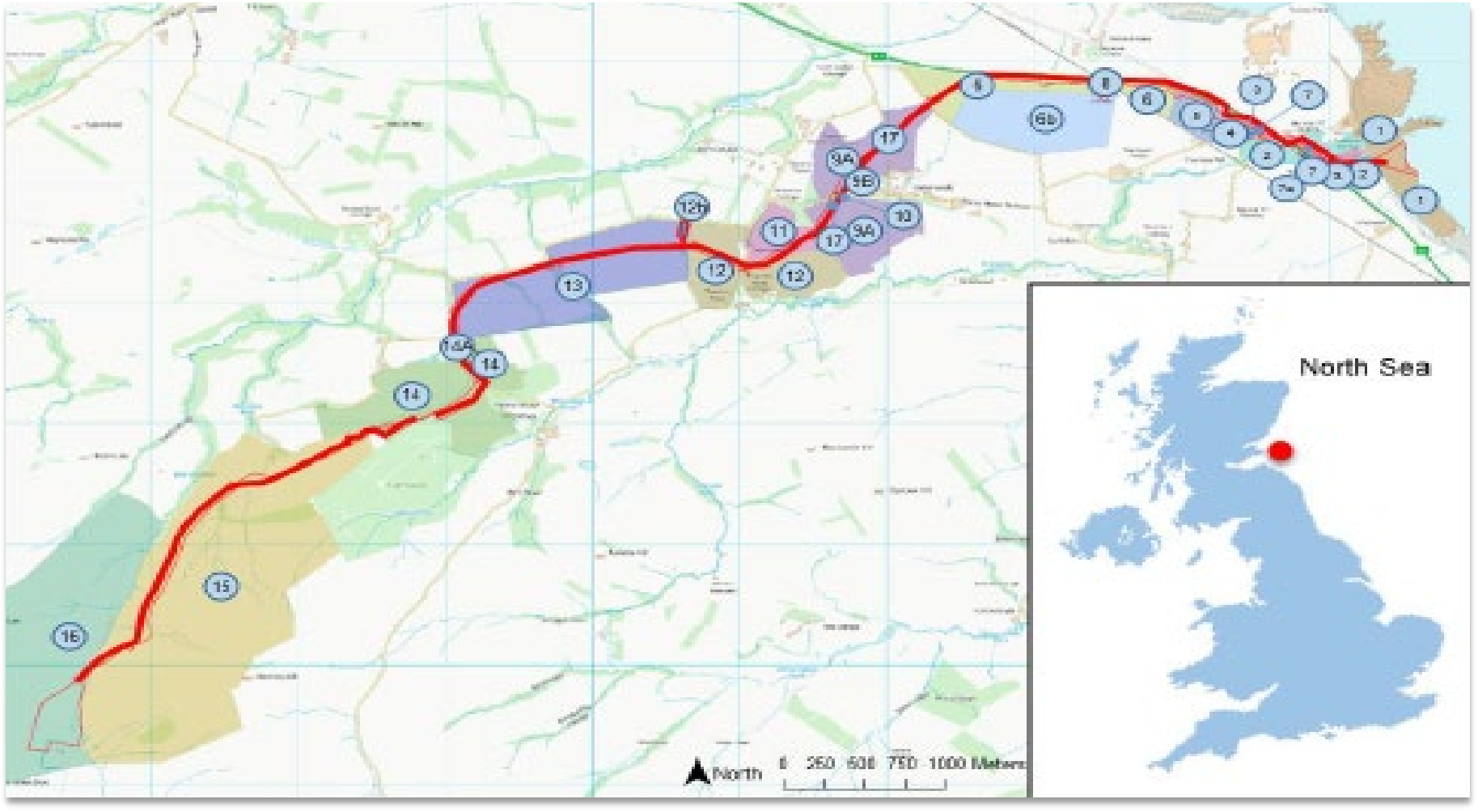
3. **Offshore substation(s)**
   Subsea inter-array cables will be connected to one or two offshore substations.

4. **Offshore Transmission Cables**
   Two subsea transmission cables will run from the offshore substation(s) to the landfall at Thorntonloch Beach in East Lothian.

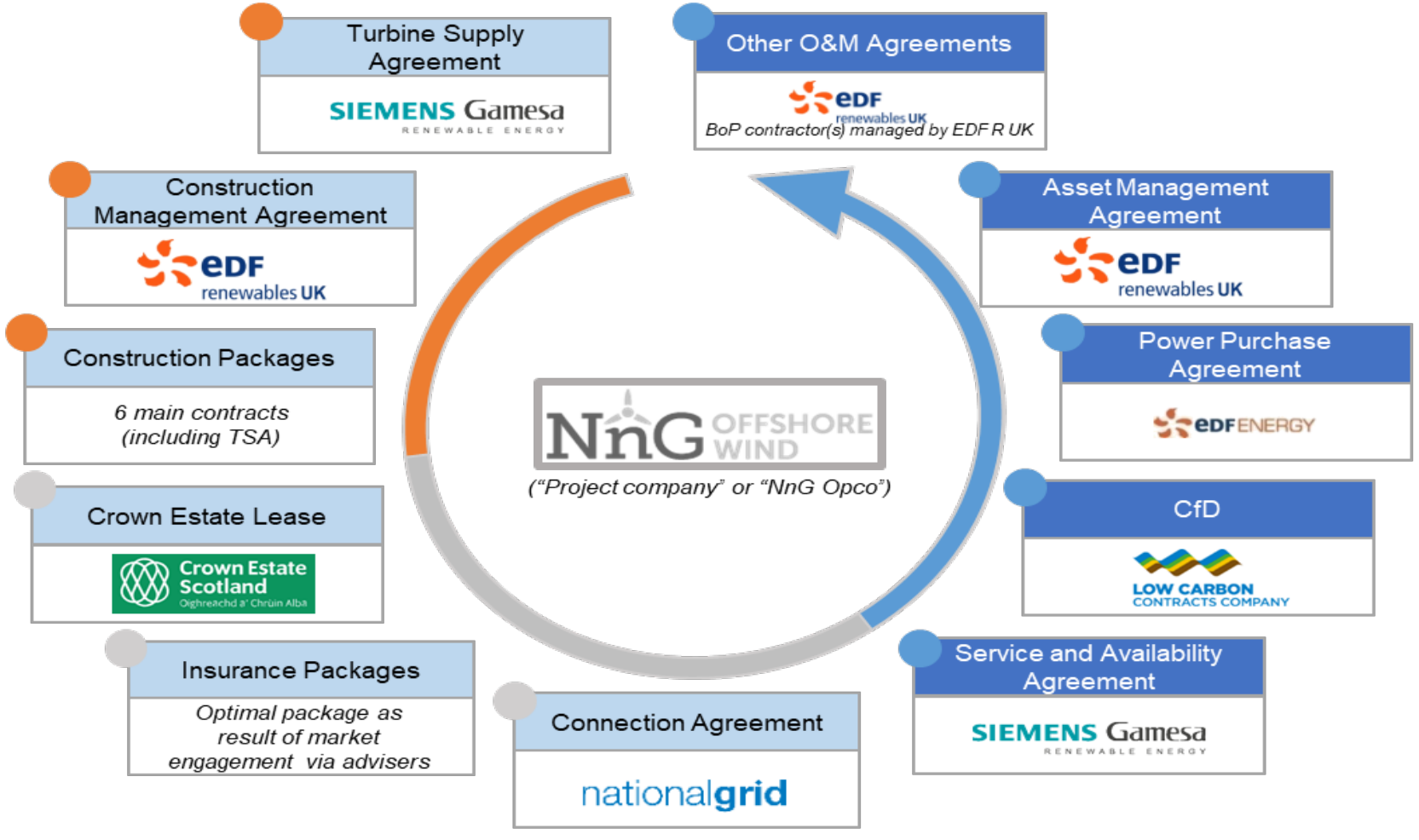
5. **Onshore Transmission Cables**
   Two buried cables will cross farmland for approximately 12.3km from the landfall location to the grid connection point at Crystal Rig wind farm in the Lammermuir Hills.

6. **Onshore Substation**
   A new onshore substation will be built to connect the wind farm to the grid.

PROJECT DESCRIPTION – ONSHORE CABLE ROUTE



OVERVIEW OF NNG'S MAJOR COUNTERPARTIES



MAIN CONTRACTUAL RELATIONSHIPS OF NNG

	Construction packages	Scope	Providers
1	**Construction Management Agreement ("CMA")**	Construction management services and certain asset management services related to the construction and commissioning of the wind farm	EDF renewables UK
2	**Connection Agreement ("CA")**	Grid connection agreements with National Grid covering the connection to the existing Crystal Rig substation	nationalgrid
Construction Packages 3	**Turbine Supply ("TSA")**	Fabrication, supply, pre-assembly, installation and commissioning of 54 SG-8.0-167 WTGs	SIEMENS Gamesa RENEWABLE ENERGY
Construction Packages 4	**EPCI Foundations ("FOU")**	Design, fabrication, supply and installation of jacket WTG and OSS foundations Transport and Installation of Substation topsides	SAIPEM
Construction Packages 5	**WTG Installation Vessel ("WIG")**	Charter for WTG installation vessel	Fred.Olsen & Co.
Construction Packages 6	**High Voltage Stations ("HVS")**	Design, fabrication, supply and pre-commissioning of onshore and Offshore Substations, electrical system design and SCADA	GE, HSM offshore
Construction Packages 7	**Export cables ("EXP")**	Design, fabrication, supply, installation, termination and pre-commissioning for onshore and offshore export cables	Prysmian Group
Construction Packages 8	**Inter-Array Cables ("IAC")**	Design, fabrication, supply, installation, termination and pre-commissioning of inter-array cables EPCI of the 66kV platform interconnecting cable	Tideway Offshore Solutions

Construction will be managed by EDF renewables UK under a construction management agreement.

On top of a construction Management Agreement and of the Connection Agreement, the project will enter into six construction packages and is well advanced in negotiations with a number of experienced contractors.


NnG OFFSHORE WIND
eDF renewables
ESB Energy for generations
Thank you

In depth: Turbines

Turbines	09:55 - 10:10	**Turbine OEM Package**
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	Who:	Henrik Mork, Fred. Olsen Windcarriers, Head of Project Execution
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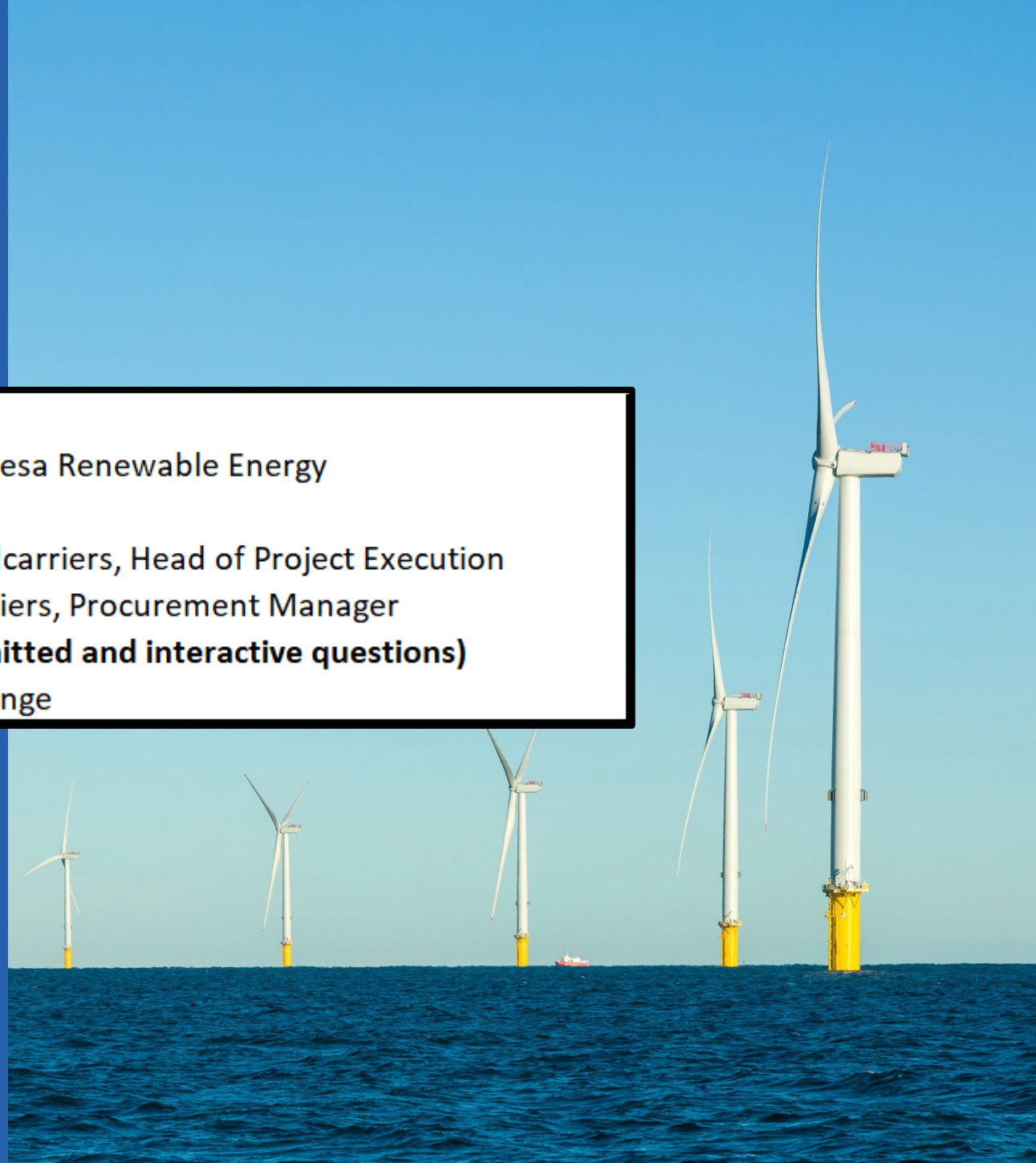


NnG Project – Meet the Buyer Event

SGRE Procurement & Scope

March 2020

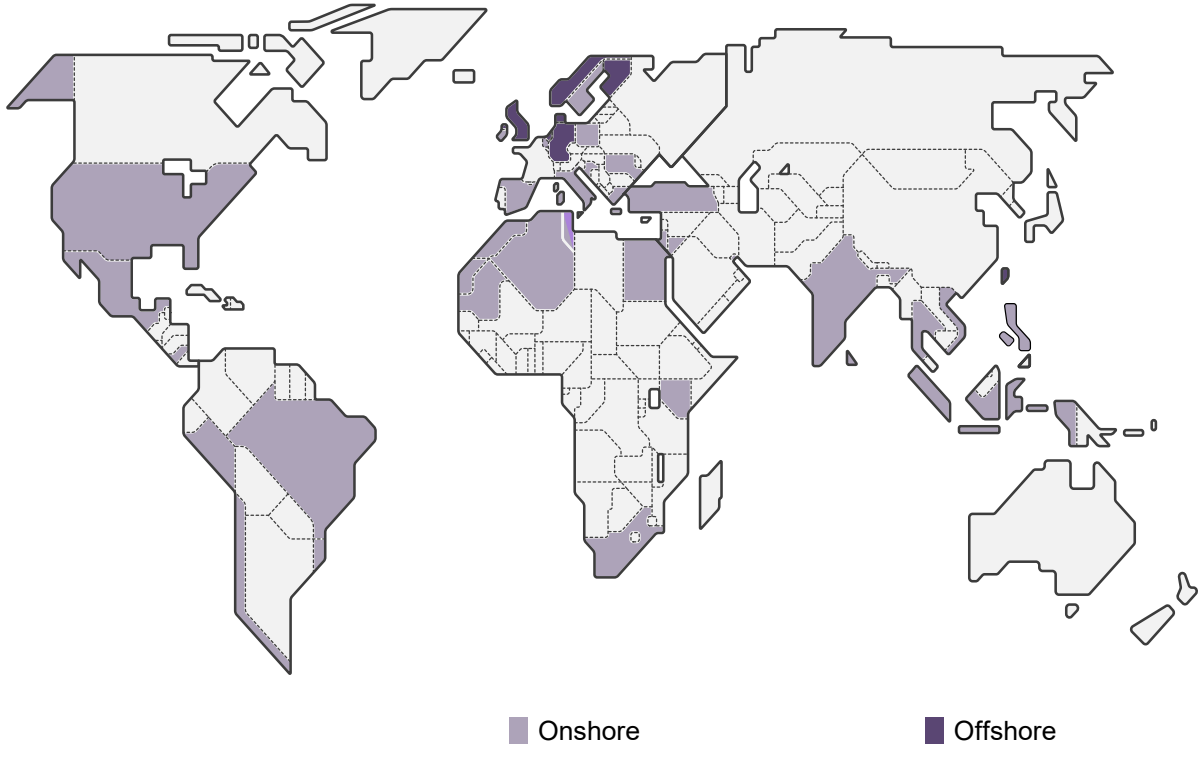
A leading provider of wind power solutions to customers around the globe

Top 3 market share[2] position in several main countries

Offshore[1]
- #1 in global Offshore market (**55%**)

Onshore[1]
- #3 in global Onshore market (**14%**)
- #1 in Africa (**50%**) & LatAm (**28%**)

Service
- #1 OEM in OF service (>**10 GW** under service)
- #2 OEM in ON service (>**50 GW** under service)



1 Source: Wood MacKenzie Wind Turbine OEM Market Shares 2019 **2** Based on MW share

SIEMENS Gamesa RENEWABLE ENERGY

Three business units strongly positioned in the market

Onshore

Over **84 GW** [1] **installed** since 1980

The **technological partner of choice** for onshore wind power projects.

Offshore

15 GW [1] **installed** since 1991

Most experienced offshore wind company with the most reliable product portfolio in the market.

Service

60 GW [1] **maintained**

Commitment beyond the supply of the wind turbine **to reach the profitability goals**.

1 As of September 2019

SIEMENS Gamesa
RENEWABLE ENERGY

Offshore by the numbers

€6.5 bn
Backlog[1]

2.1 GW
Order entry[1]

€3.5 bn
Revenue[1]

~15 GW
installed[2]

~6k
employees

Strong **global** manufacturing **footprint**

Excellence in **project execution**

Over 1,000 Direct Drive offshore turbines installed

1 FY19 **2** As of Jan. 2020

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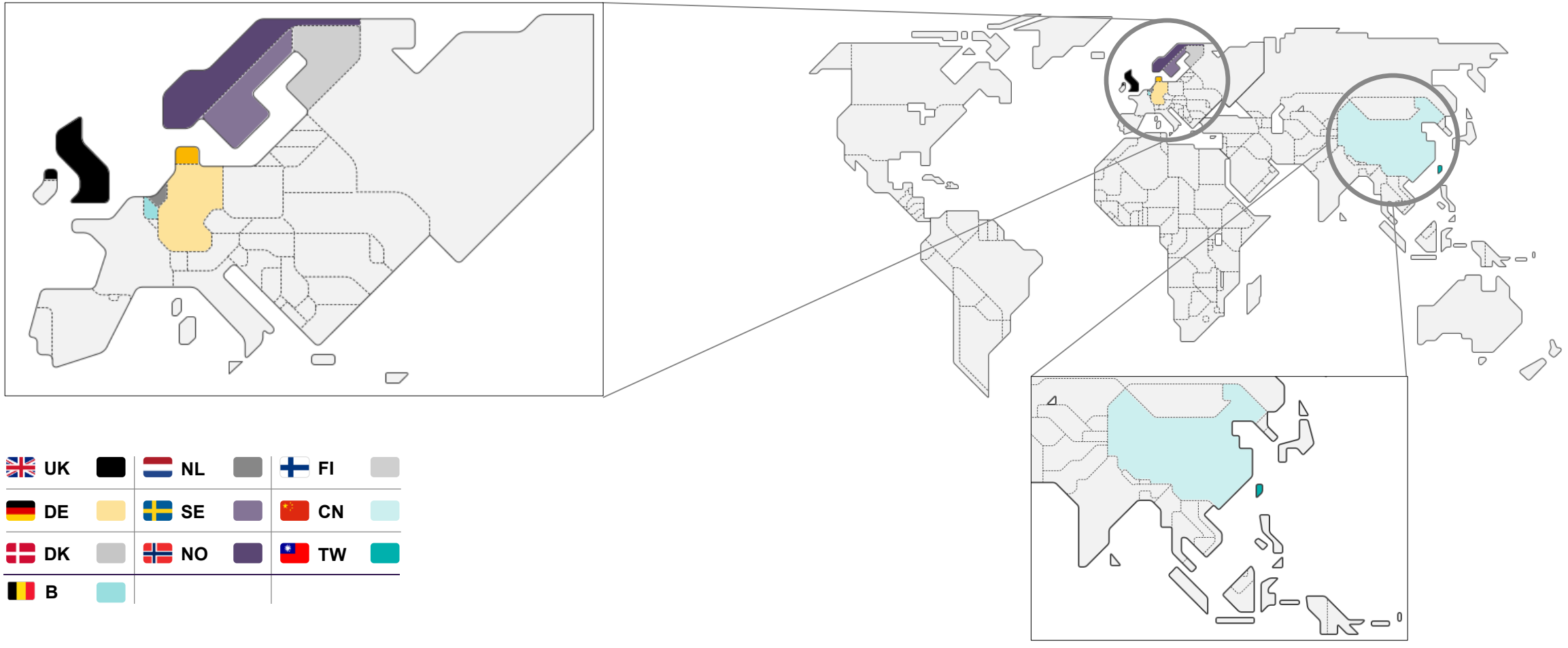
Market leader within offshore wind power: ~ 15 GW installed[1]



1 As of September 2019

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More than 11 GW under installation or to be installed…

Provence Grand Large, FR
3x SG 8.0-167 DD

Hywind Tampen, NO
11x SG 8.0-167 DD

East Anglia One, UK
102x SWT 7.0-157

Hornsea II, UK
165x SG 8.0-167 DD

Neart Na Gaoithe, UK
54x SG 8.0-167 DD

Danish Kriegers Flak, DK
72x SG 8.0-167 DD

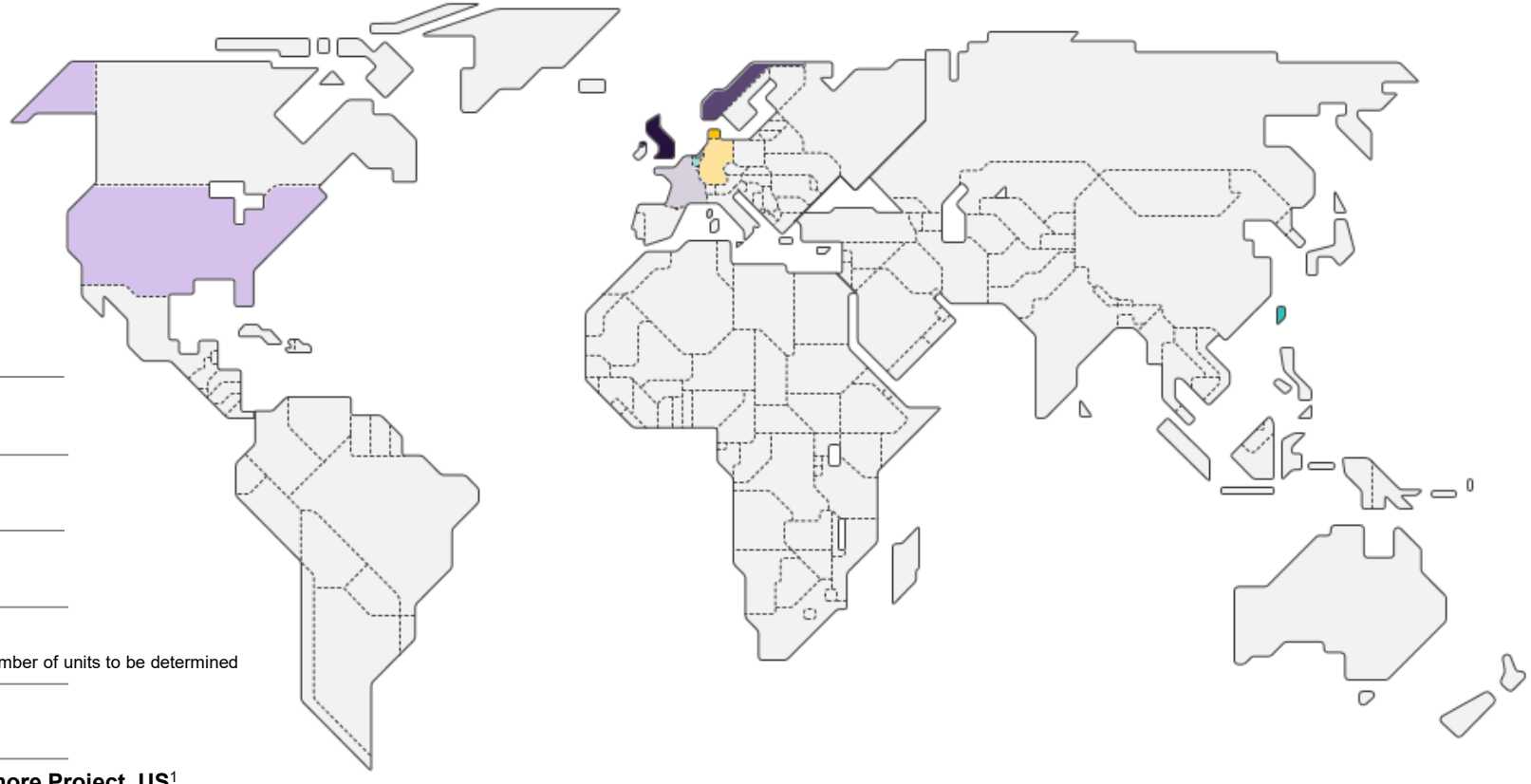
Vesterhav Projects, DK
41x SG 8.0-167 DD

Borssele 1+2, NL
94x SG 8.0-167 DD

Fryslan, NL
89x SG 4.3-130 DD

Hollandse Kust Zuid, NL
140x SG 11-193 DD

Seamade, BE
58x SG 8.0-167 DD



Formosa, TW
47x SG 8.0-167 DD

Yunlin, TW
80x SG 8.0-167 DD

Greater Changhua, TW
112x SG 8.0-167 DD

Hai Long, TW[1]
300 MW – Turbine type & number of units to be determined

Coastal Virginia, US
2x SWT 6.0-154

Dominion Energy Offshore Project, US[1]
2,640 MW – Turbine type & number of units to be determined

1 Named as preferred supplier

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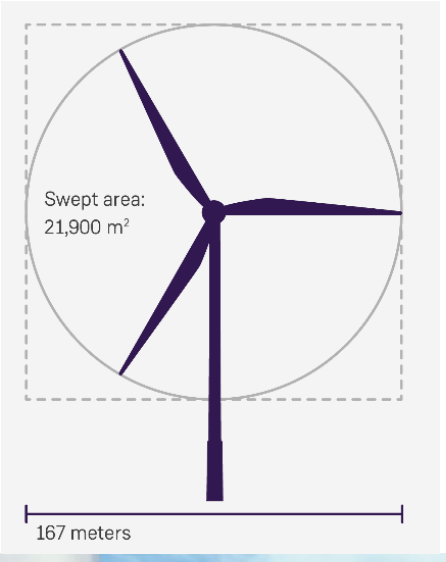
SGRE Scope of Supply for Neart na Gaoithe

- In September 2019 – SGRE signed a supply deal with EDF for supply of turbines to Neart na Gaoithe (NnG)
- We will supply 54 x 8.4MW Wind Turbines
- Responsible for the Pre-Assembly Harbour at Port of Dundee – LA already signed
- All Pre-Assembly works including tower preparation, storage and site facilities
- Offshore Installation activities
- Commissioning including Crew Transfer Vessels



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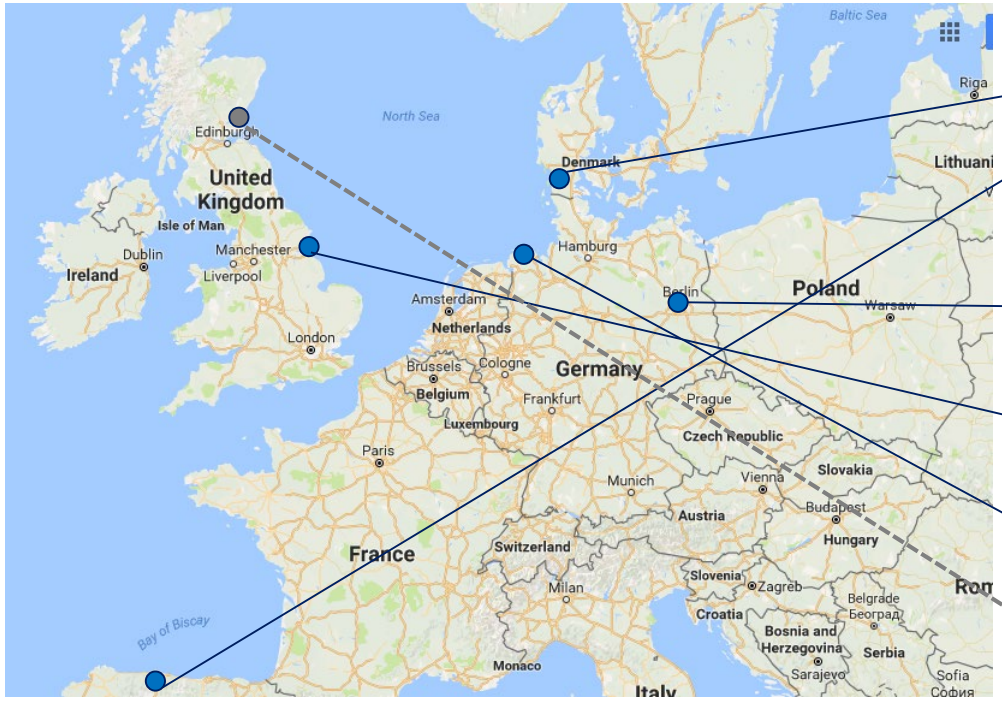
Supply Chain Footprint



Tower suppliers:
70% DK
30% ESP

SWGU assembly:
Siemens AG - Berlin

Blade production:
Green Port Hull

Nacelle Assembly:
Cuxhaven factory

Pre-Assembly & Commissioning Site:
Dundee

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WTG Construction Activity Overview

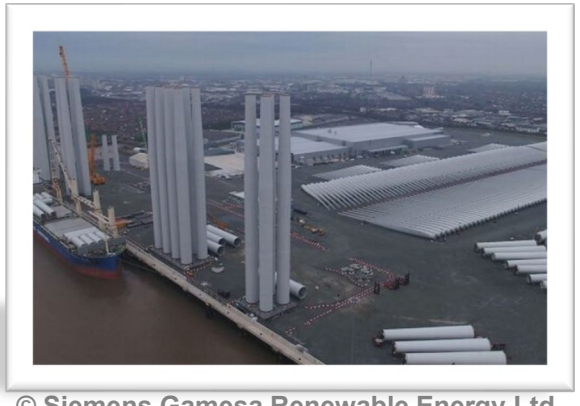
Pre-Assembly | **Installation** | **Commissioning & Test** | **Initial Service**

Operational Handover

January to July ‘22

Pre-Assembly @ Dundee

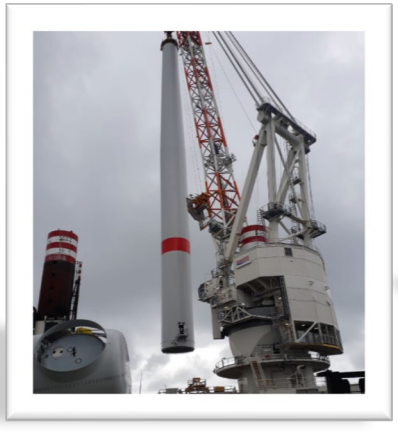
- Tower build
- Nacelle & Blade Prep
- Storage & Site Facilities



April to July ‘22

Installation

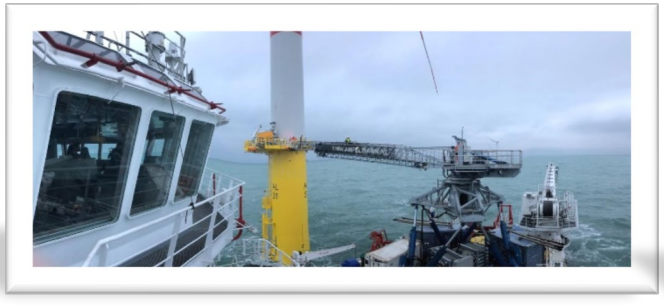
- TO → NAC → BL install



April to August ‘22

Commissioning

- Turbine Commissioning
- Grid Required
- First Power



Test

- 240hr Reliability Test

April to September ‘22

Initial Service

- Initial Servicing / bolt tightening

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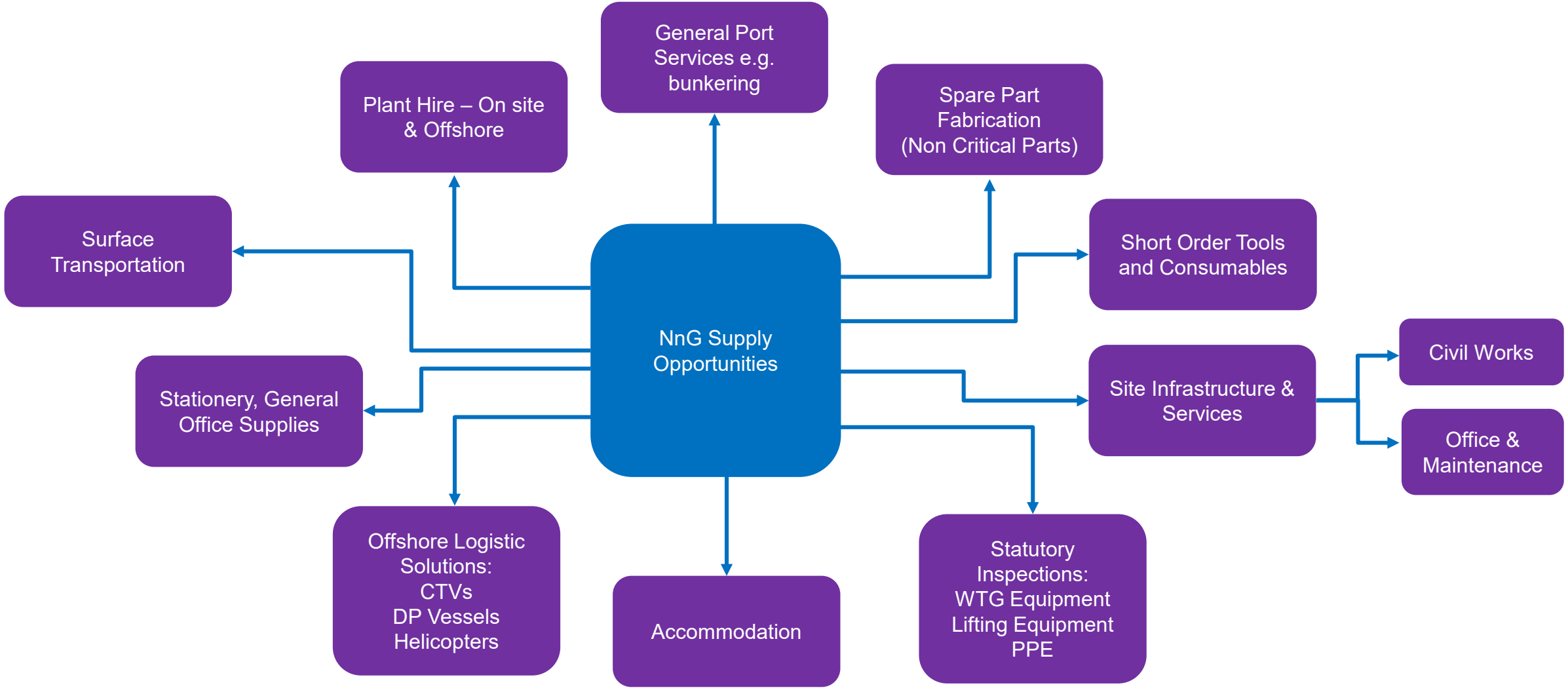
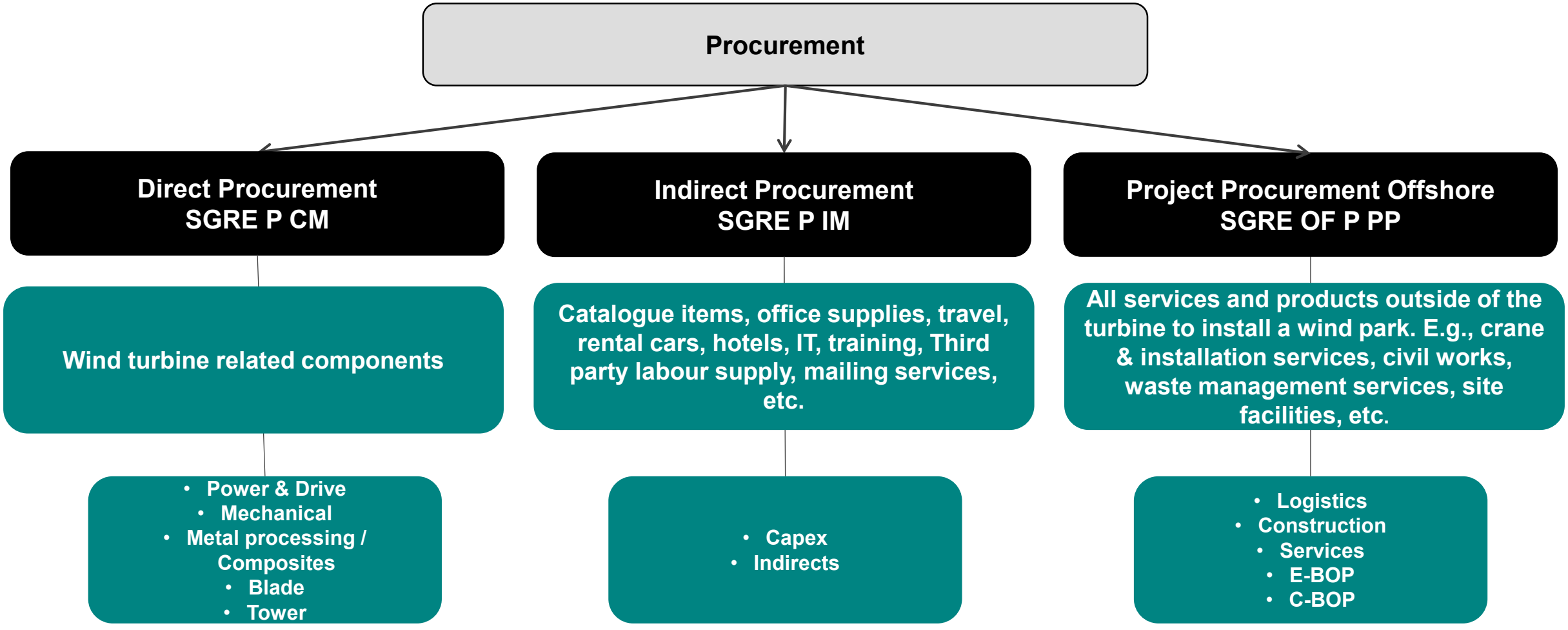
Project Tendering Opportunities



SIEMENS Gamesa RENEWABLE ENERGY

Overall Procurement Organisation and sub-units within SGRE Offshore



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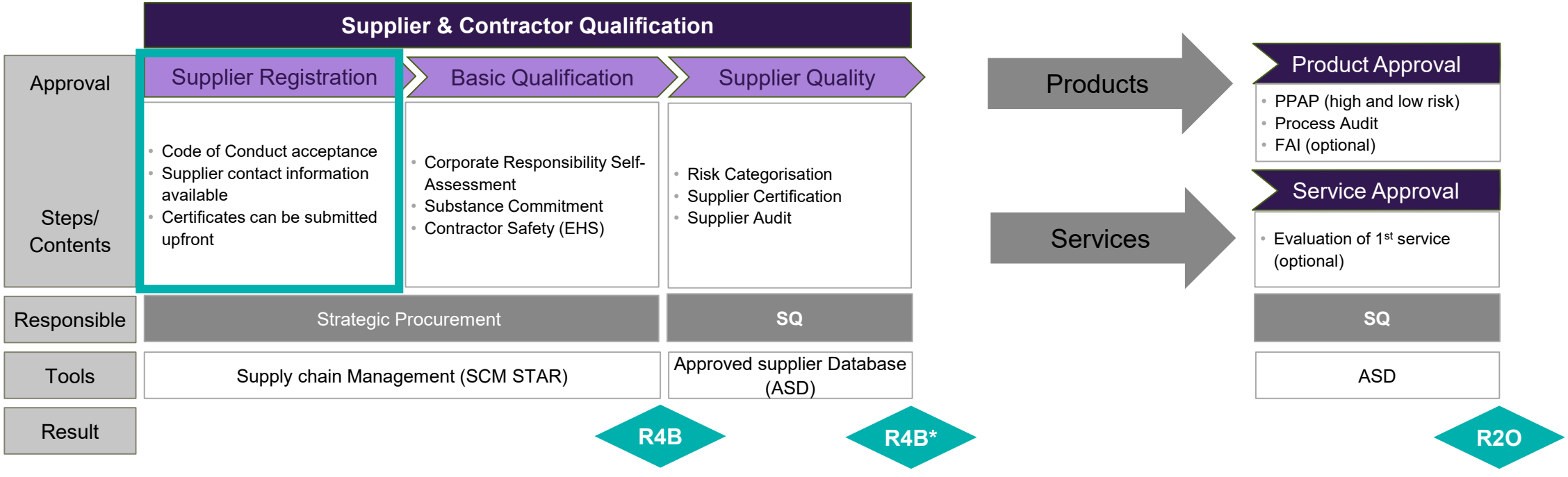
RENEWABLE ENERGY

Supplier Qualification is a joint process between Strategic Procurement & Supplier Quality



R4B = Ready for Business
R2O= Ready to Order

SIEMENS Gamesa
RENEWABLE ENERGY

Supplier Qualification

Siemens Gamesa are committed to using local suppliers wherever possible & where viable for the Business.

In order to achieve Ready4Business Status the below is a vital pre-requisite for any sourcing relation with suppliers.

- Corporate Responsibility (CR)
- Risk Assessment & Environment, Health and Safety (EHS)
- Acceptance of Code of Conduct (CoC)

SIEMENS Gamesa RENEWABLE ENERGY

Supplier Qualification

Basic Qualification is mandatory independent of the criticality of service or component.

- Before signing a Contract
- Before receiving any Purchase Orders.

Suppliers may participate in:

- Request for Information (RfI)
- Request for Quotations (RfQs)

before reaching Ready for Business Status (R4B).

SIEMENS Gamesa
RENEWABLE ENERGY

Code of Conduct for Suppliers and Third-Party Intermediaries

Siemens Gamesa

Code of Conduct for Suppliers and Third Party Intermediaries

This Code of Conduct defines the basic requirements placed on Suppliers and Third Party Intermediaries of Siemens Gamesa Renewable Energy (SGRE) Group of Companies concerning their responsibilities towards their stakeholders and the environment.

SGRE reserves the right to reasonably change the requirements of this Code of Conduct in line with any changes to its Compliance Program. In such an event, SGRE considers any revised versions of the Code of Conduct as accepted and without requiring new signatures from the supplier.

SGRE is entitled to conduct inspections in order to verify compliance with this Code of Conduct.

The supplier and/or third party intermediary declare herewith to:

Human Rights

- Respect the protection of internationally proclaimed human rights and avoid complicity with human rights abuses.

Non-discrimination

- Refuse to tolerate any unacceptable treatment of individuals such as mental cruelty, sexual harassment or discrimination including gestures, language and physical contact, that is sexual, coercive, threatening, abusive or exploitative.
- Promote equal opportunities and treatment of employees, irrespective of skin color, race, nationality, ethnicity, political affiliation, social background, disabilities, sexual orientation, marital status, religious conviction, gender or age.

Respect for Cultures & Communities

- Help foster economic and social development of local communities and ensure full respect for the human rights, dignity, aspirations, culture, and natural resource-based livelihoods in areas in which operations are made.

Labour Practices

Prohibition of Forced Labour

- Avoid all forms of forced and compulsory labour and refuse to employ or make anyone work against their will.

Prohibition of Child Labour

- Employ no workers under the age of 15 or, in those countries subject to the developing country exception of the ILO Convention 138, employ no workers under the age of 14.

Occupational Health & Safety

- Act in accordance with the applicable statutory and international standards regarding occupational health and safety and provide safe working conditions.
- Establish a reasonable occupational health & safety management system[1].
- Provide training to ensure employees are educated in health & safety issues and have the right to refuse unsafe work.

[SGRE Code of Conduct for Suppliers and Third-Party Intermediaries]

The Code of Conduct is based, among others, on the United Nations Global Compact and the Principles of the International Labour Organisation.

Procurement ensures that all suppliers commit to the Code of Conduct by:

- Corporate responsibility declaration
- Acknowledgment of Conditions of Purchase or contractual agreements

Compliance to Code of Conduct controlled by*:

- Corporate responsibility self assessment
- SQ audits with integrated Code of Conduct module
- External sustainability audit

*triggered by different criteria

SIEMENS Gamesa RENEWABLE ENERGY

Some of our initial requirements

Details of QHSE accreditations & internal EHS strategy

HSE performance including LTFR & TRIR
Lost time frequency rate & Total recordable injury rate

Details of experience in Wind Industry, ideally Offshore, or other similar/complimentary experience

SIEMENS Gamesa
RENEWABLE ENERGY

SGRE Service and Maintenance Scope for NNG

- Turbine annual Service and Maintenance
- Crane and lifts
- Turbine Mounted Safety Equipment (TMSE)
- Pressure vessel inspections
- Crew Transfer Vessels (CTV's)
- High Voltage Service and Maintenance
- Tepee mounted cranes and fall arrest
- Clearing of marine growth & guano from boat landings
- Blade inspection and maintenance

SIEMENS Gamesa
RENEWABLE ENERGY

Procurement opportunities

Resource recruitment

Tooling

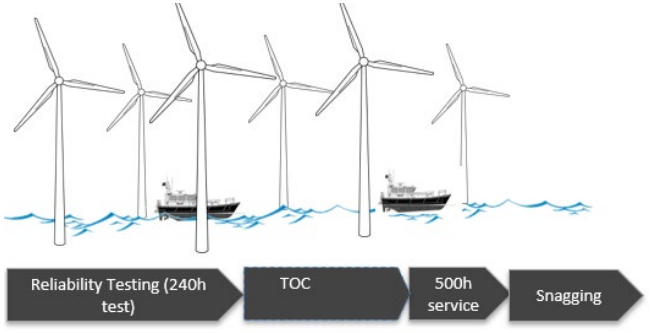
Supply Opportunities

Off site Accommodation

Marine Fuel

SIEMENS Gamesa
RENEWABLE ENERGY

Planning for NNG



CTV Tendering Q4 2020

Recruitment Q2 onwards 2021

Supply Chain Set Up Throughout 2021

Service Team On Location at Eyemouth Q1 2022

Site Construction Q2 Q3 2022

Handover to Service Q2 Q3 2022

Contract Expiry 12/06/2037

SIEMENS Gamesa RENEWABLE ENERGY

Contact with SGRE's NnG Project Team

- Emma.Kinsman@siemensgamesa.com
- Leave Business Cards
- SGRE will contact you directly as required

SIEMENS Gamesa
RENEWABLE ENERGY

EDF Renewables Apprenticeships

At EDF Renewables, we're big on supporting people as they set out on their career.

Four year training course, currently recruiting for service centres based in:

- Fenland Region (Whittlesey, Peterborough, PE7 2EU)
- **Dorenell Windfarm (Dufftown, Moray, AB55 4DT)**
- **South East Scotland Region (Edinburgh Office, EH3 8BX)**
- **Fallago Rigg Windfarm (Scottish Borders, TD3 6NW)**
- West/Mid Wales region (Aberystwyth, Ceredigion, SY23 3LQ)
- North West Cumbria (Cockermouth, Cumbria, CA13 OHT)
- North East England (Brandon, Durham, DH7 8XD)
- Teesside Offshore (PD Ports, Hartlepool, TS24 0RQ

Year one

- Full time residential study at a Tyneside Engineering College
- One year advanced Manufacturing and Engineering
- Global Wind Organisation (GWO) training courses
- EDF inductions and orientations

Years two and three

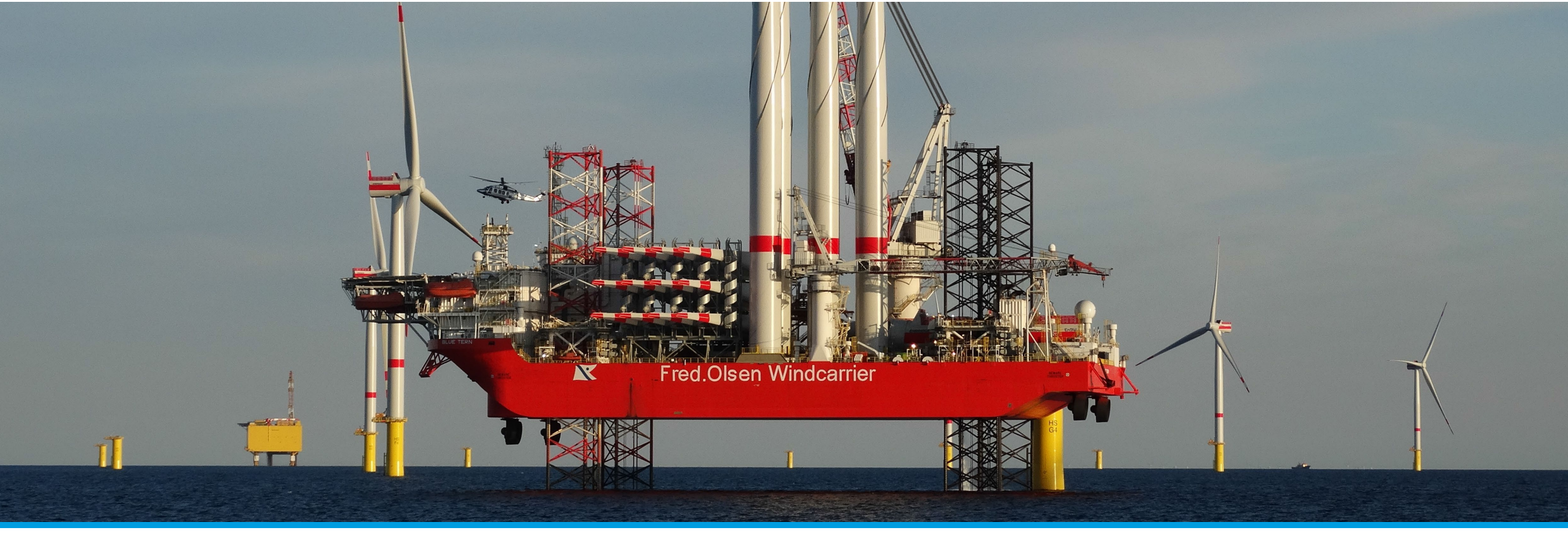
- Time split between studies and on the job learning at an EDF Renewables location.

Year four

- Most time is spent at an EDF Renewables location.
- Completing a significant end point assessment as evidence of completion and qualification for the Level 3 BTEC in Advanced Manufacturing Engineering.

For more information: https://www.edf-re.uk/careers

Fred. Olsen Windcarrier



NnG - Meet the Buyer Event

March 2nd-5th 2020

Henrik Mork, Head of Project Execution

Gry Arnet, Procurement Manager

Agenda

Fred. Olsen Windcarrier

- Company overview
- Track record
- Scope of work
- Services required
- Procurement process

Fred. Olsen related companies pioneering

Bonheur ASA

Listed Oslo Stock Exchange

Fred. Olsen Windcarrier

Renewable energy

100%

Fred. Olsen Renewables AS

Shipping/ Offshore wind

100%

Fred. Olsen Ocean Ltd.

Cruise

100%

Fred. Olsen Cruise Lines Ltd.

Other investments

NHST MEDIA GROUP

54%

NHST Media Group AS

Fred. Olsen related companies in renewables

Privately owned

Fred. Olsen Windcarrier

Renewable Energy Consultancy and Service Provider

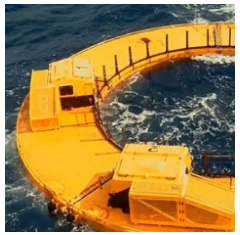
- Independent renewable energy advice
- Experience across the project lifecycle
- 360+ renewable energy specialists
- Global expertise, delivered by local teams

Communications and Service Provider

- Industry leading software management solutions for land and marine projects
- Innovative communications system for complex projects offshore
- Health, Safety and marine consultancy services

Wind Lidar System

- Est. 2007, the original wind Lidar company, providing laser-based sensors
- 1000+ deployments globally, 10m+ operational hours
- Cost effective alternative to traditional Met. Masts



Pioneering Wave Energy Generator

- World's most reliable wave energy conversion technology
- Power exported to offshore client systems
- Deployed by US Navy off Hawaii

Shipping/Offshore Wind

Fred. Olsen Windcarrier

Fred. Olsen Windcarrier

Jack-up installation

- 3 custom-built jack-up installation vessels
- Turbine and foundation installation
- Operation and maintenance

100% owned

Universal Foundation

Wind turbine foundation

- The Carbon Trust's championed design
- 10+ MW WTGs
- Quick and silent installation
- No grouting

100% owned

Global Wind Service

Technical manpower

- ~1200 employees
- 10 business units globally
- Installation, Service & Blades both on-and offshore
- Offer HV through joint venture with Delpro Wind

75.5% owned

United Wind Logistics

Offshore logistics

- One-stop-shop logistic solutions
- Integrated services
- Wind power engineering
- Project execution

50% owned

Fred. Olsen Windcarrier

Lifting Offshore Wind

Providing flexible services for the transport, installation and maintenance of offshore wind farms.

Fred. Olsen Windcarrier has installed some of the most challenging, ground breaking projects, almost 600 turbines and over 3 500 MW since taking delivery of our jack-up vessels Brave Tern and Bold Tern in 2012. Recent addition to the fleet in 2019 is Blue Tern (previously Seafox 5).

In 2017 we launched our complete range of O&M services, in partnership with our highly experienced related companies. In April 2019, the O&M vessel LiftBoat Jill was added to the fleet.

We offer a tailored solution to suit clients' needs, providing specific services or a fully integrated approach.

Offices in Oslo – Norway, Fredericia – Denmark, Hamburg - Germany and Taipei - Taiwan.

Installation Track Record

594 turbines and 3 500 MW installed to date

Fred. Olsen Windcarrier

1
GERMANY
Riffgat
Siemens
2013
30 x SWT 3.6 MW

2
GERMANY
Bard 1
BARD
2013
14 x BARD 5.0 MW

3
BELGIUM
Belwind
Alstom
2013
1 x Haliade 6.0 MW

4
UK
Dogger Bank
Forewind
2014
2 x UF Foundations

5
GERMANY
Global Tech 1
Areva
2014
75 x Areva 5.0 MW

6
GERMANY
Butendiek
Siemens
2015
80 x SWT 3.6 MW

7
USA
Block Island
Deepwater Wind
2016
5 x GE 6.0 MW

8
GERMANY
Veja Mate
Siemens Gamesa
2017
33 x SWT 6.0 MW

9
GERMANY
Wikinger
Adwen
2017
70 x Adwen 5.0 MW

10
UK
Galloper
SGRE
2017
17 x SGRE 6.0 MW

11
GERMANY
Borkum Riffgrund 2
MHI Vestas
2018
56 x V164-8.0 MW

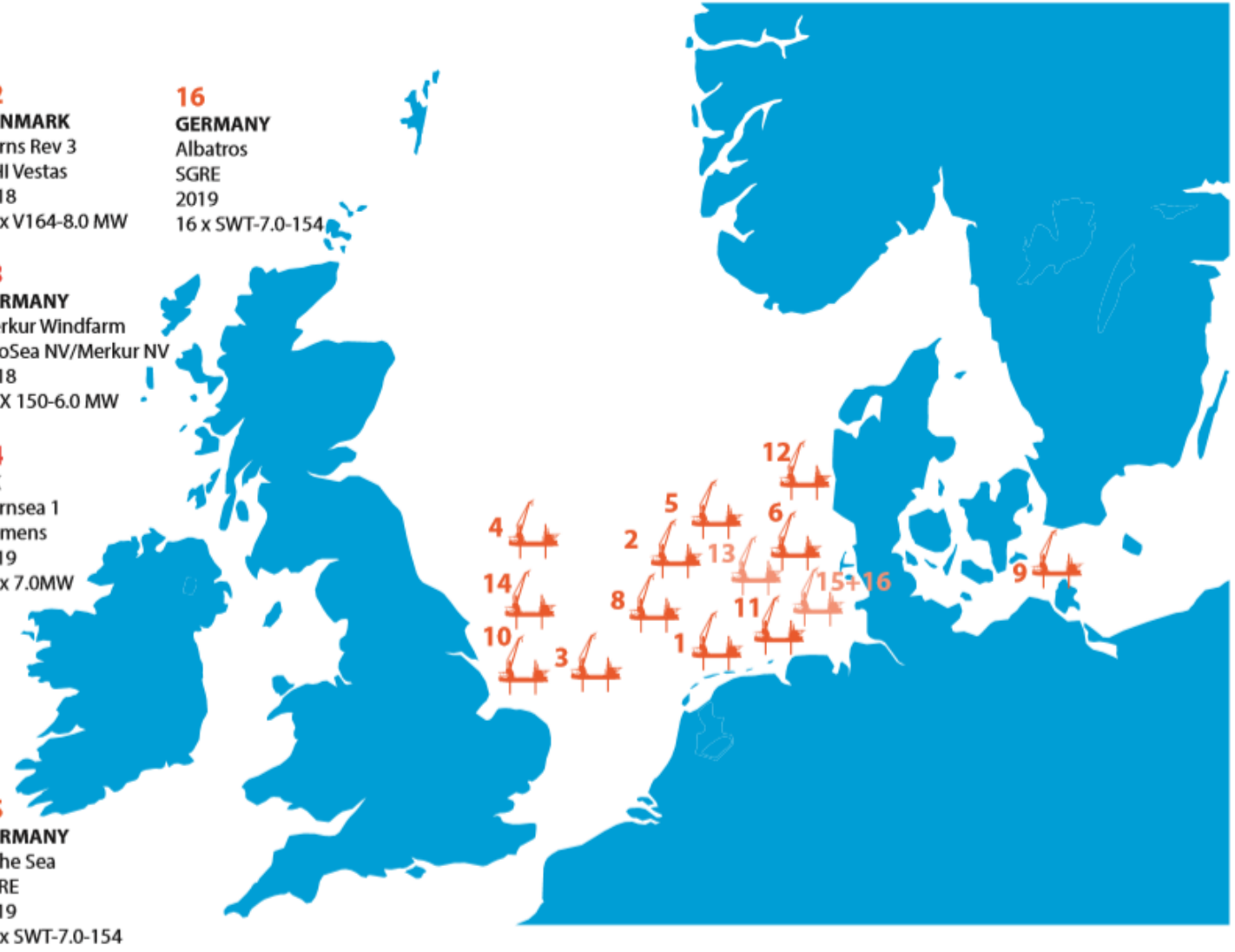
12
DENMARK
Horns Rev 3
MHI Vestas
2018
49 x V164-8.0 MW

13
GERMANY
Merkur Windfarm
GeoSea NV/Merkur NV
2018
66 X 150-6.0 MW

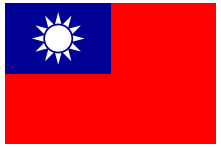
14
UK
Hornsea 1
Siemens
2019
87 x 7.0MW

15
GERMANY
Hohe Sea
SGRE
2019
71 x SWT-7.0-154

16
GERMANY
Albatros
SGRE
2019
16 x SWT-7.0-154



Future installation project pipeline



Yunlin Offshore Wind Farm, Taiwan

Client: Siemens Gamesa

Siemens Gamesa 8MW wind turbines at the 640MW wind farm.

Construction is expected to start during the summer 2020.

Neart na Gaoithe Project, Scotland

Client: EDF

Transport and installation of 54 Siemens Gamesa SG 8.0-167 DD wind turbines.

Construction will start spring 2022

Moray East Wind Project, Scotland

Client: MHI Vestas Offshore

Transport and installation of 100 V164-9.5MW wind turbines.

Construction will start in the beginning of 2021.

Health, Safety, Environment, Quality (HSEQ)

Fred. Olsen Windcarrier

We are committed to being recognized as a leading organisation for HSEQ management

HSE:

- Zero incidents mindset
- Risk management is an integrated part of all our activities
- Detailed HSE requirements have been defined to ensure safety at all levels
- Open reporting culture, focusing on learning

Quality:

- Our 'Improve Quality (iQ)' programme aspiration: "*Always right the first time and on time – with enthusiastically satisfied customers*"
- ISO 9001, ISO 14001, OHSAS 18001 and Achilles certified

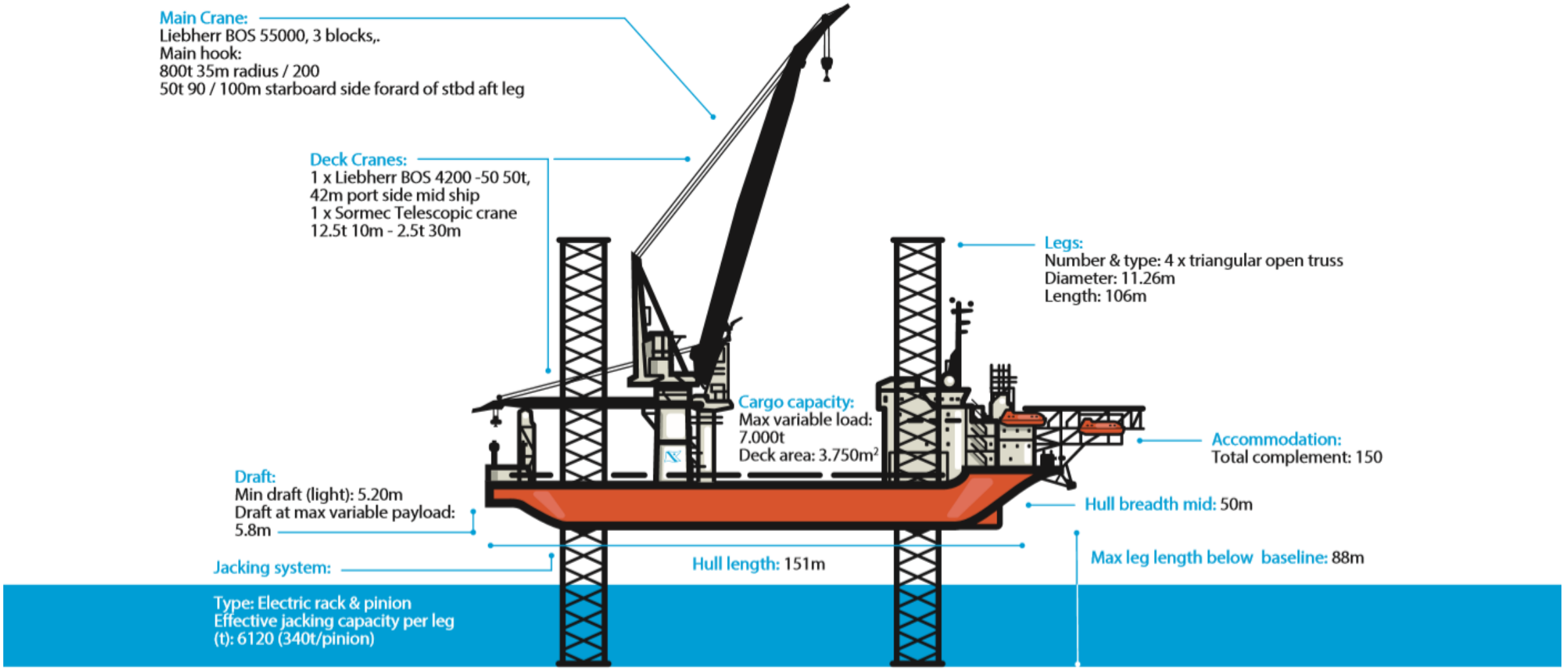
Scope of work

Fred. Olsen Windcarrier

- Sea Transportation, including seafastening, Loading and Lifting of 54 WTG's (SG 8.0-167 DD)
  - 4 WTG’s per roundtrip -> 14 roundtrips
  - Tower, Nacelle, Blades
  - Mobilisation/Installation/Transit/Jacking
- Marshalling harbour, Port of Dundee
- Timing, March – August 2022
- Vessel, Blue Tern

Blue Tern specification

Fred. Olsen Windcarrier



Services required

Fred. Olsen Windcarrier

- Project mobilisation/demobilisation
  - Yard services, potential steel work supplies for grillage and seafastening
  - Electro
  - Safety equipment
  - Engineering services
- Vessel supplies
  - Fuel
  - Technical maintenance
  - Provisions
  - General stores
- Logistics
  - Crew change
  - Warehousing
  - Agency services

Procurement process

Fred. Olsen Windcarrier

Supplier Categorization

A. High criticality, single Source

B. High criticality, not single source

C. Low criticality

Supplier Selection

- Criteria
  - Technical/Financial/HSEQ
- Questionnaire
- Audit
- Approval

Procurement Process

Fred. Olsen Windcarrier

Approval criteria

- Supplier holds a valid ISO 9001 (for Category A and B suppliers)
- Supplier has been audited (for Category A and B suppliers)
- Supplier can document to have been audited by others, found acceptable to Fred. Olsen.
- Temporary approval can be granted based on positive references from other companies that are well known to Fred. Olsen.
- An additional part of the evaluation is:
  - Health and environmental awareness, e.g. OHSAS 18001 or other relevant standard
  - Ability to demonstrate use of waste reduction methods, such as purchasing in bulk to reduce packaging volumes, encouraging recycling initiatives and using non-disposable equipment
  - Suppliers ability to deliver products that minimally impact the environment, made of recycled, renewable material, energy-efficient.

Revoking of Approval

- Loss of quality certificate or other approvals.
- Unacceptable HSEQ performance
- Poor performance.

Procurement

Closing remarks

Fred. Olsen Windcarrier

Successful projects built on valuable partnerships

Fred. Olsen is committed to using local content in the areas we operate

We are considered a transparent, fair and ethical partner in all aspects of our work, with vendors, customers and competitors, and expect nothing less of our vendors.

We are always interested in hearing from potential new vendors.

Please email Vendors@fredolsen.no to be considered

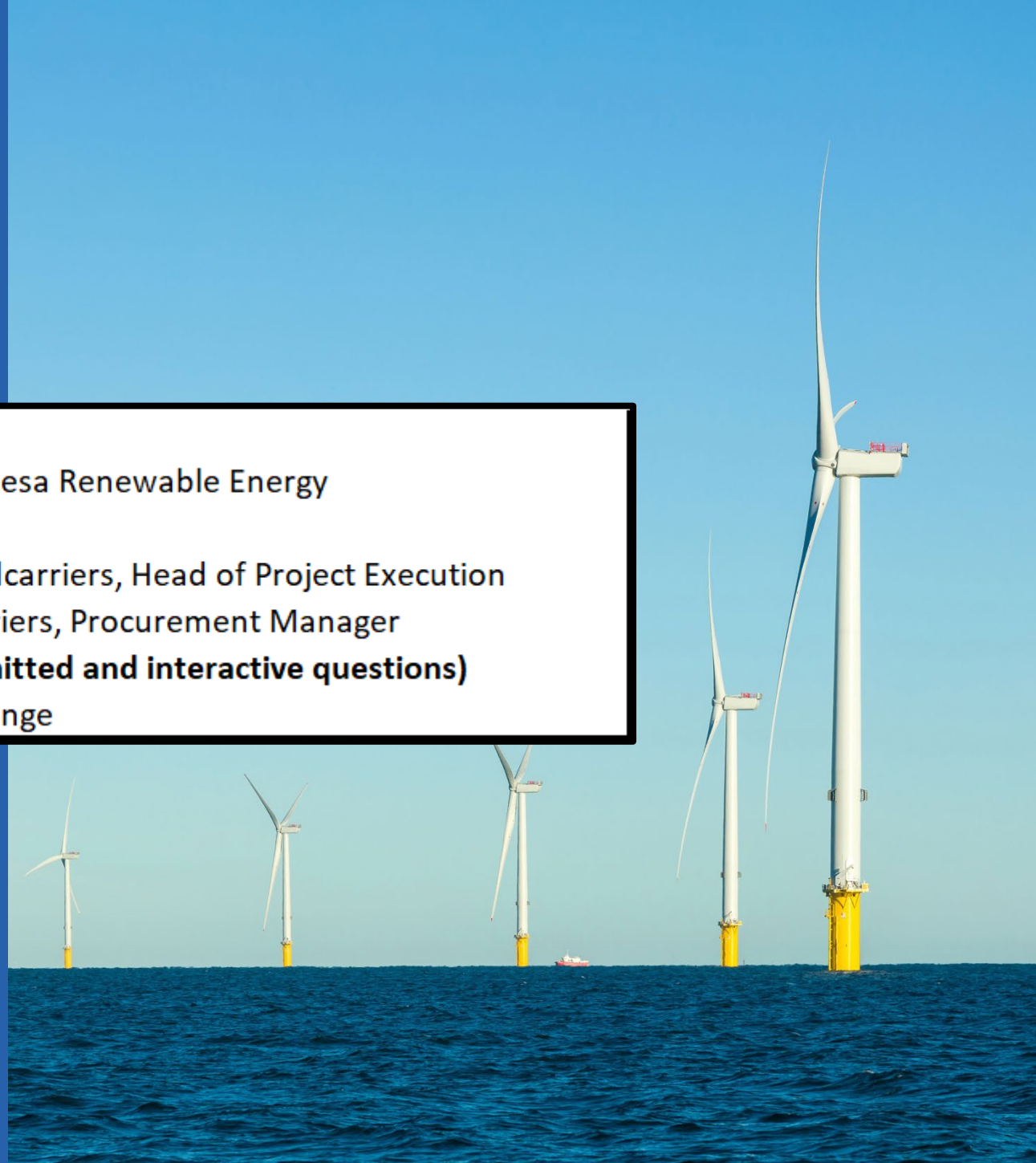
Visit our webpage:

https://windcarrier.com/vendors

Thank you

Questions....

Turbines	09:55 - 10:10	**Turbine OEM Package**
	Who:	TBC on behalf of Siemens Gamesa Renewable Energy
	10:10 - 10:25	**Turbine Installation Package**
	Who:	Henrik Mork, Fred. Olsen Windcarriers, Head of Project Execution
		Gry Arnet, Fred. Olsen Wincarriers, Procurement Manager
	10:25 - 10:35	**Turbine Q&A (Slido - pre-submitted and interactive questions)**
	Who:	David Sweenie, Facilitating Change

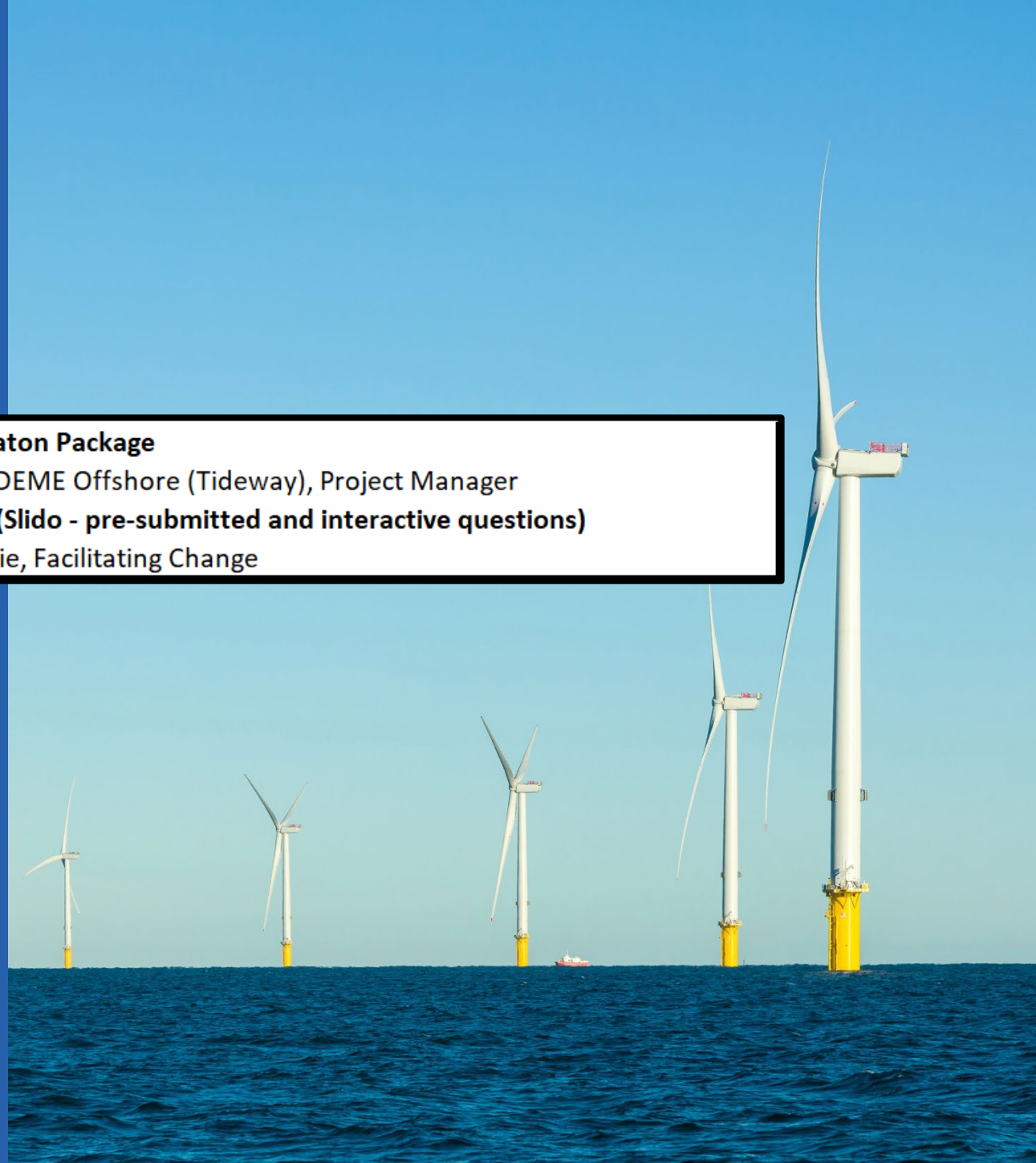


NnG OFFSHORE WIND

EDF renewables | ESB Energy for generations

In depth: Electrical cables

Electrical Balance of Plant - Cables	10:35 - 10:50	**Cable Installaton Package**
	Who:	Colin Smith, DEME Offshore (Tideway), Project Manager
	10:50 - 10:55	**Cables Q&A (Slido - pre-submitted and interactive questions)**
	Who:	David Sweenie, Facilitating Change



Supply Chain Event

NNG Offshore Wind Project

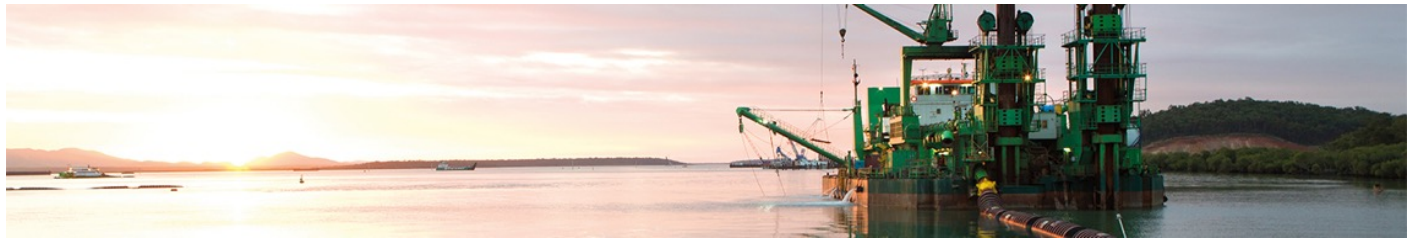
Scotland March 2020

WHO ARE WE?

DEME Offshore provides the most comprehensive and innovative solutions in the renewables industry. We offer flexible solutions for foundation, cable, turbine and substation installation and maintenance activities. By operating a high-tech fleet of installation, cable laying and multipurpose vessels we are able to help customers achieving the most demanding offshore energy projects

WHO ARE WE?

Deme Group – Four Main Activities



Dredging and land reclamation

Offshore energy solutions

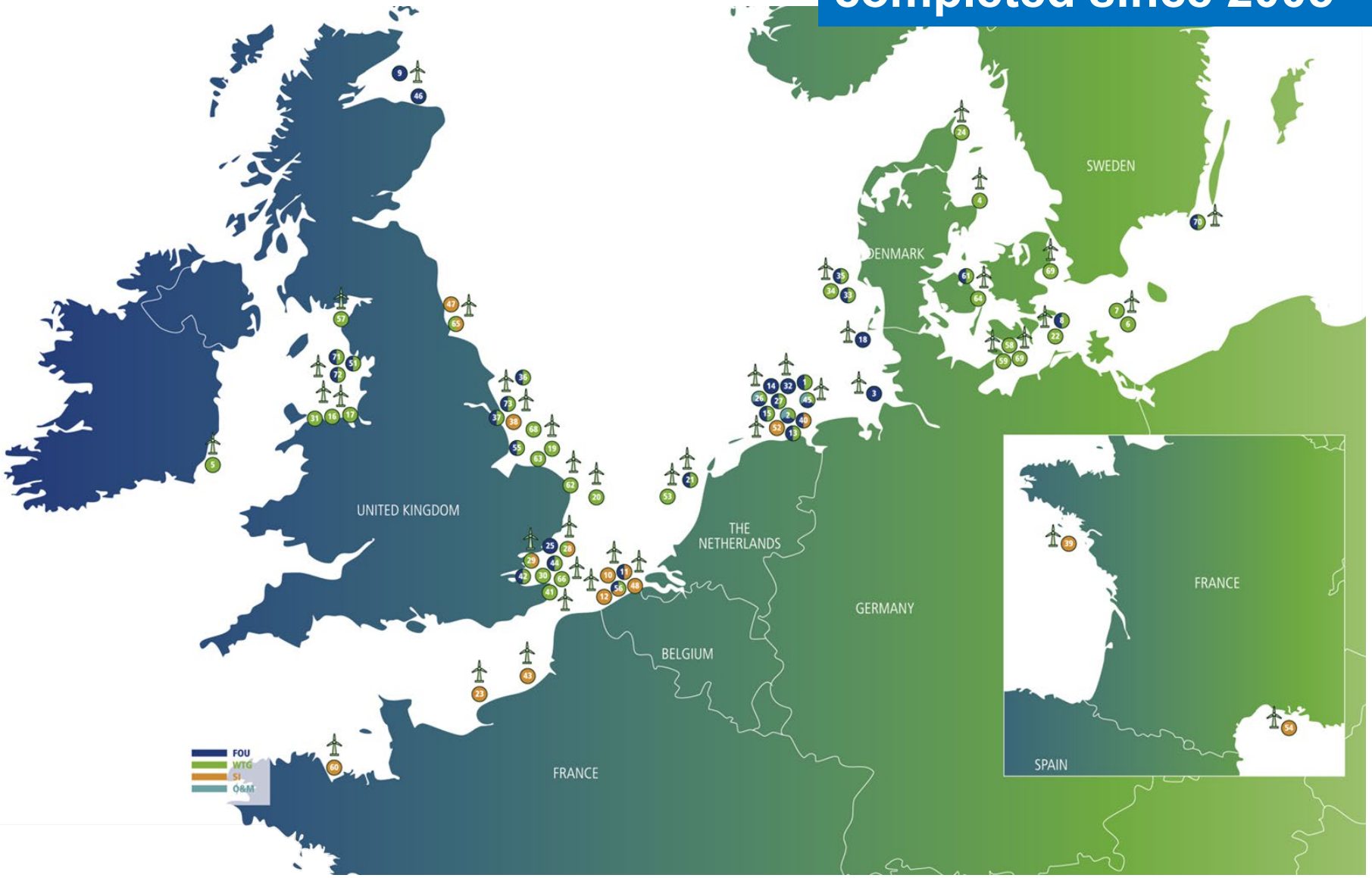
Infra marine solutions

Environmental solutions

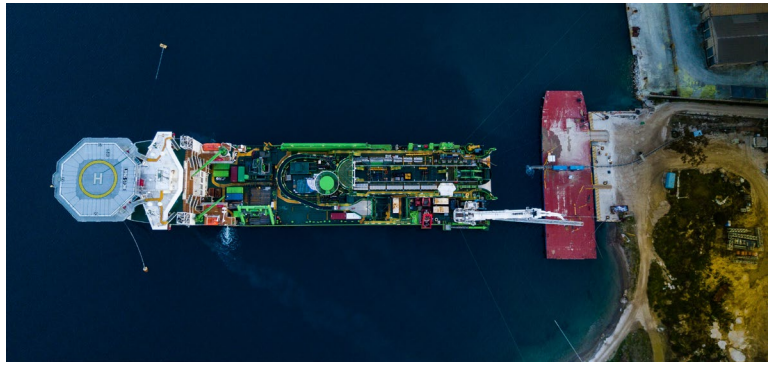
DEME Offshore Reference List

75 OWF projects successfully completed since 2005

1 Albatros
2 Alpha Ventus
3 Amrumbank
4 Anholt
5 Arklow Bank I
6 Arkona
7 Arkona Becken
8 Baltic II
9 Beatrice
10 Belgian Offshore Grid
11 Belwind (Alstom)
12 Bligh Bank
13 Borkum Riffgrund I
14 Borkum Riffgrund II
15 Borkum West II
16 Burbo Bank
17 Burbo Bank EXT.
18 Butendiek
19 Dudgeon
20 East Anglia One
21 Egmond aan Zee
22 Enbw Windpark Baltic I
23 Fécamp
24 Frederikshavn
25 Galloper
26 Global Tech I (Adwen)
27 Godewind II + I
28 Greater Gabbard
29 Gunfleet Sands
30 Gunfleet Sands III
31 Gwynt Y Môr
32 Hohe See
33 Horns Rev I
34 Horns Rev II
35 Horns Rev III
36 Hornsea I
37 Hull
38 Humber Gateway
39 Iles d'Yue and Noirmoutiers
40 Innogy Nordsee I
41 Kentish Flats
42 Kentish Flats extension
43 Le Tréport
44 London Array
45 Merkur
46 Moray East
47 Narec
48 Norther
49 Northwind
50 Nysted
51 Ormonde
52 OWP West
53 Prinses Amalia
54 Provence Grand Large
55 Race Bank
56 Rentel
57 Robin Rigg
58 Rødsand
59 Rødsand II
60 Saint-Brieuc
61 Samsø
62 Scroby Sands
63 Sheringham Shoal
64 Sprogø
65 Teesside
66 Thanet
67 Thornton Bank
68 Triton Knoll
69 Ullgrunden
70 Utgrunden
71 Walney
72 West of Duddon Sands
73 Westermost Rough



For Neart Na Goithe the focus is on Cabling Activities



Scope of Work

- **Engineering**:
  - This is being done internally
- **Procurement**:
  - Cable – 105 km of cable is being procured and fabricated by JDR Cables (Hartlepool, UK)
  - CPS – 120 CPS's are being procured and fabricated by First Subsea (Lancaster, UK – Parent Company in Aberdeen)

Scope of Work

- **Installation**
  - Vessels:
    - Cable Lay & Burial - CLV Living Stone
    - Walk-to-Work
    - CTV’s
    - PLGR/Survey?
  - Offshore Survey
  - Pre Lay Grapnel Run
  - Pull-Ins
  - Termination & Testing

Supply/Subcontract Opportunities

- **Supply:**
  - Accommodation
  - Port facilities
  - Offshore Personnel
  - Offshore Surveyors
  - Marketing/Production
  - Safety equipment & PPE
  - Training
  - Scaffolding
  - Metocean data
  - Local Procurement
  - CTV's
  - Survey Vessels

Supply/Subcontract Opportunities

- **Subcontract:**
  - Offshore Survey
  - Pre Lay Grapnel Run
  - Pull-Ins
  - Termination & Testing
  - Offshore coordination

MISSION STATEMENT

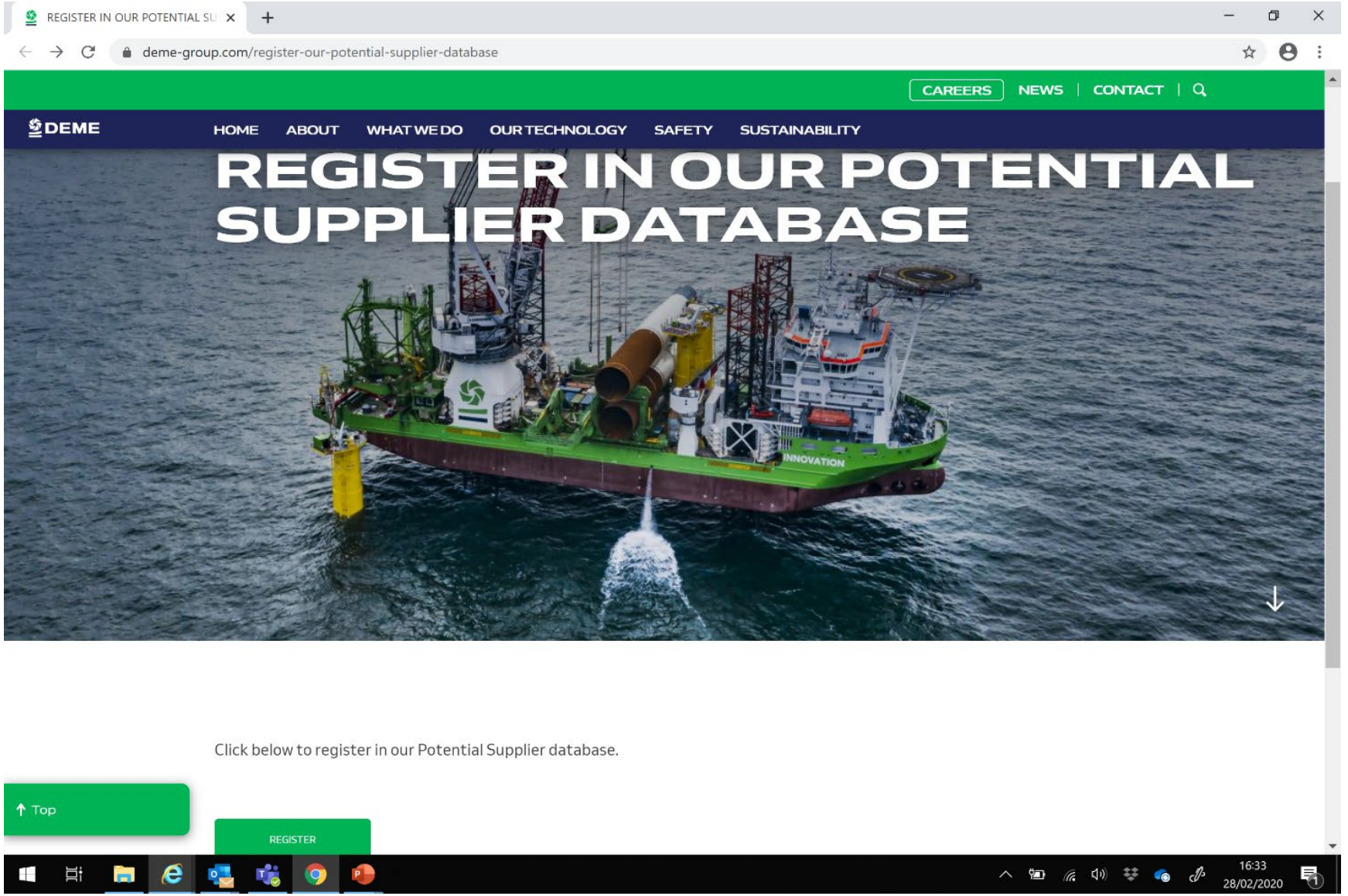
Ensure goods and services are procured against the appropriate price and desired quality, delivered at the right spot, on time and compliant with DEME's QHSES policy.

Act as DEME OFFSHORE's internal consultant to answer all questions related to ports, transport means, logistics, procurement of goods and services.

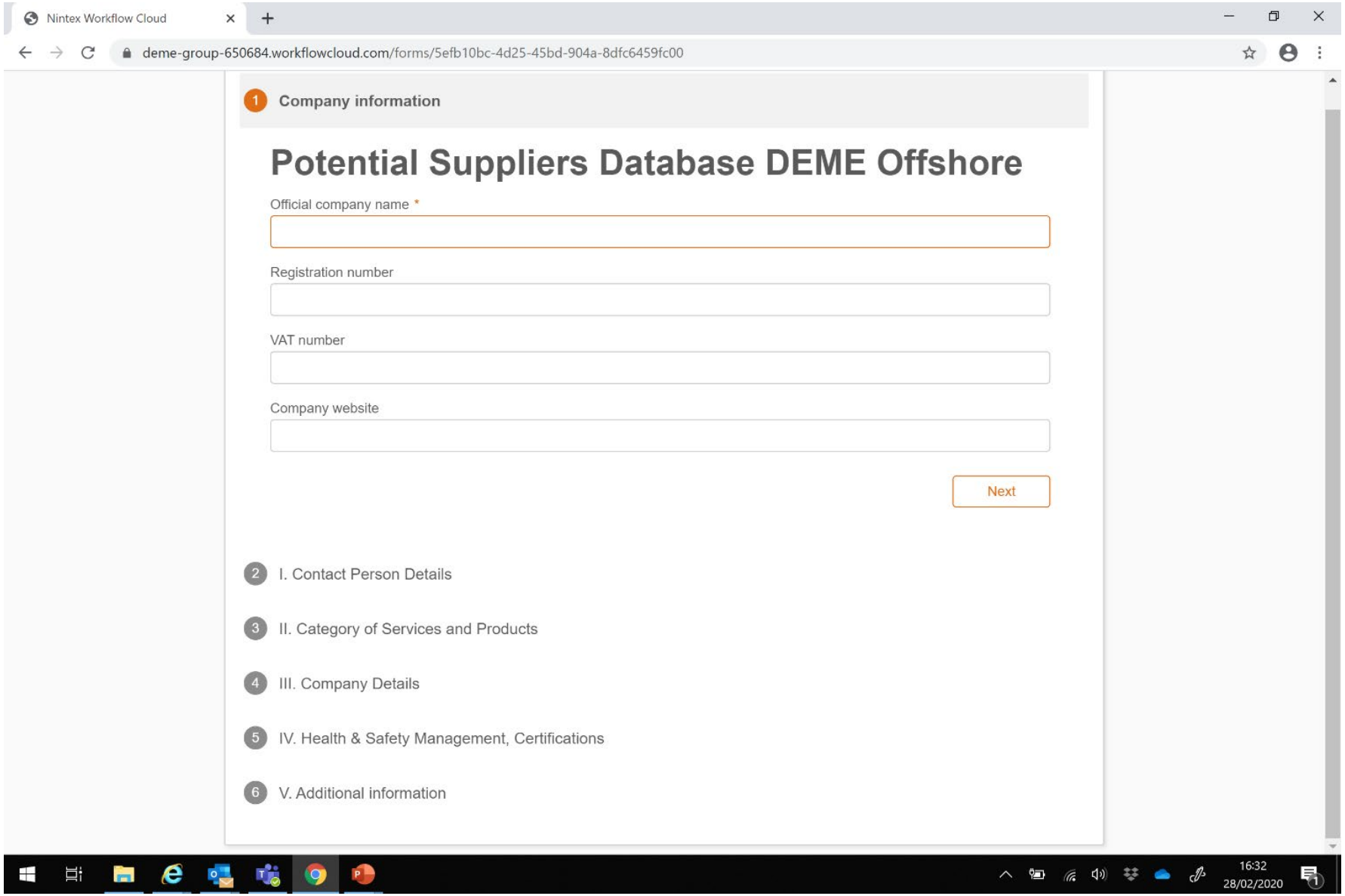
LINK

www.demeoffshoresupplychain.com

LINK


REGISTER IN OUR POTENTIAL SU
deme-group.com/register-our-potential-supplier-database
CAREERS
NEWS
CONTACT
DEME
HOME
ABOUT
WHAT WE DO
OUR TECHNOLOGY
SAFETY
SUSTAINABILITY
REGISTER IN OUR POTENTIAL SUPPLIER DATABASE
INNOVATION
Click below to register in our Potential Supplier database.
Top
REGISTER
16:33
28/02/2020

LINK


Nintex Workflow Cloud
deme-group-650684.workflowcloud.com/forms/5efb10bc-4d25-45bd-904a-8dfc6459fc00
1 Company information
Potential Suppliers Database DEME Offshore
Official company name *
Registration number
VAT number
Company website
Next
2 I. Contact Person Details
3 II. Category of Services and Products
4 III. Company Details
5 IV. Health & Safety Management, Certifications
6 V. Additional information
16:32
28/02/2020

Questions

Questions....

Electrical Balance of Plant - Cables	10:35 - 10:50	**Cable Installaton Package**
	Who:	Colin Smith, DEME Offshore (Tideway), Project Manager
	10:50 - 10:55	**Cables Q&A (Slido - pre-submitted and interactive questions)**
	Who:	David Sweenie, Facilitating Change

A wee break….?

Please be back at 11:15 for Part II

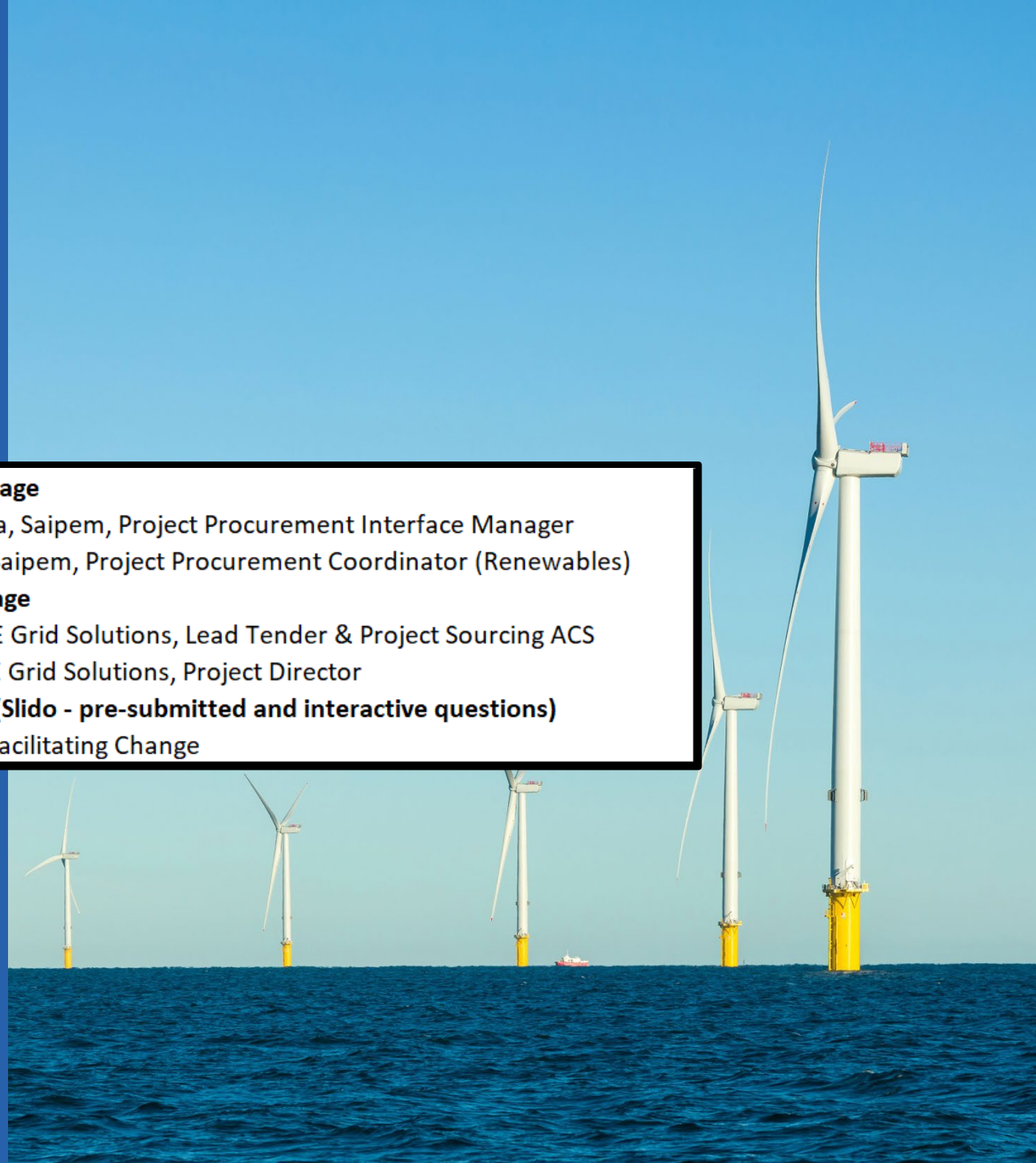
* Please speak to Tori during the break to organise 1-2-1 meetings with (i) NnG Procurement (ii) NnG O&M Team

NnG OFFSHORE WIND

EDF renewables | ESB Energy for generations

In depth: Foundations & Substations

Foundations & Electrical Balance of Plant - Structures	11:15 - 11:30	**Foundation Package**
	Who:	Vincenzo De Rosa, Saipem, Project Procurement Interface Manager
		Claire Sternfalt, Saipem, Project Procurement Coordinator (Renewables)
	11:30 - 11:45	**Substation Package**
	Who:	Adrian Carter, GE Grid Solutions, Lead Tender & Project Sourcing ACS
		Martin Oliver, GE Grid Solutions, Project Director
	11:45 - 11:50	**Structures Q&A (Slido - pre-submitted and interactive questions)**
	Who:	David Sweenie, Facilitating Change



NnG Offshore Wind Farm Project

“Meet the Buyer” Events

Scotland, 02nd - 05th March 2020

KEY FIGURES – Saipem Group

Saipem is a leading company in engineering, drilling and construction of major projects in the energy and infrastructure sectors. It is organized in five business divisions (Offshore E&C, Onshore E&C, Offshore Drilling, Onshore Drilling and XSight, dedicated to conceptual design). Saipem is a global solution provider with distinctive skills and competences and high-tech assets, which it uses to identify solutions aimed at satisfying customer requirements. Listed on the Milan Stock Exchange, it is present in over 60 countries worldwide and has 32 thousand employees of 120 different nationalities.

€8.5bln

REVENUES 2018

€8.8bln

NEW CONTRACTS 2018

€485mln

INVESTMENTS 2018

32,000

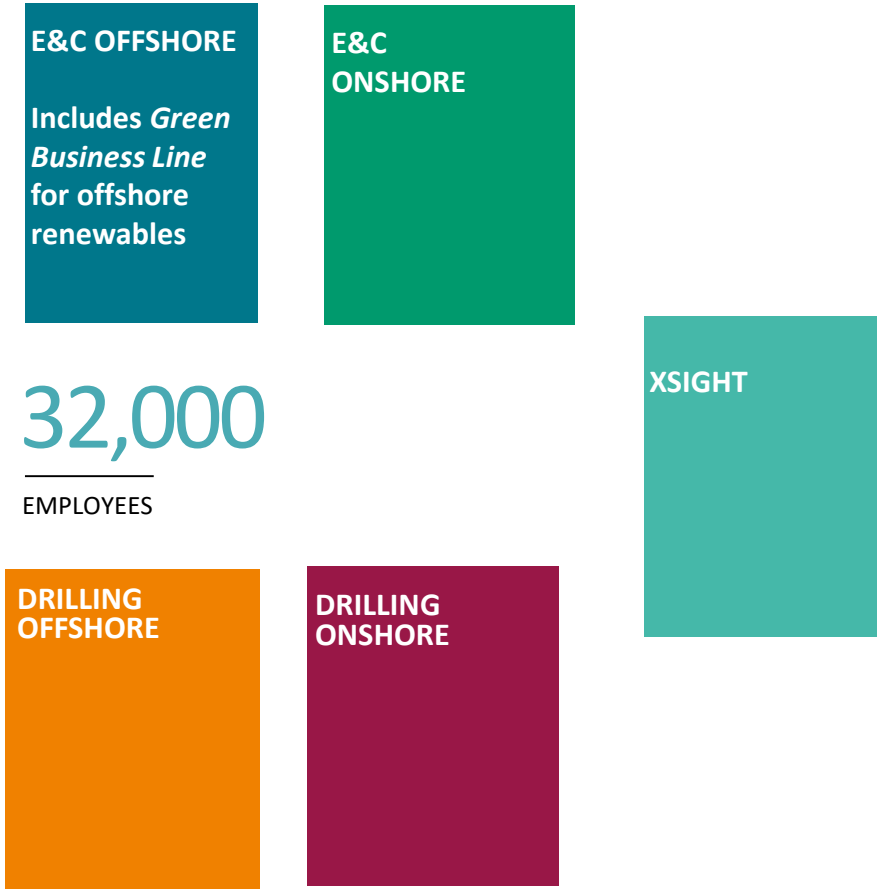
EMPLOYEES

72

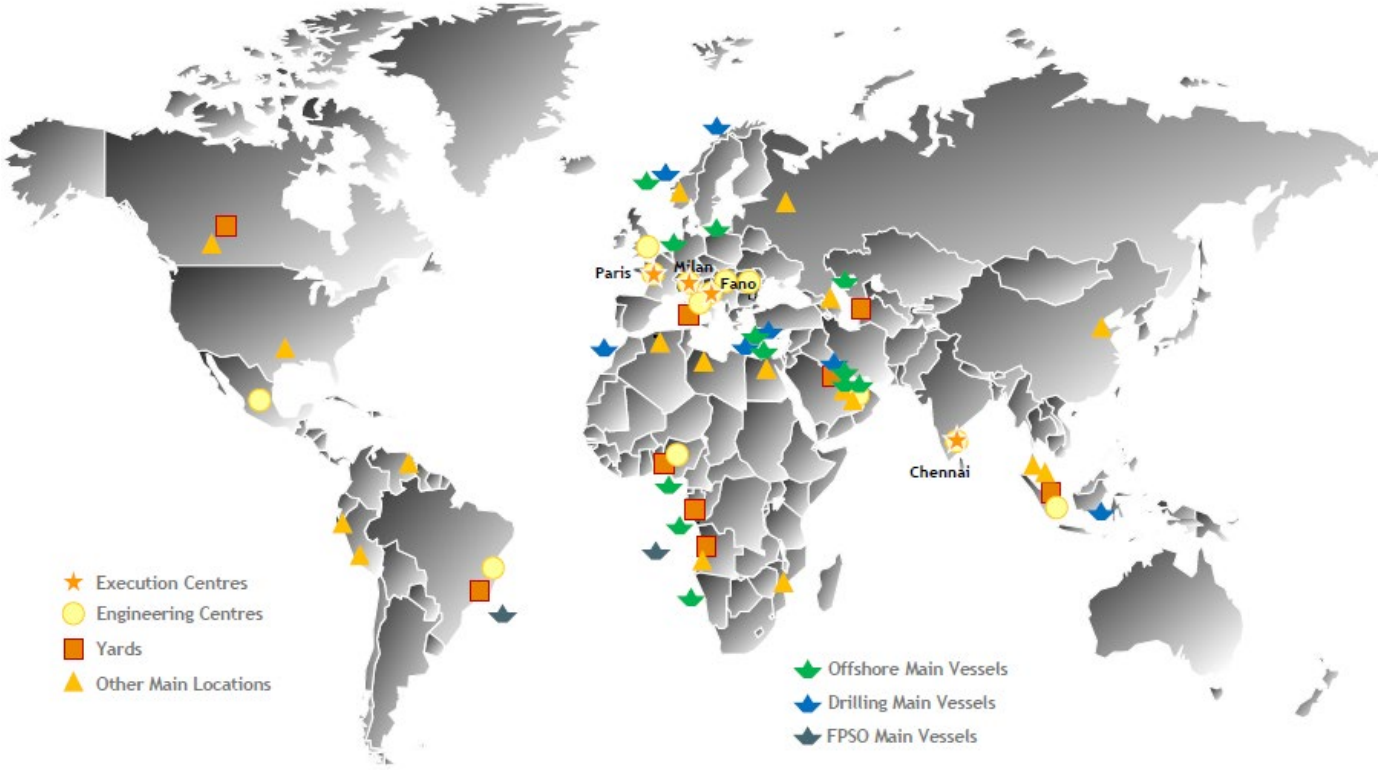
COUNTRIES IN WHICH WE OPERATE

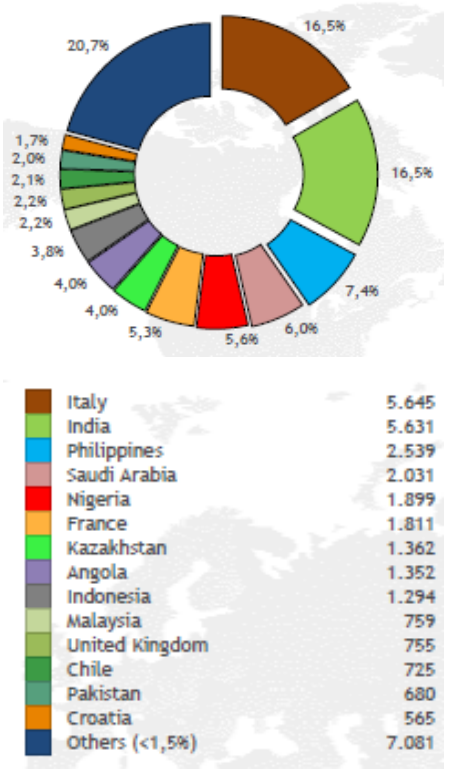
9

FABRICATION YARDS



Saipem's presence in the world





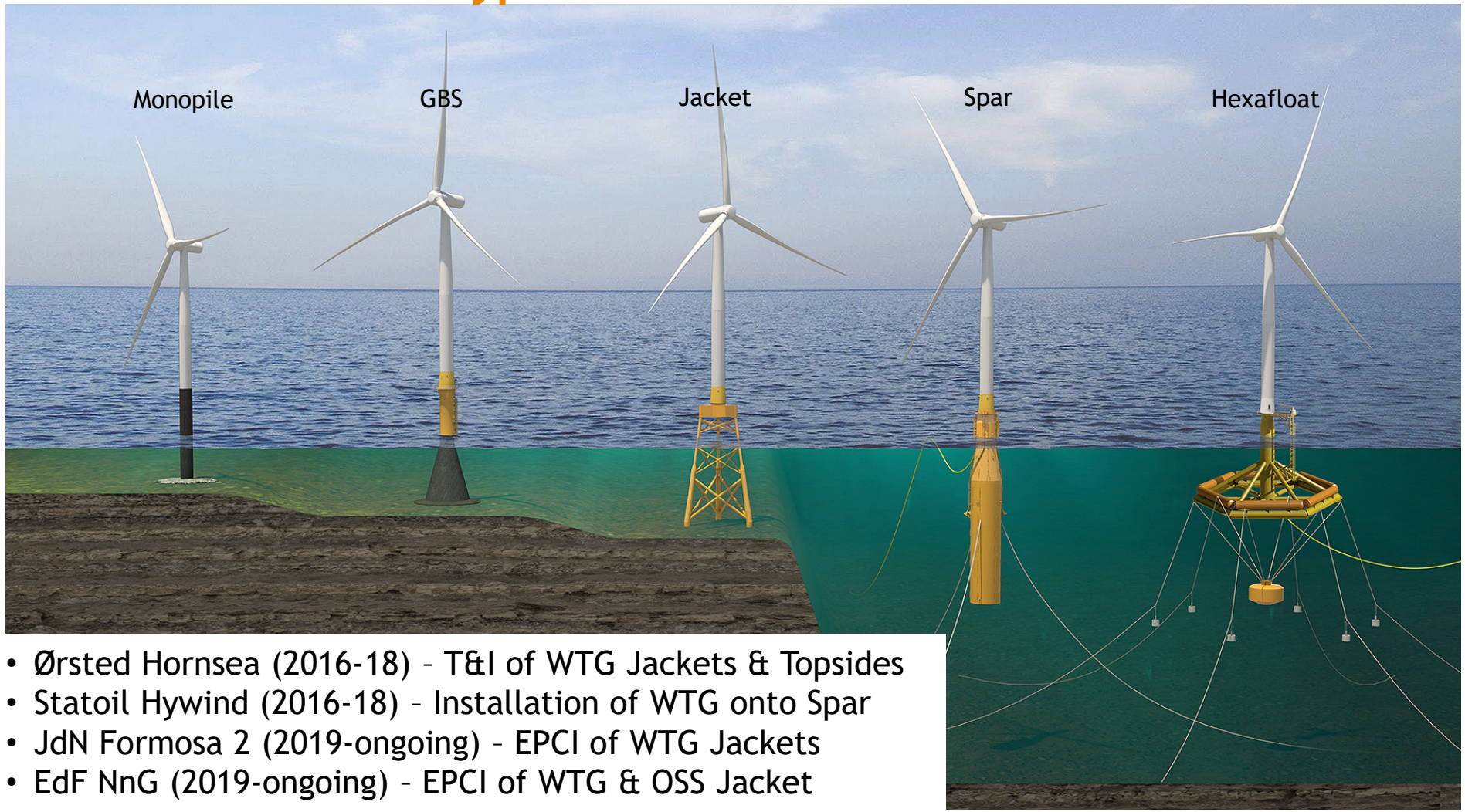
E&C OFFSHORE

Geographical Areas

- Europe & Africa – HQ in Paris
- Americas – HQ in Houston
- Middle East & Eurasia – HQ in Baku
- Asia Pacific – HQ in Kuala Lumpur

Saipem's Offshore Renewables Track Record

WTG foundation types



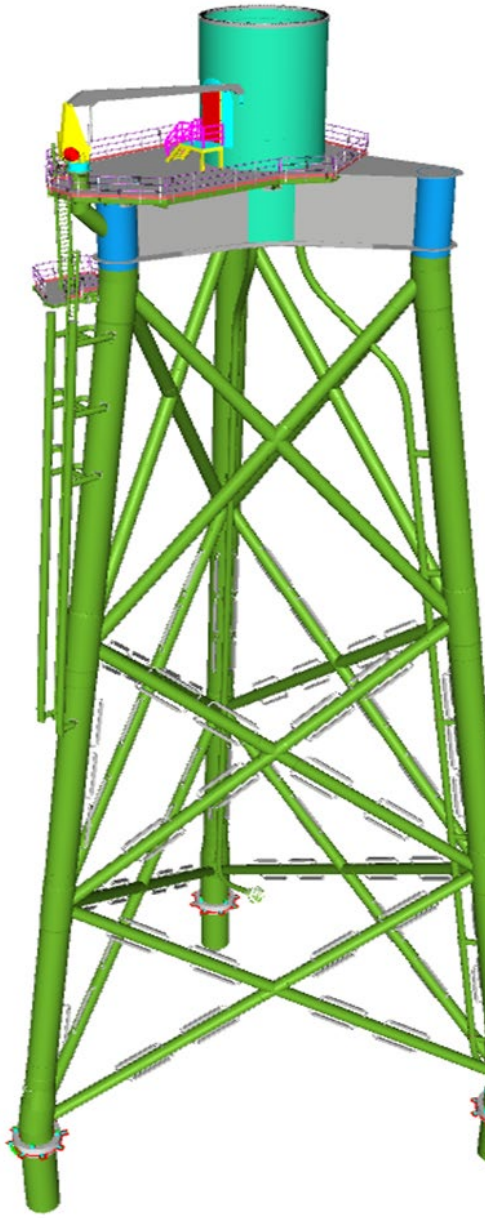
- Ørsted Hornsea (2016-18) – T&I of WTG Jackets & Topsides
- Statoil Hywind (2016-18) – Installation of WTG onto Spar
- JdN Formosa 2 (2019-ongoing) – EPCI of WTG Jackets
- EdF NnG (2019-ongoing) – EPCI of WTG & OSS Jacket

NnG – Scope of Work

Employer: - NnG Offshore Wind Limited (Employer)
Project: - NnG Offshore Wind Farm
- 450MW development located off Fife

Scope: - Engineer – Procure – Construct – Install the following:

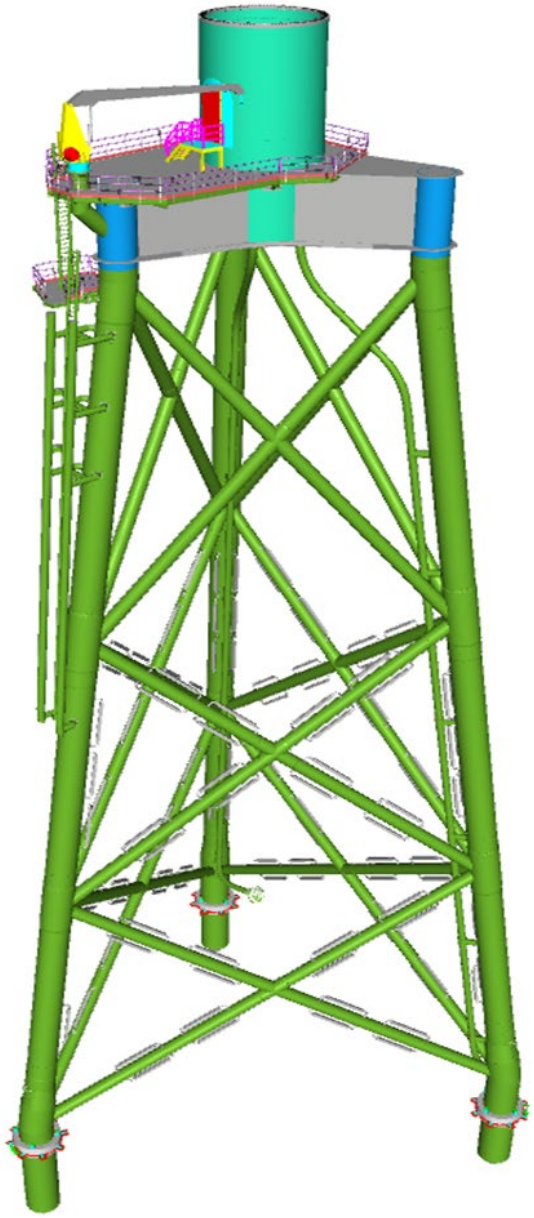
- 54 No. three legged WTG foundation jackets. (8 no. to be fabricated, fitted, tested and loaded-out at BiFab Methil)
- 2 No. three legged OSS foundation jackets
- 162 No. Piles (WTG foundation)
- 6 no. Piles (OSSP foundation)
- T&I of 2 No. OSS topsides



NnG Packages to be Tendered as of 28-Feb-2020

- For 2020 & 2021 installation campaigns (Sacrificial Casings, Piles, Jackets):
  - Logistics Support Base
  - Marine Agency Services
  - Platform Supply Vessel
  - Jacket Grouting
  - Assists tugs for lifting Jackets offshore

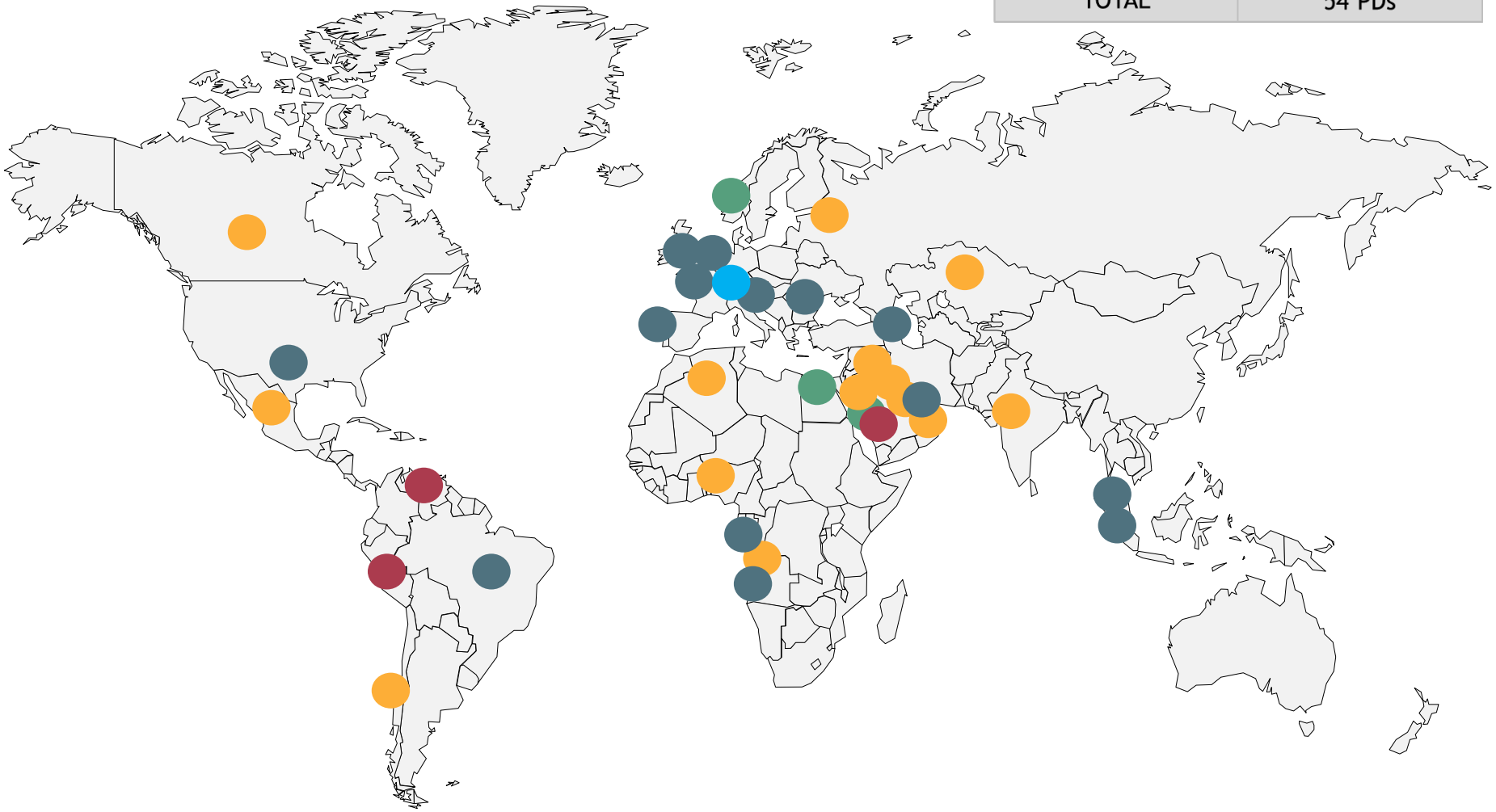
- Cargo Barges, Tow Tugs & Assist Tugs for transport of 8 no. Jackets from Methil
- Davit Cranes for OSS Jackets
- Structural Bolts Studs & Nuts
- Pile/Casing centralization system
- Fire Fighting Equipment
- Neoprene diaphragms for Pile grouting



SUPPLY CHAIN

SAIPEM WORLDWIDE BY DIVISION

OFFSHORE E&C	21 PDs
ONSHORE E&C	20 PDs
OFFSHORE DRILLING	4 PDs
ONSHORE DRILLING	4 PDs
XSIGHT	1 PD
SERVICE CENTER	4 PDs
TOTAL	54 PDs



E&C Offshore Supply Chain Process

Vendor Management: Processes

Vendor Qualification

Request of Qualification (PWS)

- Vendor Self Presentation
- Strategic Sourcing Market Intelligence
- Internal Vendor Qualification request

First approach to Saipem and collection of interest to set up business

Qualification Assignment

- Level of criticality
- Vendor type
- Corporate/local
- Limited / unlimited in amount

Identification of the right qualification process to be adopted

Qualification Process

- Financial & Reputational evaluation
- Technical evaluation
- Document evaluation
- Social Responsibility
- Visit ,Audit & HSE evaluation

CC highly critical

A multidisciplinary team assesses the key qualification areas and the specific criticalities

Vendor Feedback

Performance Validation

- Phase Evaluation: Procurement, Engineering, Expediting, Execution, Assistance at site
- Area Evaluation: Punctuality, Behaviour, Quality

Awareness on potential risks and benefits. Take the appropriate actions on qualification status

VERC MODULE

Check points

1.Qualification and General Data

- Qualification status
- Registration Country
- Holding Company or part of a Group
- Main Activities Recorded
- Consistency with Scope of Work

2.Operative And Financial Data

- Company Capital
- Net Asset
- Turnover
- Number of employees
- Net Asset, Turnover and Organization consistency with SoW
- Level of financial index/failure risk: Financial Rating

3.Ownership Structure

- Shareholding clear and attributable to operating companies and / or individuals
- Presence of trust companies / or companies with hidden / unclear control chain
- Presence of bearer shares

4.Company Key Representatives Check

- Presence of Politically Exposed Person and/or members of the Company with alleged involvements directly / indirectly in any offence (Open-source check, Terrorist List check, PEP & PIL check)
- Presence of related parties of Saipem (to PO only)

- **GREEN VERC:** no criticality highlighted. Approved by VEMI/PD Manager in PWS.
- **YELLOW VERC:** some criticalities have been detected (severe financial warnings, corruptions, illicits) verified by PROCPO VEMI and BINT. Approved by PROCPO/PD Manager in PWS and by HoPaPO/Project Manager (offline).
- **RED VERC:** severe criticalities detected. Escalation FORM-COR-PRO-049-E approved by Senior Top Management required in order to release the VERC.

SAIPEM

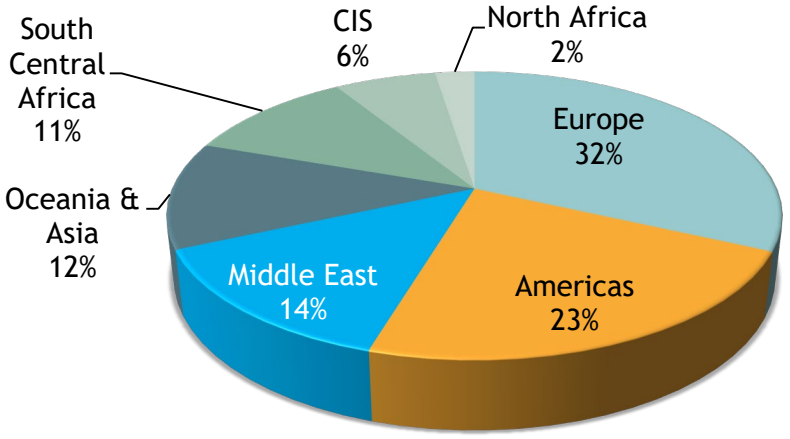
E&C Offshore Supply Chain Process

Vendor Management: main figures

Vendor Management Organization

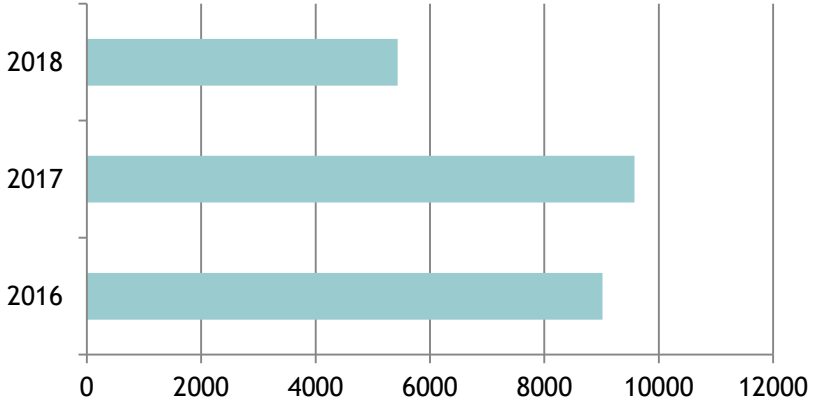
- 2 main centers (Chennai and San Donato Milanese)
- # 7 Vendor Qualification Auditors
- # 17 Vendor Qualification Specialists
- # 6 Vendor Performance & Feedback Specialists

24.753 Vendors Active*

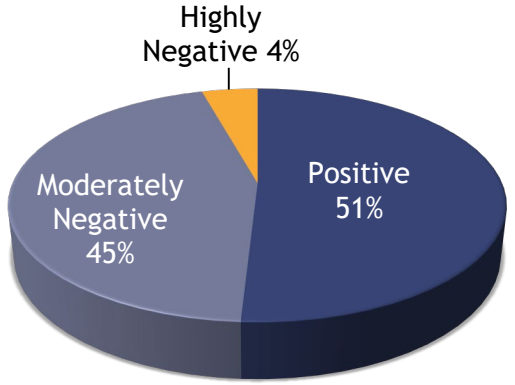


* additional 7.738 Vendors Active only for Scouting

Qualification processes (2016- 2018)



Feedbacks on 3969 Vendors



Thank You!

SAIPEM

EDF renewables

Meet the Buyer

2nd to 5thth March 2020

Agenda:

1. GE Grid solutions intro
2. NNG Scope
3. GE Qualification process

The Digital Industrial Company

Focusing portfolio for growth & shareholder value creation

(2018 revenue)

Aviation

$31B

Renewable Energy

$15B

Power

$27B

Healthcare

$20B

Power
Equipping 90% of transmission utilities worldwide
7,000+ gas turbines + nearly 6,000 coal and nuclear steam turbines

Renewable Energy
Installed 400+ GW capacity globally
40,000+ onshore wind turbines

Aviation
Powering two-thirds of commercial aircraft departures*
~70,000 aircraft engines

Healthcare
Providing 16,000+ scans every minute
4 million+ healthcare installations

Digital + Capital + Research + Global Growth + Additive

GE holds a stake in:

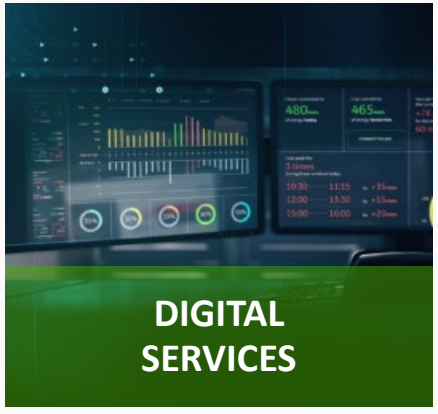
Baker Hughes, a GE Company
Pursuing an orderly separation from BHGE, the world's first and only fullstream oil & gas company, to maximize value for both companies

Wabtec
Combined GE Transportation with Wabtec, creating a global leader for rail equipment, services, and software

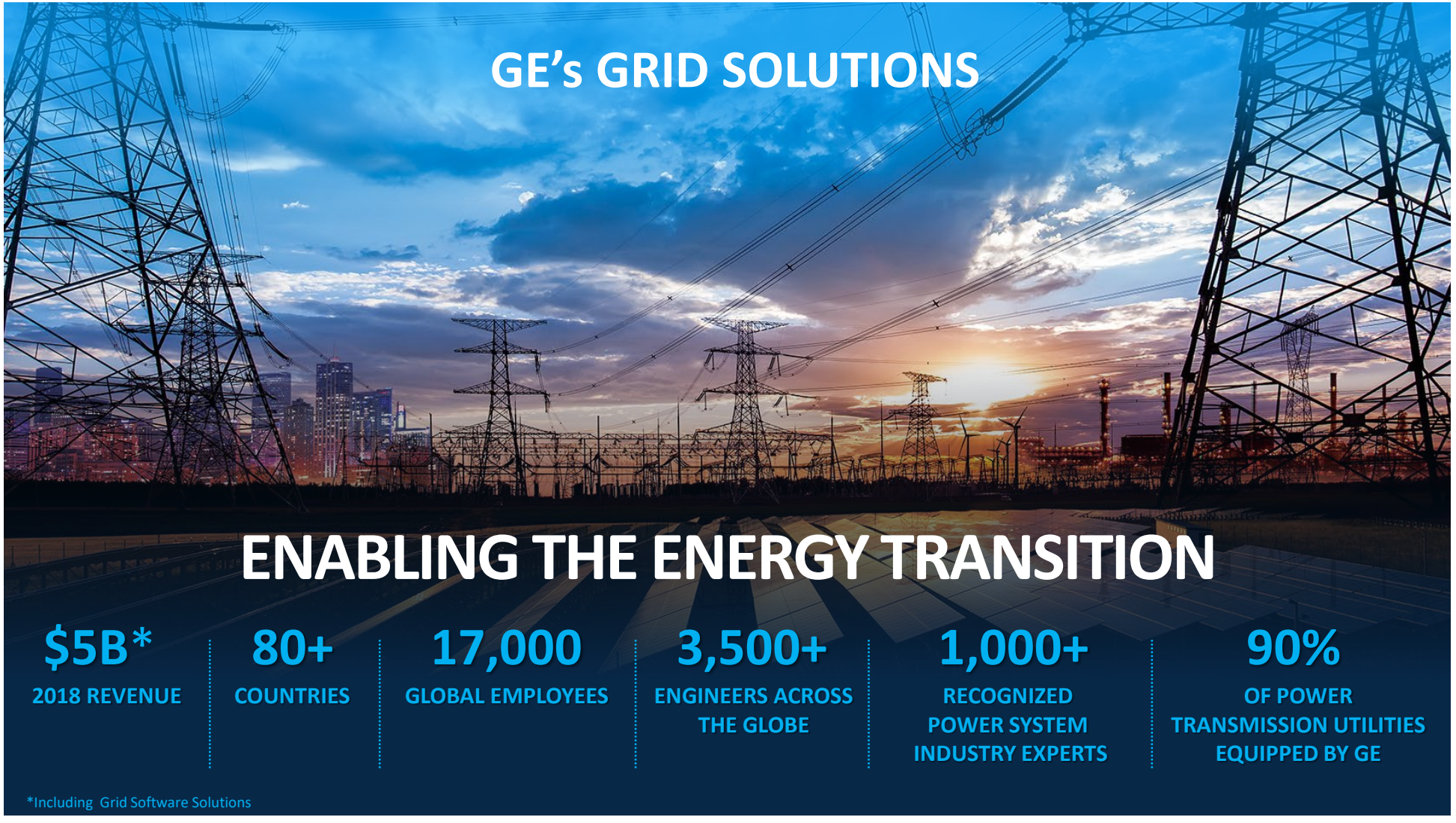
*Including CFM International, a 50-50 joint venture between Snecma (Safran) and GE.

GE Renewable Energy Today

$15B revenue • 40,000 employees

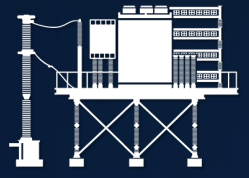


Broadest portfolio in the industry gives us scale, scope and capability to fulfill our mission


GE's GRID SOLUTIONS
ENABLING THE ENERGY TRANSITION
$5B*
2018 REVENUE
80+
COUNTRIES
17,000
GLOBAL EMPLOYEES
3,500+
ENGINEERS ACROSS THE GLOBE
1,000+
RECOGNIZED POWER SYSTEM INDUSTRY EXPERTS
90%
OF POWER TRANSMISSION UTILITIES EQUIPPED BY GE
*Including Grid Software Solutions

PRODUCTS AND SERVICES FOR THE GRID

COMPREHENSIVE PORTFOLIO OF INNOVATIVE PRODUCTS, ADVANCED **DIGITAL SOLUTIONS** & TECHNICAL **EXPERTISE**



Power Electronics

High Voltage DC
Flexible AC Transmission Systems
Industrial DC Substations

High Voltage Equipment

Transformers
Gas Insulated Substations
Air Insulated Substations
Capacitors & Reactors

Automation & Protection

Protection & Control
Substation Automation
Communications
Digital Substations

Asset Management

Remote Monitoring & Diagnostics
Modeling & Analytics
Fleet Management
Oil Lab and Analysis

Projects

Turnkey Projects & Consulting
Electrical Balance of Plant
High Voltage Substations
Microgrids

Services

Asset Lifecycle Management
Maintenance & Repair
Upgrade & Modernization
Training

Energy Management

Energy & Market Management
Distribution & Outage Management

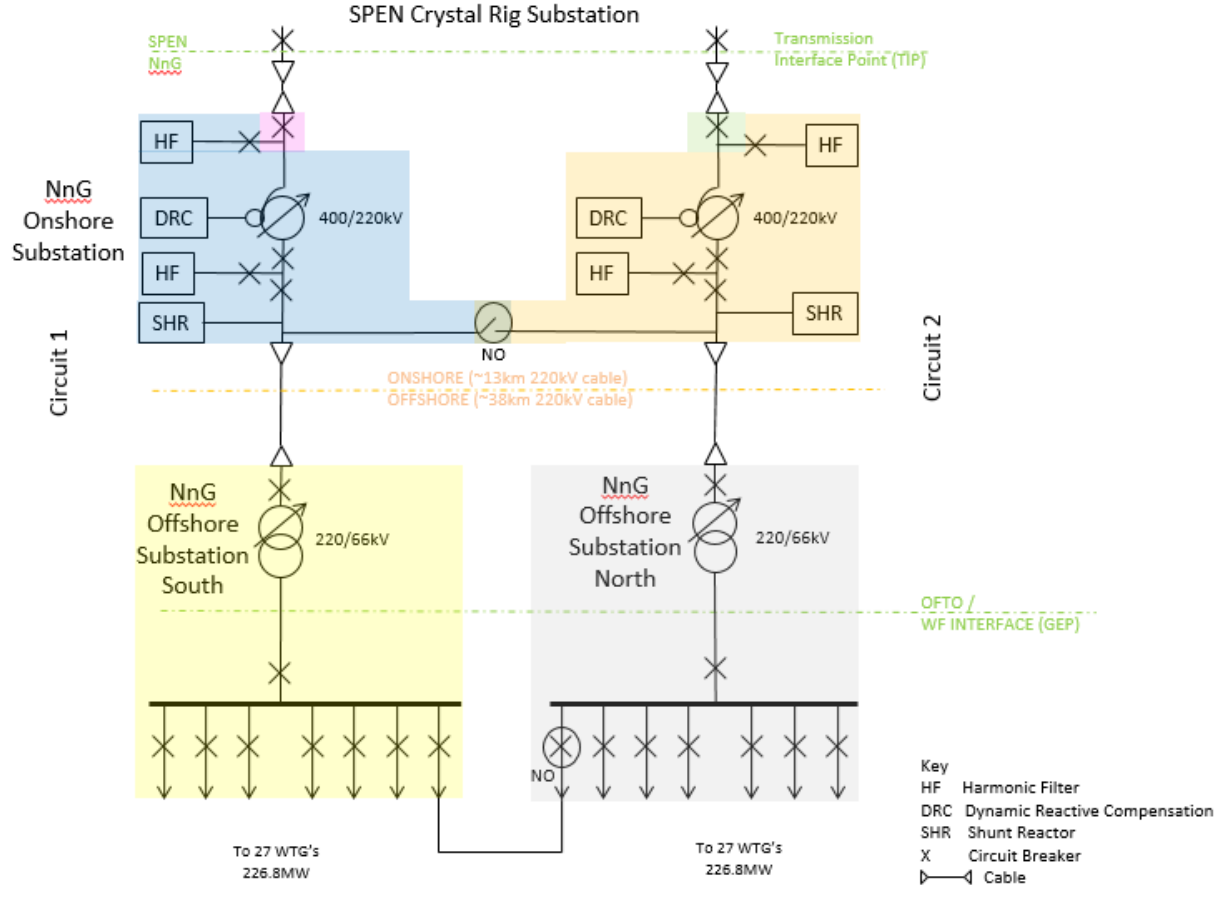
GE Digital

Grid Software

Grid Operations
Digital Workforce
Geospatial Solutions
Network Level Optimization

2. NNG Scope

GE Scope (1 x Onshore Substation + 2 x Offshore Substations)



GE Scope (1 x Onshore Substation + 2 x Offshore Substations)

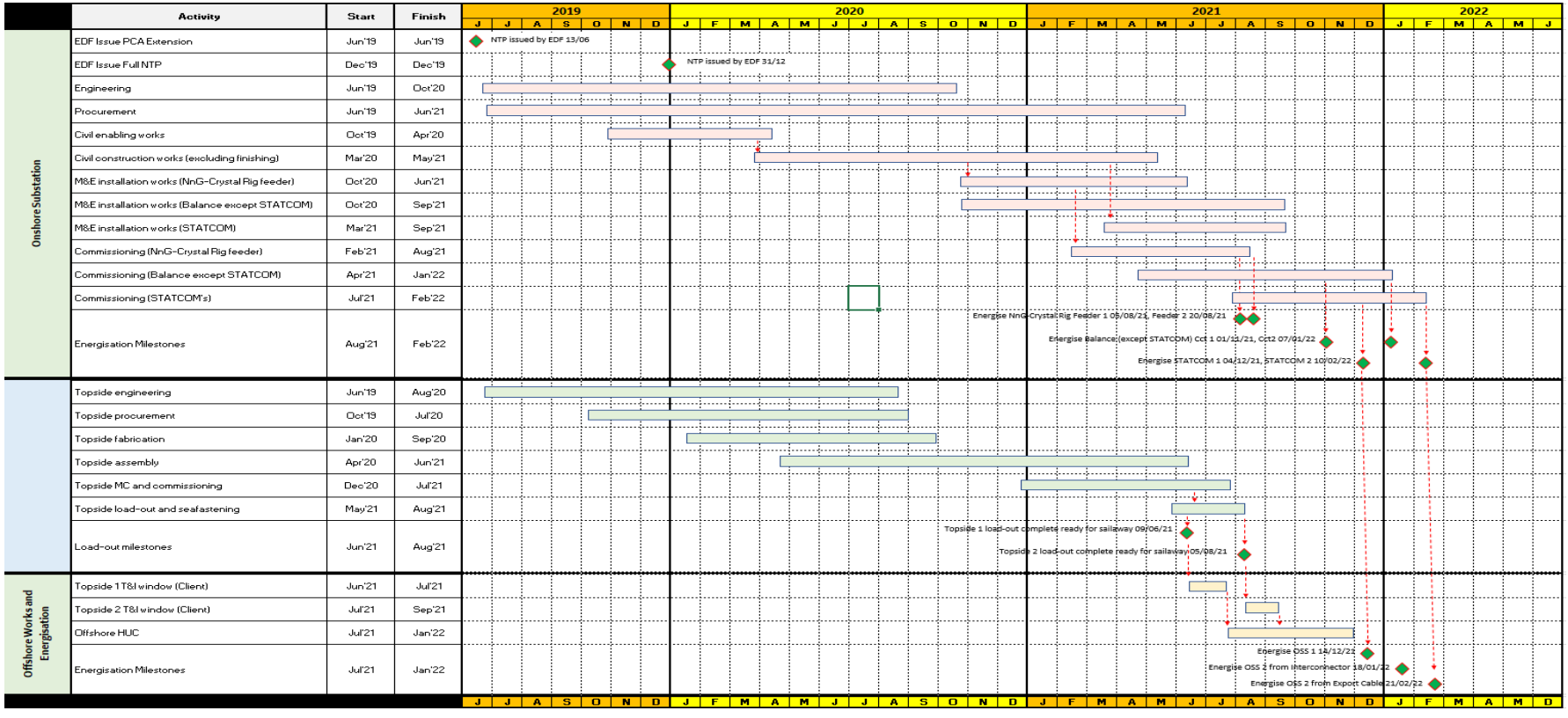
400/220KV
Onshore Substation

I H Brown awarded the civil works contract

220/66KV
Offshore Substation

HSM awarded the platform contract

Project NNG (Offshore / Onshore Turnkey) Timescales



Project NNG (Offshore / Onshore Turnkey)
General Scope

Onshore - Scope	Supplier
2x 400 KV GIS bays	GIS
2x 400kV harmonic filter (capacitor, reactors: GE PQP Resistor: Cressall, IT: Arteche)	
2x 260 MVA 400/220/33/11KV grid auto transformer	ATT
2x Statcom (99MVAr cap, - 170MVAr ind, hybrid, tertiary connected	PET
2x 220kV Shunt reactors 100..145MVAr tapped	ATT
2x 220kV harmonic filter	See 400kV
2x 220 KV GIS	BHT
220kV onshore cable within substation	
2x 220KV AIS bays	AHT / CME
Protection and control	GA
Auxiliaries	3rd party
Civil works	IH Brown
Installation / Commissioning	tbd

Offshore - Scope	Supplier
2x 220kV GIS	BHT
2x 225MVA 220/66kV offshore trafo	ATT
2x 66kV GIS	BHT/SEH
HV cable between GE HV components	
Protection & Control	GA
Auxiliaries	IV/HSM
Topside	IV/HSM

Works by others

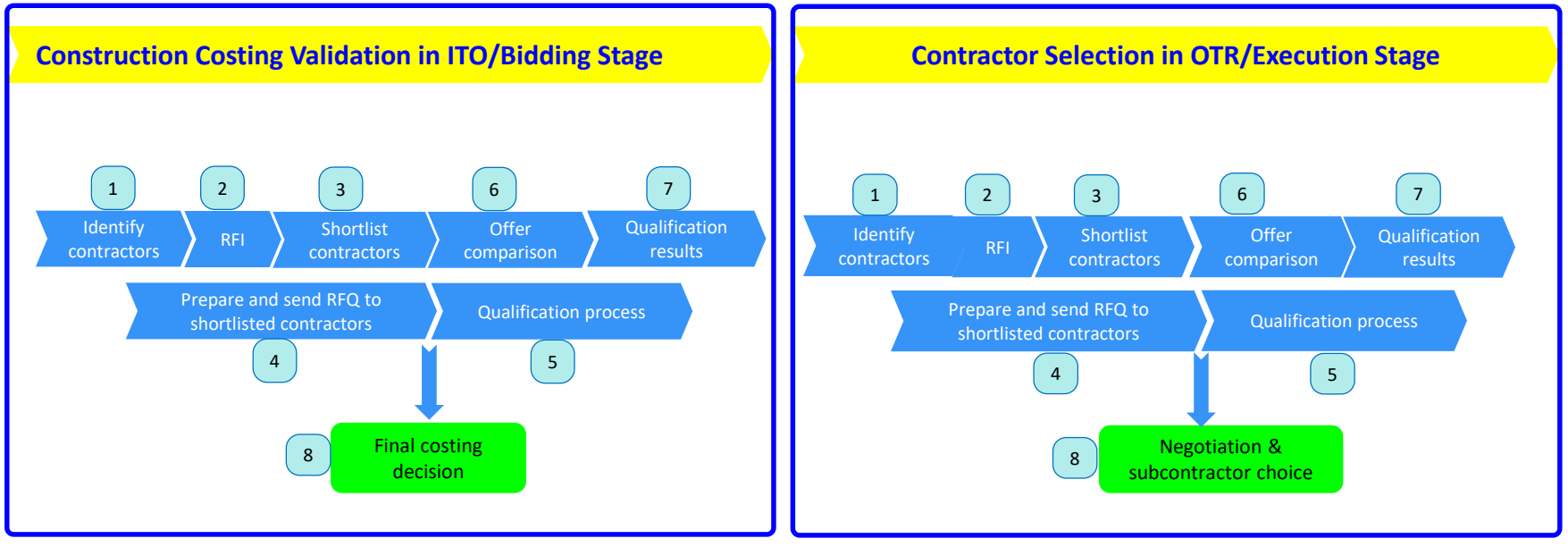
- Array cables
- 220kV offshore and onshore cables
- 400kV onshore cables to SP substation Crystal Rig
- Jacket / cable deck
- Transport & Installation

Project NNG (Offshore / Onshore Turnkey) Supply/Service Opportunities

- Taxi's to/from the site.
- Buses to work area from site car park.
- Cleaners for cabins (part time).
- Catering supplies for meetings etc.
- Small steel manufacture for supporting equipment kiosks, interlock boxes etc.
- Equipment labels supplier.
- Procurement services for site facilities (e.g. paper, pens, paper towels etc).
- Security guards and security cameras.
- Transport for small equipment.
- Boat transport from dock to platform.
- Installation Contractor.
- Procurement services for small equipment (nuts, bolts etc).
- There may be further opportunities through I H Brown (drainage, roads, building services, fencing).

3. GE Qualification Process

GE Civil Contractor Selection Process



Qualification Process/supplier onboarding

- EHS: internal checks + comply works platform
- Financial: rapid ratings, external check
- Compliance: background check (internal team)
- Audit: Supplier Quality Assurance Team
  - Visit
  - Audit/assessment

GE Sourcing Contact

Adrian Carter

Lead Tender & Project Sourcing Coordinator

UK Direct Sourcing

UK Grid Solutions

T +44(0)1785 786581

M +44(0)7748 147747

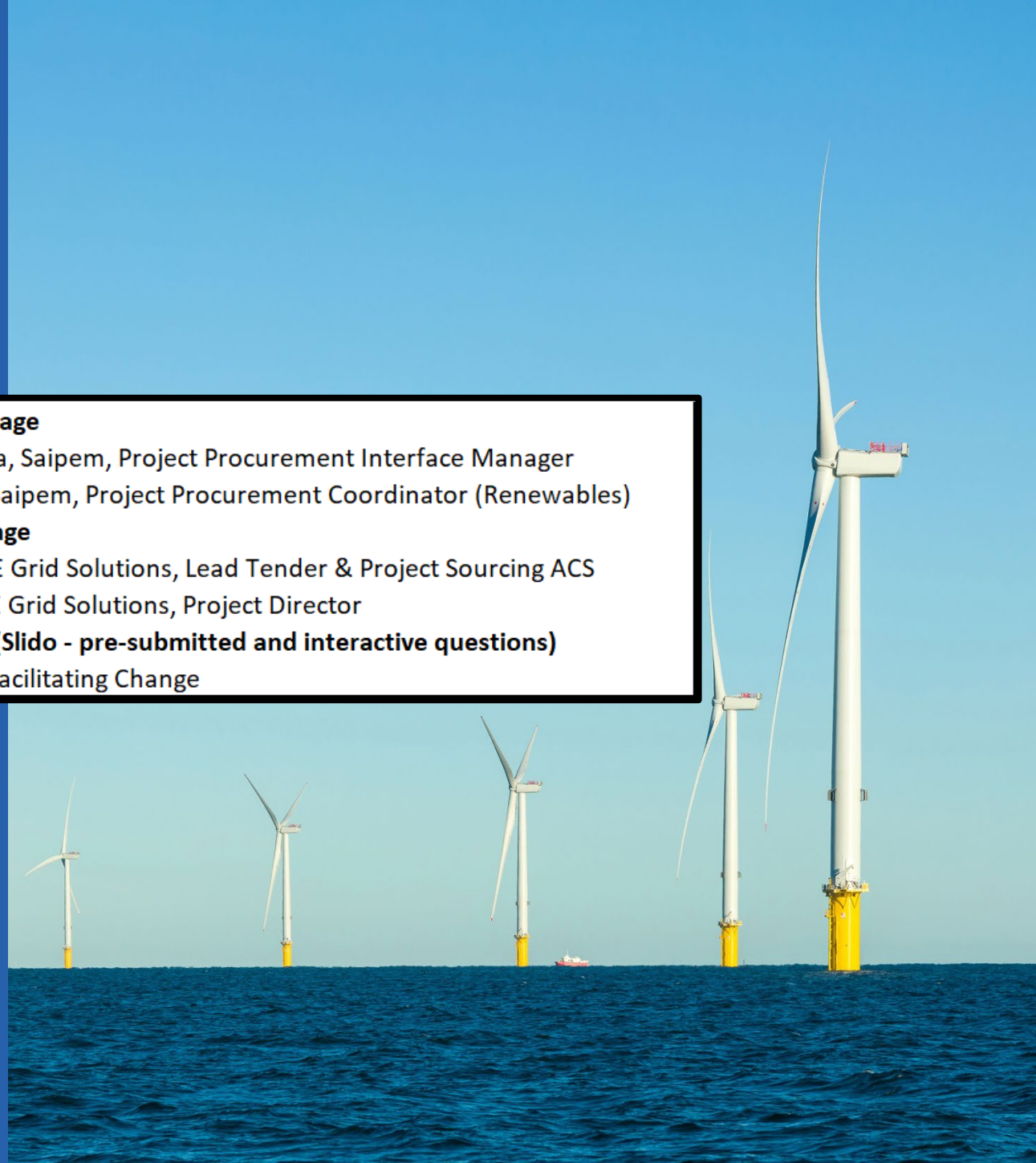
adrian.carter@ge.com

www.gegridsolutions.com

The Lord Nelson Building, Redhill Business Park, William Bagnall Drive, Stafford ST16 1WT United Kingdom.

Questions....

Foundations & Electrical Balance of Plant - Structures	11:15 - 11:30	**Foundation Package**
	Who:	Vincenzo De Rosa, Saipem, Project Procurement Interface Manager
		Claire Sternfalt, Saipem, Project Procurement Coordinator (Renewables)
	11:30 - 11:45	**Substation Package**
	Who:	Adrian Carter, GE Grid Solutions, Lead Tender & Project Sourcing ACS
		Martin Oliver, GE Grid Solutions, Project Director
	11:45 - 11:50	**Structures Q&A (Slido - pre-submitted and interactive questions)**
	Who:	David Sweenie, Facilitating Change



NnG OFFSHORE WIND

EDF renewables ESB Energy for generations

In depth: NnG Procurement requirements

Developer / Project	11:50 - 12:05	**NnG Project Procurement Lookahead**
	Who:	Sioban Butler, NnG Procurement Manager

NnG project procurement lookahead

Sioban Butler, Procurement Manager

02 – 05 March 2020 - East Lothian, Fife, Dundee, Aberdeen

Introduction

Status of Procurement

Timeline

EDF Procurement Process

Status of Procurement – Where are we?

- Post Financial Close
- Procurement of Tier One Contractors has been completed
- Bulk of future procurement activity sits with the Tier One contractors
- NnG procurement will now focus on:

    Support during the Construction Phase

    Delivery of the O&M scopes

Support during Construction Phase

Services required during the Construction Phase will include:

- Quality Assurance Services
- Bird Monitoring
- Additional site surveys
- CTVs
- PPE
- FLOs
- Guard Vessels

Support during Construction Phase

Services required during the Construction Phase will include:

- Quality Assurance Services
- Bird Monitoring
- Additional site surveys
- CTVs
- PPE
- FLOs
- Guard Vessels

O&M Services

- Procurement of the O&M scopes of work will be a key focus for the department
- Wide range of services required - examples
- Bathymetric surveys
- Pontoon design and construction
- Onshore site investigation
- Electrical Balance of Plant Maintenance (OFTO & Non OFTO)
- O&M Building Maintenance
- Vessel Charter
- HV Safety Rules and SAP support

Timeline

- Procurement on the Construction Support – ongoing until 2022
- O&M Support:

  Procurement plan being developed

  Key activity is design and construction of the O&M Building and Pontoon – commence March 2020

  HV Safety Rules and SAP support – Q2 2020

  Additional support services Q2 2020 onwards

Procurement Process – Supply Chain Policy

- Procurement Activities on the Neart na Gaoithe Project are carried out in accordance with the EDF Supply Chain Policy
- All Supply Chain activities shall be conducted safely and ethically in a controlled and sustainable manner to deliver consistent quality outcomes that deliver best ‘through life’ value for EDF Energy, always consistent with our Ambitions and Values and in accordance with the associated Mandatory Practices
- All contracts and orders shall be placed with vendors that have been pre-qualified in line with defined criteria and registered on EDF Energy’s Vendor Master Database. Vendors shall maintain their compliance to these criteria through the duration of all contracts and orders.

Procurement Process – Supply Chain Policy

The Supply Chain Functions shall be compliant with all relevant legislation and regulations. In support of our Ambitions and Values:

• EDF Energy's Supply Chain shall be compliant with the 10 Principles of the United Nations Global Compact; and

• EDF Energy shall not tolerate any form of illegal activity (such as Modern Slavery, fraud, bribery or tax evasion) within its Supply Chain; and

• EDF Energy and its Supply Chain shall have appropriate defence mechanisms in place against the incorporation of non-conforming, counterfeit, suspect and fraudulent items in the Goods and Services supplied to EDF Energy; and

• EDF Energy shall seek to measure and reduce the environmental impact of its Supply Chain.

Procurement Process – HICX Registration

- NnG utilises the central EDF Energy Vendor database – HICX
- Database covers all EDF business streams
- Vendors can be approached for enquiry before they are registered on the database
- Will be required to complete questionnaires during the ITT phase as pre-qualification in addition to demonstrating capability to carry out the scope of work.
- Will still be required to register on the HICX database if successful


EDF
renewables
NnG
OFFSHORE
WIND

In depth: Scottish clusters

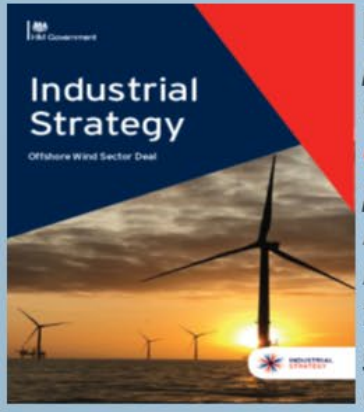
Supply Chain - Scottish Clusters	12:05 - 12:20	**Forth & Tay Offshore / Deepwind Cluster Overview**
	Who:	Alan Duncan (Scottish Offshore Wind Energy Council)
		Paul O'Brien (Deepwind Lead)

INDUSTRIAL STRATEGY CLUSTER

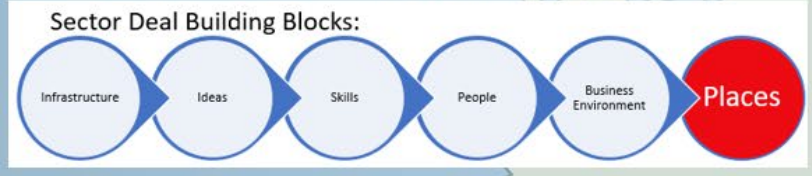
SOWEC
Scottish Offshore Wind Energy Council

Delivery partner for NnG Supply Chain Events
March 2020

The world's fastest growth region with a confirmed pipeline….



Places ~ *"The deal proposes capitalising on naturally existing* ***clusters*** *and providing sector leadership to create more opportunities for investment and growth in local economies."*



FORTH & TAY OFFSHORE

Kirkwall
Dounreay Tri
Beatrice
Beatrice Demo
Moray East
Moray West
Hywind
Kincardine
Aberdeen Bay (EOWDC)
Inch Cape
Seagreen 1
Seagreen 2
Seagreen 3
Neart Na Gaoithe
Inverness
Scotland
Aberdeen
Angus
Dundee City
Levenmouth Demonstration Turbine
Fife
Forthwind
East Lothian
Glasgow
Edinburgh
Scottish Borders
North Sea
Stavanger
N. Ireland
Belfast
England
Irish Sea
Newcastle
Blyth Offshore
Blyth Offshore Wind Demo
Teesside
Sofia Offshore
Dogger Bank Creyke Beck A
Dogger Bank Teesside A
Dogger Bank Creyke Beck B

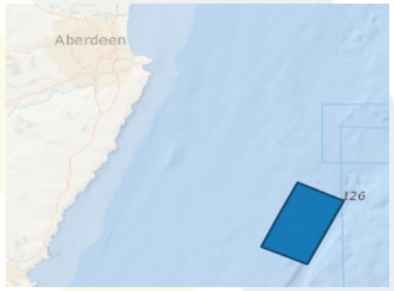
SDIC
EDF renewables
SSE

KEY
- Operational
- Under Construction
- Consented
- Planned

www.forthandtayoffshore.co.uk

Forth & Tay potential to 2030

FORTH & TAY OFFSHORE



Kincardine

Developer: KOWL

Capacity: 50MW (6 turbines)

Distance to shore: 15km

Status: Site prep / Component manufacturing / Post-FiD

Known contractors:

Turbine ~ MVOW (9.5MW)

Foundations ~ Navantia (Floating)

Array cables: Prysmian

Export cables: Prysmian

Forecast online: 2020

Neart na Gaoithe

Developer: EDF Renewables

Capacity: 450MW (54 turbines)

Distance to shore: 16km

Status: Site prep / Post-FiD

O&M Base: Eyemouth (CTV)

Forecast online: 2023

Known contractors:

Turbines ~ SGRE (8.0MW)

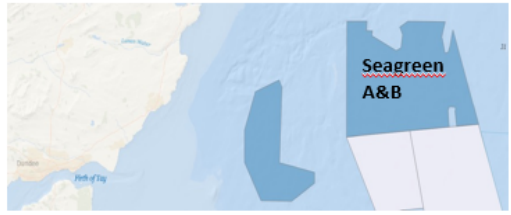
Foundations ~ Saipem (Jackets)

Cables ~ Prysmian

Substation – GE Grid

Turbine Installation ~ Fred Olsen

Cable Installation ~ DEME



Seagreen A&B

Developer: SSE

Capacity: 1075 of 1500MW (max 150 turbines) successful in 2019 CfD 3 auction

Distance to shore: 27km

Status: Site prep / Pre-FiD

O&M Base: Montrose (SOV)

Forecast online: 2023

Known contractors:

Turbines ~ MVOW (9.5MW)

Cables - Nexans

Substation – Petrofrac

In Construction

1.6GW by ’23 (11% of UK 14.1GW)

Consented Pre-Construction

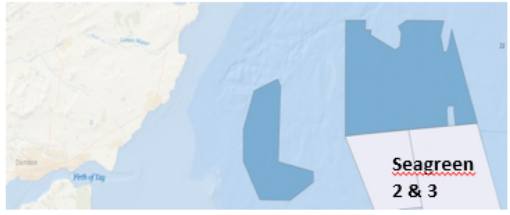
Inch Cape

Developer: Red Rock Power

Capacity: 784MW (to 1000MW))

Distance to shore: 15km

Status: Consented / Pre-CfD



Seagreen 2 & 3

Developer: SSE

Capacity: to 3250MW

Distance to shore: 15km

Status: Planning

With a pipeline of 10GW+ in Firths of Forth & Tay, 4-5GW by ‘30 is not unrealistic (to 20% of UK total)

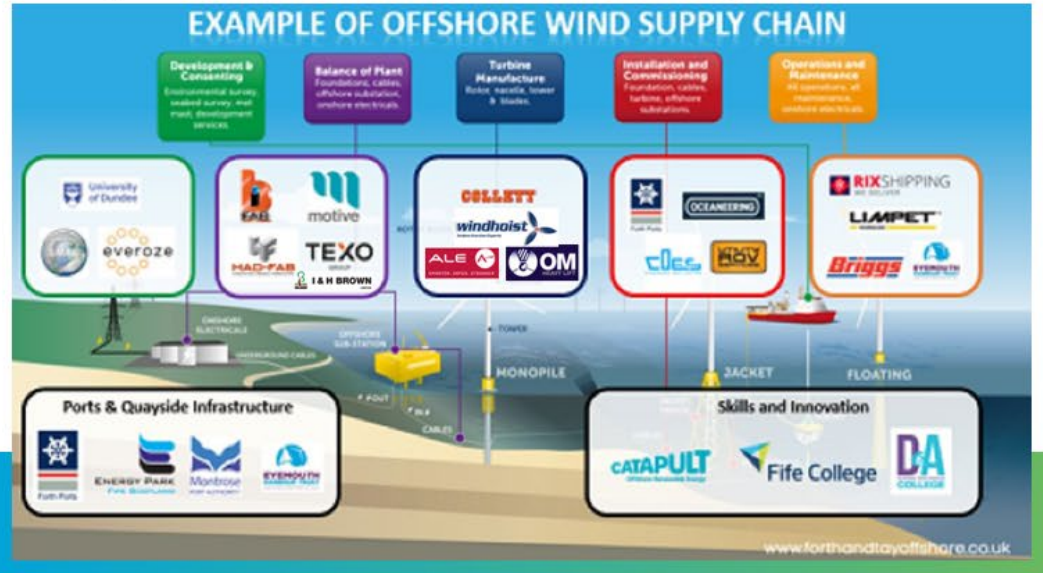
Why F&TO?

SOWEC
Scottish Offshore Wind Energy Council

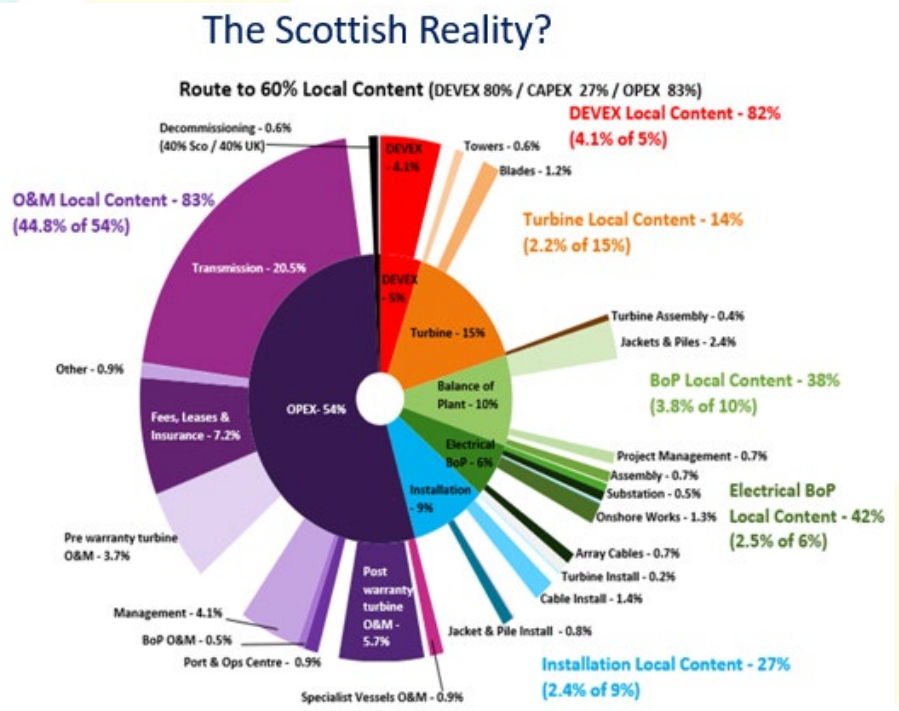
F&TO is a supply chain-led not-for-profit delivery workstream of the Scottish Offshore Wind Energy Council

Developers, Government, Enterprise Agencies, Local Authorities and Supply Chain are supporting the F&TO Cluster concept because:

- It provides a consolidated 'landing point' for overseas tier 1 contractors coming to the region
- It fosters collaboration and innovation by facilitating the identification of economies of scale
- It provides a mechanism for enabling local infrastructure investment
- It promotes an end-to-end lifecycle focus within the region:



The Scottish Reality?



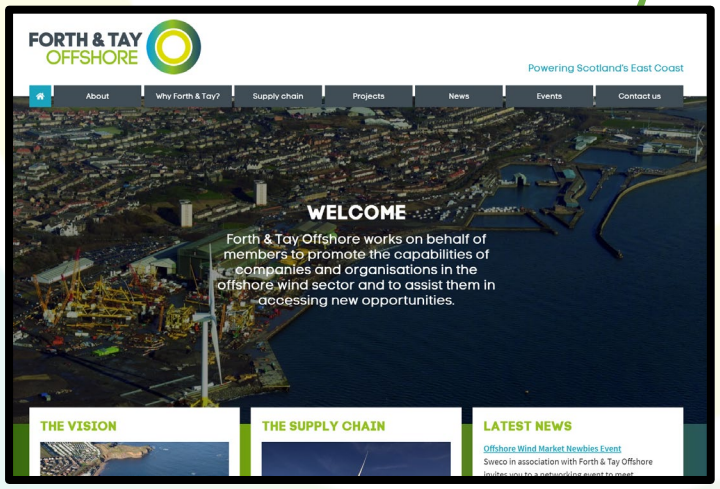
- Helping to develop local infrastructure business cases
- Providing sector news and routes to overseas markets
- Helping to shape regional skills and training initiatives
- Showcasing local companies and regional capabilities
- Facilitating buyer / seller interface
- Strategic targeting of inward investors
- Link to regional innovation and research entities
- Signposting to expert and funding support

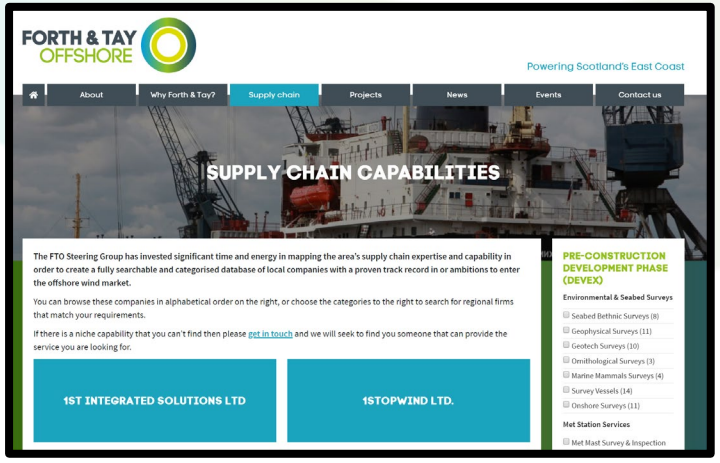
Powering ahead in 2020

- Q4 2019 ~ F&TO Launch Roadshow: *we will be back in touch with the 150 expressions of interest*
- Jan'20 ~ Scottish Cluster Event: *Additional companies coming forward*
- ***Mar'20 ~ Delivery Partner NnG MTB: Over 450 companies already signed up***
- Mar'20 ~ OSW for Newbies: *Supply chain-led networking events anticipated throughout the year*
- 2020 ~ Business development & Learning: *Series of inward delegation visits and supply sub-element deep-dive workshops to be announced*
- 2020 ~ Second draft of the UK's most detailed regional supply chain map to be issued; *F&TO playbook, website rework and regional capability case studies to be developed*
- 2020 ~ Continue to play a key role in the OWIC-sponsored UK Cluster Group; *collaborating via corridors of trade*
- 2020 ~ Planning ongoing for representing regional capabilities at All Energy, Global Offshore Wind and Offshore Europe; *marketing F&TO regional capabilities*

FORTH & TAY OFFSHORE

Our new website launches today





FORTH & TAY OFFSHORE

Powering Scotland's East Coast

Come and visit us at our stand today…. aland@scotiasc.co.uk

https://www.forthandtayoffshore.co.uk/contact/

DeepWind Cluster

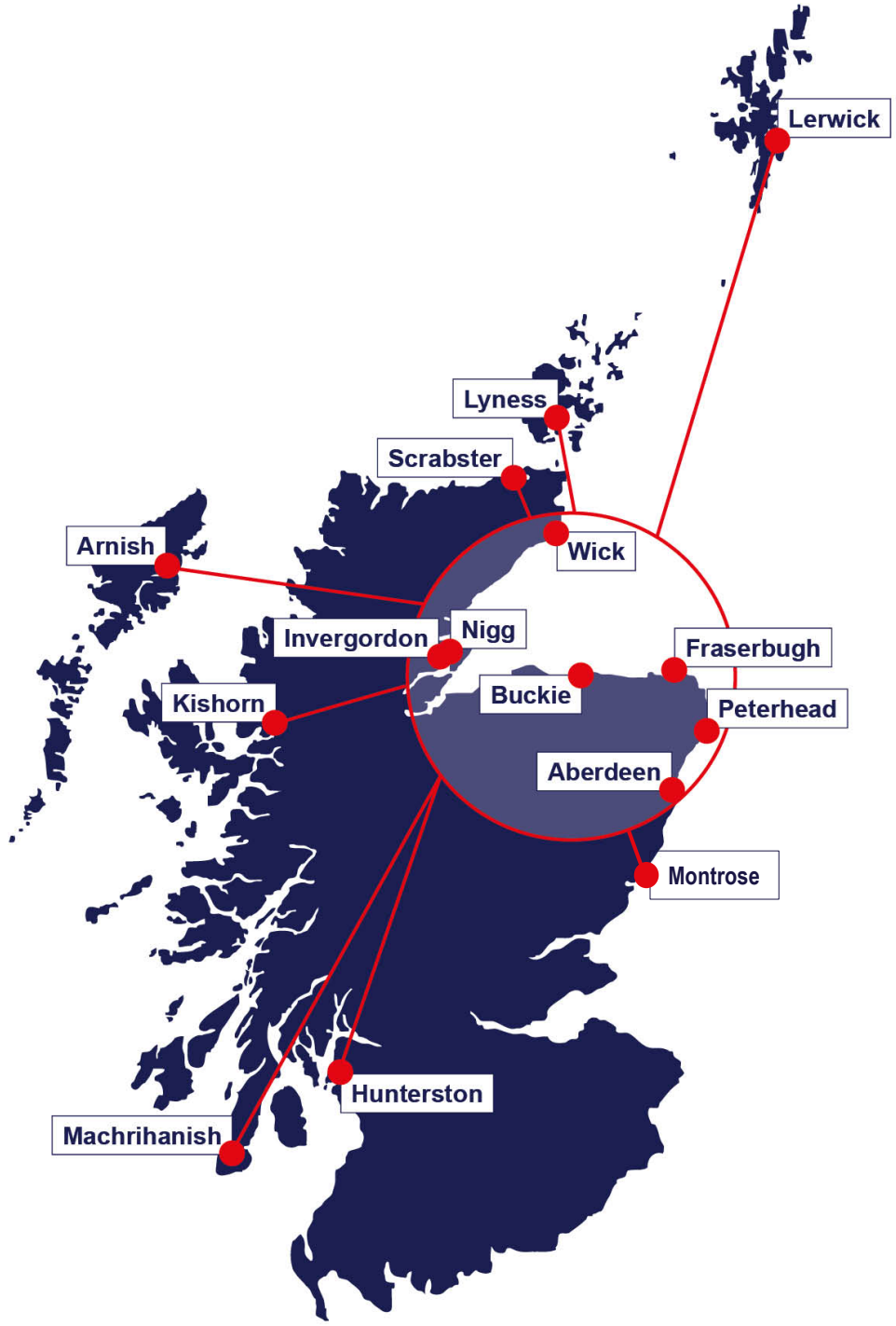
NNG Supply Chain Events
2nd-5th of March

INDUSTRIAL STRATEGY CLUSTER

DeepWind
North of Scotland Offshore Wind Cluster

NnG OFFSHORE WIND

Pacific Orca at Beatrice Project Source – SSE



The Cluster

- Hub and spoke structure
- Hub centred on Moray Firth and Aberdeenshire Coast projects (Place)
- Spokes extending to centres of offshore fabrication activity and port infrastructure in other areas of Scotland

INDUSTRIAL STRATEGY CLUSTER

DeepWind
North of Scotland Offshore Wind Cluster

NnG OFFSHORE WIND

Membership

- Active from May 2019
- Currently 275 members and still growing
- Membership Includes
  - 15 Offshore Wind Developers
  - 1 OEM Turbine Manufacturer
  - 5 Tier 1s
  - 16 Ports and Harbours
  - 4 Councils
  - 4 Universities
  - 2 Associations- AREG and Subsea UK
  - 250 supply chain companies from micro SMEs to multi-national companies

Largest offshore wind cluster in the UK

UK's Lead Floating Wind Cluster

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DeepWind
North of Scotland Offshore Wind Cluster

NnG OFFSHORE WIND

DeepWind will work closely with partner organisations to flag up opportunities to members

Innovation

- Developer member challenge calls
- Carbon Trust – Floating Offshore Wind JIP
- Innovate UK – KTN innovation calls
- ORE Catapult – OWGP and Centre of Excellence in Floating Wind
- Advanced Manufacturing – NMIS, LMC and AFRC
- SMART Scotland innovation feasibility and grant funding
- R&D Grants – HIE and Scottish Enterprise.

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CARBON TRUST

Innovate UK

NMIS National Manufacturing Institute Scotland

LIGHTWEIGHT MANUFACTURING CENTRE

AFRC ADVANCED FORMING RESEARCH CENTRE UNIVERSITY OF STRATHCLYDE

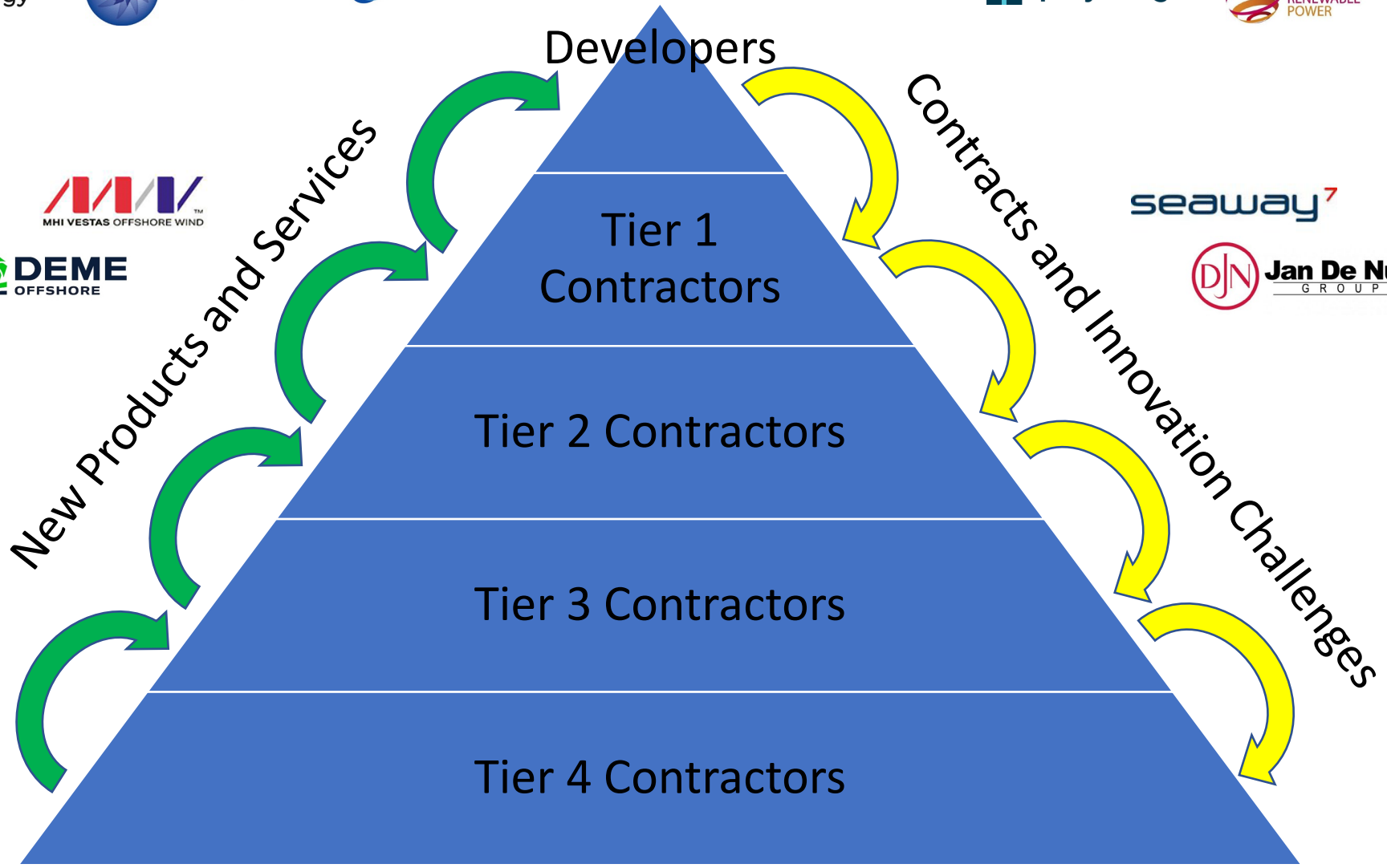
HIE Highlands and Islands Enterprise Iomairt na Gàidhealtachd 's nan Eilean

Scottish Enterprise

DeepWind North of Scotland Offshore Wind Cluster

NnG OFFSHORE WIND

Innovation



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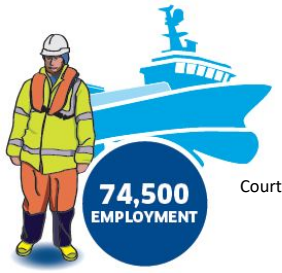
Cross-sector collaboration and Blue Economy



Blue Economy

Courtesy of Marine Scotland

- Oil and Gas – Energy Transition - especially for floating wind's role in the Net Zero Basin target for the UKCS by 2035 – ONE, OGA and OGTC
- Large Scale Green Hydrogen – using offshore wind for onshore and offshore production of hydrogen- SHFCA
- Collocation of Aquaculture – looking at opportunities for synergies between the industries – OREC and SAIC
- Maritime– transport, shipping and marine tourism
- AI, IIoT, Data Centres and Supercomputers – powered by offshore wind – perhaps even subsea data centres – à la Microsoft?

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ONE OPPORTUNITY NORTH EAST

Oil & Gas Authority

The Oil & Gas Technology Centre
Your Innovation Partner

SCOTTISH Hydrogen & Fuel Cell ASSOCIATION

Scottish Aquaculture Innovation Centre

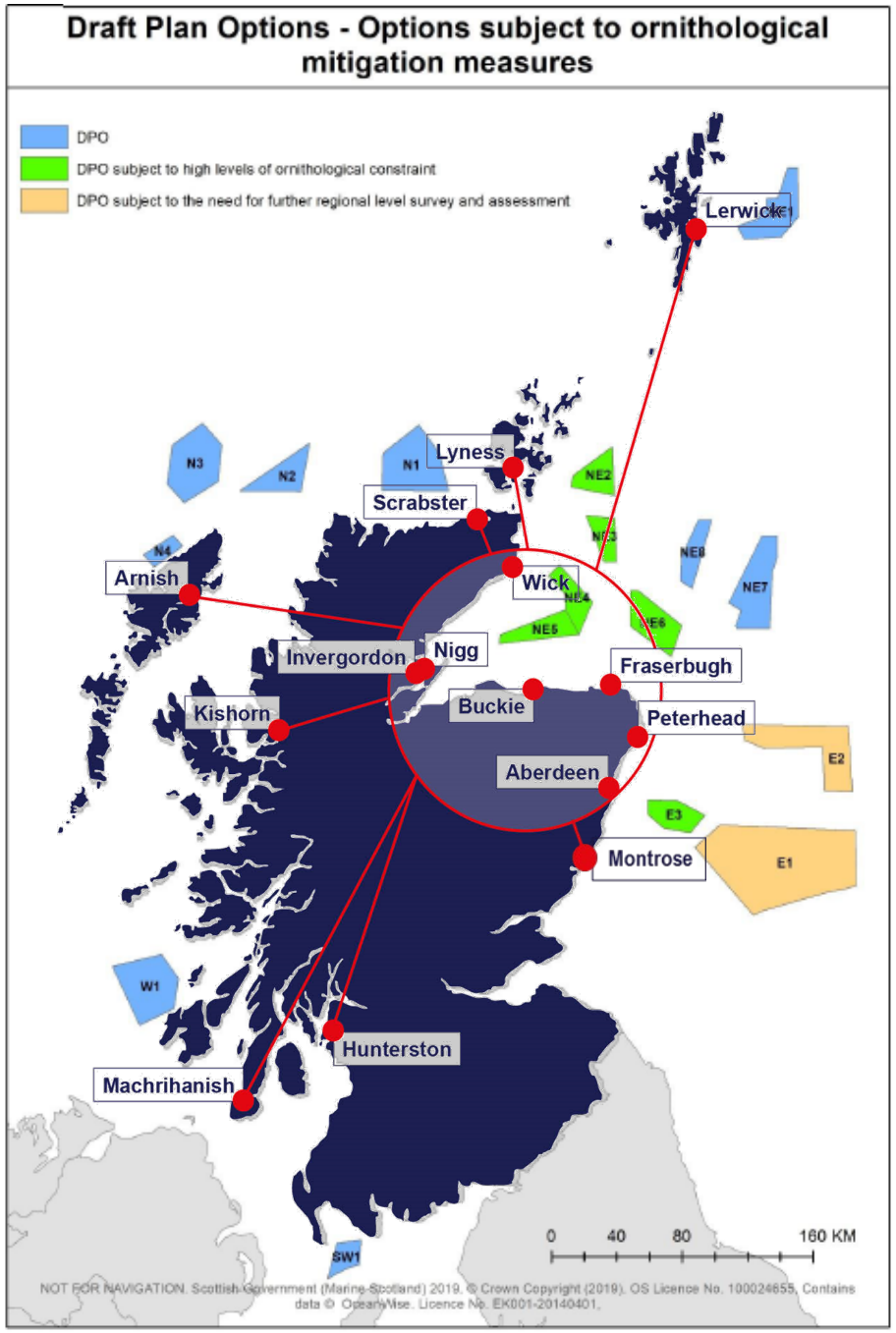
CATAPULT Offshore Renewable Energy

EDINBURGH CENTRE FOR ROBOTICS

epcc
THE UNIVERSITY OF EDINBURGH

DeepWind
North of Scotland Offshore Wind Cluster

NnG OFFSHORE WIND



ScotWind Leasing Round

- Crown Estate Scotland ambition is for a further 8-10GW
- Successful lease bidders will be announced in Autumn/Winter 2020
- This could more than double Scotland's existing 7.7GW pipeline (only 1GW built so far)
- Most of the DeepWind developers are talking part in the bidding process

Scotland would become a world top ten offshore wind market

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Thank you

To join DeepWind sign up on
www.offshorewindscotland.org.uk
or
Email:- paul.obrien@hient.co.uk

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DeepWind
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NnG OFFSHORE WIND

Pacific Orca at Beatrice Project Source – SSE

Questions....

Networking	12:20 - 12:30	**Close (Final Q&Q, Overview of PM session, NnG Activity Lookahead)**
	Who:	David Sweenie, Facilitating Change
	12:30 - 13:00	**Networking Buffet Lunch**

Morning session close

Please join us in this session as you wait for your 1-2-1 (we will give you a 5 min warning before your 1-2-1)…. #FOMO

- Afternoon session: 1-2-1 meetings
- Afternoon session: Share Fair
- NnG 2020 Lookahead
- Session close

Proposed Afternoon Session Agenda (13:15 - 15:00):

Share Fair Presenters:
10 min slots in on main 'theatre' stage

13:15 - 13:25 ***INNOVATION*** - ORE Catapult - *Hugh Riddel, Regional Partnership Manager*
13:25 - 13:35 ***SKILLS*** - Energy Skills Partnership - *Jim Brown, Director*
13:35 - 13:45 ***COMPETITION*** - Supplier Development Programme Scotland - *Gillian Cameron, Programme Manager*
13:45 - 13:55 ***MARKET*** - Crown Estate Scotland - *Mark McKean, Development Manager*
13:55 - 14:05 ***DIVERSIFICATION*** - Opportunity North East - Andy Rodden, Energy Transition Programme Director - Offshore Renewables

Share Fair Stands:

Stand 1 Forth & Tay Offshore Cluster
Stand 2 Deepwind Cluster
Stand 3 ORE Catapult
Stand 4 Supplier Development Programme Scotland
Stand 5 Energy Skills Partnership / North East College
Stand 6 Aberdeen Renewable Energy Group