



DUDGEON  
Offshore Wind Farm

Operated by Statoil

Dudgeon - low risk OFTO opportunity

TR5 marketing event 30 September



Statoil



Statkraft

Masdar  
A MUBADALA COMPANY



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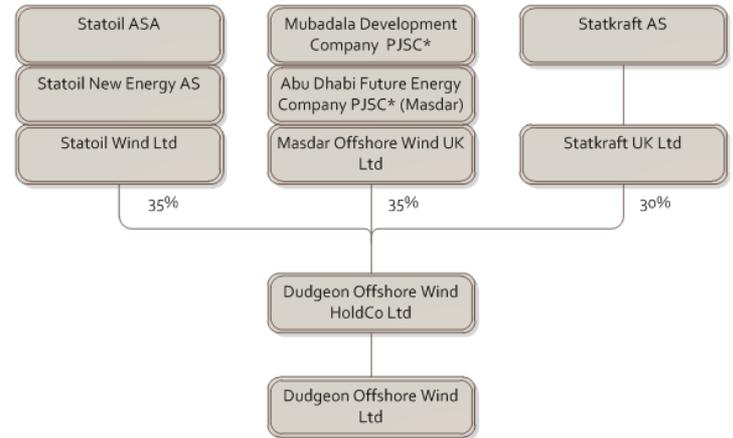
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# Dudgeon Offshore Wind Ltd

- Dudgeon Offshore Wind Ltd (Dudgeon) is an indirectly owned subsidiary of Statoil, Mubadala and Statkraft.
- Dudgeon shareholders have significant financial and operational strength and experiences within the energy industry inclusive offshore wind.
- **Masdar** actively advances the development and commercialisation of clean technologies around the world. With nearly 1.5 GW of clean power contributing to the grid or under development in the United Arab Emirates and internationally, it is delivering and operating some of the world's most sophisticated and largest renewable energy projects.
- **Statkraft** is a leading company in hydropower internationally with 18.5 GW of installed capacity (pro-rata) and Europe's largest generator of renewable energy. The group produces hydropower, wind power, gas-fired power and district heating and is a global player in energy operations.
- **Statoil** is an international energy company present in more than 30 countries around the world. It is fully integrated with capability for upstream oil & gas and pipeline operations with increasing investment in renewable energy generation.



# Statoil is the manager of Dudgeon Offshore Wind Ltd

- Statoil is the manager of the project and responsible for the development, construction and operation of the wind farm
- Highly experienced project team drawing on competence from all shareholders
- Well proven Statoil project model
- Strong HSE focus and performance



Gina Krog



Mariner topside



Aasta Hansteen



Johan Sverdrup



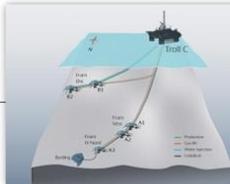
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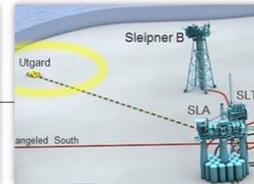
Dudgeon



Oseberg Vfl. II



Byrding



Utgard



Peregrino II



Statoil

# Shaping the future of energy

Competitive  
at all times

Transforming the  
oil and gas industry

Providing energy for  
a low carbon future



# Powering more than 1 million homes

**Playing to our strengths**

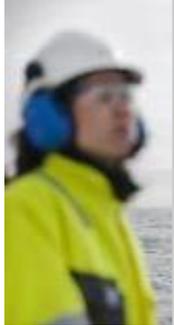
- Complex projects
- Marine operations
- O&M & HSE ability
- Leading floating tech.



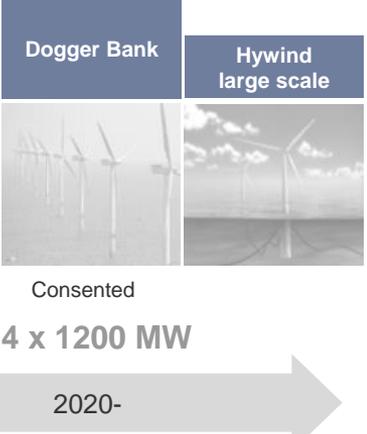
**Offshore wind projects delivering up to 1100 MW**  
*Additional 4800 MW consented / ~5 mill. homes*

**Attractive market**

- Attractive risk/return
- Predictable revenue
- OECD countries
- High entry barriers




North West Europe	Japan
	United States

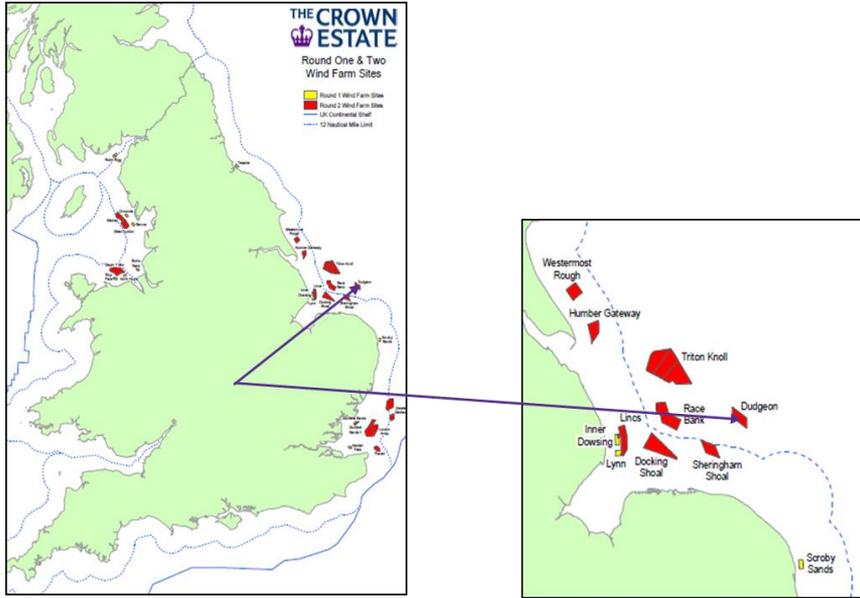


\* All capacity figures on 100% basis

# Dudgeon Offshore Wind Farm

Wind farm site area - 55 km<sup>2</sup>

402 MW - 67 x 6MW Siemens WTGs



- FID 1 July 2014
- Limited Recourse Project Financing May 2016
- Transmission Assets completed December 2016
- Target start electricity generated January 2017
- OFTO ITT commence Q1 2017
- Target Project completion Q4 2017
- OFTO transaction completed Q2 2018



# Dudgeon construction update- Transmission assets

## Offshore substation (STDL)

- Jacket installed in May
- Export and IA cables pulled –in
- Topside installed 5 August
- Jack-up for hook-up and commissioning from 1 September



## Onshore substation (STDL)

- Finalizing installation work
- Testing and completion ongoing
- 400 kV energisation 22 september

## Onshore cable (Carillion)

- HV test completed mid September
- Transitionbay connection late September
- Reinstatement work ongoing



Onshore Export Cables Terminated in 132kV GIS

# Dudgeon construction update - Marine Operations

## Export and inter array cables (ABB & VBMS)

- Subsea export cables installed in March-May
- Cable repair completed in August
- Inter array cable installation completed
- Cable terminations and trenching ongoing

## WTG foundations (67) (SIF & SHL)

- Installation commenced in March
- Installation completed end July

## WTG installation to start 2 January (SWP & A2Sea)

- Loadout from Hull
- First power expected mid/late January



Splicing of export cable



Youtube -> [https://eroom.statoil.com/eRoom/PM408/PT/0\\_64393](https://eroom.statoil.com/eRoom/PM408/PT/0_64393)

# Dudgeon O&M set up

- Wind farm site is 46 n.m. from Great Yarmouth
- Necton is about 1 hr drive from Great Yarmouth



SOV Esvagt Njord



CTV MPI Snowball

- Statoil is the O&M manager for Dudgeon
- Office, onshore base and control room are located in Great Yarmouth
- Service Operations Vessel (SOV)
  - Capacity for up to 40 technicians
  - 2 weeks on- 2 weeks off
  - 12 hrs staggered shifts per day
- One Crew Transfer Vessel (CTV) to support the SOV in the field and operate as “ferry” between the field and the base
- Statoil will take over responsibility for the WTG O&M from Siemens after 2 years

© Google Maps

**DUDGEON**  
Offshore Wind Farm



# OFTO Asset Maintenance Strategy

- Maintenance strategy:
  - Ensure that all requirements are met to keep the warranties intact
  - At the end of the warranty period develop from Scheduled to more Reliability Centred Maintenance (RCM)
- Maintenance Contract for the Offshore and Onshore Substations are on tender
- Contract has been issued for crane maintenance and statutory inspections
- Tenders under preparation for structure inspection and maintenance, cable and scour surveys, and cleaning



# Dudgeon offers the OFTO an O&M services contract

- A comprehensive (“all inclusive”) O&M services agreement for the transmission assets
  - preventive and corrective maintenance, major repairs and modifications, 24/7 control room services
  - A commercially very competitive offer on 20 years term
  - Commercial terms to be detailed in the data room

## Justification:

- Dudgeon the best incentivised to obtain high availability
- Will give lowest expected O&M costs for Dudgeon and for the society – will also capture synergies with wind farm O&M
- Will minimise interface issues and ease coordination of planning
- Will reduce O&M risk for the OFTO





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