WALNEY EXTENSION

Project Overview

Presentation for Ofgem OFTO TR5 Launch Event
30th September 2016
## Agenda and Walney Extension team introduction

### Agenda

- Agenda and Walney Extension team introduction
- DONG Energy Walney Extension (UK) Ltd – developer and vendor
- An introduction to DONG Energy and our journey
- Our experience of OFTO assets
- An introduction to Walney Extension
- Overview of the infrastructure
- The investment opportunity
- An overview of the transaction
- Construction update

### Walney Extension OFTO Divestment Team

**Name:** Andrew Cotterell  
**Role:** Programme Director (Walney Extension)  
**Background:**  
- Joined DONG Energy in 2012  
- Responsible for execution, asset and financial management of Walney Extension  
- Selected experience includes: Programme Director of Borkum Riffgrund 1

![Andrew Cotterell](image)

**Name:** Richard Bodal-Hansen  
**Role:** Head of OFTO Transactions  
**Background:**  
- Joined DONG Energy in 2012  
- Responsible for OFTO transactions  
- Selected experience includes: M&A management, DONG Energy M&A legal counsel

![Richard Bodal-Hansen](image)

**Name:** Ebba Phillips John  
**Role:** Senior OFTO Transaction Manager  
**Background:**  
- Joined DONG Energy in 2010  
- Responsible for OFTO Transactions  
- Selected experience includes: Senior Regulatory Affairs Advisor

![Ebba Phillips John](image)
Ownership overview

- The **Developer** and participating company in the WOW03 + 04 Offshore Wind Farm is **DONG Energy Walney Extension (UK) Ltd**
- The Developer is a directly owned subsidiary of **DONG Energy Wind Power A/S**
- DONG Energy were granted rights from The **Crown Estate** and **developed the project between 2010** and its financial investment decision (FID) in **October 2015**
- The wind farm including all transmission assets will be **constructed by DONG Energy Wind Power A/S**

**Experienced project organisation**

- DONG Energy has an unrivalled track-record in offshore wind with **over 20 years experience**, having **constructed 26% of global offshore wind capacity**
- **Walney Extension leverages this organisational experience**, benefiting from DONG Energy’s mature and industrialised approach to planning and execution of offshore projects
- **The project team profits from the significant experience gained** from previous transmission asset construction and divestment processes
- **Safety and environmental impact are key focus areas** for the delivery of the assets
An introduction to DONG Energy and our journey

Overview of DONG Energy constructed and under construction wind farms

An unrivalled track-record in offshore wind

World’s 1st 8MW WTG deployed at a commercial offshore wind farm

World’s 1st 6MW WTG deployed at a commercial offshore wind farm

World’s 1st large scale commercial offshore wind farm

World’s 1st commercial offshore wind farm

World’s 1st offshore wind farm

An unrivalled track-record in offshore wind

Completed OFTO divestment

Ongoing OFTO divestment

Future OFTO divestment

Legend

Project by project planning and execution

Industrialised approach to planning and execution
## Our experience of OFTO assets

### OFTO transactions overview

<table>
<thead>
<tr>
<th>TR1</th>
<th>Robin Rigg</th>
<th>Sheringham Shoal</th>
<th>Barrow</th>
<th>Greater Gabbard</th>
<th>Gunfleet Sands 1+2</th>
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</thead>
<tbody>
<tr>
<td>TR2</td>
<td>Ormonde</td>
<td>Thanet</td>
<td>Walney 1</td>
<td>Walney 2</td>
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<tr>
<td>TR3</td>
<td>Lincs²</td>
<td>London Array</td>
<td>West of Duddon Sands</td>
<td>Gwynt y Môr</td>
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<tr>
<td>TR4</td>
<td>Westernmost Rough</td>
<td>Humber Gateway</td>
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<tr>
<td>TR5</td>
<td>Burbo Bank Ext.</td>
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<tr>
<td>TR5¹</td>
<td>Race Bank</td>
<td>Wailey Ext.</td>
<td>Galloper</td>
<td>Dudgeon</td>
<td>Rampion</td>
</tr>
</tbody>
</table>

### Transfer value (mGBP)

- TR1
- TR2
- TR3
- TR4
- TR5

### Capacity (MW)

- TR1
- TR2
- TR3
- TR4
- TR5

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1. Figures based on Initial Transfer Value, data from Ofgem Website (September 2016)
2. Centrica was the operating partner for Lincs construction and OFTO divestment
An introduction to Walney Extension

**Location and layout**

**Parameter** | **Summary**
--- | ---
Support regime | A two phase CfD contract for WOW03 (west) and WOW04 (east)
Number of turbines | WOW03: 40 Mitsubishi Vestas V16 8.25MW
                  | WOW04: 47 Siemens 7.0MW
Capacity (MW)     | 659
Water depth       | 21 – 37m LAT
Length of export cable route | Offshore: WOW03 ~80km, WOW04 67km, inter-link ~23km
                        | Onshore: ~4km

**Characteristics**

- Well known operating environment
- Well known and proven technology
- Well tested and successful construction approach
- Well designed with efficient cost and operability
Overview of the infrastructure

**Generation assets**
- Turbines, foundations and inter-array cables
- The array cable network comprises of 10 feeder circuits connected to the WOW03 offshore substation and 10 feeder circuits connected to the WOW04 offshore substation
- 40 MHI Vestas 8.25MW-164 and 47 Siemens SWT-7MW-154 on 87 traditional steel monopile foundations

**Transmission assets**
- Offshore substations, interlink and export cables, onshore substation and connection to grid
- Offshore substation
- Offshore substation
- 34kV inter-array cables
- 220kV inter-link
- 2 x 220kV export cables
- The two offshore substations transform the power collected from the turbines from the 34kV to the 220kV voltage level
- An inter-link between the two offshore substations provides partial redundancy reducing risks to operational availability
- The power is transported from the offshore substations to the onshore substation through two 220kV offshore and onshore export cables
- The onshore substation is connected to National Grid at Middleton near Heysham
- The transmission assets which will be transferred to the OFTO comprise of the two offshore substations, the inter-link cable, the export cables, both offshore and onshore, the onshore substation and the 400kV connection to National Grid
The investment opportunity

<table>
<thead>
<tr>
<th>Project highlights</th>
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<tr>
<td><strong>Highlights</strong></td>
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<tr>
<td>- The project will operate under the UK CfD framework</td>
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<td>- 659MW generation capacity with transmission assets Initial Transfer Value approx. 517 GBPm</td>
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<td>- All consents in place and transmission asset construction underway</td>
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<td>- Walney Extension is anticipated to be DONG Energy’s eleventh transmission asset divestment</td>
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<tr>
<td><strong>Project</strong></td>
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<td>- Favourable site conditions and well known operating environment for OFTOs</td>
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<td>- The characteristics of the site enable the project to make use of known technology</td>
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<td>- Mature and efficient design developed based upon previous operational experience, resulting in highly operable and robust assets</td>
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<td><strong>Supply chain</strong></td>
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<td>- Experienced supply and installation contractors, strategically appointed through competitive tenders</td>
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<td>- Tendered utilising DONG Energy’s product lines to contribute in the holistic goal to reduce the cost of electricity</td>
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<td><strong>Experienced Developer and EPC Manager</strong></td>
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<td>- DONG Energy active in the offshore wind sector for more than 20 years</td>
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<td>- DONG Energy has participated in all of Ofgem’s OFTO tender rounds to date</td>
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<td>- Highly experienced project developer bringing significant expertise to the project</td>
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<td>- Transaction and operational competences in place to deliver the project to the highest industry standard</td>
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<tr>
<td><strong>O&amp;M</strong></td>
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<tr>
<td>- Appropriate interim maintenance arrangements will be in place until asset transfer</td>
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<td>- DONG Energy will offer an emergency response service for export cables with full access to a broad base of in-house knowledge, expertise and resources</td>
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<td>- DONG Energy is willing to enter dialogue regarding certain routine O&amp;M services but the focus is on providing emergency response services</td>
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An overview of the transaction

**High level timeline**

<table>
<thead>
<tr>
<th>2016</th>
<th>2017</th>
<th>2018</th>
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<tbody>
<tr>
<td>Q4</td>
<td>Q1</td>
<td>Q1</td>
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<tr>
<td></td>
<td>Q2</td>
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<td>Q3</td>
<td>Q3</td>
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<tr>
<td></td>
<td>Q4</td>
<td>Q4</td>
</tr>
</tbody>
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**Tender phase:**
- EPQ
- ITT
- PB

**Key milestones:**
- Ofgem tender launched
- Project first power
- License Grant

**Key takeways**

**EPQ Launch**
- Preliminary Information Memorandum available from 30\(^{th}\) September 2016
- Enhanced Pre-Qualification – February 2017
- Information Memorandum, technical vendor due diligence report and transfer agreement will be made available

**Asset Transfer**
- Transfer to OFTO once all assets are fully commissioned (with appropriate interim maintenance arrangements in place)
- Transfer of transmission asset related contracts where appropriate – including appropriate benefit of warranties

**Transfer Agreement**
- The transfer agreement will be based on Ofgem guidelines
- DONG Energy Walney Extension (UK) Ltd as vendor
- Bespoke warranty package for the Walney Extension project
- Division of responsibilities pre- and post- asset transfer
- Market standard credit support will be offered by the Developer

**Interface Agreement**
- The Interface Agreement will be bespoke for Walney Extension
- Based on the relevant industry standard form precedent, developed to reflect operational project experience to date

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1. Timings indicative and at the discretion of Ofgem
An update on construction progress

Walney Extension installation and construction

2010
The Crown Estate award an agreement for the lease to extend the Walney Offshore Wind Farm

2014
Development Consent Order awarded to construct and operate the wind farm

Q1 2016
Onshore cable installation

Q2 2017
Offshore Construction begins

Q3 2015
Onshore substation site establishment and preparation begins

Q2 2016
Landfall cable installation

2019
Project construction finishes

Onshore progress

Onshore Substation
- Civil works under construction
- All High Voltage (HV) components have passed Factory Acceptance Test and are being delivered to site
- On track to energise grid connection as planned in spring 2017

Onshore Cable Route
- 220kV cable route substantially complete
- The horizontal directional drilling HDD at the landfall to the beach completed as planned
- Construction of the 400kV cable route to the Onshore Substation to the NGET Middleton substation has begun and the cables delivered

Offshore progress

Marine Cable
- 220kV offshore export cable manufacture on track for loadout spring 2017

Offshore substation
- Manufacture of the Offshore Substations ahead of schedule and on track for loadout spring 2017
- All electrical components are delivered to the manufacturing yard and installation has begun

1. All dates indicative and subject to change
Construction photos

Onshore Substation

Onshore Cable Route
Construction photos

Offshore Substation Topside

Offshore Substation Jacket
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