

Energy  
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**Offshore Transmission Industry Briefing**

26 November 2012

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## **Introduction**

*Robert Hull*

*Managing Director, Commercial, Ofgem E-Serve*

## Event Programme

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<b>14.00</b>	<b>Introduction</b>	<b><i>Robert Hull, Managing Director, Commercial, Ofgem E-Serve</i></b>
<b>14.15</b>	<b>The OFTO opportunity</b>	<b><i>Stephen Beel, Associate Director, Offshore Transmission, Ofgem E-Serve</i></b>
<b>14.30</b>	<b>An opportunity to invest: West of Duddon Sands</b>	<b><i>DONG Energy &amp; ScottishPower Renewables</i></b>
<b>14.55</b>	<b>The market's perspective</b>	<b><i>Panel session chaired by Patrick Holland, Director, Utilities &amp; Renewables, RBC Capital Markets</i></b>
<b>15.30</b>	<b>Future policy developments</b>	<b><i>Martin Crouch, Director, Offshore Transmission, Ofgem E-Serve</i></b>
<b>15.50</b>	<b>Q&amp;A and closing remarks</b>	<b><i>Robert Hull, Managing Director, Commercial, Ofgem E-Serve</i></b>
<b>16.10</b>	<b>Networking &amp; refreshments</b>	<b><i>All delegates</i></b>

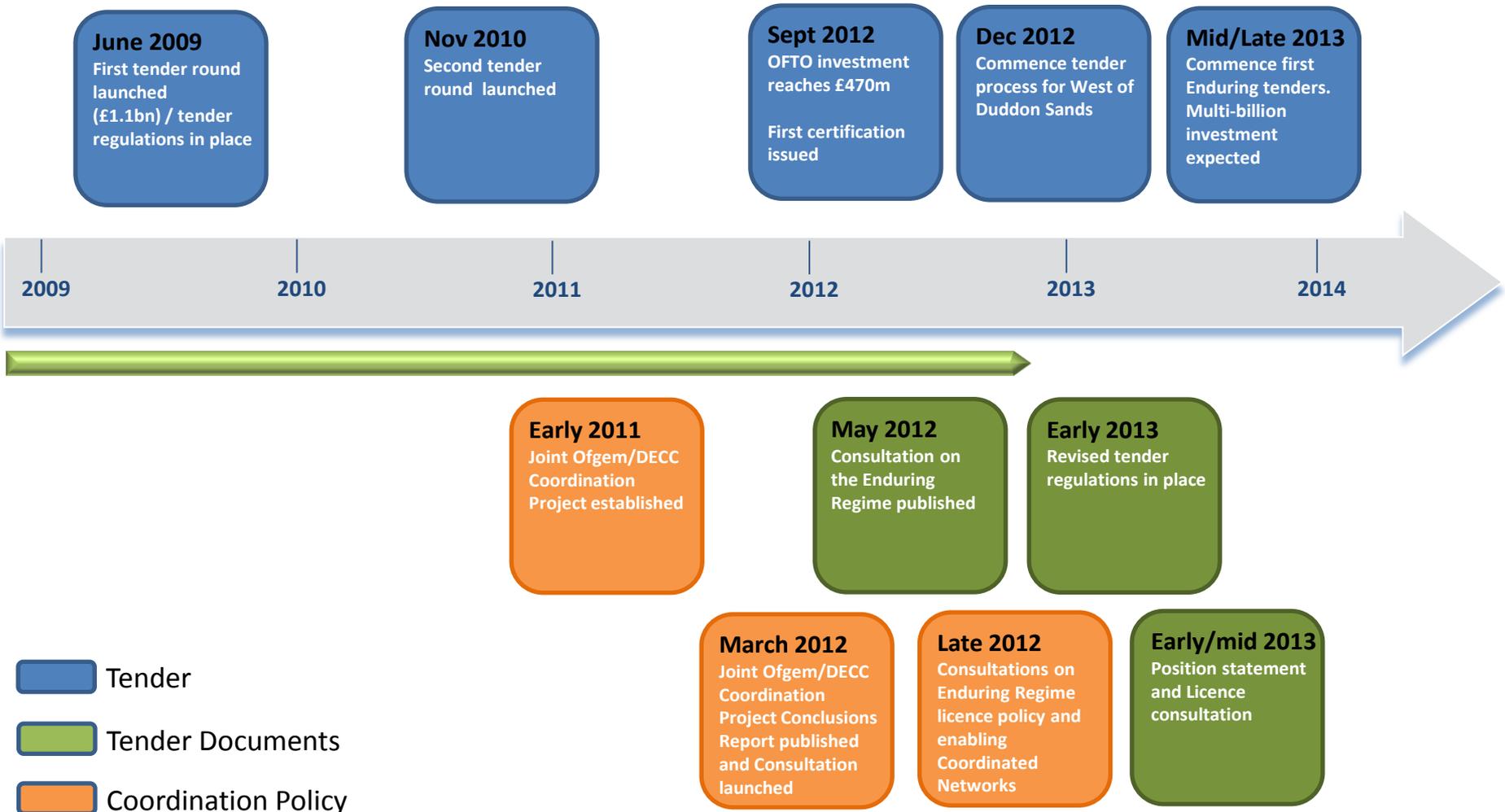
## Event purpose

### Today's event is designed to:

- Provide an update on current tender progress
- Introduce you to new, upcoming, opportunities
- Share market perspectives on Offshore Transmission Owners (OFTOs)
- Share ongoing policy developments related to offshore networks



## Offshore Transmission Regime: Key milestones



## Regulatory approach

### Highlights:

- Clearly defined offshore transmission regulatory regime
- 20 year revenue stream with limited regulatory intervention
- Well-defined, and proven, tender process
- A number of phases over several years: potentially £15bn+ of assets
- Early participation provides valuable experience
- Enduring regime offers design and construction opportunities
- Rare opportunity for new UK transmission entrants

**Attractive  
investment  
sector**

**Robust new  
regulatory  
regime**

**Transparent  
competitive  
process**

**Long term  
opportunity**

## Current and future investment

### Tender Round 1 (9 projects)

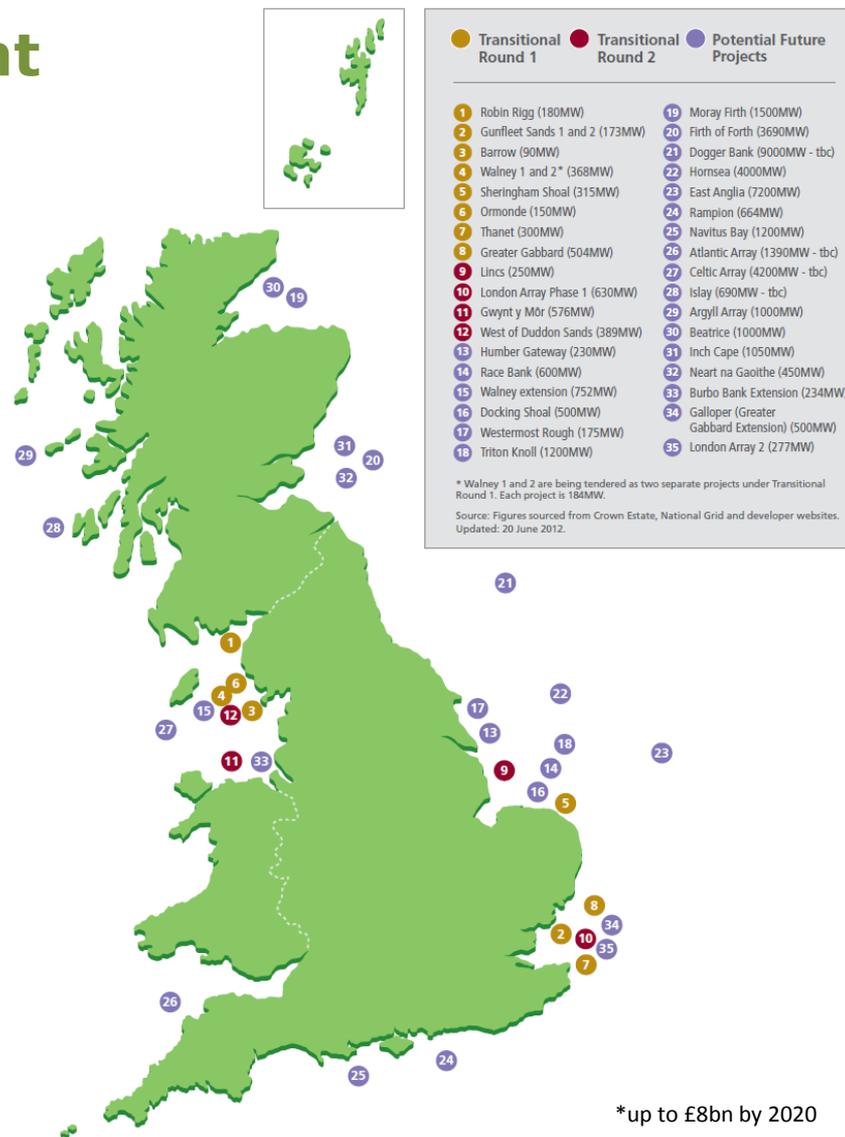
- Investment appetite: £4 billion for **£1.1 billion** of assets in TR1
- Investment to date: c.**£470 million** (including Walney 2 – September 2012)

### Tender Round 2 (4 projects)

- £1.4 billion** of assets being tendered

### Future tenders

- Up to 23 potential projects
- Potential investment of up to **£15 billion\***
- Incorporates Crown Estate Round 3 projects
- Next round of tenders expected mid to late 2013
- Multiple OFTO opportunities for many wind farm projects.



\* up to £8bn by 2020

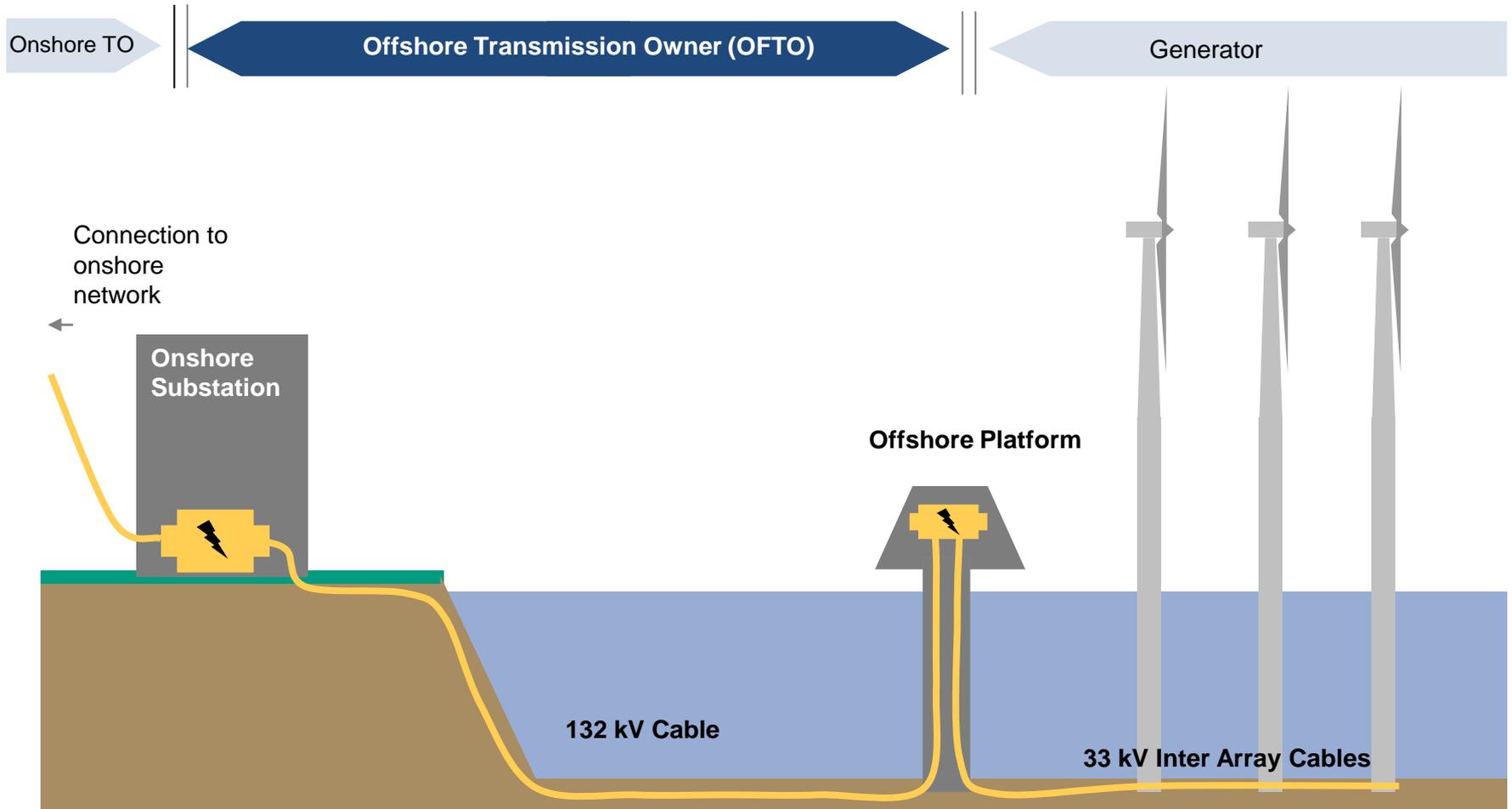
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## **The OFTO opportunity**

*Stephen Beel*

*Associate Director, Offshore Transmission, Ofgem E-Serve*

## What is an OFTO?



## Why be interested in OFTOs?

### Attractive investment sector

- Clearly defined offshore transmission regulatory regime
- **Rare opportunity for new transmission entrants**
- Relatively low risk asset class (BBB/BBB+), ADSCR = c1.2
- Low counterparty risk; National Grid pays revenues

### Robust new regulatory regime

- **20 year revenue stream with limited regulatory intervention**
- Defined performance incentives (98% target) & pass through of certain key costs
- **Performance deductions capped at 10% of annual revenue**
- **OFTO protected from wind farm operating risk and risk of stranding**
- Upside potential: OPEX, non-regulated services, increased capacity

### Transparent competitive process

- **Well-defined, and proven, tender process**
- Structured to ensure level playing field and transparency
- 2 qualification stages followed by ITT stage with M&A data rooms

### Long term opportunity

- A number of phases over several years: potentially £15bn+ of assets
- **Early participation provides valuable experience**
- Enduring regime offers design and construction opportunities

## The OFTO story so far.....

Project name	Transfer value	Annual revenue (TRS)	Bid status
1.Robin Rigg East and West	£65.5m	£6.5m	Licence granted (2 March 2011)
2.Gunfleet Sands 1 & 2	£49.5m	£6.1m	Licence granted (19 July 2011)
3.Barrow	£33.6m	£5m	Licence granted (27 September 2011)
4.Walney 1	£105.4m	£11.6	Licence granted (21 October 2011)
5.Ormonde	£103.9m	£10.6m	Licence granted (10 July 2012)
6.Walney 2	£109.8m	£12.5m	Licence granted (26 September 2012)
7.Sheringham Shoal	£182.2m*	n/a	Preferred Bidder appointed
8.Thanet	£163.1m*	n/a	Preferred Bidder appointed
9.Greater Gabbard	£316.6m*	n/a	Preferred Bidder appointed
10.Lincs	£281.6m*	n/a	Preferred Bidder appointed
11.London Array	£428.4m*	n/a	Preferred Bidder appointed
12.Gwynt y Môr	£346m*	n/a	Invitation to Tender (ITT) stage commenced
13.West of Duddon Sands	£310.9m**	n/a	Pre-Tender stage



\*Estimated transfer value  
\*\*Developer's estimated value

## Why West of Duddons Sands?

- West of Duddon Sands presents a new opportunity to invest in a regime with a low risk and solid investment grade profile
- First pre-qualification opportunity in two years
- Attractive investment size - developer's estimated value: £310.9m
- Committed project developer with significant experience of offshore wind and OFTO processes
- Tender process now reflects lessons learned from TR1
- Many parties and advisers are now well experienced with OFTOs, helping to reduce risk for new entrants
- Last opportunity to get involved before enduring tenders commence next year



## What are we looking for?

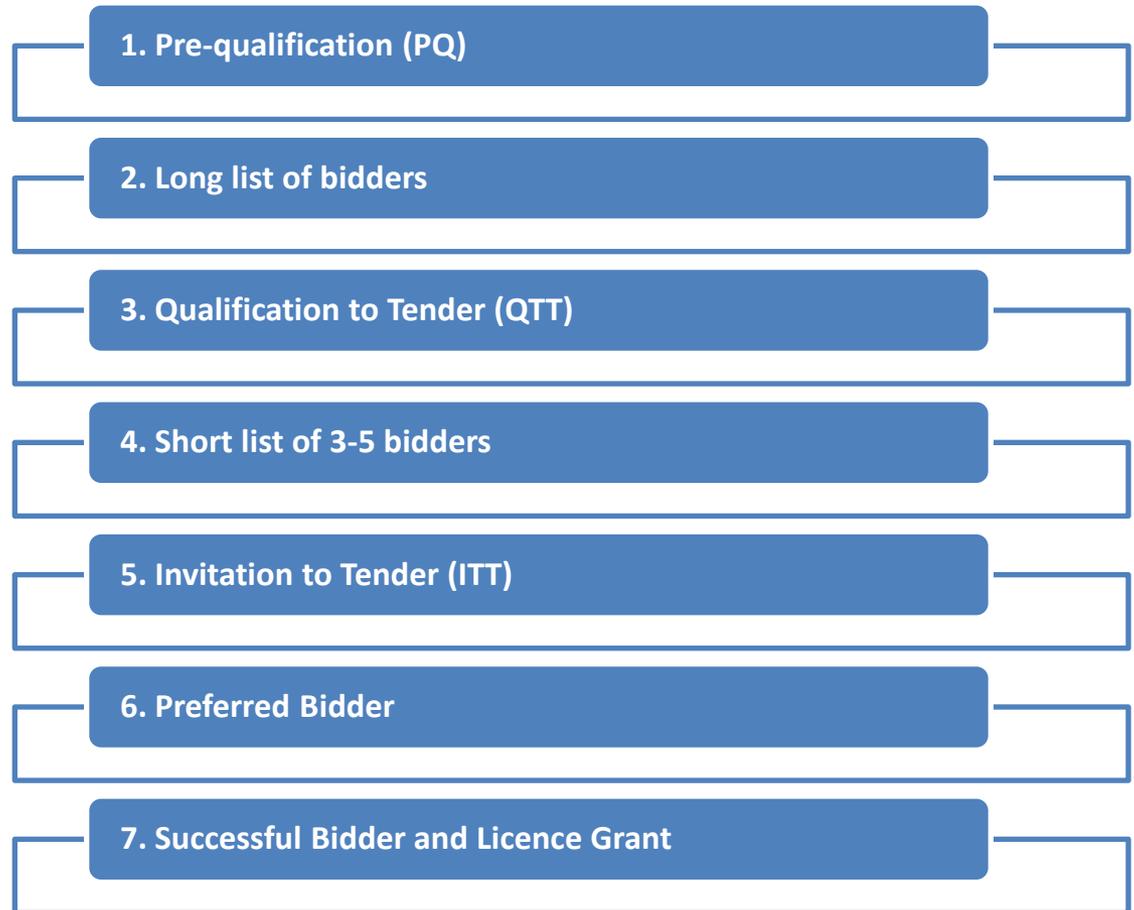
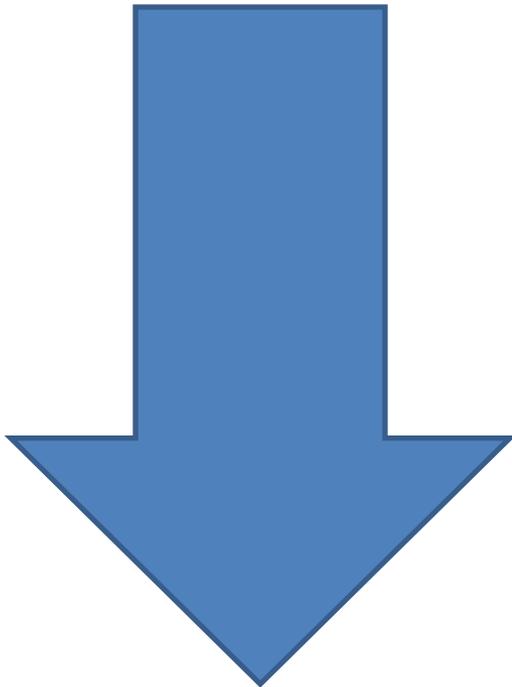
### **At Pre-Qualification stage.....**

- Ownership and organisational structure
- Experience of infrastructure ownership, operation and financing – not just in transmission
- An ability to fund a multi-million pound infrastructure investment
- Corporate credibility and legal standing

### **And beyond for QTT and ITT.....**

- Sound methodologies for managing and operating transmission systems
- Sound ownership structure
- Understanding of the regulatory framework
- Understanding of the assets to transfer
- Ability to secure funding when required
- Pricing

## What's the process?



## What to do next?

- Start speaking to your potential partners
- Ofgem and RBC are happy to meet to discuss any queries
- Expressions of Interest for West of Duddon Sands transmission assets are currently being sought from interested organisations
- Closing date 10 December 2012
- For further information or to register your interest contact: [tendercoordinator@ofgem.gov.uk](mailto:tendercoordinator@ofgem.gov.uk) or Ofgem's advisors, RBC
- Pre Qualification (PQ) stage launches 14 December 2012 – approximately 5 weeks to submit



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**An opportunity to invest: West of Duddon Sands**

*DONG and Scottish Power Renewables*



# Offshore Transmission: Industry Briefing 26 November 2012

West of Duddon Sands Project Overview

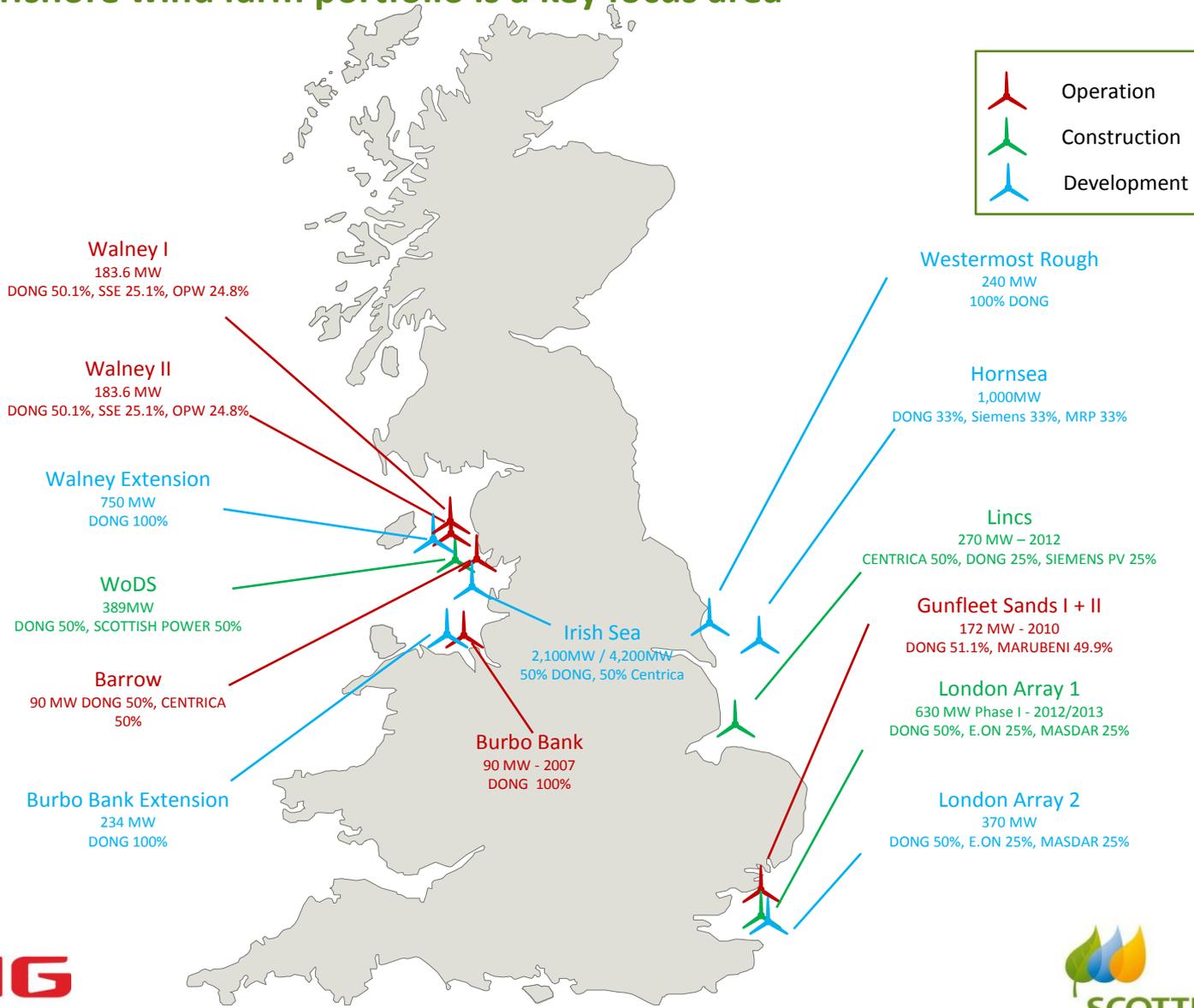
West of Duddon Sands Offshore Windfarm

# Agenda

- 1 DONG Energy
- 2 ScottishPower Renewables
- 3 West of Duddon Sands Transmission Assets
- 4 Q&A

# DONG has a total of 934MW under construction and 794MW under operation

## - The UK offshore wind farm portfolio is a key focus area



# DONG Energy's OFTO transactions

Project	OFTO / Preferred bidder	Purchase price (100%)	Completion date
Gunfleet Sands 1 & 2		£49.5m	July 2011
Barrow		£33.6m	Sept 2011
Walney 1		£105.4m	Oct 2011
Walney 2		£109.8m	Oct 2012
London Array 1		Exp. £428.4m	Exp. H1 2013
Lincs		Exp. £281.6m	Exp. H1 2013
West of Duddon Sands	TBD	TBD	Exp H1 2014

# ScottishPower Renewables

1

DONG Energy

2

ScottishPower Renewables

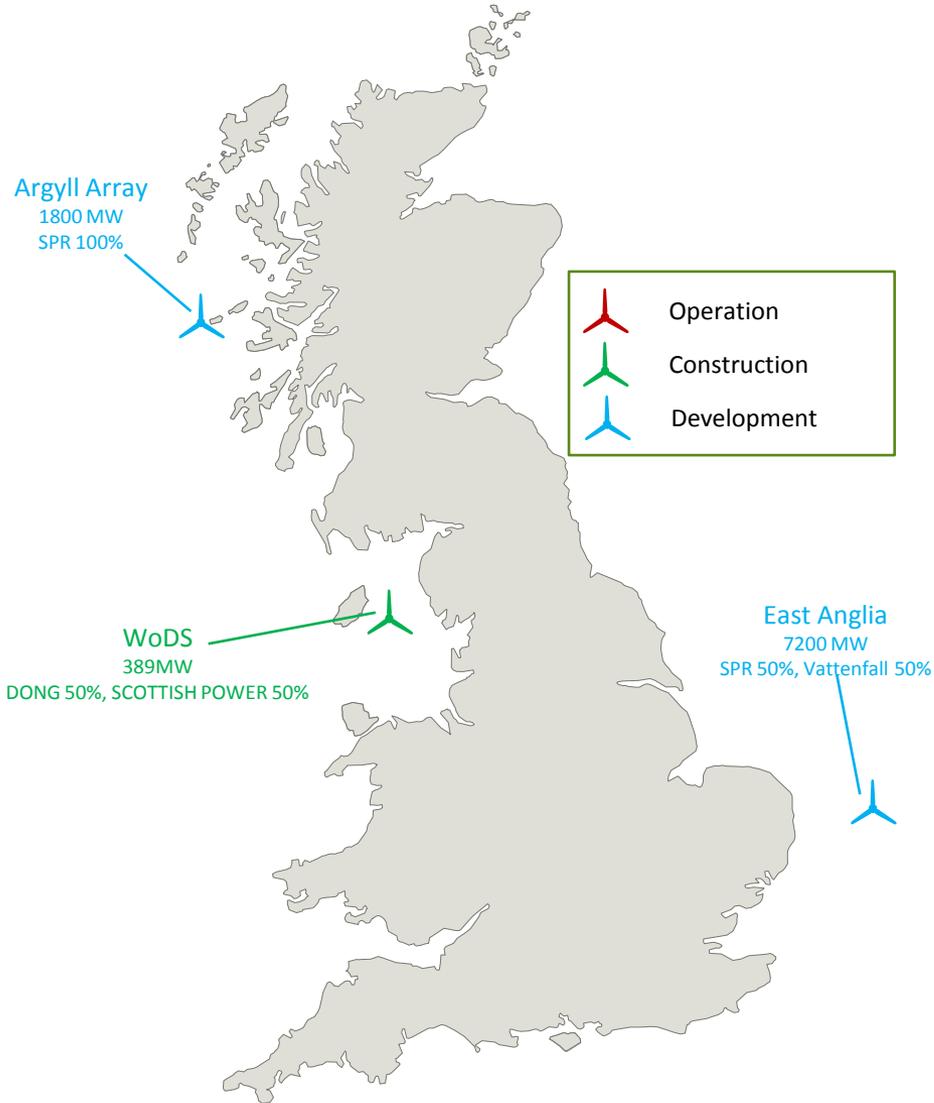
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West of Duddon Sands transmission assets

4

Q&A

# ScottishPower Renewables



ScottishPower Renewables is part of Iberdrola, the world's largest wind energy developer, with an operating portfolio of over 14,000 megawatts (as of June 2012).

ScottishPower Renewables is responsible for progressing Iberdrola's offshore windfarms throughout the world, managing the development, construction and operation of all (current and potential) projects.

ScottishPower Renewables became the first UK developer to reach an installed wind energy generating capacity of 1,000 MW in 2011, in addition to being awarded a second Queen's Award for Enterprise for Sustainable Development.

ScottishPower Renewables has a pipeline of 10,000 MW of offshore wind, with West of Duddon Sands the first project to enter construction.

# West of Duddon Sands transmission assets

- 1 DONG Energy
- 2 ScottishPower Renewables
- 3 West of Duddon Sands transmission assets
- 4 Q&A

# Project overview

## Background

### Project award:

The project was awarded to Morecambe Wind Ltd in December 2003; - consisting of Elsam (DONG), Eurus Energy and ScottishPower as part of the Round 2 development programme.

### Section 36:

The consent according to Section 36 of the Electricity Act was given on 4 September 2008 for the construction and operation of an offshore generating station: Wind turbines; inter-array cables, met masts and offshore substations.

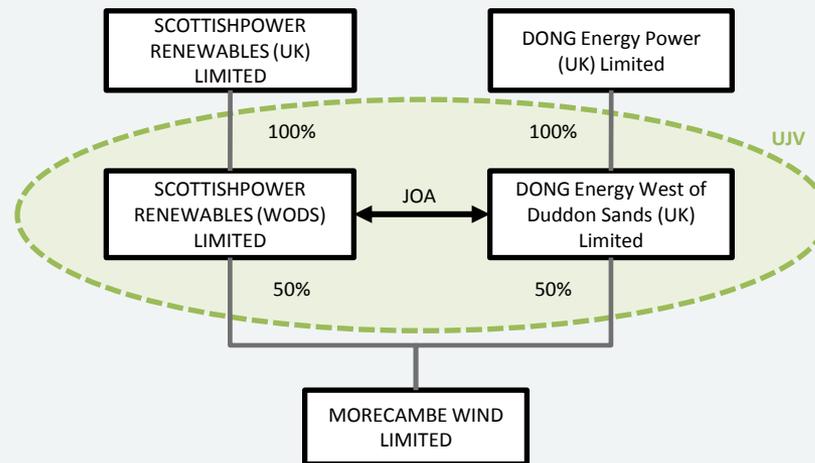
### Final investment decision:

The Joint Operations Agreement between ScottishPower Renewables and DONG Energy was signed in March 2010, and the final investment decision was made in June 2011.

## Location



## Ownership



## Highlights

Located in the East Irish Sea, approximately 14 km from Barrow-in-Furness, Cumbria.

Work commenced in Q1 2012 and according to plan the wind farm will be in operation by 2014.

The wind farm will consist of:

- 108 Siemens 3.6MW WTG's, with a total installed capacity of 388.8MW (382MW at interface point with the OFTO).

The transmission assets will comprise:

- Offshore substation and onshore substation
- Two 41km long 170kV subsea export cables and two 3km long 170kV onshore export cables (both 155kV nominal voltage).

# Offshore substation

## Illustration



## Highlights

- The offshore substation comprises structural steel topsides with four decks situated on a jacket foundation. The overall dimensions of the substation topside are approximately 15x28.5x14m with an overall height of 35.9m above Lowest Astronomical Tide ("LAT").
- The topside cable deck (21.9m LAT) is provided for array and export cable management and muster areas.
- The Main deck (26.9m LAT) has been provided for the two No. 155/34kV 240MVA Transformers, together with associated 170kV and 34kV switchgear, LVAC, LVDC, & UPS rooms.
- Two No. diesel generators, Generator and OFTO control rooms, metering room, public room and workshops are situated on the utility deck (31.9m LAT).
- A helicopter hoist area, an antenna mast and a knuckle boom crane are provided on the roof deck (35.9m LAT).

## Supply:

Foundation - JV Fabricom & Iemants NV

Switchgear - Alstom

Transformers - CG Power

**DONG**  
energy

November 2012

  
**SCOTTISHPOWER**  
RENEWABLES

# Export cable and onshore cable route

## Onshore cable route



### Supply:

Cables - NKT Cables A/S

## Highlights

### Sub sea cable 170Kv:

- 2 x 41 km long

- Each cable will comprise two sections (9km and 32km in length) of 1000mm<sup>2</sup> XLPE insulated copper conductor single wire armoured cable joined by an offshore joint. Entry to the offshore substation will be via J-tubes.

### -Onshore cable 170kV:

- 2 x 3 km long

- Six sections varying from 430m to 710m sections in length) of 1600mm<sup>2</sup> XLPE insulated aluminium cables installed from the transition joint bays to the onshore substation.

### Onshore cable 420kV:

- 2 x 0.25km long

- 2 x 3 single core 1000mm<sup>2</sup> XLPE insulated aluminium conductor copper wire screened cables with PE outer sheath, connecting the 400/155kV supergrid transformers (located in the new onshore substation), to the 400kV GIS located in the NGET Heysham 400kV substation.

# Onshore substation

## Illustration



## Highlights

- The onshore substation houses the high voltage switchgear necessary for connecting the onshore cable to the transmission network with associated reactive compensation equipment.
- Main equipment includes two No. 400/155kV transformers complete with 170kV GIS, two auxiliary transformers, associated shunt reactor, reactive compensation and harmonic filtration equipment.

### Supply:

Transformers - SMIT Transformatoren BV

Switchgear/Harmonics - Alstom

# Summary points

1

## Experienced project developers

Highly experienced project developers, who have pooled their expertise and between them bring a wealth of development experience to the project.

2

## Attractive project characteristics

The characteristics of the site enable the project to make use of known technology from previous projects

The transmission assets are expected to be completed by the end of Q4 2013 and represents an attractive investment opportunity

The developers would be pleased to arrange a single visit for shortlisted bidders to view the onshore and offshore substation in 2013

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## **The Market's Perspective**

*Patrick Holland*

*Director, Utilities & Renewables, RBC Capital Markets*

## The market's perspective

A panel discussion with representatives from a wide range of funding perspectives

### Chair:

- Patrick Holland, Director, Utilities & Renewables, RBC

### Panellists:

- Cormac Murphy, Head of Division, Structured Finance and TENs Infrastructure, European Investment Bank (EIB)
- Philip Adam, Structured Bonds, Debt Capital Markets, HSBC Bank Plc
- Gavin Merchant, Senior Investment Manager, Alternative Investments, Universities Superannuation Scheme Ltd (USS)
- Philip Roberts, Head of Energy and Natural Resources, Bank of Tokyo-Mitsubishi UFJ, Ltd

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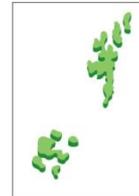
## **Future policy developments**

*Martin Crouch*

*Director, Offshore Transmission, Ofgem E-Serve*

## Future project pipeline

- Future tenders - up to 23 potential projects
- Potential investment of up to £15billion\*
- Incorporates Crown Estate Round 3 projects
- Next round of tenders expected mid to late 2013
- Multiple OFTO opportunities for many wind farm projects.



Zone	Name
1	Moray Firth
2	Firth of Forth
3	Dogger Bank
4	Hornsea
5	East Anglia
6	Southern Array (Rampion)
7	West Isle of Wight (Navitus Bay)
8	Atlantic Array
9	Irish Sea (Celtic Array)
10	Argyll Array
11	Inch Cape
12	Islay
13	Westermost Rough
14	Near na Gaoithe
15	Beatrice
16	Burbo Bank ext.
17	Walney ext.
18	Greater Gabbard ext.
19	Triton Knoll
20	Docking Shoal
21	London Array (Phase 2)
22	Race Bank
23	Humber Gateway

\*up to £8bn by 2020

Note: Numbers denote approximate positions of windfarms

## Offshore Transmission: regime design

- The Offshore Transmission Regime is well established
- We are looking at evolutionary changes to the regime
  - learning from past experiences
  - meeting future challenges
- The regime will continue to:
  - provide value for money for consumers
  - be attractive to investors



## Offshore Transmission: regime design

### Two options for building transmission links

#### Option 1: Generator Build

- Consultation on policy – late 2012
- Covering refinancing, revenue, indexation and incentives

#### Option 2: OFTO Build

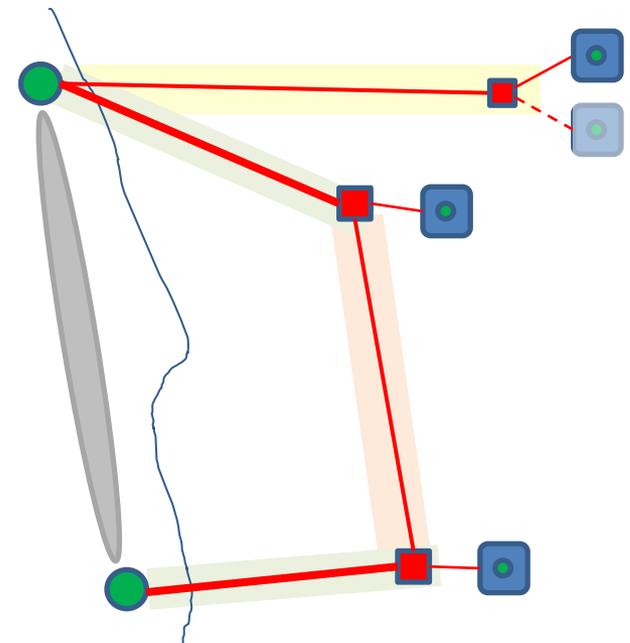
- We are discussing with developers how the OFTO Build model can meet their needs
- We welcome further bilateral contact

Revised tender regulations in early 2013



## Coordinated network development

- Consultation on a framework for coordinated network development – late 2012
- Focusing on:
  - possible changes to user commitment rules to support oversizing
  - introducing a new gateway process for anticipatory investment
  - anticipatory investment would apply to potential offshore assets that would provide wider network benefit



## Coordinated network development

- Integrated Transmission Planning and Regulation (ITPR) project
- looking at long-term delivery of an economic and efficient overall network
- Open Letter published 6 November 2012



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## **Q&A and closing remarks**

*Robert Hull*

*Managing Director, Commercial, Ofgem E-Serve*



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