Department of Energy and Climate Change

Investment Opportunities in Offshore Transmission

Investment Seminar

9 December 2008

Department of Energy and Climate Change

Introduction

Duarte Figueira

Director, Renewables Deployment Team

DECC

Department of Energy and Climate Change

Welcome and Aims of the day

Offshore Transmission – provide further clarity on:

- Background and policy framework
- Update on proposed regulatory regime
- The potential investment opportunities
- The proposed tender process
- The key stages, conclusions and next steps and dates in the implementation process

Encourage discussion

Questions

Department of Energy and Climate Change

Agenda

- Introduction – **Duarte Figueira (DECC)**
- Offshore Transmission – background and policy framework (DECC perspective) **– John Overton (DECC)**
- Background to the regulatory regime (Ofgem perspective) – **Robert Hull**
- Update on proposed regulatory regime – **Robert Hull (Ofgem)**
- Questions
- Coffee Break
- The potential investment opportunities – **Colin Green (Ofgem)**
- The proposed tender process **– Colin Green (Ofgem)**
- Conclusions, Next Steps– **Robert Hull (Ofgem)**
- Questions
- Lunch
- Close

Department of Energy and Climate Change

Offshore Transmission – background and policy framework (DECC perspective)

John Overton

Deputy Director, Renewables Deployment Team

DECC

New Offshore Transmission Regime

- Provision of offshore grid connection to offshore wind farms – key to delivery of our targets.
- Developers need a grid connection they can afford – on time.
- Up to £15 billion of new offshore grid needed to connect Rounds 1, 2 & 3 offshore wind.

Offshore Wind - Background

- Major contributor to UK's 2020 renewables target;
- UK already no. 1 in offshore wind – 598 MW installed;
- Ambitious plans for up to 33 GW of offshore wind.

SEA & Round 3 timeline

- Offshore Energy SEA launched December ‘07
- SEA scoping Spring ‘08
- Crown Estate launch of Round 3 June ‘08
- SEA workshops September/October ‘08
- Crown Estate Invitation to Negotiate issued late Sept ’08
- SEA Environmental Report published Jan ’09
- Environmental Report Consultation January-April ‘09
- Crown Estate ITN closes 3 March 2009
- Government Decision on SEA Spring 2009
- Crown Estate finalises zones, awards complete by end 2009
- Earliest projects construction could begin 2014 onwards

Regulating Offshore Transmission

- First R1 projects and some R2 projects – grid connections built by developers;
- But scale of offshore wind planned – means we need a regulatory regime in place to support offshore wind development & ensure secure supplies;
- Govt therefore took powers in Energy Act 2004 to regulate offshore transmission.

New Offshore Transmission Regime - benefits

- Will provide offshore grid companies – OFTOs – with a secure income stream for 20 years.
- Means developers will not have to fund cost of cables upfront.
- NG will co-ordinate onshore and offshore grid.
- Competition will lower cost of assets and allow new players to bring new solutions & funding.
- Amended grid codes will provide secure supplies.

Current Consultation

- Now consulting on implementation of high level policy decisions;
- Refinement of policy positions
- Further update on changes to codes and licences;
- “OFTO of last resort” – result of EU Unbundling requirements.

Next Steps

- Current Consultation Closes January 9 2009;
- Further “Final Consultation”
- Go-Active June 2009
- First Tenders Summer 2009 – “Transitional” Projects
- Go-Live June 2010

ofgem Promoting choice and value for all gas and electricity customers

Offshore Electricity Transmission

Investor Presentation

Robert Hull – Director, Regulatory Services

Colin Green – Head of Offshore Transmission Policy & Incentives

9th December 2008

Agenda

1. Offshore transmission
   - Introduction and background
2. Overview of new regulatory regime
3. The investment opportunity
   - transitional projects
   - Investment in the enduring regime
4. Ofgem's Tender Process
   - Overview
   - What you need to do
5. Conclusions and next steps

Offshore Transmission
1. Introduction and Background

Introduction

1. Background to transmission regulation in GB and its application to offshore

2. Update on the offshore regulatory regime, including the November consultation

3. Overview of commercial structures and key potential risks

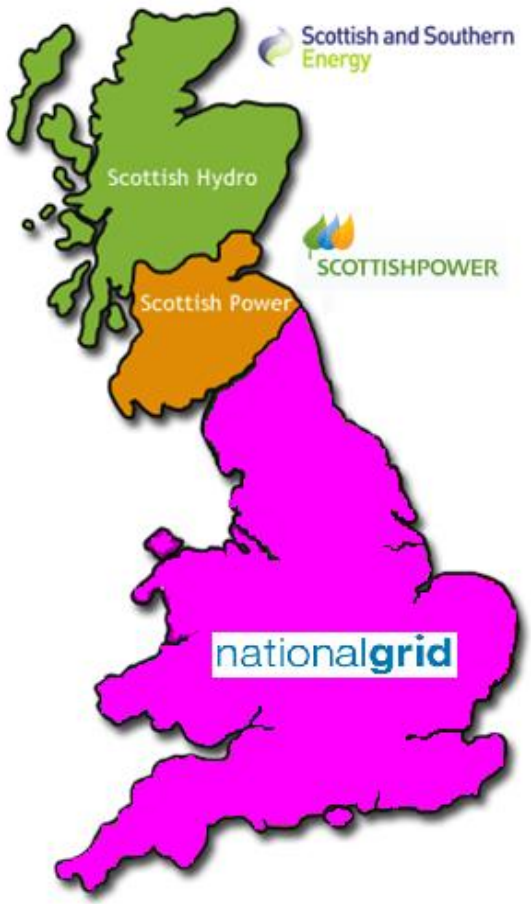
Current regulatory framework

- Legislation
  - Sets overall industry framework
- Licences
  - Setting detailed obligations for licensees in generation, transmission, distribution, supply
  - Allow Ofgem to regulate revenues and performance for monopoly network companies
- Industry Codes and Standards
  - Govern detailed commercial arrangements between industry parties e.g. Connections, technical standards
  - Defined responsibilities and change control procedures
- Ofgem's role
  - Independent regulator with statutory powers and duties
  - Promotes competition in markets
  - Regulates performance and revenues of monopoly networks through incentives

Onshore Transmission: Current Asset Owners

- Onshore: 3 licensed transmission owners with exclusive rights to build and maintain transmission assets in a defined geographic area
- Regulated through 5-year price control periods that set the maximum revenue they can receive from charges levied on network users
- Current price control (2007-12) allowed for some £4 billion of new onshore investment
- Regulated Asset Value (RAV)

Company	Average RAV 07/08
NGET	£6,225 million
SHETL	£339 million
SPTL	£820 million
TOTAL	£7,384 million



Role of GB System Operator – Onshore and offshore

Transmission Owner

Scottish Hydro

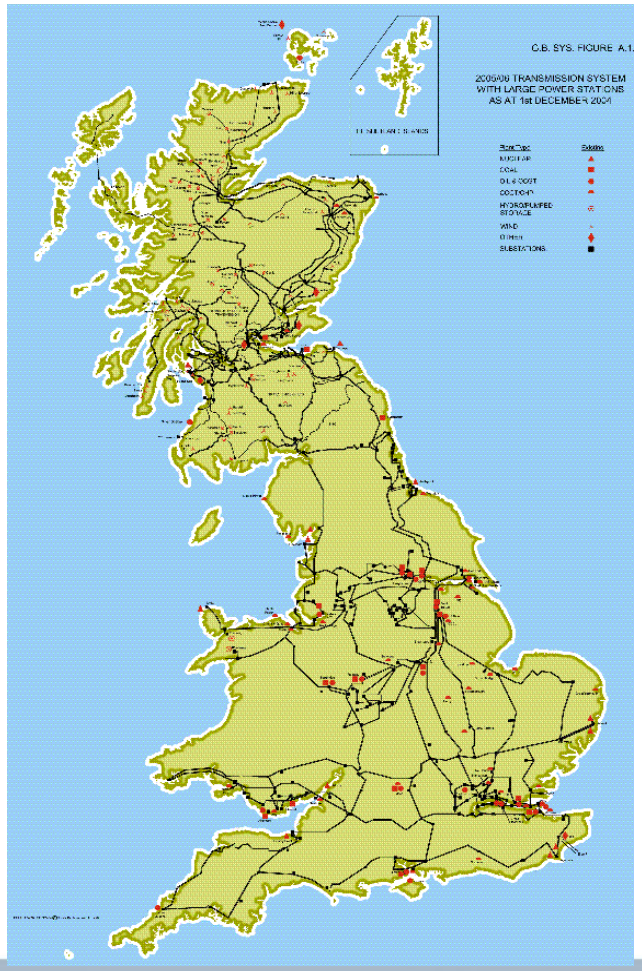
Scottish Power

National Grid

System Design

Project Management

Engineering and Maintenance



System Operator

National Grid

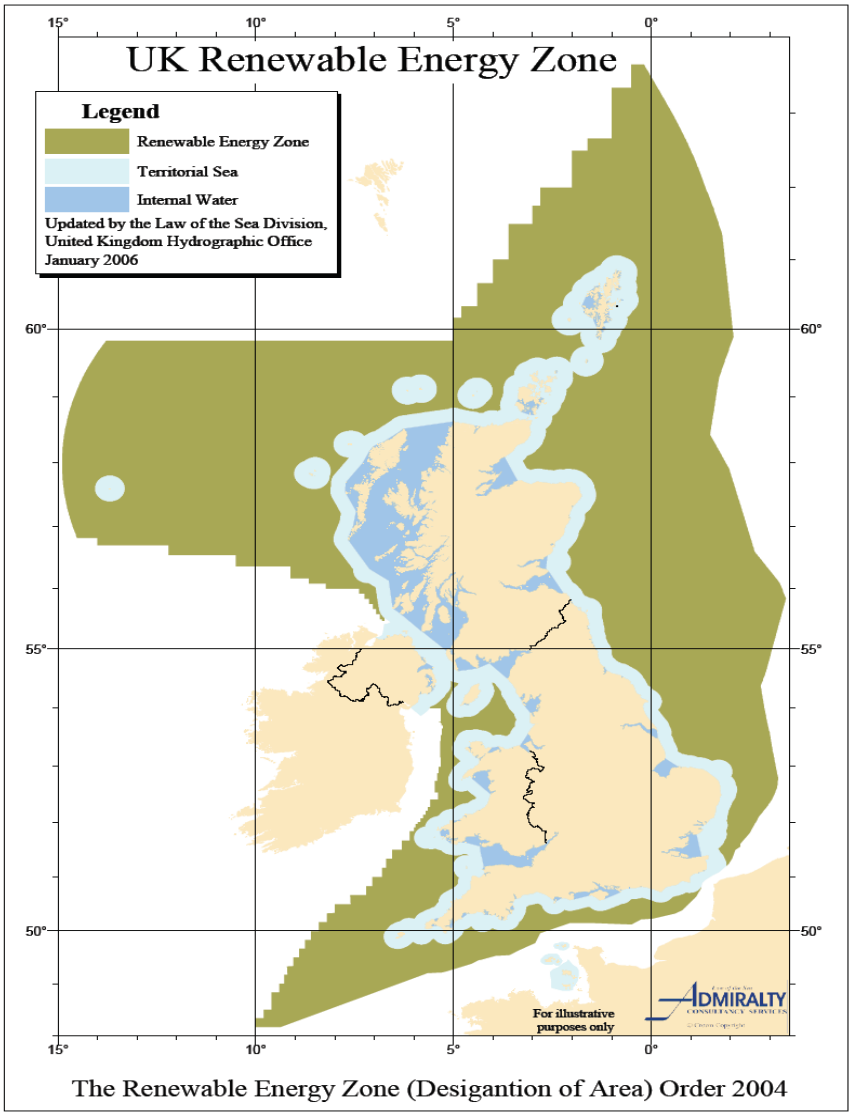
System Planning

System Operation

Market Facilitation

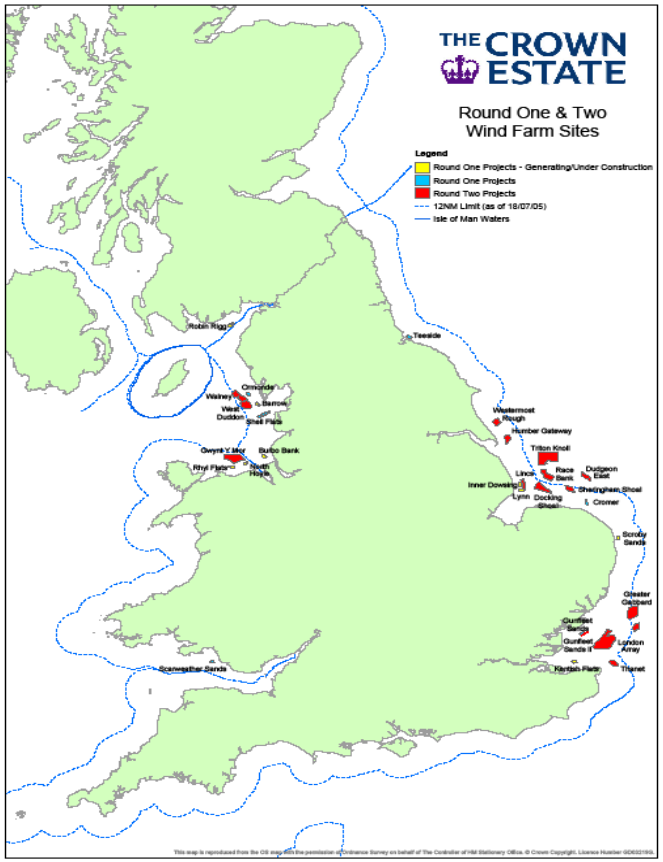
Offshore Transmission

- Government expects that up to 33GW of offshore renewables will be developed, within the entire offshore area for the UK
- It will cover offshore projects, including wind and future tide based generation
- There will be a regulatory regime for offshore transmission connections
  - As for onshore – generator pays transmission charges
  - As for onshore – transmission provider received regulated revenue from GBSO
- The first two rounds alone (South East & North West) cover up to 8 GW and this is likely to require more than £2.5bn of transmission assets

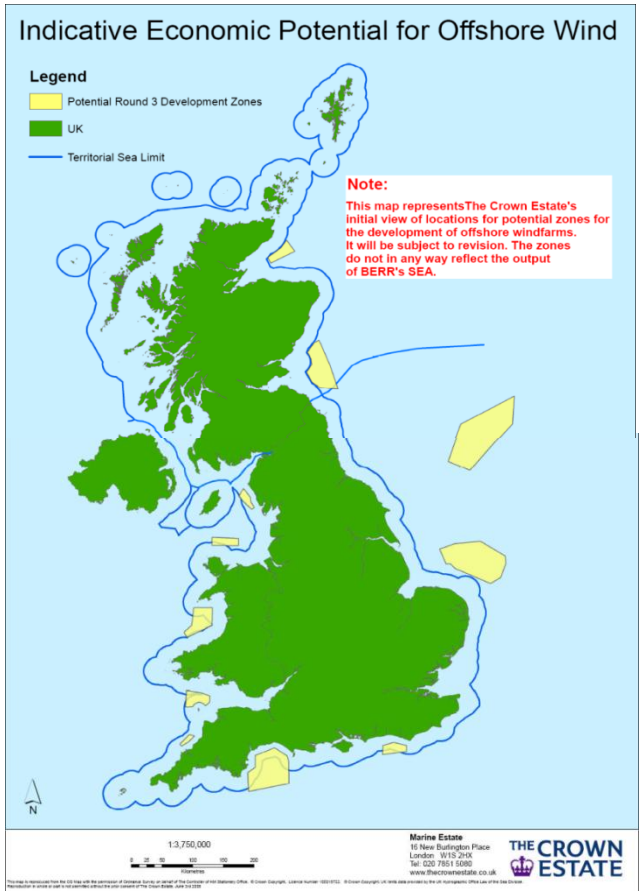


Demand for offshore transmission networks

Rounds 1 & 2 (8 GW)



Round 3 (25 GW)



Two Investment Opportunities

- Transitional Projects (First Tender summer 2009)
  - Transmission assets are already being built by the generator-developer
  - OFGEM will conduct Regulatory Asset Value (RAV) assessments to establish the initial regulatory value of these assets
  - Potential OFTOs will bid to own, finance and maintain the transmission assets
  - Assets will be transferred to the OFTO once construction is complete

- Enduring Projects (First tender summer 2010)
  - OFTOs will **design**, finance, **construct** and manage offshore transmission assets

Summary of Key Features

- Light-handed regulatory approach
- Long term revenue stream from GBSO
- Protection from asset stranding
- Low risk assets

Offshore Transmission
2. Update on Proposed regulatory regime

Overview of the new regulatory regime

- Key Proposals
- From principles to practice
- Benefits and risks

Offshore Transmission - The new regime

- Generator seeking connection to the onshore grid triggers a competitive tender process
  - Winning bidder is awarded an offshore transmission licence that guarantees a 20 year revenue stream
  - Limited regulatory intervention
  - Exposure to an operational performance incentive capped at 10% of annual revenue

- OFTO appointed by competitive tender process
  - Tenders run by Ofgem
  - Expected to deliver cheaper, timely and fit for purpose connections, with flexibility for the future

- Opportunity for new entrants

From Principles to practice

Primary Legislation	Licensing	Others
• Energy Act 2004 • Energy Act 2008	• Incorporating Offshore in the Transmission Licence	• Codes • Industry standards • Charging methodology

Our development approach? Extend existing onshore practices

- Comply with technical and operational standards
- Uses existing commercial interface arrangements between GBSO and transmission companies
- Risks and costs shared with consumer

Key Regulatory Proposals (1)

- The offshore generator connection requirements will set the scope and trigger the selection of an Offshore Transmission Owner (OFTO)

- The OFTO to undertake this investment will be appointed by competitive tender with the winner awarded a transmission licence.
  - Tender will offer opportunities for innovation in delivering fit for purpose, value for money assets
  - Open-ended licences with 20 year initial regulated revenue period

- The tender process will be run by Ofgem, resulting in selection of a preferred bidder and approval of a long term regulated revenue stream.

- Tenders will be run in early years to select OFTO's for transmission assets that are in service or being constructed by the offshore developer (transitional regime)

Key Regulatory Proposals (2)

- The OFTO's annual income received from the GB System Operator (GBSO) is based on asset availability not utilisation

- Availability incentive
  - Aim: incentivise rectification of short- and long-term outages
  - Proposal includes a "banking" mechanism coupled to the 10% penalty:
    - OFTO accrues *credits* if availability > target, *debits* if < target
    - Credits earned for good performance offset penalties payable
    - Aim to incentivise consistent high performance, while maintaining viability of OFTO proposal
    - Banking mechanism allows OFTO to manage performance incentive risk across the life of the revenue stream

- Post construction revenue adjustments
  - Incremental capacity increases up to 20% by existing OFTO
  - Further tender exercise for major capacity increases
  - Adjustment mechanisms to address unexpected or uncertain cost changes

Key Regulatory Proposals (3)

- Unknown unknowns (unpredictable and uncertain costs and savings)
  - No pre-defined adjustment mechanisms

- Known unknowns (predictable but uncertain costs and savings)
  - Full or partial RPI indexation
  - Post construction refinancing – sharing mechanism

- End of the revenue stream
  - If there is an ongoing generator demand for the asset:
    - Extension of revenue stream: Where limited additional investment is required (up to 20%).
    - Retender: Where ongoing use of the asset requires significant new investment (over 20%).
  - Performance bond towards the end of the period to maintain incentive properties over the asset life
  - If there is no ongoing demand the licence would be revoked

Key Recent Policy Developments
November Joint Consultation

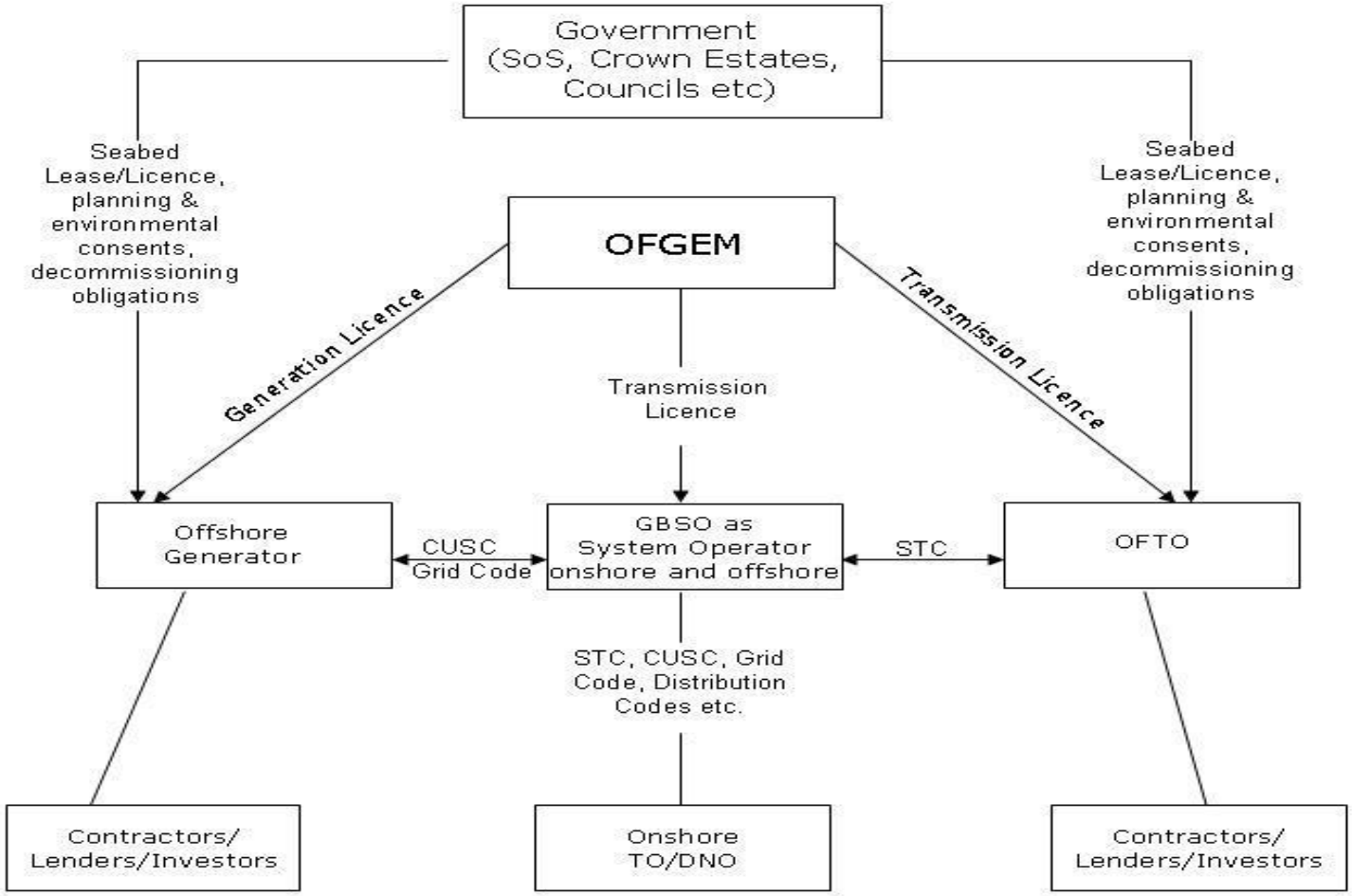
- Implementation proposals
  - updated change proposals for standard framework documents
  - change proposals for special conditions of NGET's transmission licence
  - propose for changes to licences and industry codes to be designated by Secretary of State and become part of the standard framework

- EU unbundling requirements
  - OFTO of last resort – consulting on revised position developed in light of unbundling announcement

- NGET business separation requirements
  - Published proposed text for NGET to support business separation of the GBSO from OFTO arms

- Performance incentives
  - Published proposals for an OFTO operational availability incentive framework

Outline Commercial Structure



Key Investment Risks?

Source of Risk	Type of Risk	Likelihood	Reasons
Funder	Liquidity/Refinancing	None – Transitional Low- Enduring	None needed Refinancing is post construction
Buyer	Counter Party	None	GB consumers fund via the GBSO to OFTO
Supplier	Cost / Inflation	Very Low	Income is indexed Capex a firm price Opex is a low %
Operator	Demand / Price	Very Low	Income is from capability not usage

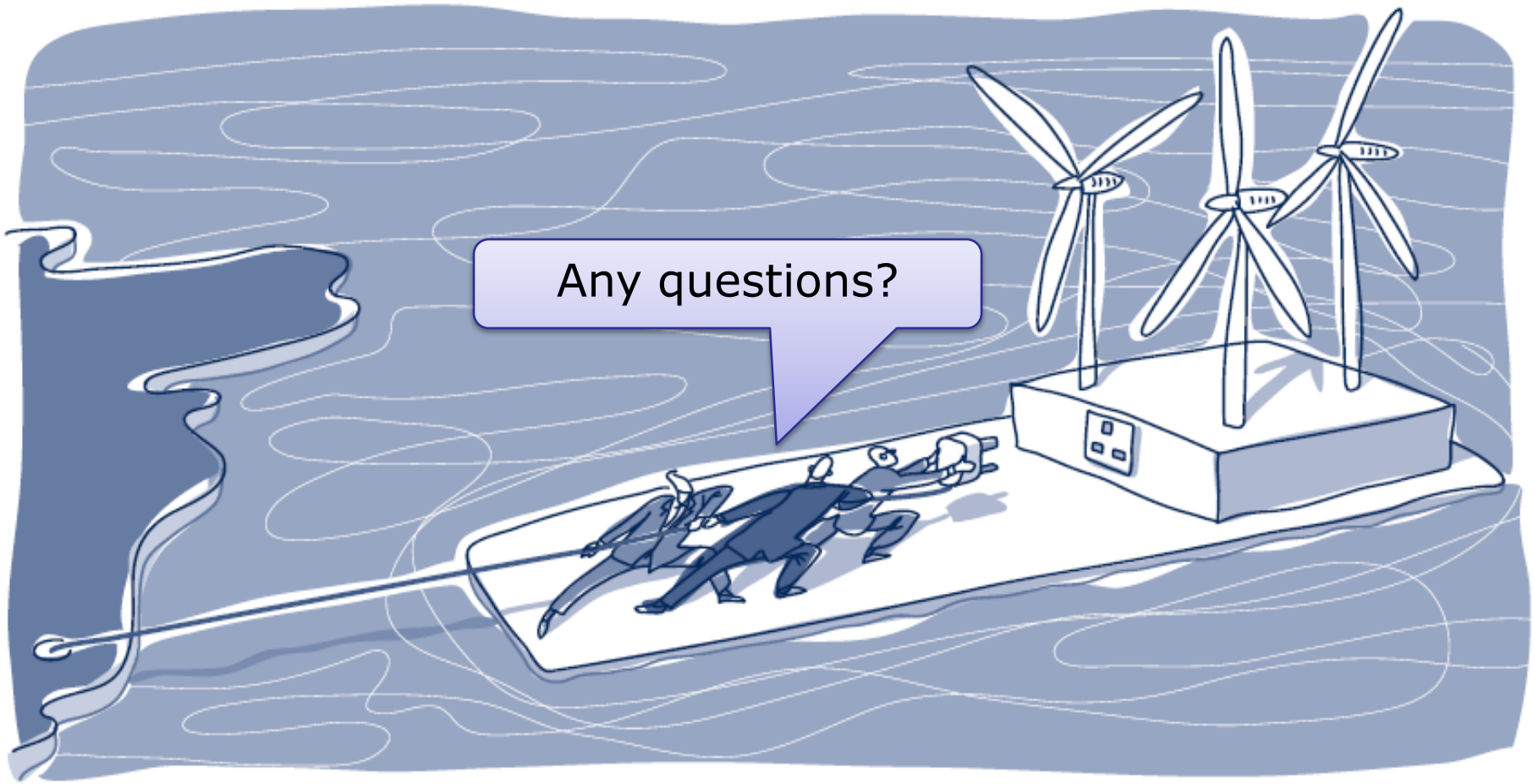
Summary of Regime – Key Benefits

For Generators

- Deliver cheaper and more timely offshore grid connections
- Be more focused on generator's requirements
- Flexibility for future offshore generation needs

For OFTOs

- Encourage innovation through competition and enable new entrants to compete in the market
- Long term regulatory certainty and light–handed regulation
- Low risk - OFTO protected against generator failure and credit risk (and construction for transitional projects)

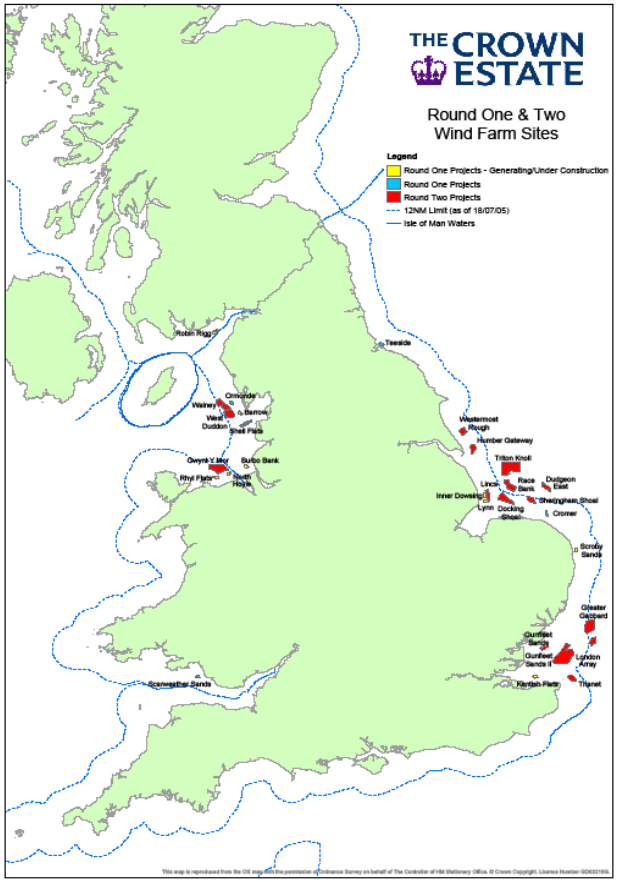

Any questions?

Coffee Break

Offshore Transmission
3. The potential investment opportunity

4. Overview of the Transitional Projects

- Qualifying Criteria
- Potential projects
- RAV assessment
- Tender process



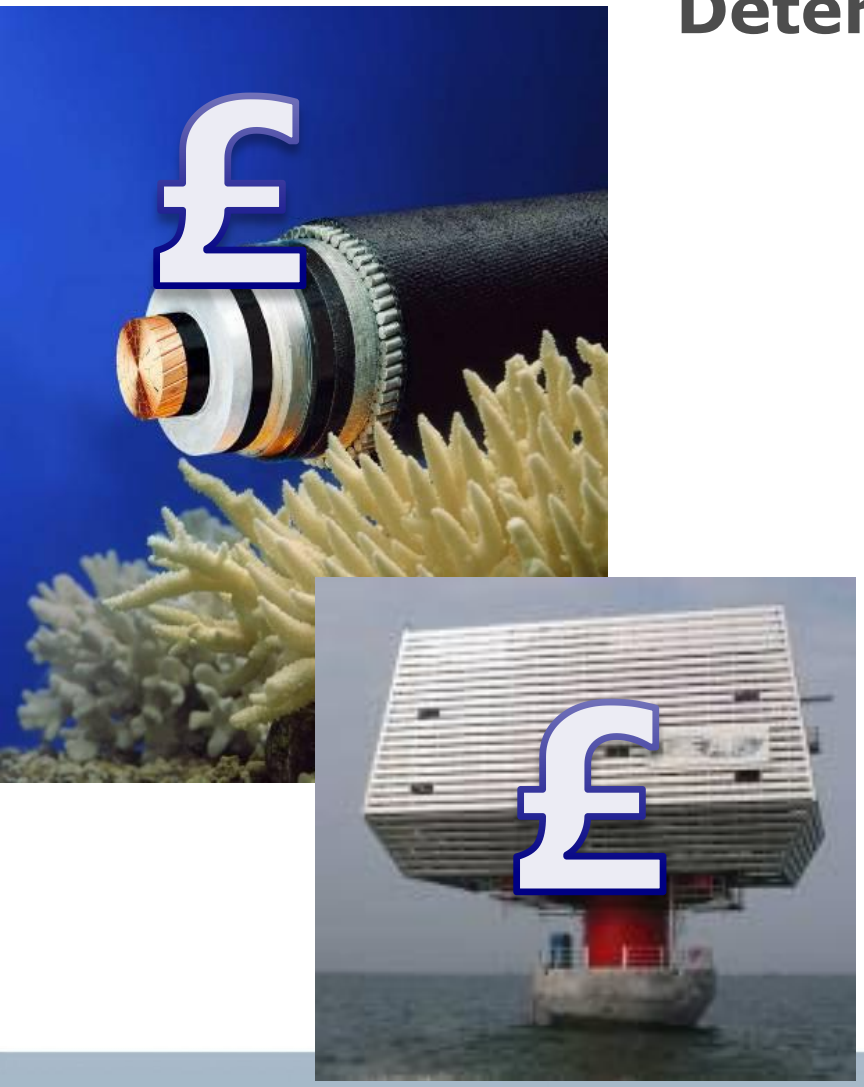
What is a "Transitional" Project?

- Three classifications of transitional projects:
  - Projects constructed by 'Go Active' (expected June '09)
  - Projects not constructed, but achieve financial close by 'Go Active'; and
  - Projects that achieve financial close after 'Go Active' but before 'Go Live' (June '10);
- Transmission assets be built by generator-developer
  - Assets will transfer to the OFTO post construction
  - Ofgem will determine the RAV and transfer value
  - Revenue stream tendered – key elements are financing and O&M
  - Different risk profile than in enduring regime

Projects that do not achieve financial close by the 'Go Live' date will be deemed to fall within the enduring regime

Likely Transitional projects

Project likely to qualify for First Transitional Tender		
Project	Developer	Size (MW)
Barrow	DONG Energy Centrica	90
Robin Rigg	E.On	180
Gunfleet Sands 1 & 2	DONG Energy	172
Thanet	Vattenfall	300
Greater Gabbard	Airtricity (SSE) RWE Npower	504
Ormonde	Eclipse Energy Ltd (Vattenfall)	150
Walney	DONG Energy	450
London Array	E.On DONG Energy	1000
Sheringham Shoal	SCIRA	315
Project likely to qualify for Second Transitional Tender		
Lincs	Centrica	250
Gwynt-Y-Mor	RWE Npower	750
Docking Shoal	Centrica	500
Race Bank	Centrica	500



Determining the RAV

- RAV required to establish the value of transitional projects
- Ofgem establishes a RAV. This will inform the transfer value that the bidder will pay
- Effectively bidders key variable costs are O&M and finance.

Determining the RAV (2)

- Transitional projects may still be under construction during the tender:

- Ex Ante RAV – at start of tender

- Ex Post RAV – on completion of build

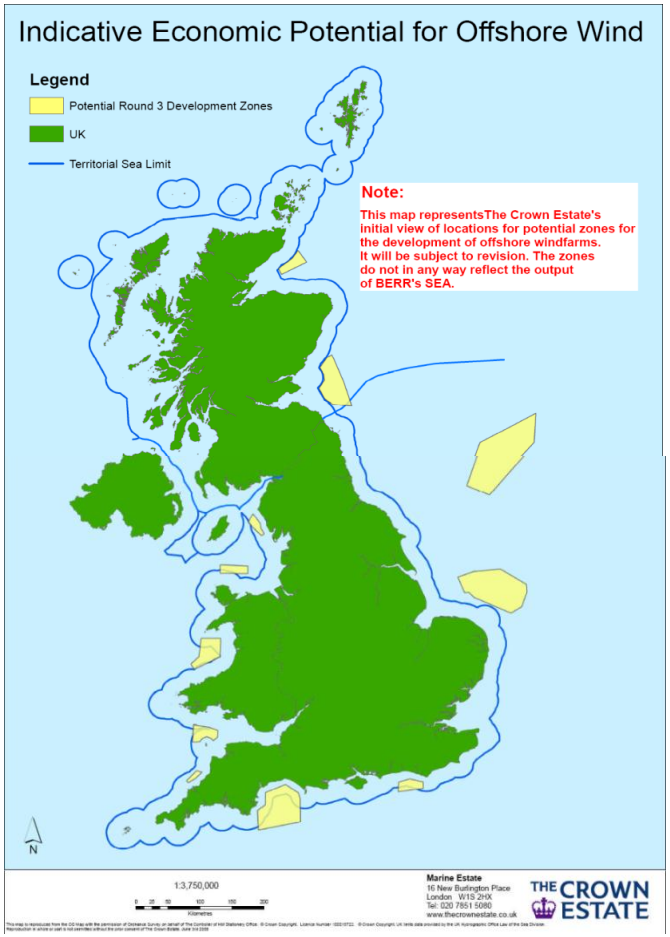
- Generator is guaranteed either 100% of ex-Post RAV or 75% of ex-ante RAV (whichever is the higher)

- Independent engineering assessment before transfer of asset

- Ofgem developing tender process to establish the process of finalising the price for the bid (e.g. CAPs and COLLARS)

5. Overview of the enduring regime

- The Enduring Regime
- Round 3
- Connection arrangements



An "Enduring" Regime

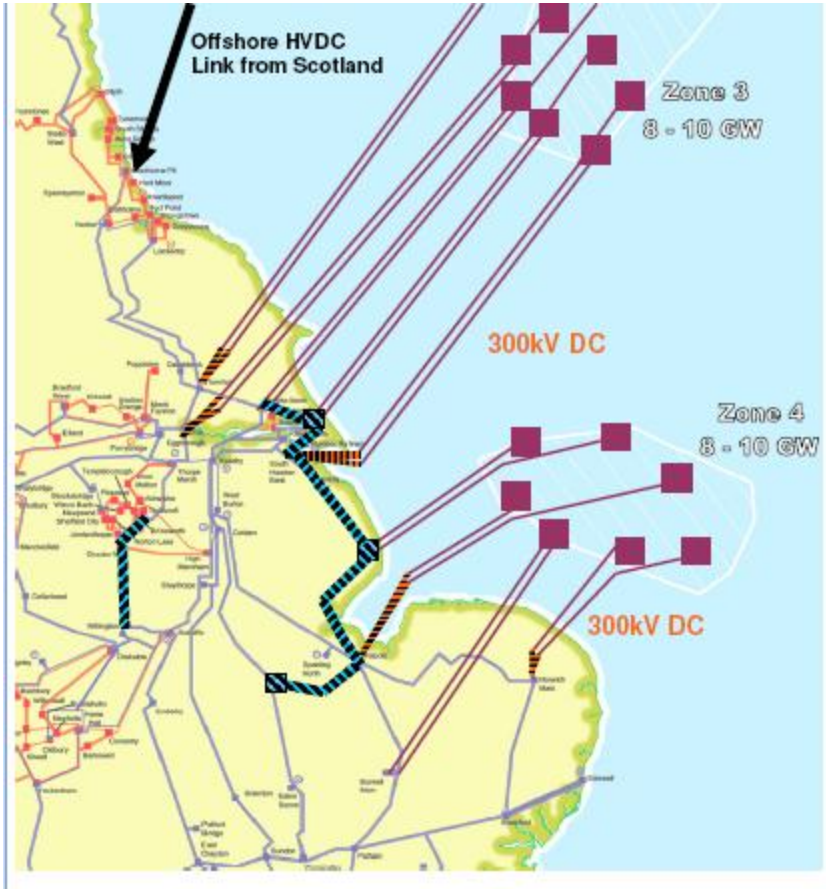
- Long term enduring regime
- OFTOs will **design**, finance, **construct** and manage offshore transmission assets over duration of licence
  - Same as onshore
- Round 3 was launched in September and is expected to deliver 25GW of generation by 2020

Development of offshore networks in Round 3

- Two possible ways in which development of transmission assets for Round 3 offshore projects could occur:

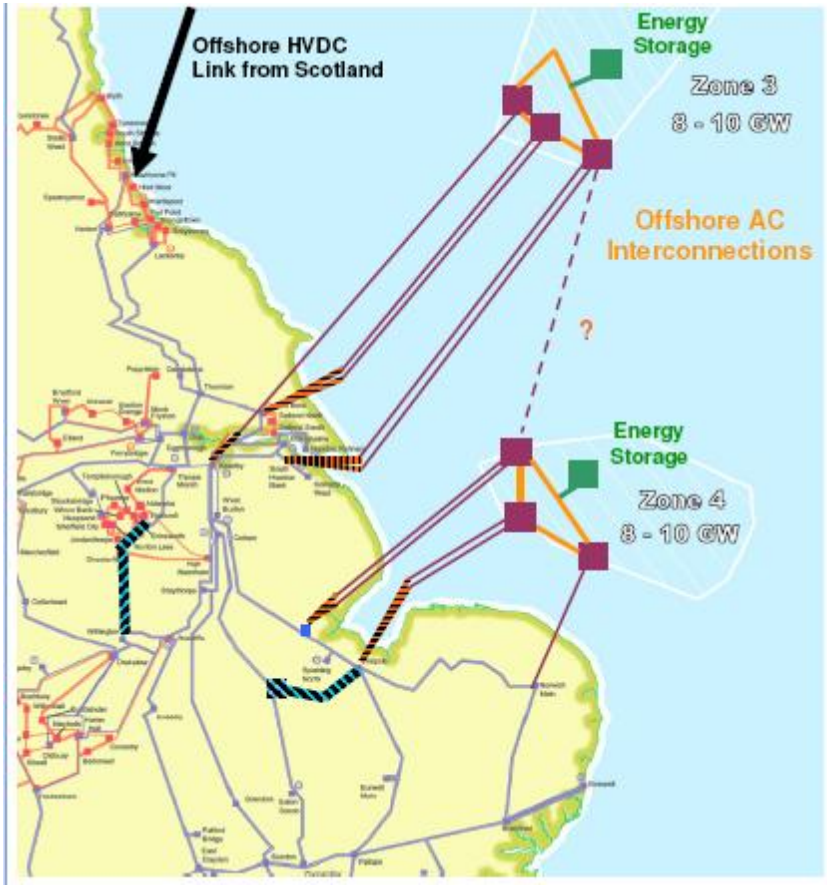
1. Point to point connections
   - Generator specific connections between a generator specified point offshore and a point onshore
   - Phased connections requirements by individual generators
2. Integrated offshore transmission networks
   - Network designed to meet a number of generation connection/modification applications
   - Reinforcement of GB transmission system by links between offshore transmission networks

Point-to-point tenders



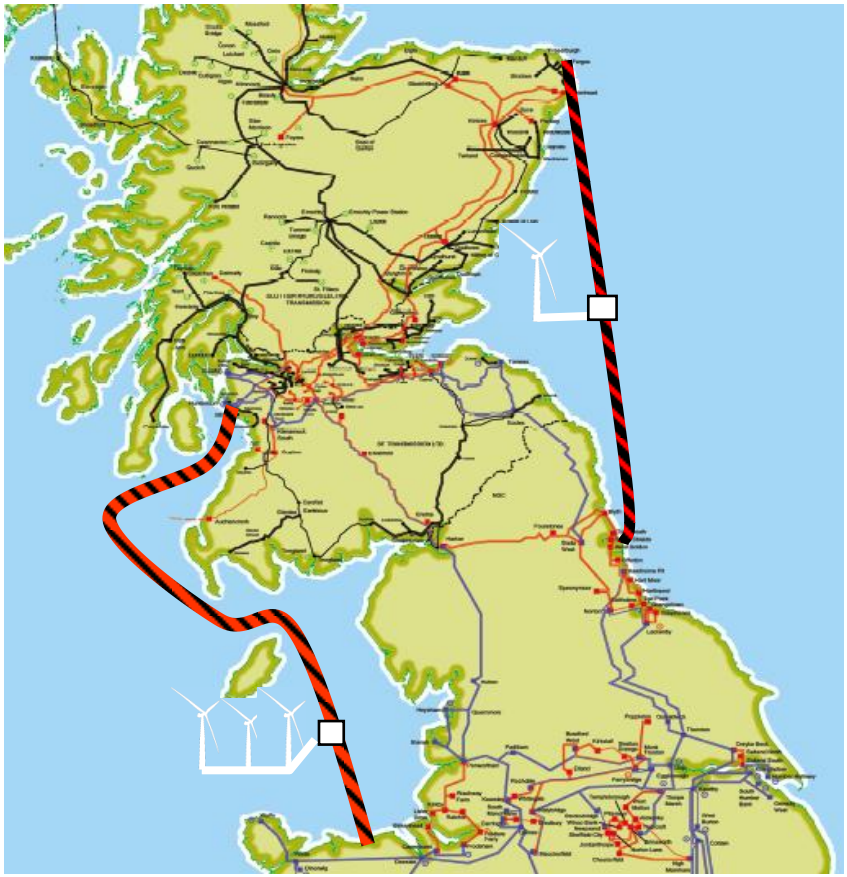
- Allows generators to proceed individually and avoid delays due to third parties
- High capacity, low redundancy HVDC connections may be exploited to minimise network costs for each point to point connection
- Generator could request a phased connection

Integrated network tenders (1)



- Scope for offshore generators to combine connection applications due to:
  - Crown Estate approach to leases
  - Strong commercial incentives
- Regime also provides scope for new offshore inter-network connections to be developed by an existing OFTO (up to 20% additional cost before further tender triggered)

Integrated network tenders (2)



- Scope for offshore generator connections to have more than one onshore connection point
- Subject to competitive tender process to select OFTO
- Offshore transmission network will form part of GB transmission system once contracted

Offshore Transmission
4. The proposed tender process

6. The Tender Process

- Overview
- Transitional Arrangements
- Qualification Criteria

Tender Process

- A generator meeting certain pre-conditions will trigger a notice inviting expressions of interest from prospective OFTOs
  - Means that the tender is based on high level generator requirements
  - Pre-conditions include the developer holding a connection agreement with NGET and entering into lease arrangements with The Crown Estate
- The tender process will be co-ordinated through annual competition windows – this will be kept under review
- A four stage tender process is proposed i.e. Pre-Qualification, Invitation to Tender, Best and Final Offer, and Preferred Bidder
  - Bidders will be required to comply with industry codes, technical standards, and licences
- Ofgem will grant a licence to the winning bidder
  - Seeking value for money, fit for purpose bids
  - Licence sets out obligations and entitlements
- Ofgem will recover tender costs from bidders and generators

Tender process – Transitional Arrangements

- Transitional arrangements will apply where transmission assets have been or will be constructed by the offshore developer
  - Ofgem will determine efficient asset values in advance
  - OFTO will adopt assets post construction
  - Phased projects will be adopted as phases are completed
- Arrangements will apply where the developer meets certain pre-conditions ahead of Go Active or Go Live
  - Pre-conditions include that the offshore developer has completed the construction or has secured financing to construct the assets
- Bidders will be able to bid for more than one project in a tender round
- Ofgem's evaluation strategy will be to seek the most economically advantageous bid for each project
  - The key factor will be the long-term revenue stream, subject to evidence of suitable technical and managerial capability

OFTO Qualification Criteria

- Evidence of a suitable ownership structure for the OFTO;
- evidence of a suitable approach for financing the OFTO, demonstrating adequate financial standing and an understanding of the investment economics;
- evidence of suitable management capability for operating the OFTO; and
- evidence of relevant technical and specialist capability for OFTO operation, including but not limited to:
  - Evidence of an understanding of the key Health & Safety requirements (including policies and experience); and
  - Evidence of an understanding of key environmental requirements.

Key Features of the Tender Process

- Certainty for OFTO's and Generators over Technical, Licence and Regulatory Requirements
  - Stable regulated income for project lifetime
  - Pre-agreement on risk allocation
  - Transparent bidding process

- Greater flexibility on choice of design, procurement, operational management, insurance, financial structure, etc.

- OFTO bids a **20 year revenue stream** based on its view of costs, returns, scope for future developments.

- We will develop our process in the light of responses received to the October tender consultation

Who Can Participate?

- The tenders will be open to all interested parties, including consortiums of companies, banks, investment groups, manufacturers as well as existing network companies

- EU rules on unbundling will apply to the regime and interested parties will need to be compliant

Risk Allocation

Generator	Consumers	OFTO
• Turbine failure • Wind unavailability • Energy Risk (price, volume) • Network reliability • Decommissioning of turbines	• Generator insolvency or abandonment • Credit risk of non-payment of charges by offshore generator	• Bid costs • Construction • Operation risks • Financing risks • Decommissioning of transmission assets

Offshore Transmission
5. Conclusions and Next Steps

Summary of regime

- 33 GW of transmission assets may be required in total
- £10-15 bn of potential investment connecting Crown Estates R1, R2 and R3
- Offshore Transmission Owners (OFTOs) appointed by competitive tender process
- Awarded a long term revenue stream with limited regulatory intervention
- Two types of investment:
  - Transitional – those assets that have already been constructed
  - Enduring - OFTO will also build the assets

Summary of Regime – Key Benefits

For Generators

- Deliver cheaper and more timely offshore grid connections
- Be more focused on generator's requirements
- Flexibility for future offshore generation needs

For OFTO's

- Encourage innovation through competition and enable new entrants to compete in the market
- Long term regulatory certainty and light–handed regulation
- Low risk - OFTO protected against generator failure and credit risk (and construction risk for transitional)

Next Steps

- Ongoing consultations on regime details
  - Industry codes and technical standards
  - Transmission licence conditions

- Further consultations expected early in the New Year on:
  - Tender regulations
  - Tender documentation
  - Final joint consultation

- Preparation for first tender round (transitional projects)

- **'Go-Active'** – June '09 (with tenders expected to start during Summer)

- **'Go-Live'** – June '10 (Prohibition extend offshore and applies to offshore developments at 132kV and above)

Ofgem offshore transmission contacts

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- Stephanie McGregor - Associate Director (0207 901 7377) stephanie.mcgregor@ofgem.gov.uk
- Colin Green - Head of Policy & Incentives (0207 901 7143) colin.green@ofgem.gov.uk

Lunch & Close


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