

May 2014



Department  
for Business  
Innovation & Skills



Department  
of Energy &  
Climate Change



UK Trade  
& Investment

# UK offshore wind Policy, costs, jobs and the future



OWIO Presentation JB May 14



# Government policy is driving growth in low carbon power generation

1

## The Opportunity

Replacing and upgrading electricity infrastructure will require up to £110bn of capital investment over this decade.

Around a fifth of our existing capacity has to close by the end of the decade.

We need to build a diverse energy mix to meet rising demand and deliver on our low carbon targets.

Opportunities in low carbon and unabated gas.

2

## Progress so far

- ▶ Since 2010, £29bn of new renewables investment announced, supporting 30,000 jobs.
- ▶ New nuclear is expected to generate £60bn of investment by 2030.
- ▶ DECC's Carbon Capture and Storage competition will provide the springboard for the UK industry.
- ▶ Around 16GW of gas-fired capacity consented but not under construction.

3

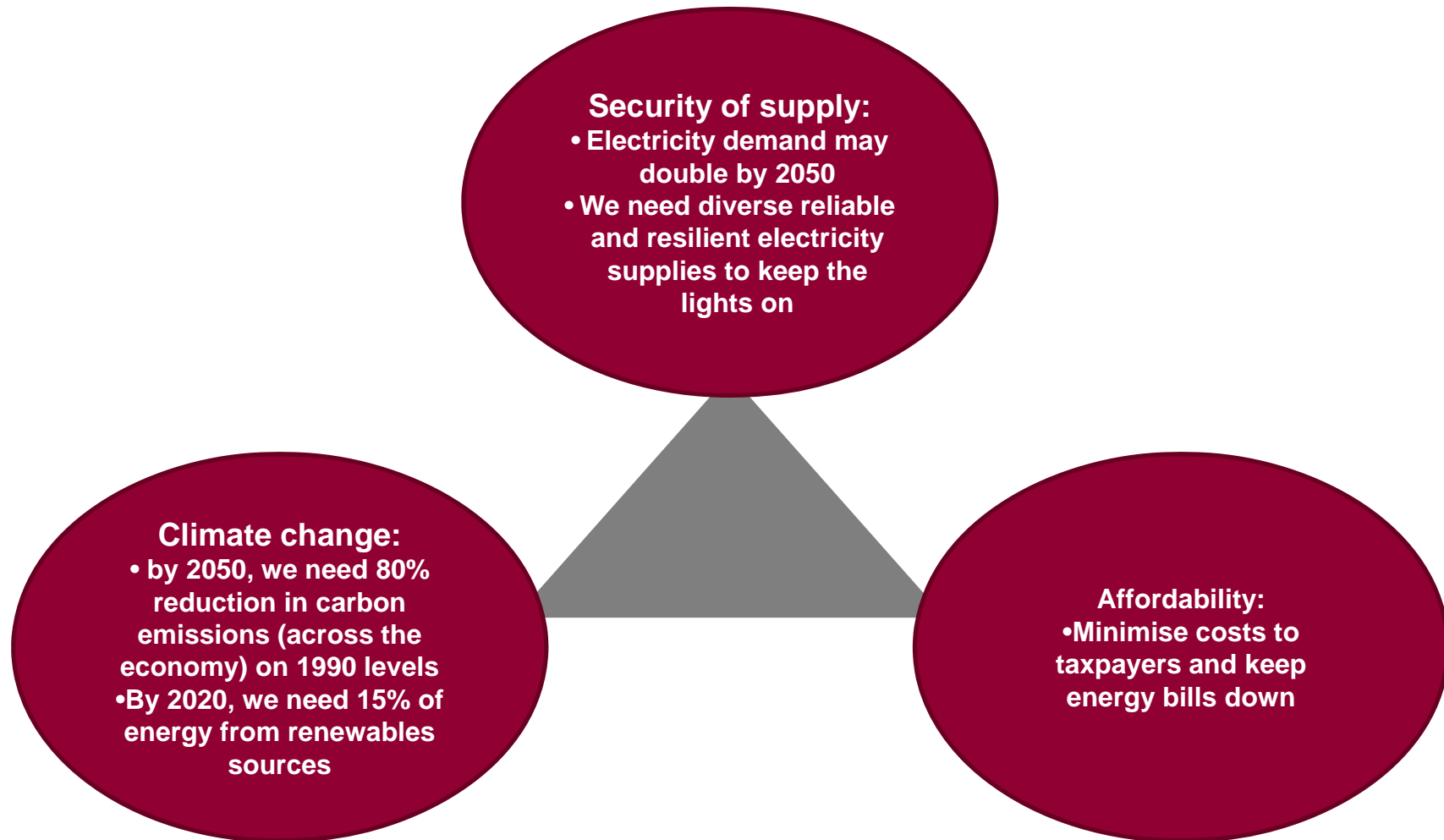
## Unlocking investment

Electricity Market Reform is designed to make the UK electricity market amongst the most attractive in the world for inward investment.

It will put in place measures to de-risk long-term investments – strengthening investor confidence and unlocking the investment we need.



# Electricity Market Reform required





## The long-term vision is for low-carbon technologies to compete on costs

### Long term vision:

An electricity market where low carbon technologies compete on cost

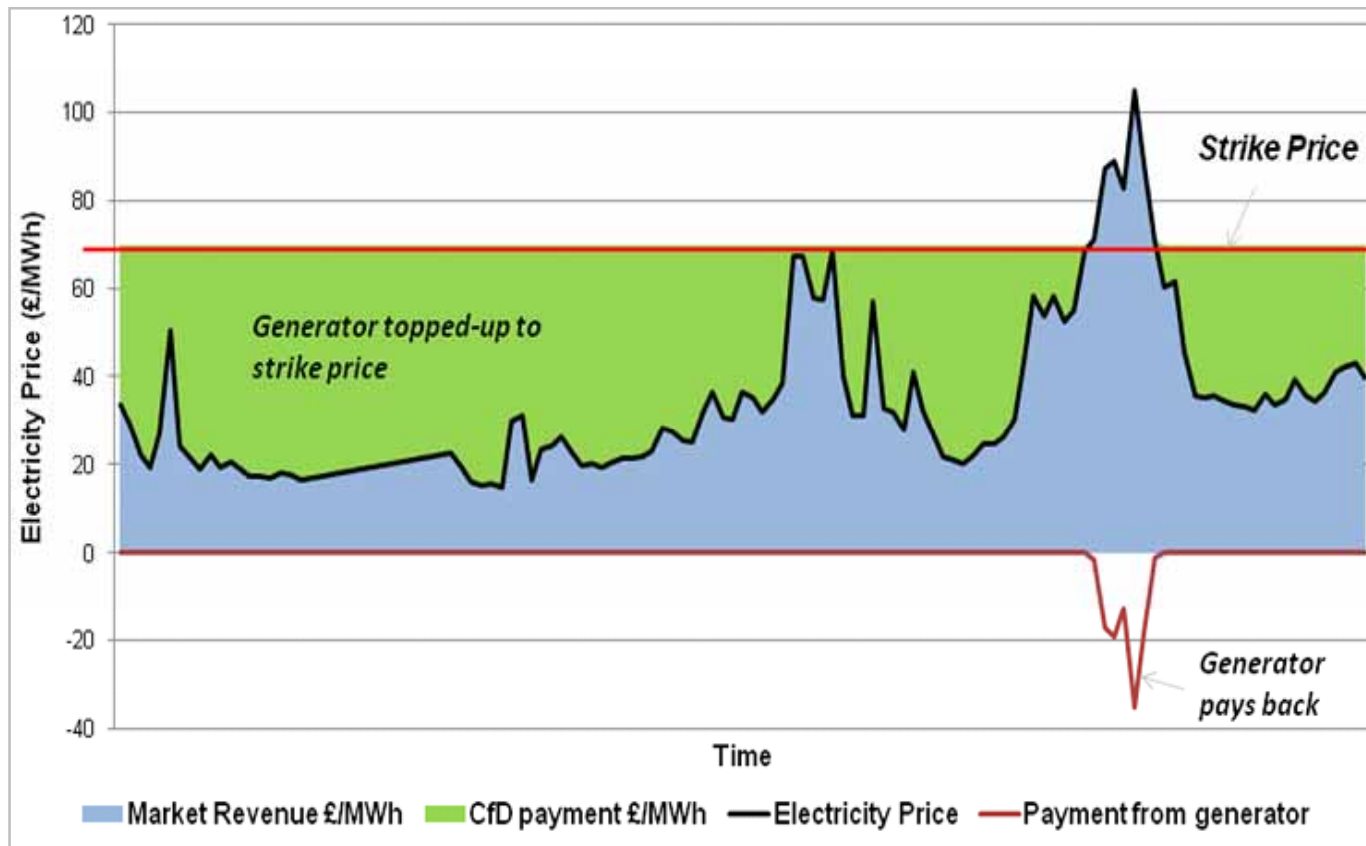
### EMR puts in place the framework to transition towards this goal:

In particular, addressing the current issues with the market:

- Up front investment in high capital projects (nuclear/ renewables) expensive due to variable gas price
- Carbon signals in the market (particularly emissions trading) variable and hard to predict
- Technologies at different stages of maturity (e.g. early stage technologies like CCS and offshore wind will initially be expensive)
- Future market conditions mean that we need significant investment in peaking capacity (gas, demand side response and electricity storage)



# Contract for Difference





# Clear Benefits to Developers

1

**Removal of wholesale electricity price exposure by providing a fixed strike price to developers, largely stabilising project revenue**

2

**Robust and reliable private law contractual arrangement providing developers with a clear set of rights and obligations, and recourse to arbitration processes to resolve disputes**

3

**Robust single counterparty owned by government and set up as a limited liability company**

4


**Early certainty and security of support levels in the project development process**

5

**Provisions that protect the value of the CfD to developers (e.g. change in law protection)**



# Final Strike Price For Renewables

	2014/15	2015/16	2016/17	2017/18	2018/19
Onshore Wind	95	95	95	90	90
Offshore Wind	155	155	150	140	140 
Tidal Stream	305	305	305	305	305
Wave	305	305	305	305	305
Biomass Conversion	105	105	105	105	105

**PLUS** introduced phasing – allowing 25% of project to be constructed in yr1 and retain that strike price for the project



## LCF: Stability for investors and protection of the consumer

LCF trajectory (2011/12 prices)	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
	£4.30bn	£4.90bn	£5.60bn	£6.45bn	£7.00bn	£7.60bn

The Levy Control Framework (“LCF”) allows Government to control public expenditure paid for through consumers’ energy bills. It sets out the maximum support level for low carbon generation on an annualised basis. Includes obligations under existing schemes and will include obligations under CfDs

The LCF is sized to enable us to meet our 2020 renewables target

Transparency provides clarity for investors about the likely availability of support for a project commissioning in a particular year

Also provides clarity for consumers about the impact on household bills. EMR is expected to reduce annual household bills by an average of £41 (6%) over the period 2014 to 2030 (real 2012 prices), relative to achieving the same levels of renewables and decarbonisation using exiting policies.





# Financial Investment Decision Enabling for Renewables

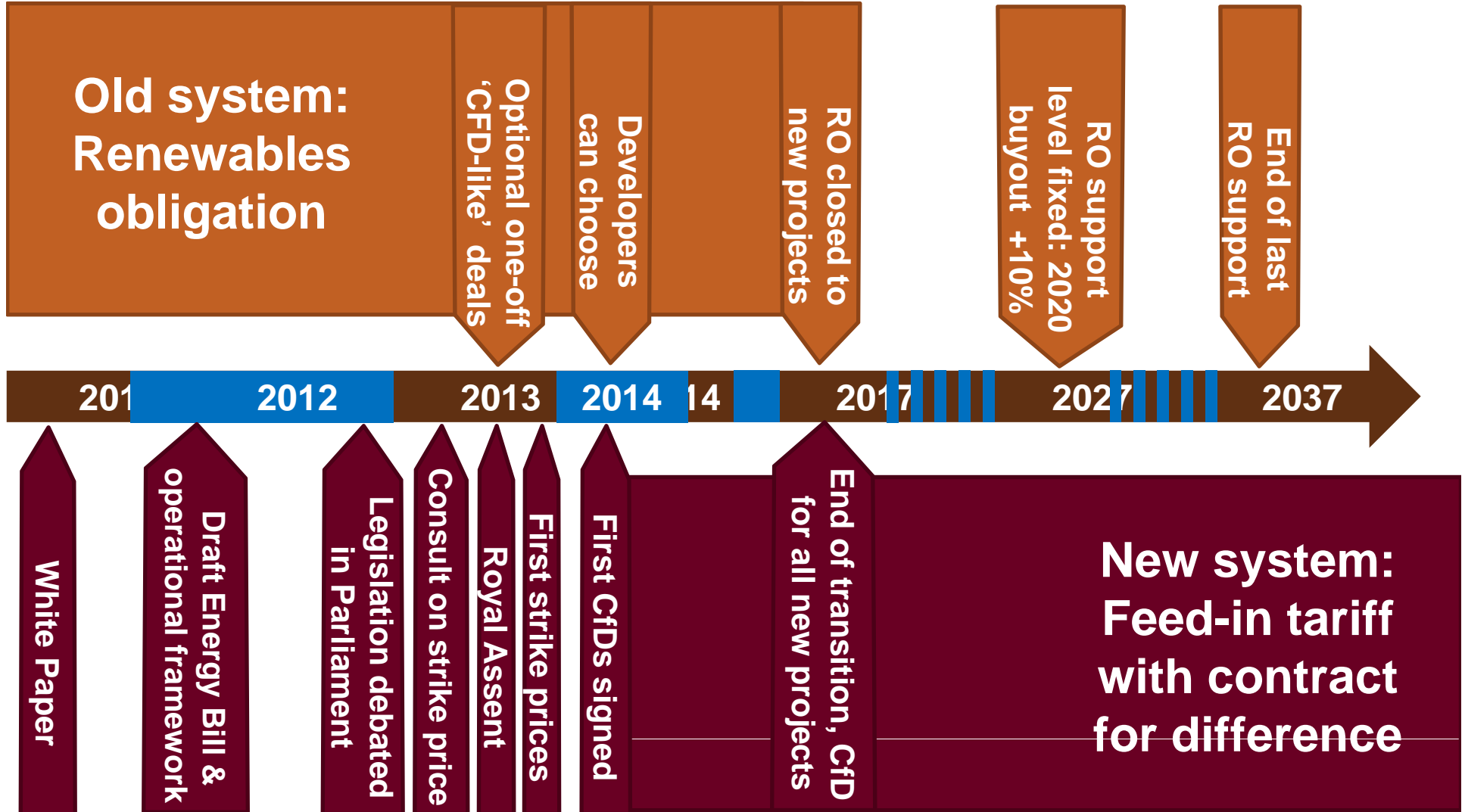
FIDeR process to bring forward EMR Contract for Difference to the market early.

Five Projects offered FIDeR (c3GW) :-

- Burbo Bank Extension, Dong
- Walney Extension, Dong
- Hornsea, Smartwind
- Dudgeon, Statkraft & Statoil
- Beatrice, SSE & Repsol



# Timetable of Change





# UK: World Leader in Offshore Wind

Over half the World's installed capacity installed in UK waters

>£12bn assets currently operating in UK

## In operation

22 projects, 3.65 GW, 1075 turbines

## Under Construction

4 projects, 1394 MW, 376 turbines

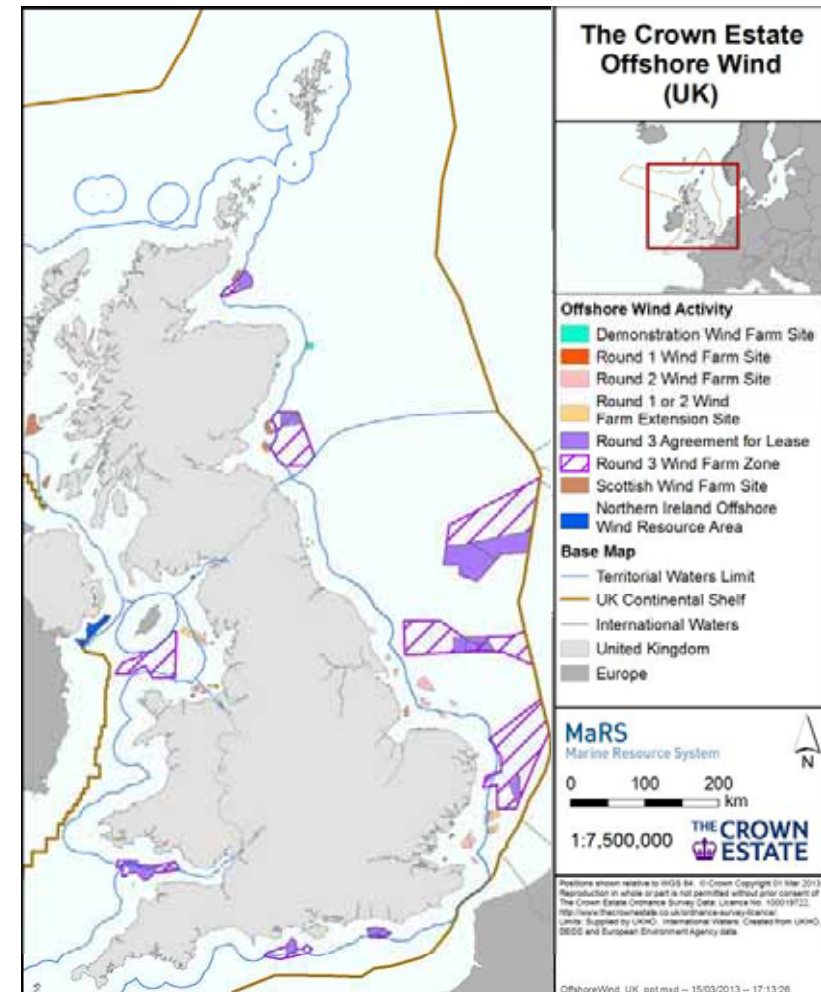
## Consented

9 projects, 4GW

## In planning

10 projects, 10GW

Further >10GW currently in development



# £12b Assets Currently Offshore in UK Offshore Wind



Offshore  
Turbines

Operating	1075
In construction	376
<b>Total</b>	<b>1451</b>



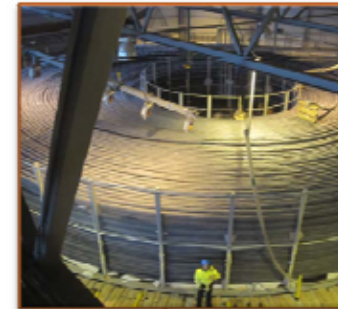
Offshore  
Substations

14
4
<b>18</b>



Onshore  
Substations

18
4
<b>22</b>



Export  
Cables

40
10
<b>50</b>



Offshore  
Masts

18
3
<b>21</b>



# Offshore Wind Developers Forum calls for local economic benefit from offshore wind





# Industrial Strategy





# Offshore wind industrial strategy: the vision

Industry and Government working together to build a competitive and innovative UK supply chain that delivers and sustains jobs, exports and economic benefits for the UK, supporting offshore wind as a core and cost-effective part of the UK's long-term electricity mix.

The vision is to deliver:

- economic growth creating tens of thousands of long term jobs
- a clear and sustainable project pipeline
- major manufacturing facilities in the UK
- the development of a competitive UK-based supply chain
- a technology cost-competitive with other low carbon technologies



# Offshore Wind Industrial Strategy Vision delivered through work in five areas

- **Providing market confidence and demand visibility** – critical for investment by developers and the supply chain
- **Building a competitive supply chain** – to support UK based companies to develop the capability and capacity to bid for, and win, contracts in open and fair competition
- **Supporting innovation** – vital to achieve cost reduction and enable new players to enter the market with new product designs
- **Finance** – support to access finance for developers and the supply chain
- **Building a highly skilled workforce** – to deliver the right skills at the right time



## Organisational mission

The Offshore Wind Investment Organisation (OWIO) aims to significantly increase the level of UK content in the offshore wind supply chain in the UK and across the rest of the world.

**Context:** The UK has a world leading position in offshore wind with over half the world's offshore wind technology installed in UK waters.

**Purpose:** To promote a competitive, capable and innovative UK supply chain.

**Benefits:** To capture economic benefit from the offshore wind market, enabling a reduction in the cost of energy and securing a long term future for offshore wind.

**Approach:** Informed by assessment of the market opportunity and UK supply chain capability, OWIO will identify areas of the offshore wind and related energy supply chain where there is potential for new investment; identify specific companies to target; and work with developers to follow up on their supply chain plans. OWIO works in close collaboration with colleagues in DECC, BIS and our overseas posts to support delivery of the highest priority opportunities in the offshore wind supply chain.

# The HMG-wide offshore wind supply chain network



## OWIO UKTI team

### Civil service

Strategic Relations  
 Director (Energy)  
 Damian Nussbaum  
 T: 1833

Head of Offshore Wind  
 Catriona Knox  
 T: 3955

### Private sector

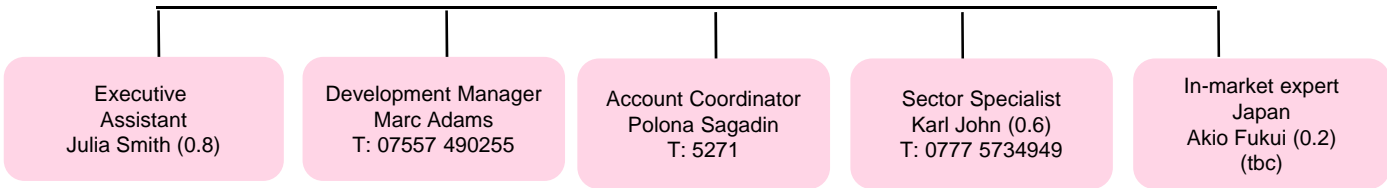
tba  
 Expert Adviser (0.4)

COO  
 James Beal  
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**DECC**  
 Office of Renewable Energy Deployment

**BIS**  
 Low Carbon Transactions team and  
 Offshore Wind Strategy team

**Overseas Post Network**

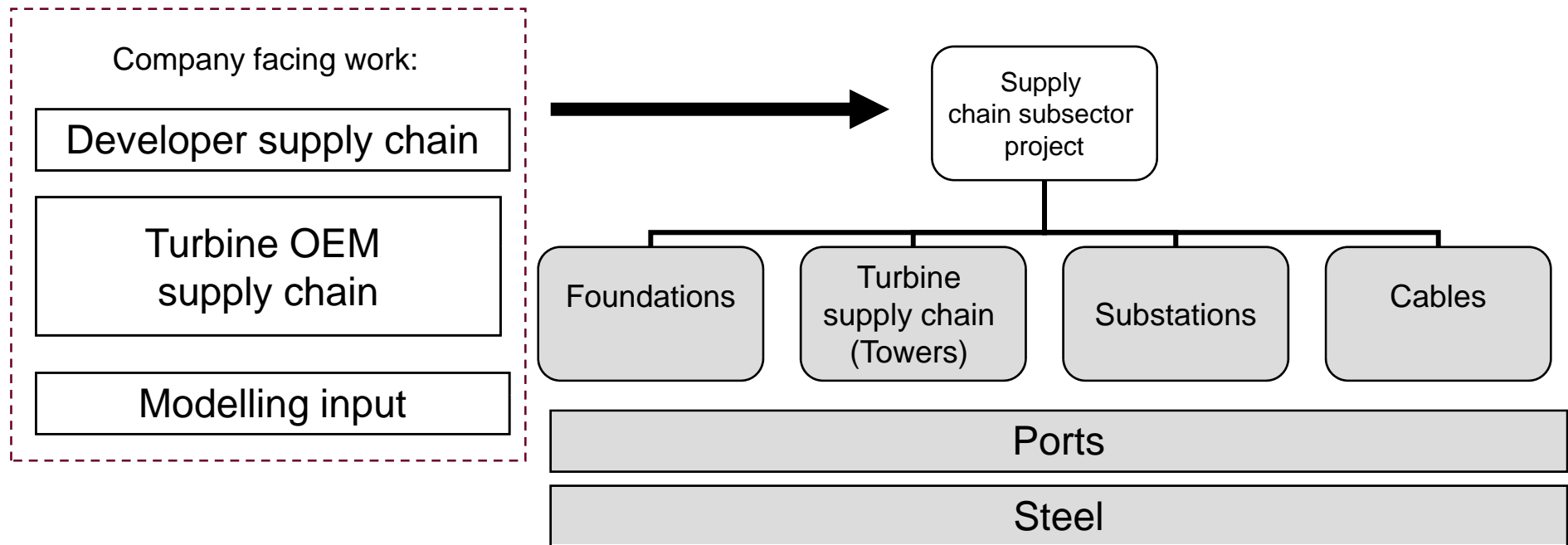


**UKTI Investment Services Team**

**UKTI trade team**

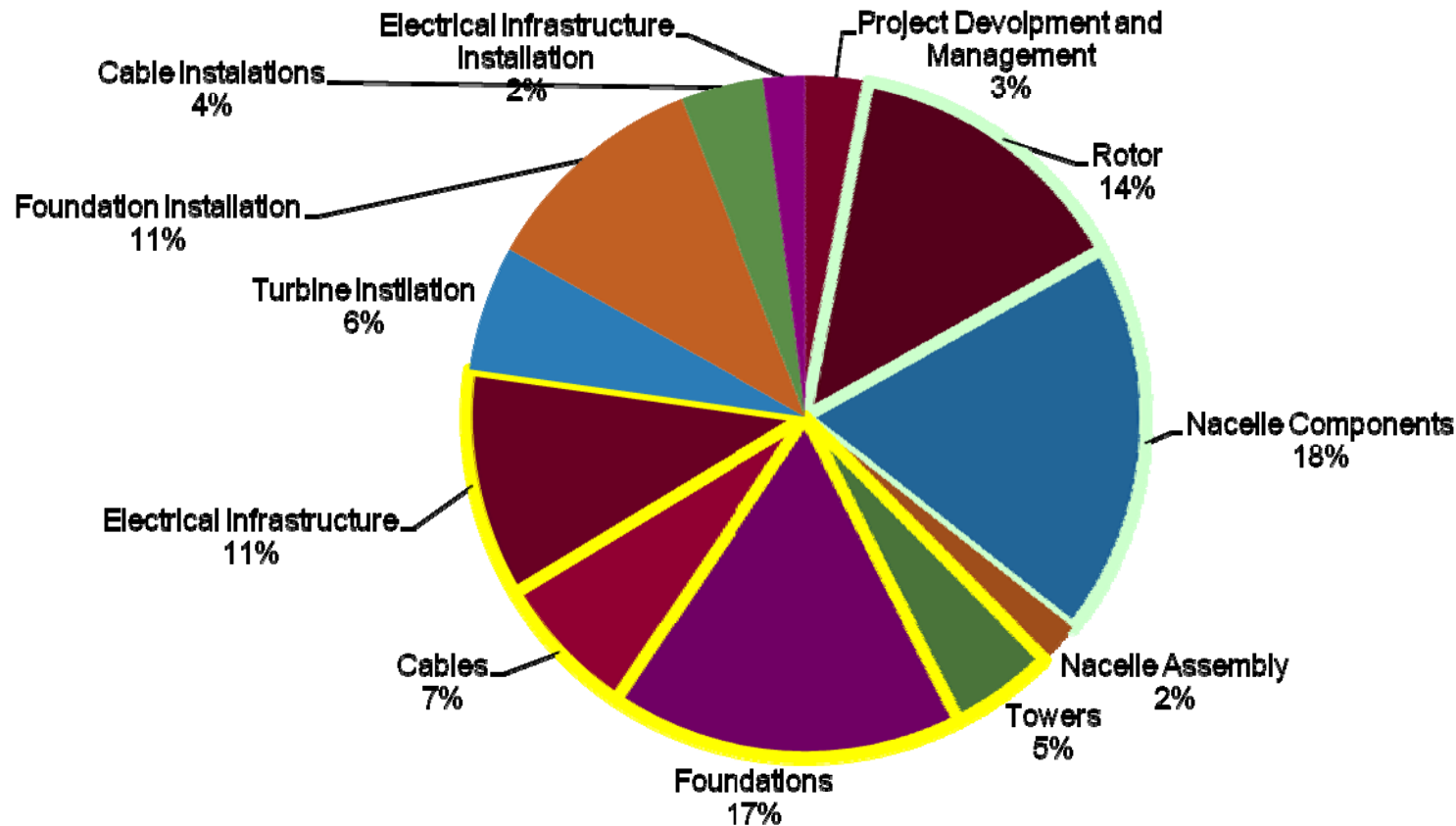
# Supply chain activity

- The OWIO team will coordinate cross-government work on the offshore wind supply chain, working closely with DECC, BIS, and our overseas posts.
- Our team will focus on work with developers and turbine OEMs active in the near term project pipeline.
- We are modelling the project pipeline and forecast for supply chain components.
- This activity will feed into the OWIO supply chain project, targeting companies in four priority subsectors for the UK.





# Capital Expenditure from typical offshore wind farm (BVG, Offshore wind industrial strategy)





### Priority sub-sectors proposed

Our focus is high value investments that, **make a material change to UK content, enhance ability to export and key strategic areas of cost reduction.**

Sector	Reason to prioritise
Turbine OEM	Government has been and continues to work on landing turbine OEMs to deliver the major product from the UK, and the component supply opportunity they would bring with them.
Sub-stations	Historically UK has performed well in this balance of plant opportunity, work is required to ensure future performance delivers strong UK value
Towers	Logistical cost advantages in delivering close to market (albeit accessible from European bases), skills and experience offer, OEMs' flexibility in purchasing. Strong onshore wind market.
Foundations	Logistical and handling advantages of physically close to market solution, significant uk design capabilities, strong partnership opportunity.
Export Cables	Identified as key constraint to R3, significant cable requirements for wider power sector from O&G, National grid, DNOs, interconnectors and wider EU.



## What does success look like?

A competitive, capable and innovative UK supply chain.

- **Growth** of existing UK players in the supply chain
- **New investment** in UK facilities by foreign owned companies
- **Export opportunities** for new or existing UK operations



## March 2014 – Hull secures new offshore wind investment

Siemens and ABP are investing £310m in new facilities in Green Port and Paull site in Hull (NE of England)

Green Port to provide construction, assembly and service for Siemens SWT 6.0 turbine

Paull site in East Riding will be rotor factory for new offshore turbine

In total over 1000 jobs

Siemens current order book for UK c2GW

“Wind Turbine Manufacturers like Vestas have to follow the example set by Siemens and create UK jobs, if they want to play with Dong Energy” Samuel Leopold, CEO offshore Wind, Dong Energy March 2014

# SIEMENS





## Continued strong supply from the likes of JDR Cables

Supplied some 40% of UK inter array cables, through securing: –

- Greater Gabbard
- London Array
- Wave Hub
- Gunfleet Sands (Siemens 6MW extension)

Excellent trade performer

- Meerwind Sud/Ost offshore wind farm

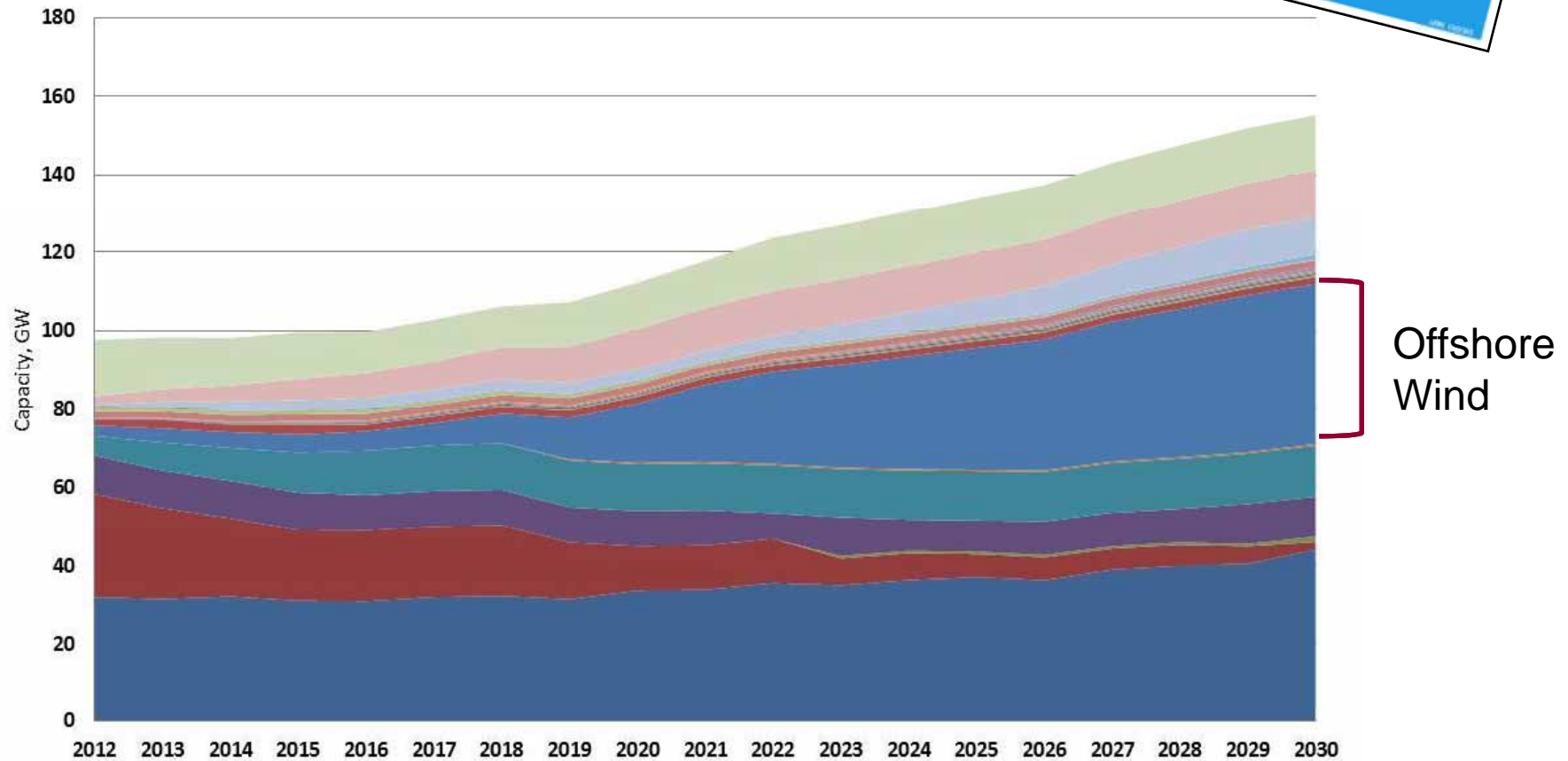
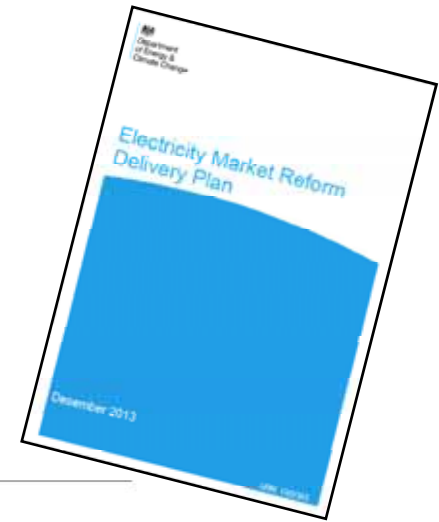
Investment made, people employed etc





UK Trade & Investment

# If jobs grow and costs come down, potential big win for offshore wind





## Further information



### Contact

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