



**MAINSTREAM**  
RENEWABLE  
POWER

# Renewable UK Offshore Wind 2010 “Building an Industry” Session

*Developing the UK's first Integrated Wind  
Energy SuperCluster*

**Steve Clarke, UK Content Manager, SMart Wind**

**30<sup>th</sup> June 2010, 11am-12:15pm**

**ACC Liverpool**

# Overview of Presentation – Building an Industry

**Introduce Mainstream Renewable Power & SMart Wind**

**European Offshore Development Portfolio**

**Friends of the Supergrid**

**Education, Training & Skills**

**Driving Down the Cost of Energy**

**Technology Transition**

**Supercluster**



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# **Introduction to Mainstream Renewable Power**

# Introducing Mainstream

- Founded in February 2008
- Innovative, entrepreneurial and ambitious global renewable energy company
- Owned by Eddie O'Connor and Staff/Management
- 90+ Employees
- Management Team Includes:
  - Dr. Eddie O'Connor: Founder & Chief Executive Officer
  - Fintan Whelan: Co-Founder & Corporate Finance Director
  - Andy Kinsella: Executive Director and CEO, Offshore
  - Torben Andersen: Executive Director and CEO, Onshore
- Board Members Include:
  - Fintan Drury: Chairman
  - Chuck Watson: Former Chairman and CEO of Dynegy Inc
  - Sir Roy Gardner: Former CEO of Centrica
  - Brendan Halligan: Chairman, Sustainable Energy Ireland
  - John Lavery: Co-Founder, Airtricity
  - Mark Brown: Barclays Capital
- Sponsoring Members of Renewable UK
  - Chris Hill: General Manager, SMart Wind & Board Director, Renewable UK



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# Introducing SMart Wind

# SMart Wind – World Leading Companies...



**SIEMENS**

- The world's leading environmental company with total revenue in 2008 €19bn from its environmental portfolio
- To maintain its Number 1 position in UK offshore wind energy



- A leading developer of large scale renewable energy projects that accelerate global progress towards a sustainable future
- To make the UK the powerhouse of Europe by accelerating and maximising offshore wind delivery and realising the supergrid



- The fourth largest construction company in the world
- To become the construction company of choice to the offshore wind industry through excellence in performance, innovation and delivery



**...with complimentary objectives**

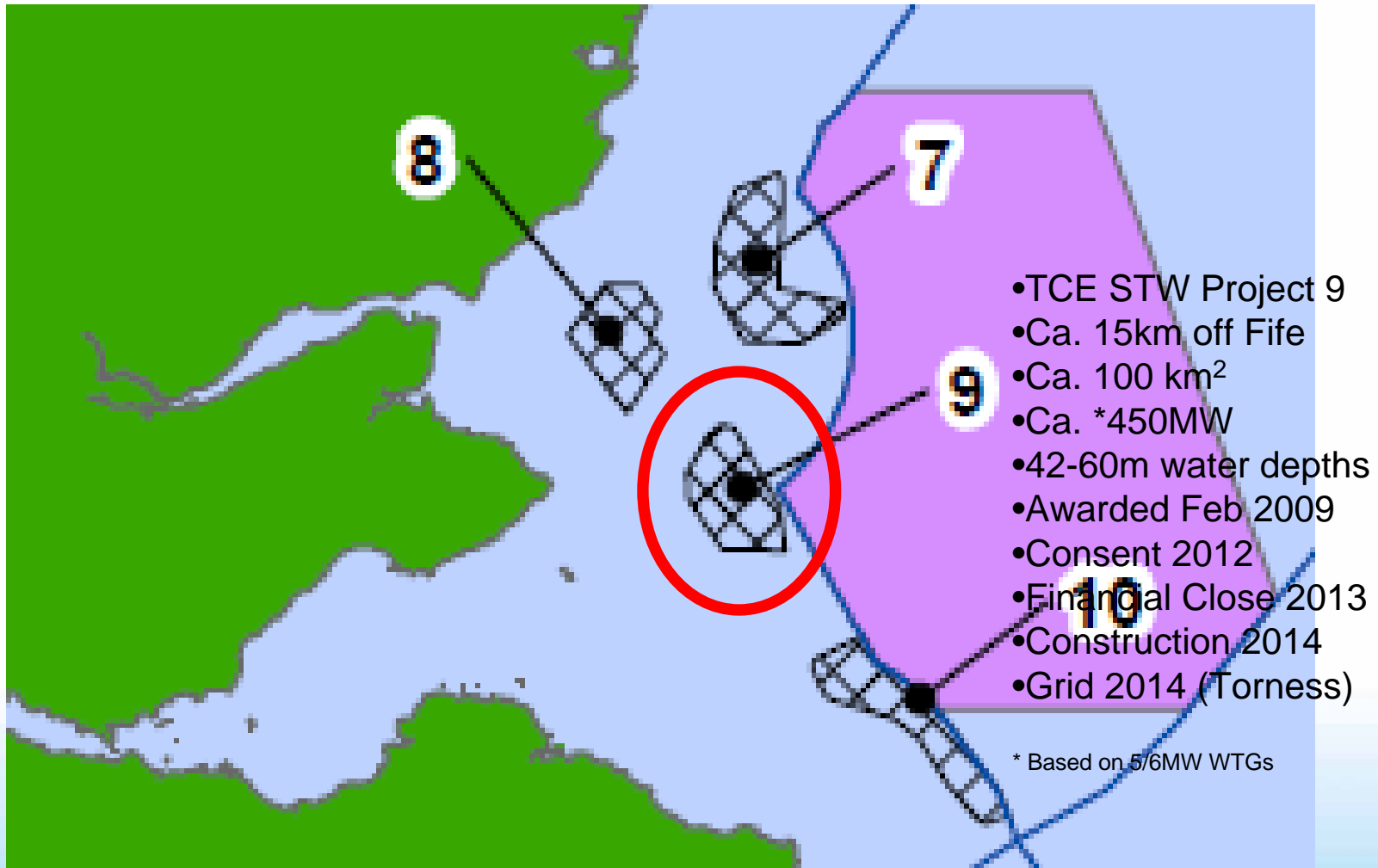




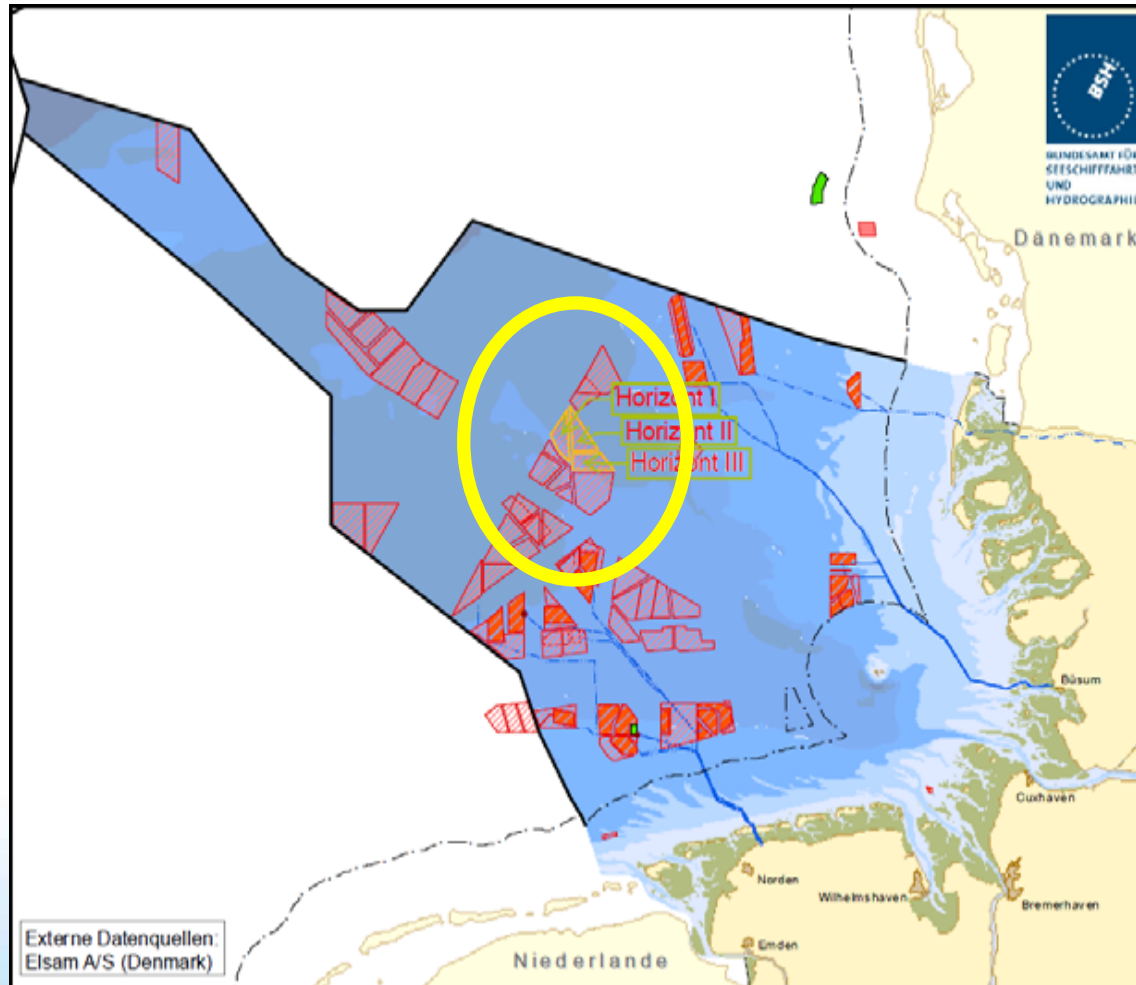
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# **5.5GW European Offshore Wind Development Portfolio**

# Introducing Neart na Gaoithe (*"Strength of the wind"*)

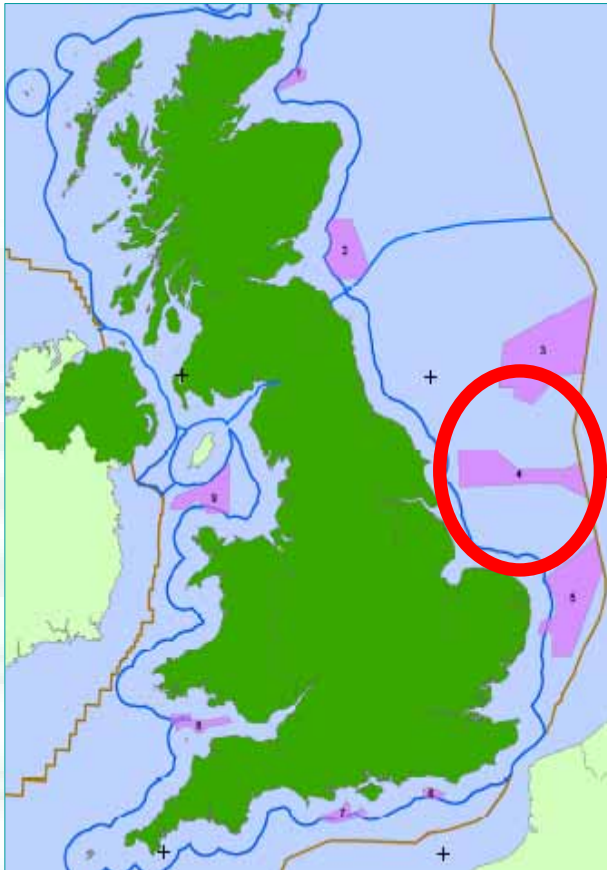


# Introducing Horizont Wind Farm (Germany)



- Ca. 140km offshore
- Ca. 1GW Potential
- 38-42m water depths
- Consent 2011
- Financial Close 2013
- Construction 2014

# Introducing the Hornsea Rd3 Zone



## **HORNSEA (ZONE 4)**

4,735 km<sup>2</sup>

34 to 190km from coastline of Yorkshire

Water depths predominantly 30 to 40m

Maximum water depth of 70m

280km from Neart na Gaoithe (STW)

240km from Horizont (GTW)

Target capacity for Zone of 4GW

Enough to meet 4% UK electricity demand

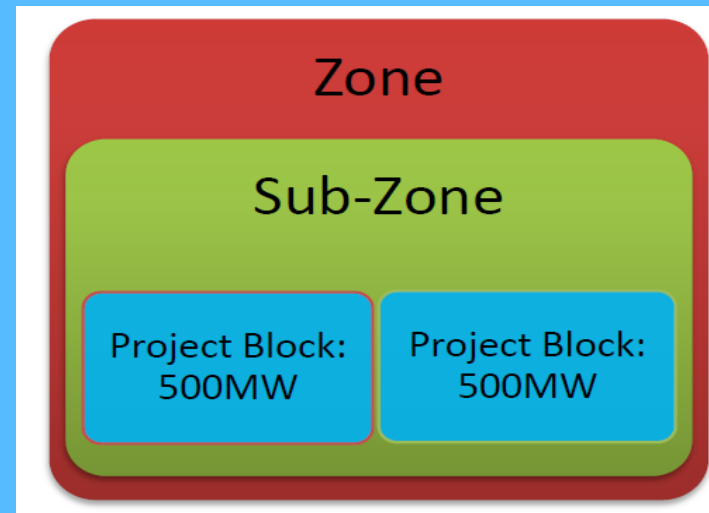
Enough power for three million homes \*

\*Using today's energy consumption numbers, the BWEA number of 4,700 kwh/household and net capacity factor of 41%

# Hornsea – Modular Approach to Development

*“design one...”*

- 8 x 500MW ‘Blocks’
- Optimally designed:
  - fixed cost
  - infrastructure
  - grid
  - finance



*“...then build many”*



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# **The Supergrid**

# Defining Supergrid

<http://www.friendsofthesupergrid.eu/>



## Supergrid is defined as:

“an electricity transmission system, mainly based on direct current, designed to facilitate large-scale sustainable power generation in remote areas for transmission to centres of consumption, one of whose fundamental attributes will be the enhancement of the market in electricity.”



# Friends of the Supergrid



## The Friends of the Supergrid:

“is a group of companies and organisations with a mutual interest in promoting the policy agenda for a European Supergrid.”



Visser & Smit Marine Contracting



Visit [www.friendsofthesupergrid.eu](http://www.friendsofthesupergrid.eu)



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# **Partnerships in Education, Training & Skills**

# Developing the Necessary Skilled Personnel

## Training Tower

Launch Event:  
March 2010  
Narec, Blyth,

Ministers

David Kidney  
(DECC)

Helen Goodman  
(DWP)



# Developing the Necessary Skilled Personnel



# Hornsea Schools Sub-Zonal Naming Competition

*...Building upon practical Wind Technician Training*

- Aspiration to attract new talent from school into industry
- Target Year 9 (13-14yr olds) choosing subjects
- Focus on Science Technology Engineering & Maths subjects
- Facilitated by STEMNET
- Local delivery partner(s)
- Seeking to return true value across ALL schools through:
  - Four year programme
  - Three phase process per intervention

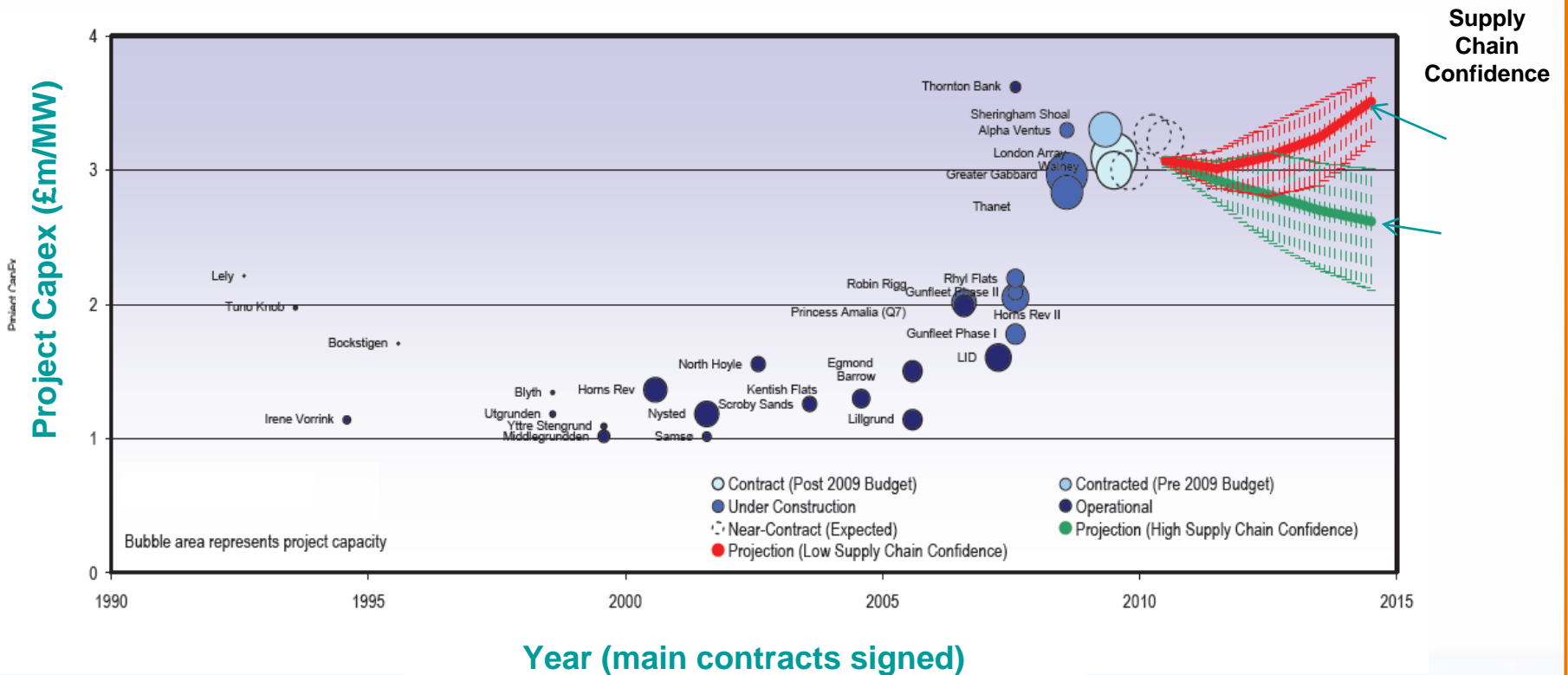




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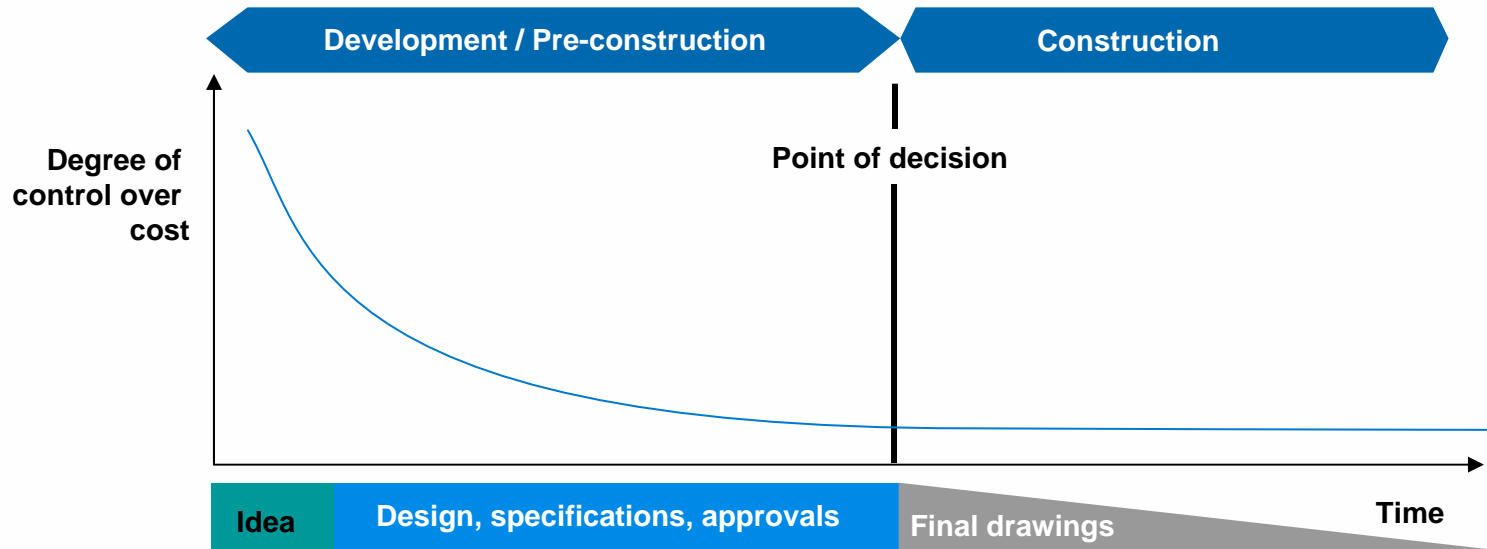
# **Driving Down the Cost of Energy**

# Addressing the Economic Challenge



Source: Garrad Hassan for BWEA, 2009

# Maximising Cost Control and Innovation



## Maximising Control over Costs

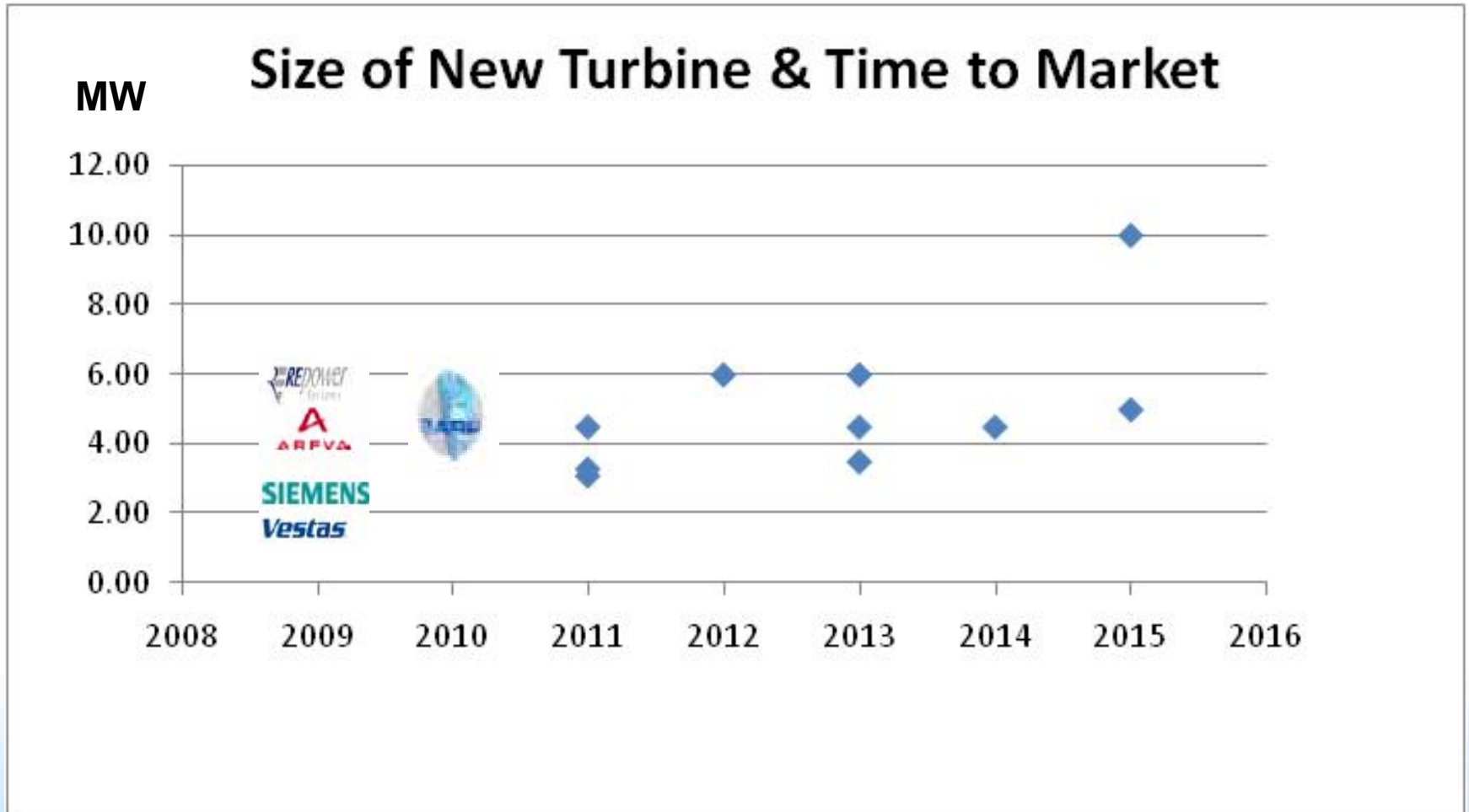
By internalising the supply chain and taking an 'open book approach' between the partners, projects can be designed around expected costs from day 1



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# The Technology Transition

# New Offshore Turbines on their way



# Technology Acceleration & Demonstration

## **TCE Offshore Wind Demonstration Programme underway**

- Seabed leases for 100MW Demonstration Projects for:
  - Turbines
  - Balance of Plant (BoP) Technologies

## **DECC Funding an Offshore Test Site in the NE at Narec**

- £18M for up to 20 pre-consented “Pods” for:
  - Deployment of demonstration & prototype turbines
  - Deployment of demonstration & prototype foundations

## **Carbon Trust Offshore Wind Accelerator (OWA)**

- Co-funded RD&D initiative between CT and Offshore Developers to:
  - Reduce the cost of energy by at least 10% (CapEx, OpEx, Yield)

*Mainstream has committed to joining Phase II of the CT OWA*



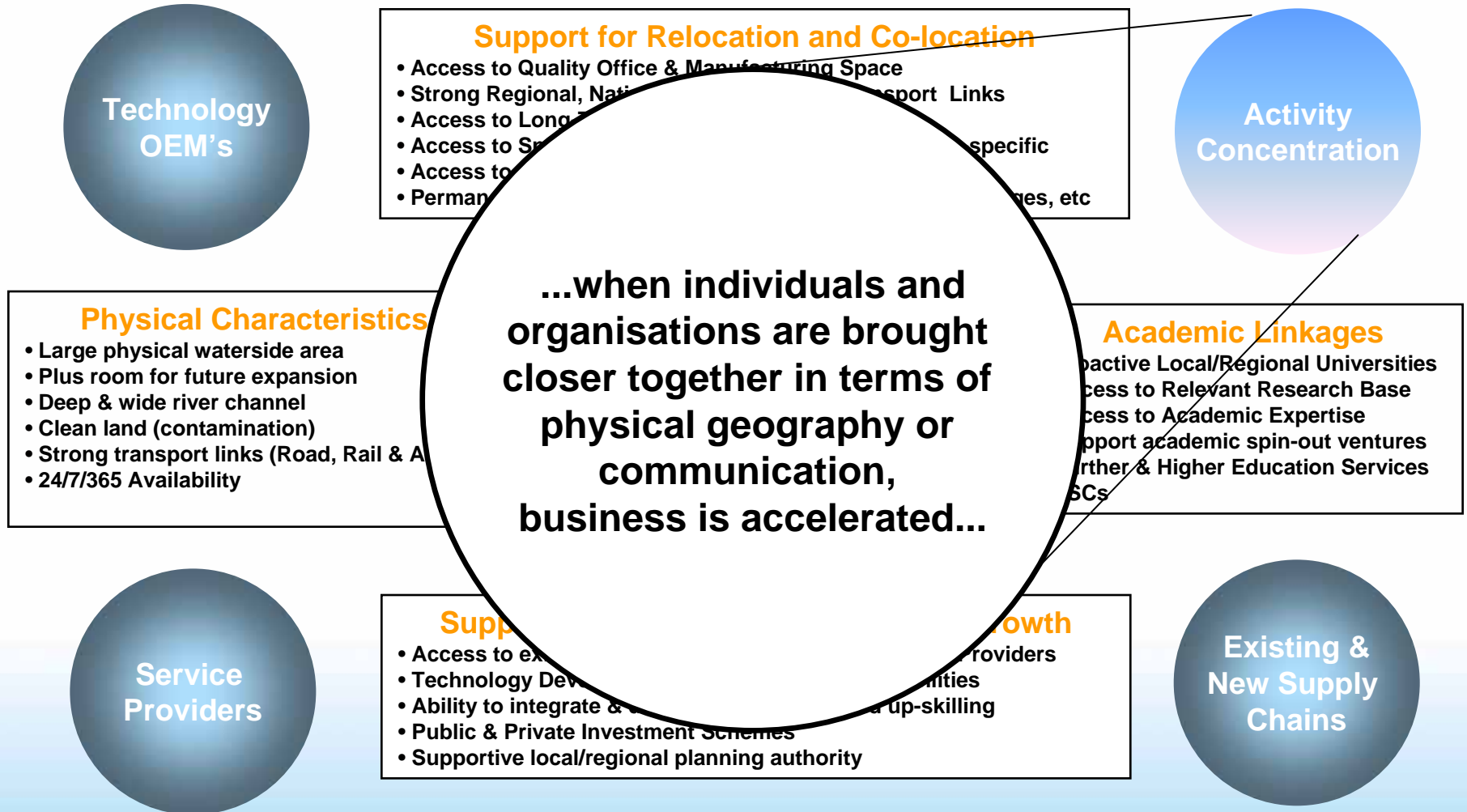
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**SuperCluster**

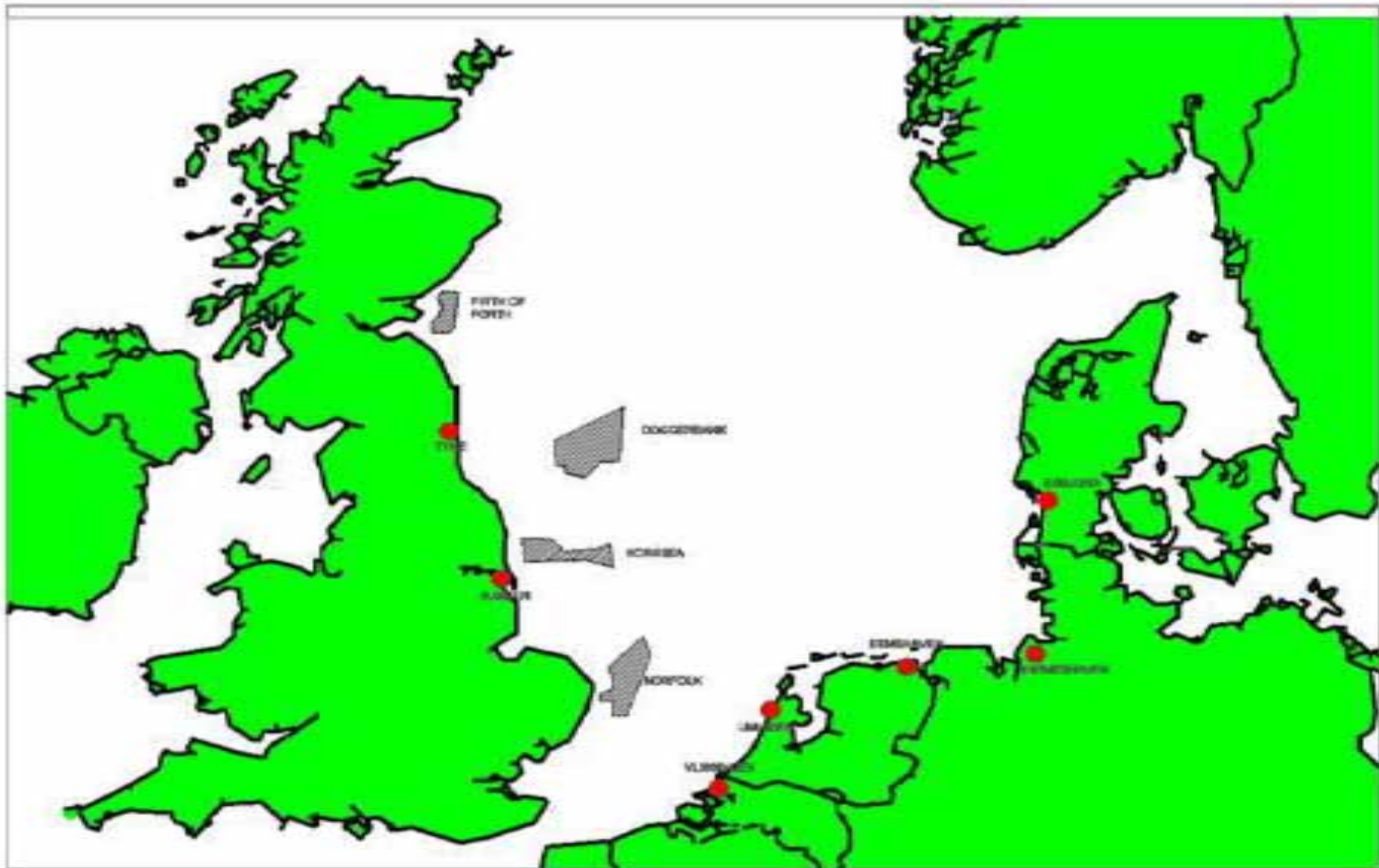
# Defining SuperCluster

*“a geographic region based around a relevant and credible Port location, which incorporates most if not all of the offshore wind energy value chain including supply chain manufacture & assembly of products, provision of services which support the sector (including the wider low carbon energy sector); academic links to support the research, development and deployment of tomorrow’s turbines, foundations and interconnection technologies and the training and skills provision needed to deliver the growth in human capital which underpins every part of the sector value chain”*

# Clustering Model



# How many SuperCluster & where?





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**Summary**