Offshore Wind Accelerator

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Background to the OWA

- During 2007, ran detailed scoping study
- Objectives:
  - Investigate sector's regulatory, commercial and technological status, building on previous policy studies
  - Identify actions the Carbon Trust could take to accelerate sector's development

Key features of study

- Scope deliberately broad to develop holistic understanding of industry
- No boundaries on costs and intention to be bold and ambitious
- Drew both on in-house/consultant's prior experience and interviews with 40+ industry players (project developers, equipment manufacturers, construction contractors and regulators)

Barriers to development

- Many issues affect future development of offshore wind
  - Spanning commercial, technical and regulatory areas
  - Some issues already being addressed by industry players and government bodies
- Certain technical barriers not currently being addressed
  - Key factors related to wind farm design, construction and operation need further research, development and demonstration (RD&D)

Market factors constraining industry growth		
High costs of offshore projects	→	Developers constrained in their ability to finance
Global growth of onshore market	→	Major turbine manufacturers focusing more on onshore sales
Buoyant upstream oil/gas market	→	Offshore design, construction and installation services in high demand

ETI-Carbon Trust Initiative

Overall objectives of joint initiative

Support increasing levels of deployment in line with government's ambition

By 2020

- Cost of energy reduced to prevailing least-cost wholesale price of electricity or lower
- Annual farm availability increased to =97%-98% equivalent to onshore wind today
- Technical uncertainties reduced to allow farms to be financed in similar manner to, and same costs as, onshore wind today

Carbon Trust scope

Short-medium term:

- Wind farm design, construction and operation
- Transitional turbine design

Common interest

- Turbine reliability
- Medium term wind farm construction

ETI scope

Short, medium and long term:

- Bespoke offshore turbine design
- Network integration
- Generic development issues

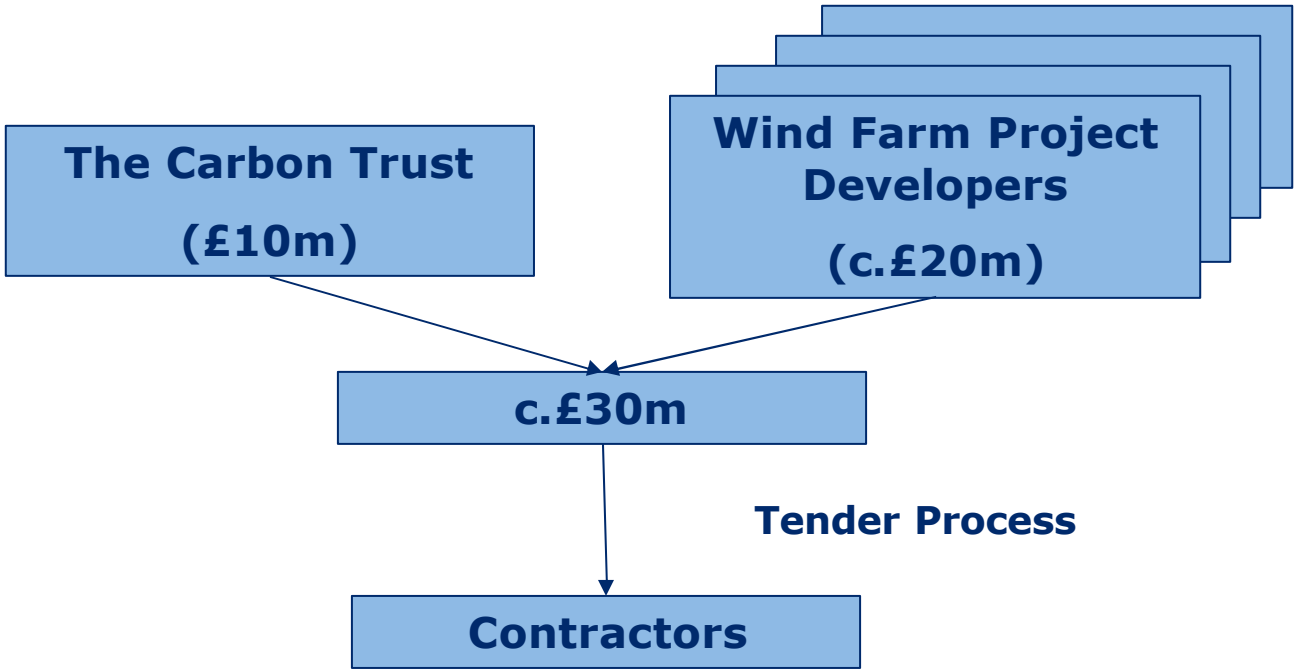
Potential projects in our scope

- We are presently discussing 5 high level areas with industry but these are not exhaustive

Subject	Issue	Possible approach
Dynamic loading of turbines	Foundations and towers are over-specified leading to higher than necessary materials usage	Research dynamic loadings to enable the re-evaluation of structural design standards
Offshore wake effects	The actual yields of large offshore wind farms are less than predicted by (onshore) prediction models	Research large array wake effects and develop a new yield optimisation model
Support structures	There is no consensus on the best foundation types and monopiles may be unnecessarily expensive	Demonstrate and standardise support-structure design and selection
Installation methods	Current installation methods may be suboptimal and there is a limited number of jack-up barges	Develop and demonstrate alternative installation methods, possibly including floating lift techniques that allow the use of alternative vessels
Offshore access solutions	Regular access is essential but the best approach is unclear	Develop and demonstrate potential offshore access solutions

The proposed funding model

- We have agreed in principle to release £10m into the programme and are seeking around £20m from a number of developers



Next steps...

Industry

- Continue to engage with potential partners around details of co-funding
- Ensure projects reflect industry requirements
- Set up delivery framework for projects

Projects

- Continue technical analysis of what this programme could deliver and the impact on future offshore wind farm economics
- Develop project scopes to fund
- Go out to tender on individual projects

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