



Greater Gabbard Project

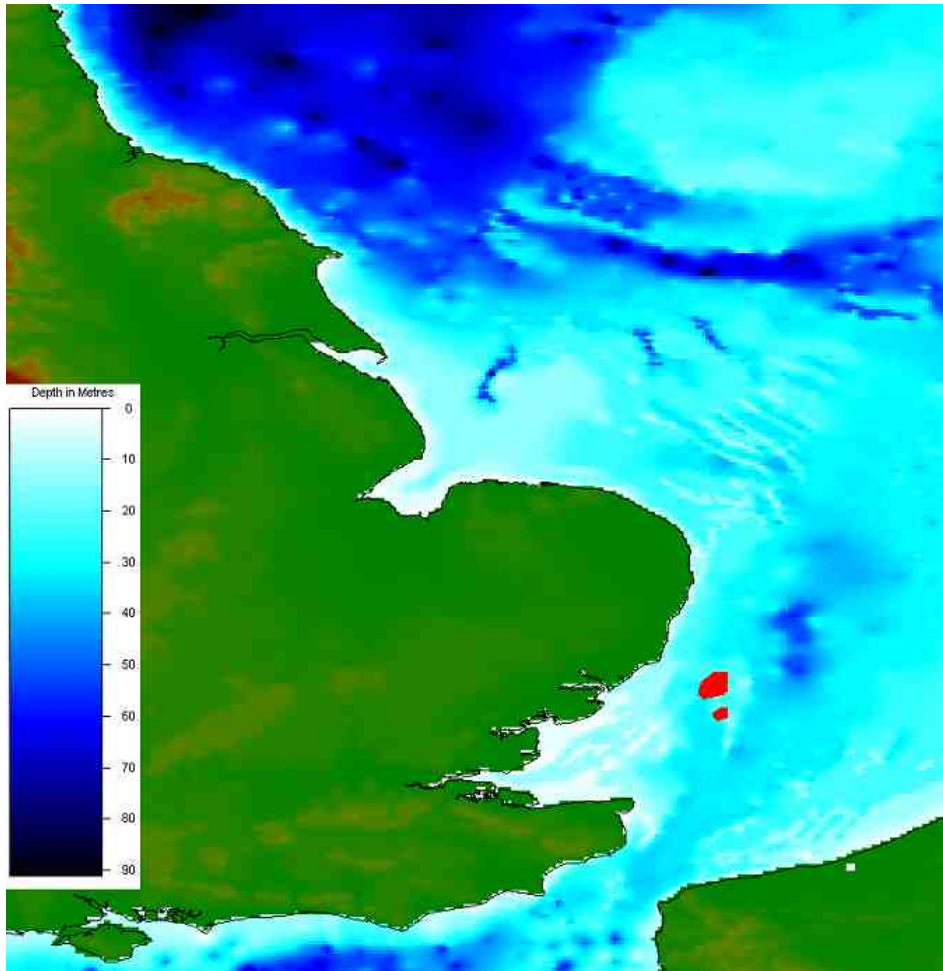
Jim Smith
Director of Offshore &
Europe



BWEA 30 - Introduction

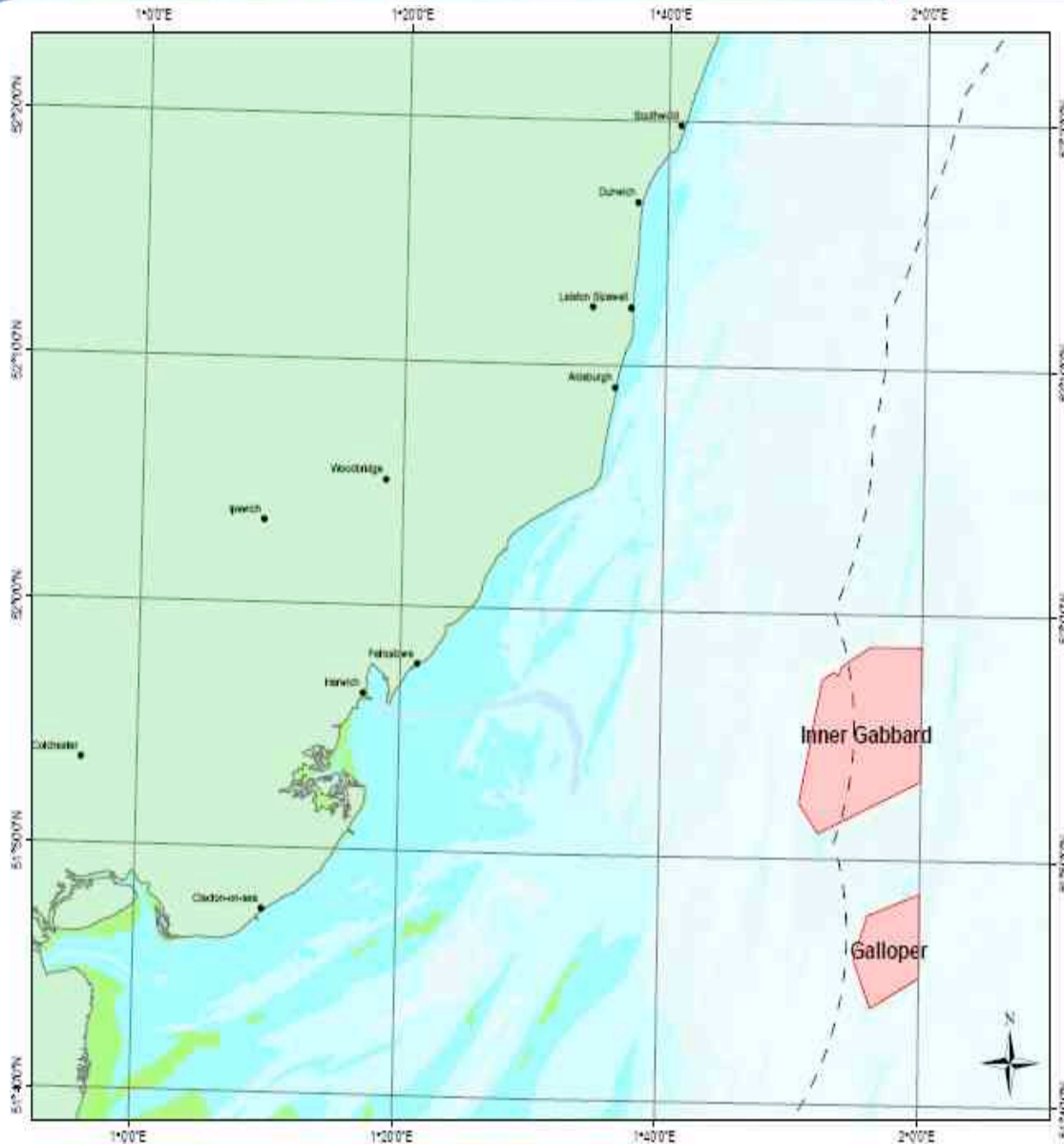
- Scottish & Southern Energy - 57 years in Wind Power
- 1950 - Constructed first wind turbine connected to UK grid on Orkney
- 1987 - Constructed the UK's largest wind turbine (3MW) on Orkney
- 2005 - Commissioned UK's largest onshore windfarm at Hadyard Hill
- 2008 - Announced construction of Greater Gabbard the worlds largest offshore wind farm.
- **The UK's largest renewable energy generator – Over 2GW in operation.**

Greater Gabbard Project



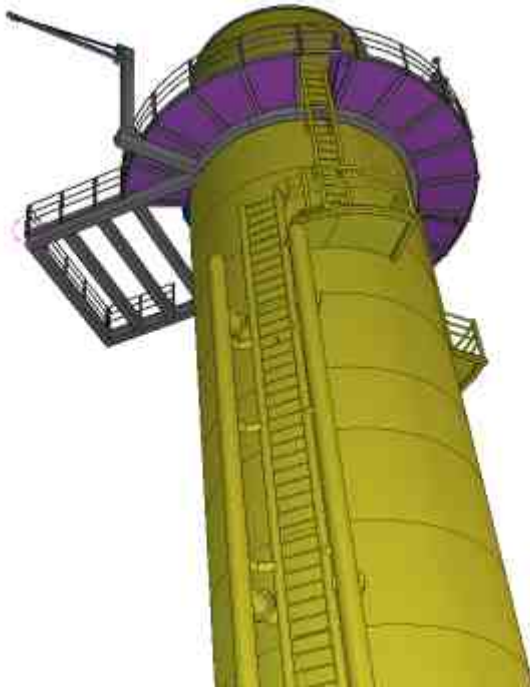
- 500MW Offshore Wind Farm
- 140 Siemens ST-3.6-107 turbines
- Average annual output 1,895GWhrs
- Sufficient to meet demand of 415,000 homes offsetting more than 1,000,000 tonnes of CO₂

Highlights



- Largest offshore wind farm
- Furthest offshore and outside territorial waters
- Deepest large project
- First use of helicopters in UK

Costs



- £1.3 bn (excluding grid connection) \equiv £2.6m/MW
- Main cost drivers:
 - Offshore, depth and distance
 - Exchange rate – no UK manufacture so fully exposed
 - Steel price
 - Sellers market for turbines, cable, transformers, vessels etc.
- **Largest single investment in the UK Electricity Supply Industry since Sizewell B.**

Project Milestones

- 2003 Lease application
- 2004 Site option awarded
- 2005 Met mast installed
- 2006 Full site investigation
- 2007 Section 36 granted
- 2008 Construction contract awards

- 2009 First power export Q4
- 2011 Project completion Q1

2008 – Decision Time

- February - acquired Airtricity who own 50% of Greater Gabbard
- March - SSE Board approve project (balance sheet funded) and purchase of Fluor 50% equity stake to become sole owner.
- April - Acquired Fluor equity and awarded Balance of Plant contract to Fluor
- May - Awarded Turbine Supply and Turbine Service & Warranty contracts to Siemens Wind Power.

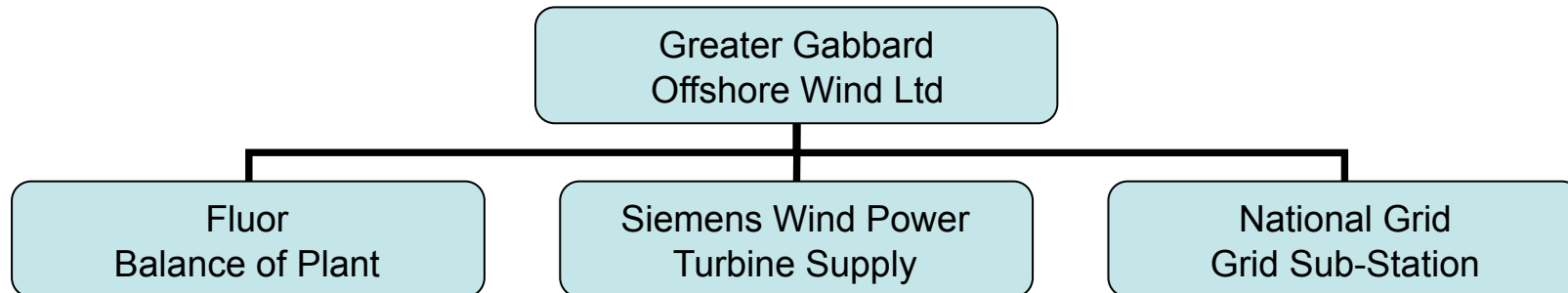
Key to Delivery

- Strong balance sheet
- Major energy supplier able to take off-take risk
- Corporate structure free of bureaucracy able to make rapid decisions
- Delivering major infrastructure projects part of core business.
- Robust & well developed design
- Contract strategy which reduces exposure to major construction risk in first major offshore venture.

Design Risk Mitigation

- Detailed and extensive soil investigation
- Extensive site specific wind data
- Conservative array spacing to minimise array losses.
- Independent foundation design verification
- Early input from O&M group (particularly for access design)
- Use of proven technology! Backed up by service and warranty agreement.

Contract Structure



Contract Strategy

- Offshore contract strategy mirroring onshore strategy
 - Early projects turnkey EPC
 - With sufficient experience may move to multi-contract
- Joint development with Fluor ensured all sub-contracts were fully transparent
 - Cost and value of wrap known and understood.
 - Design developed jointly prior to contract award.
 - Project programme developed with adequate float (particularly vessels)
- BOP wrap provides a hedge against key large-scale offshore risks
 - Logistics/Interfaces
 - Ground – shared
 - Weather – shared
 - Foundation design
 - Grid code compliance
- Turbine supply contract well understood from onshore experience.
- **Contracting with world class service providers**





Access to large amount of cash and a firm belief that offshore wind will play a major role in UK carbon reduction targets.