BANK OF SCOTLAND
CORPORATE

Investment Considerations for Offshore Wind
Ensuring Success

2005
COPENHAGEN
OFFSHORE WIND
Conference & Exhibition, 26-28 October

Off-shore Wind Project Financing

Introduction to Bank of Scotland

Risk Considerations for ‘new’ markets/developments

Winners and Losers

Review of the Offshore sector

Performance evaluation

Summary

Bank of Scotland

- Commercial banking arm of HBOS plc
- HBOS plc is one of the largest European banks with a Market Capitalisation of €50.6 billion
- Financed €1.6 billion in Power Sector
- Lead Arranger and participation in the finance of 1,500 MW of wind farms in Europe and U.S.
- HBOS plc uses 300 GWh of electricity p.a. of which 90% is from Renewable Energy

Risk Considerations for 'new' markets/developments

- Economic Analysis
- Government policy
- Trophy projects
- Investment market appetite
- A balancing act between what Project Financiers want and what they will get…..

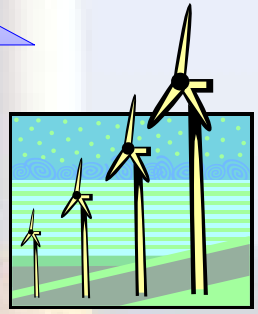
What we want ...

Enlightened Government

Robust Energy Commodities

Project Financier

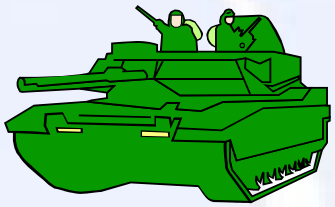
Savvy Clients



Proven Technology

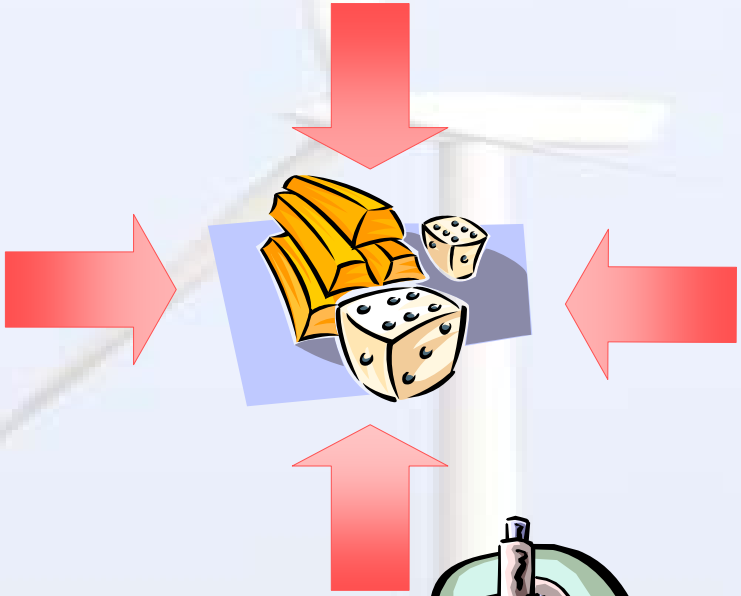
BANK OF SCOTLAND CORPORATE

What we get ...



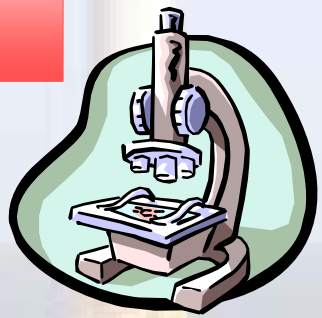
Unfriendly Government Policies

Uncertain Commodities



Challenging Expectations

Developing Technology



Winners and Losers

- There are many examples where debt and equity departed from traditional/proven investment to develop a new industry or sector.

- Many sectors flourished, some failed.

Winners and Losers

Winners

- Dartford Bridge
- PFI structure
- Spanish Toll roads
- IPP deals covered by CFD

Winning Factors

- Demand forecasts better understood
- Supportive legislation
- Insurance cover for appropriate risks

Losers

- Eurotunnel
- EuroDisney
- Dulles Greenway toll road
- Croyden TramLink

Losing Factors

- 'Expert' demand forecasts unrealistic
- Overshot construction costs
- New markets but with viable alternatives

Review of the Offshore Sector

...Ensuring Success

BANK OF SCOTLAND
CORPORATE

Economic Drivers

- Government support
- Off-take arrangements / market risk
- Technology and Construction Risks
- Operating Life Cycle
- Insurance costs and availability

Roles for Government

Requirements

- Ensure Regulatory and Planning certainty
- Clear long term Energy policy
- Incentivise new technologies
- Public education / perception
- Economic support mechanisms:
  - Revenue
  - Tax incentives
  - Grid socialisation costs
  - Grants
- Stakeholder alignment ….. Navigation, MOD, Aviation, Fisheries, Conservation

Current status

- Long term renewable goals converging between countries
- Inconsistent policies with regards offshore wind
- Danger of being timed out
- Stakeholders not in alignment including quasi governmental areas
- Funding gap

Off-take Arrangements

Requirements

- Ensure that the contract is “bankable”:
  - Commodity risk
  - Choice of offtaker
  - Fixed vs. variable price vs. minimum floor price
  - Term of PPA to match at least senior debt term
  - Potential European wide scheme?
- Understand the energy available for capture
- Long term price forecast

Current status

- Appetite for PPAs in the market. Evaluation and benchmarking required to ensure the contracts are bankable
- Site conditions and quality of studies should be reasonably predictable?
- Uncertainty over future outage requirements?
- Continued reliance on ‘expert’ electricity market price forecasts

Technology and Construction Risks

Requirements

- Capital costs significantly greater than onshore
- EPC contractor wrap and robust completion guarantees
- Grid connection
- Larger machines
- Availability of equipment
- Health & Safety issues
- Insurance

Current status

- Quantum shift of design, production and construction technique needed to cut costs
- High oil prices - renewed North Sea E&P activity affecting availability of construction infrastructure
- Weather windows make construction more difficult
- Experience to be gained from North Sea oil operations and installation of 100,000 turbines onshore

Operating Life Cycle

Requirements

- Understanding of asset life span
- Acceptable debt and availability assumptions with min guarantees
- Technical solutions to access limitations (equipment available?)
- Shortfalls covered by acceptable guarantees protecting economics
- Lifetime planned maintenance focus and decommissioning cover
- Other considerations of marine environment
- Clear allocation of O&M responsibility to creditworthy counterparty

Current status

- Research tends to be in isolation and territorial
- All stakeholders not on-side
- Harsh marine environment leading to higher repair and replacement costs
- Impacted by the rush to roll out bigger, more efficient turbines
- Expansion of markets may impact the service capability - the Human Resource Challenge & fresh capital
- Lessons and experience to be gained from N. Sea oil ops

Insurance

Requirements

- Insurability for project life
- Business interruption cover ?
- Cover required for UK offshore assets could exceed £10 billion
- Can EPC contractors plug any gaps ?

Current status

- Insurance industry not fully engaged to scale of offshore market
- Insufficient cost visibility but typical of insurance market?
- But experience from large onshore wind projects

So how are we doing?

Economic Driver	Status
❒ Government support	?
❒ Off-take arrangements / market risk	
❒ Technology and Construction Risks	
❒ Operating Life Cycle	
❒ Insurance costs and availability	

Summary

What lenders would like	Rationale
❐ Supportive regulatory framework	❐ Debt tenor and economics
❐ Proven technology	❐ No unexpected news
❐ Clear analysis of revenue generation	❐ Giving certainty
❐ Critical mass and pipeline of Projects	❐ Large enough to carry due diligence costs
❐ A partnership approach	❐ Working with sponsors to build confidence

...to help us play our part in ensuring Offshore Wind is successfully developed

BANK OF SCOTLAND
CORPORATE

Contact

Vivek Mittal

Director, Head of Power Project Finance

Tel: +44 (020) 7012 9276

vivek_mittal@bankofscotland.co.uk

BANK OF SCOTLAND
CORPORATE

BANK OF SCOTLAND
CORPORATE

Investment Considerations for Offshore Wind
Ensuring Success

2005
COPENHAGEN
OFFSHORE WIND
Conference & Exhibition, 26-28 October