BNP PARIBAS
CORPORATE & INVESTMENT BANKING

Financing the UK Offshore Wind Sector

Romain Talagrand
Corporate & Investment Banking
Project Finance

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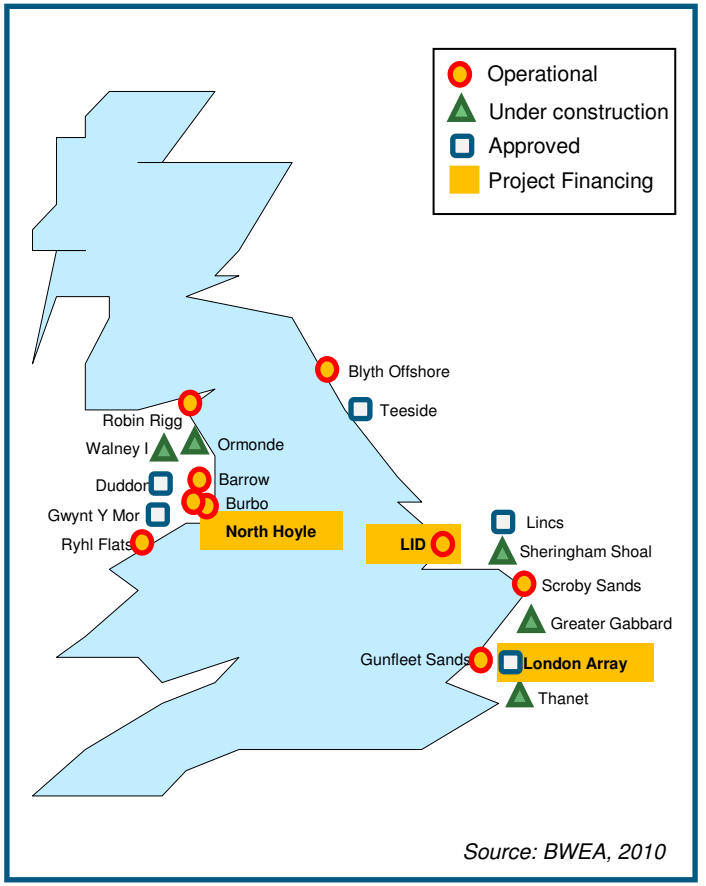
UK Offshore Wind – An overview

- More than 20 wind farms representing in excess of 5GW of capacity in operation or in advanced development stage
- UK is the most important market for offshore wind energy:
  - More than 50% of installed capacity world-wide
  - Strong and rapidly growing pipeline

	Capacity (MW)	Distance from shore (km)	Project Size (MW)	# of Projects	Main Sponsors
Operational	1,041	1 - 9.5	60 – 195	11	•DONG Energy •Vattenfall •Centrica •E.ON •RWE •Scottish Power •SSE
Under Construction	1,452	10 - 25	150 – 504	5	
Approved	2,619	1.5 – 25	90 – 1,000	6	
TOTAL	**5,112**			**22**	

Source: BWEA



UK Offshore Wind – Driving forces

1. Long term, ambitious and clear targets

- **Rounds 1 to 3**
- **Clear target to achieve Kyoto and the 2009 EU Renewable Energy Directive objectives**
  - UK has committed to sourcing 15% of its total energy (electricity, heat and fuel) needs from renewables by 2020
  - 30% of electricity will have to come from renewable sources to achieve the above target
  - Offshore Wind is the only renewable technology that can deliver the scale required
- **Substantial investment by contractors in the UK (Siemens, GE, Mitsubishi)**

2. Favourable regulatory framework

- **Political incentives on electricity suppliers**
  - The Renewables Obligation ("RO"), which came into effect in 2002 and will last until 2027, places a legal obligation on licensed electricity suppliers to purchase a specified and annually increasing proportion of electricity from renewable sources.
- **Subsidies (ROC, etc.)**
  - Suppliers demonstrate their compliance with the RO by delivering Renewable Obligation Certificates ("ROCs").
  - If Suppliers do not meet their RO, they must pay a Buy-out price for ROCs (set by the Government at £37.60 for each MWh shortfall – real April 2009)
- **1 MWh produced from Offshore Wind generates 2 ROCs**
  - Thanks to the buy-out price for ROCs, each MWh from offshore wind electricity receives a minimum subsidy amount of c. £75 per MWh on top of wholesale power price.
  - Offshore wind also receives additionnal subsidies: ROC Recycle value (pro rata share of the Buy-out fund), Climate Change Levy ("CCL") exemption value (currently valued at £4.40/MWh)

3. Strong Players leading the way

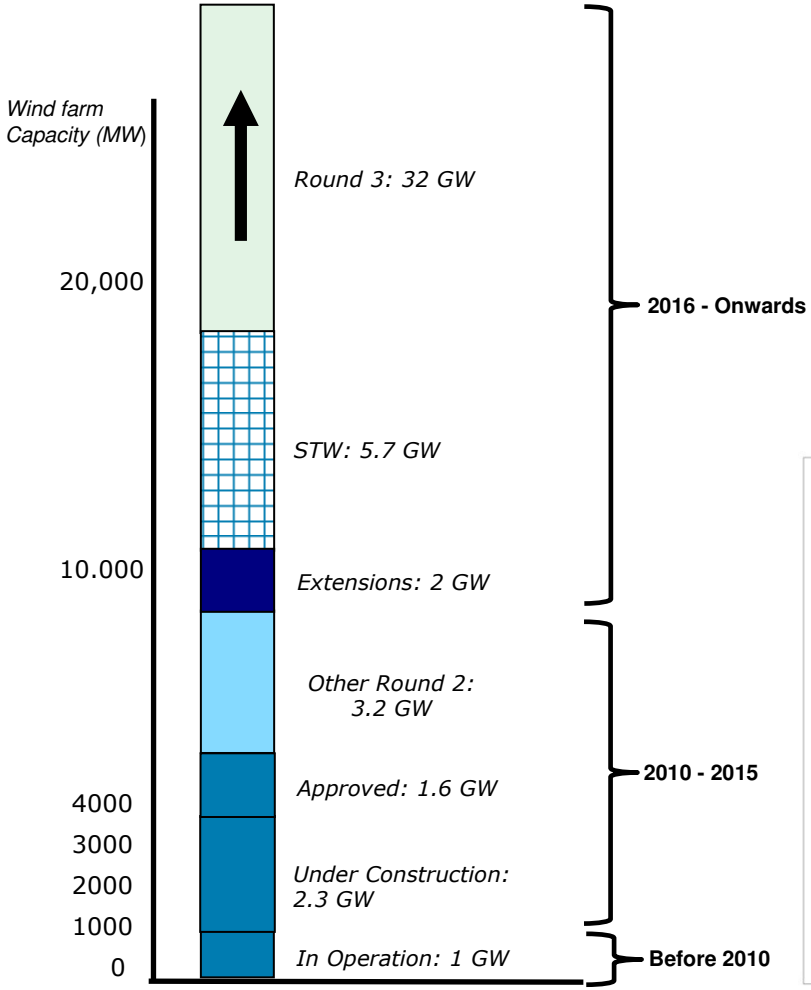
- **Large / Investment-grade rated Utilities kicked start the sector on balance sheet**
- **Successful in attracting investors**

Financing alternatives for UK Offshore Wind projects

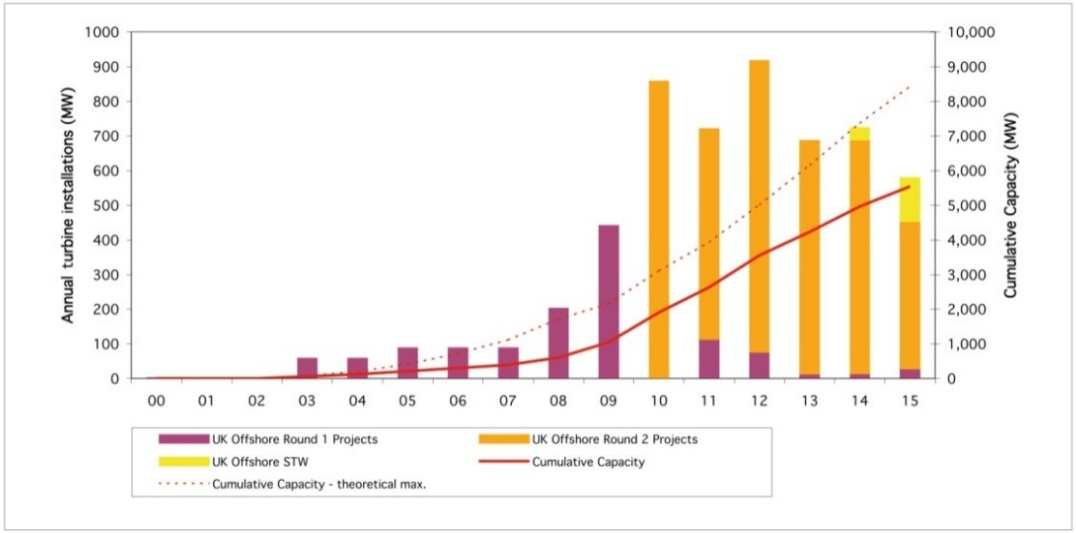
- **Most projects financed « on balance-sheet »**
- **As of today, only a limited number of offshore wind projects in the UK have benefited from Project Finance**
- **PF Lenders have been reluctant to take « full » construction risk**

	London Array	North Hoyle	Lynn & Inner Dowsing
Current Owners:	Dong Energy (50%), E.On UK (20%), Masdar (20%)	RWE Innogy (33%), JP Morgan (33%), M&G Prudential (33%)	Centrica (50%), TCW (50%)
Status	Consented and contracted	Operating	Operating
Commercial Operation Date	Q1 2013	April 2004	Q4 2009
Capacity	630MW	60MW	2 x 97.2MW
Technology	Siemens 3.6MW	Vestas V80 2.0MW	Siemens 3.6MW
Financing	• Share of Dong and E.On financed on balance sheet • Share of Masdar financed on a non-recourse basis with a completion guarantee	• Construction financed on balance sheet • Project refinanced 1+ year post COD • Project financed on a non-recourse basis as part of a broader wind portfolio including 361MW of operating onshore wind capacity	• Construction financed on balance sheet • Refinanced shortly after COD on a non-recourse basis

UK Offshore: Ambitious development targets



- 1GW (c. £3 bn) per annum between 2010-2015
- 3 to 4GW (c. £10 to 12 bn) from 2016 onwards



Source: *UK Offshore Wind: Staying on Track*, report by Garrad Hassan for BWEA, June 2009

Main challenges facing the UK Offshore Wind industry

Ramp-up of offshore wind capacity will depend upon several factors

External Factors

- Consents / permitting process
- Upgrade of power transportation infrastructure

Supply Chain

- Ability of supply chain to step up to challenge
- Necessity to improve sector economics
  - Increasing capital costs
  - Tight equity returns despite ROC banding
- Improve reliability and risk proposition
  - Risk allocation
  - Insufficient track record
  - Design issues

Political acceptability

- 10 GW of installed offshore wind capacity represent £2+ billion of additional costs per annum
- 40 GW could require up to £8 billion per annum

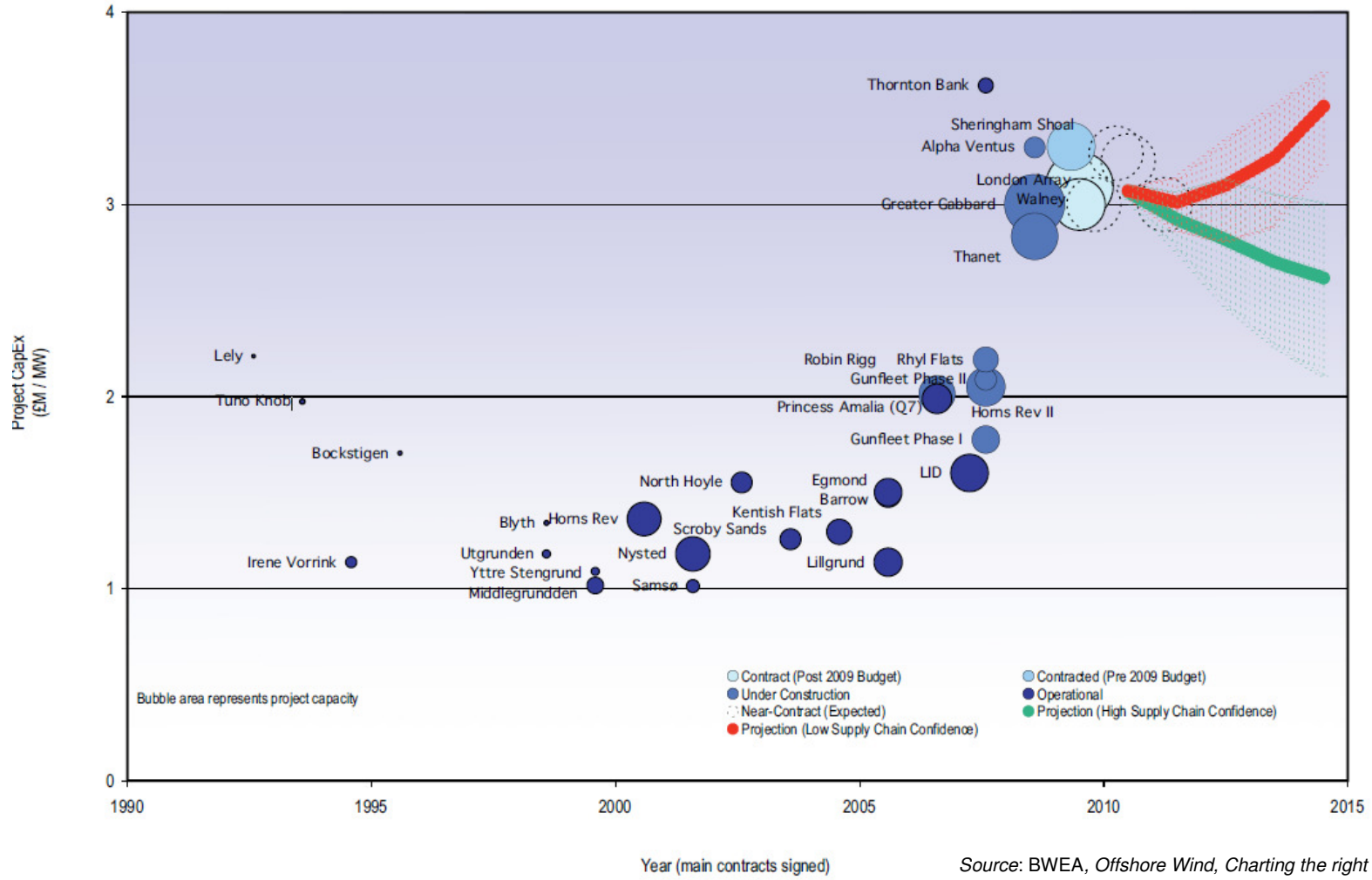
Availability of financing

- More than £3 billion of investments per annum to develop 1GW,
- Developing 3 to 4GW per year could require more than £10 billion
- Need to supplement “on-balancing sheet” financing

Strengthening the supply chain and reducing costs will be the key factor in removing existing barriers

Capital costs for offshore wind projects

Historical, current and projected future capital costs for offshore wind projects

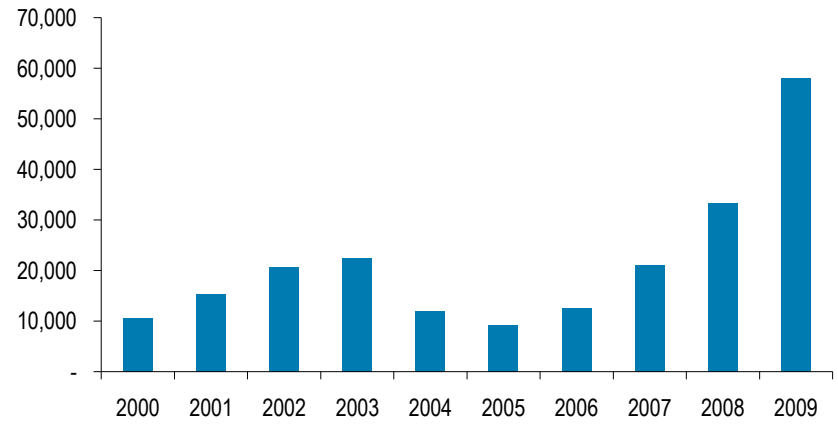


Source: BWEA, *Offshore Wind, Charting the right course*, 2009

Will Utilities deliver the Offshore Wind pipeline?

- Utility's industry ever increasing investment needs
  - FT dated 3rd February 2010: *"This decade European companies are expected to invest EUR 1,000 billion to meet government targets for developing renewable energy and cutting greenhouse gas emissions."*
- Record bond issuance by European utilities in 2009
- Limited scope to grow corporate debt beyond current levels without falling short of desired rating category
- New funding solutions will have to emerge

Utilities Eurobond Issuance 2000-2009 (€m)



Source: BNP Paribas, Dealogic

European Utilities Ratings

	Dong Energy	SSE	Centrica	Scottish Power	Vattenfall	RWE	E.ON	EDF
S&P	A-	A-	A-	A-	A (neg)	A (neg)	A	A+
Moody's	Baa1	A3	A3	A3	A2	A2	A2	Aa3

Corporate Finance vs. Project Finance

Corporate Finance Model

Overview

- The Parent company raises financing and subsequently lends internally to its subsidiaries
- Utilities can tap large short term bank facilities provided by relationship banks to finance their capex that are then refinanced medium to long-term through the debt capital markets
- Terms and conditions depend upon:
  - Market liquidity and investors appetite
  - Rating
  - Asset allocation by investors

Advantages

- Strong liquidity: even in the aftermath of the Lehman collapse, the utility sector was able to raise circa EUR 30 billion of notes while the PF market shrank by 84% due to the RWA constraints of banks
- Tried, tested and easy
- Cost of debt for an A rated corporate borrower is cheaper than a BB+/BBB PF credit

Disadvantages

- The requirement for a strong rating (A to A-) will limit the amount of debt which can be raised to circa 3x / 3.5x EBITDA

Project Finance Model

Overview

- Financing is raised at the Project level with no / limited recourse to the Parent → Project cash flows are the sole source of repayment
- Financing dependent upon adequacy of the Project's risk profile and cash flows
- Traditionally provided by the bank market as debt capital markets require investment grade rating and are shy on construction / technology risk.

Advantages

- Higher leverage and longer tenor, leading to potentially lower average cost of capital
- Lower capital commitment
- Risk allocation and mitigation

Disadvantages

- Highly structured / due diligence heavy / time consuming
- Although a non-recourse debt would by definition limit the security offered to the financiers to the Project itself (including pledges over the shares in the SPV), the rating agencies would consolidate such debt for ratings purpose unless Parent were to relinquish control

Requirements for Project Finance

Lenders need to be comfortable with:

- *the **construction risks**: the project needs to be built on time, on budget and to performance specifications*
- *the **robustness of future cash flows**: comfort with long term performance, revenues and operating costs*
- *The **adequacy of contractual risk allocation***
- *The **ability of contractual counterparties** to handle these risks (incl. construction contractors and off-takers)*

1. Construction risks	• Multi-contracting vs. single contractor: interface risks, risks are spread amongst parties, LDs from a contractor unlikely to cover delay costs under all scenarios • Design • Ground conditions risk • Weather risk • Contingent funding • Construction management expertise
2. Cash flows robustness	• Proven technology (turbines, foundations) • Site accessibility • O&M cost overruns • Insurance costs
3. Risk allocation	• Weaker contractual structures and risk allocation • Sufficient warranties (performance & delay LDs, warranty periods) • Sufficiency of credit support (performance bonds, PCG) • Creditworthiness of contractors

Exploring alternative funding sources

- Private equity
  - Increasing investors appetite for renewable assets
    - Large amount of capital not yet deployed
    - Long term predictable returns fit with investors expectations
  - Offshore wind industry need to work on predictability of cash flows and economic equation
- Debt capital markets
  - Renewable transactions so far funded by banks but leading to saturated balance sheets
  - Premices of investors appetite
- Other sources
  - Export Credit Agencies
  - European Investment Bank
  - Green Investment Bank ?

Conclusion

1. Economic equation needs to be resolved
2. Risk proposition needs to be improved
3. Leads to unlocking various sources of finance

Contact Details

BNP PARIBAS
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Romain Talagrand

Head of Power Sector
Project Finance, EMEA

+33 (0)1 42 98 33 81
romain.talagrand@bnpparibas.com

BNP PARIBAS
CORPORATE & INVESTMENT BANKING

Nick Gardiner

Head of Renewable Sector
Project Finance, EMEA

+44 (0)20 7595 6467
nick.gardiner@uk.bnpparibas.com