Financing large scale deployment of deep water wind farms

Presentation to the Deep Water Wind Farms Seminar
24/09/2013

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Green Giraffe
Energy Bankers

GGEB – the offshore wind finance specialists

We have an unparalleled track record in successfully closing deals for our clients

- 20 professionals in Hamburg (DE), London (UK), Utrecht (NL) and Paris (FR)
- Project & structured finance, full scope equity advisory and contracting expertise
- Focus on renewables and specifically offshore wind

Advisor to C-Power to raise project finance debt

325 MW

C-Power

Belgium
2010

EUROMONEY ProjectFinance 2010 Deals of the Year

INFRASTRUCTURE AWARDS 2010

pfi AWARDS 2010

Advisor to Northwind to raise project finance debt

216 MW

Northwind Offshore Energy

Belgium
2012

ProjectFinance Deals of the Year 2012

PFI AWARDS 2012

Non-recourse financing of 25% stake in Walney offshore wind farm

367 MW

Walney Offshore Windfarms

UK
2012

PFI AWARDS 2012

(Sponsor)

Advisor to WindMW to raise project finance debt

288 MW

WindMW

The Blackstone Group®

Germany
2011

ProjectFinance Deals of the Year 2011

PFI AWARDS 2011

(Sponsor)

Financial advisory services French offshore wind tender

1,428 MW

EDF energies nouvelles

DONG energy

France
2012

Advisor to Highland in the acquisition of the Deutsche Bucht project

210 MW

Highland Group Holdings

Germany
2012

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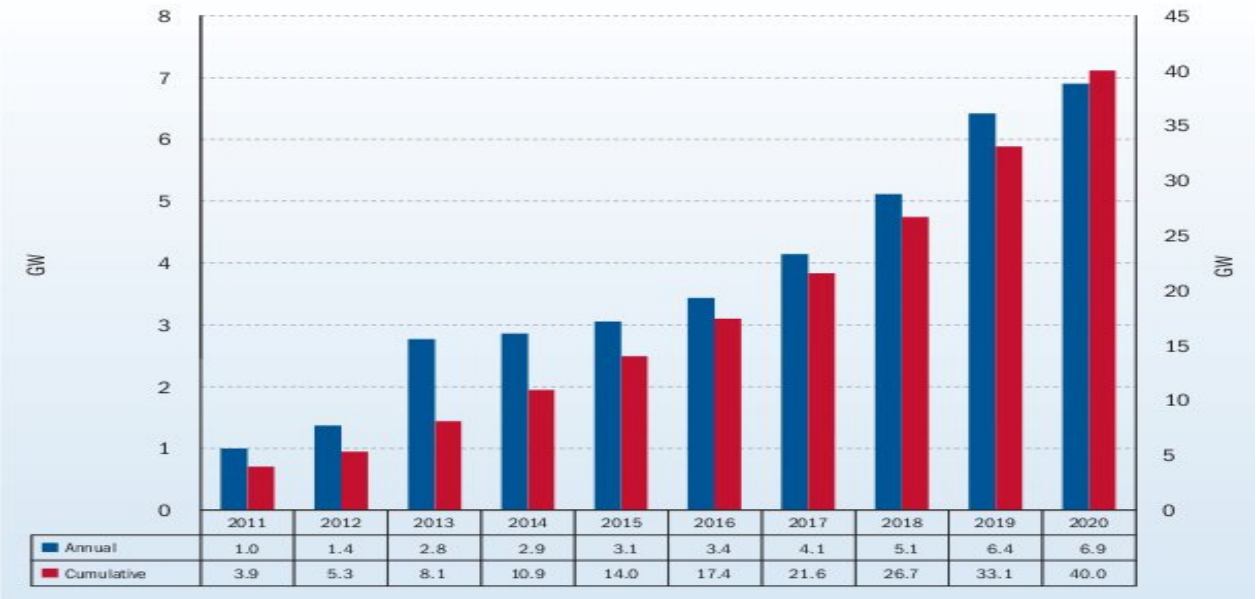
1. Setting the scene: current financing market

A massive need for capital

- Ambitious targets: total capacity should jump from 5 GW today to 50 GW in 10 years in Europe alone
- In average, EUR 25 billion per year will be needed between 2015 and 2020 in the European offshore wind market alone
- When other new markets are included these numbers increase dramatically

➔ *While the needs are not so large compared to what has been done in other sectors, they are "chunky" (large projects)*

- The finance market has grown to largely match demand to date:
  - **Equity**: more and more investors from an increasing number of classes are active or interested in offshore wind
  - **Debt**: a similar story has emerged
- How will this be influenced by the move to deeper water projects?



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Annual	1.0	1.4	2.8	2.9	3.1	3.4	4.1	5.1	6.4	6.9
Cumulative	3.9	5.3	8.1	10.9	14.0	17.4	21.6	26.7	33.1	40.0

Anticipated annual and cumulative installed capacity in European offshore wind - Source: EWEA 2011

1. Setting the scene: current financing market

Focus on the debt market

The bank market is broader and broader

- More than 30 banks have taken offshore wind risk today
- More than 20 banks have construction exposure
- Experienced banks – an active pool of banks able to structure and lead transactions:
    - Rabobank, KfW-IPEX, Unicredit, BoTM, SocGen, BNPP, Santander, Commerzbank, (Dexia)
    - HSH, NordLB (German focus)
- Many banks were involved in recent deals in the last 2 years:
    - Lloyds, ING, KBC, Siemens, Deutsche Bank, NIBC, ASN
    - Calyon, BayLB, NAB, Helaba, SEB, Deka, DnB Nor, Natixis, NIBC, Sabadell, Nordea, BBVA, LBBW, Mizuho, SMBC
    - RBS, HSBC (UK focus)
- More have expressed their appetite

An average EUR 100 M available per bank per year

- EUR 30-150 M exposure per bank per year, in 1-3 deals

At least EUR 2.5 billion available per year

Several active public financial institutions

- **EIB** – historic key player with cheaper funds (support to European offshore projects), but generally conservative
- **EKF** – offshore wind's "best kept secret": participation linked to Danish exports, up to EUR 250 M per transaction
- **Euler-Hermes** – participation linked to German exports, can do large tickets
- **KfW** – potentially large amounts available (in Germany): able to provide cheaper funding in significant volumes
- **GIB** – UK Green Investment Bank, first involved in Walney

Their role has been instrumental to get deals done

- Will typically bear approximately half of the risk and/or funding of a transaction
- Will normally take the same risks as the commercial banks, but they usually run their own internal assessment
- Some geographical / national restrictions
- Small deal teams, so availability is a constraint

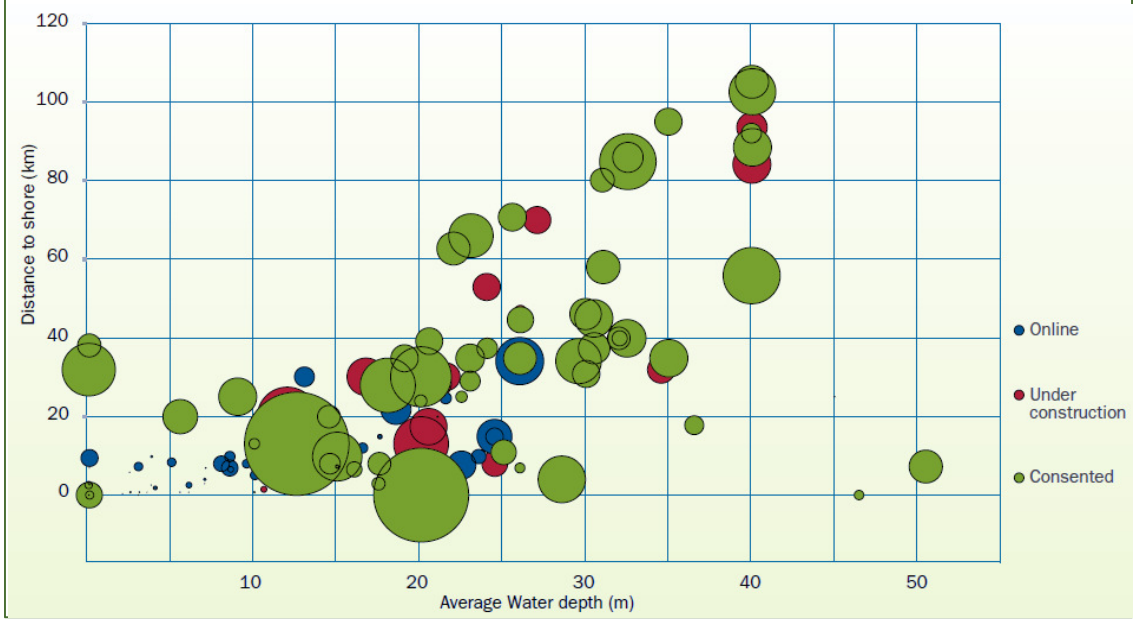
Can contribute as much as the commercial banks

2. Deep water development: current market trends/activities

Deep water technology is taking up considerably more space in the offshore wind landscape

Wind farms are built further offshore and in deeper waters

Average water depth and distance to shore
Source: EWEA



Key benefits of deep water projects

- Stronger and more consistent wind resource
- Substantial new markets (e.g. USA, Japan) where the majority of wind potential is in deep water (> 50 m)
- Existing markets where main suitable shallow water sites have been developed
- Reduced visual pollution

Key drawbacks of deep water projects

- Higher costs: innovative foundations and potentially longer export routes
- Investor confidence to be built: no track record, need for more demonstration sites
- Availability of vessels able to resist harsh sea conditions

2. Deep water development: current market trends/activities (focus on floating technology)

European leadership, followed by the USA and Japan

Europe

- UK:
  - Energy Technology Institute programme to reduce offshore wind costs, incl. 25 MGBP for a floating demonstration project
  - Crown Estate's leasing round for emerging offshore wind technologies, incl. floating
- Portugal:
  - WindFloat: second large scale floating system, developed by Principle Power (a 2 MW Vestas turbine). Second phase planned to be > 27 MW and third phase up to 150 MW
- Norway:
  - Hywind: first large scale floating system, developed by Statoil (a 2.3 MW Siemens turbine). Additional 5-7 MW turbine by 2016
- France:
  - Three demonstration programmes: WINFLO, Vertiwind and IDEOL
  - Funding from Europe (under the NER300) and from the "Grand Emprunt"

Windfloat turbine (source: Principle Power)

Hywind turbine (source: Statoil)

2. Deep water development: current market trends/activities

European leadership, followed by the USA and Japan

VolturnUS turbine (source: UMaine)

Fukushima demo turbine (source: Mitsui)

USA

- No offshore wind farm
- Offshore wind resource for areas up to 50 nautical miles: 4,150 GW. More than half located in deep waters > 60 m
- Target: 80% of electricity generated from clean energies by 2035
- Department of Energy funding: USD 168 M for seven offshore wind demo projects, incl. three floating ones

Japan

- The world's sixth largest Exclusive Economic Zone, incl. 80% of offshore wind resource in deep waters
- Post-Fukushima government goals: to stop using nuclear power and to deploy renewables
- Consortium led by Marubeni, Mitsubishi, Mitsui and Hitachi for a demo project using floating substructures off the coast of Fukushima

3. Factors considered by an investor/lender

There are many other things to consider than just water depth

	Factor	What's important?
Market	Support scheme	Simplicity, certainty, stability, profitability
	Political and country risk	Good perception of the government, risk of default
	Existing offshore wind market	Experienced market
	Alternative investment options	Limited potential of shallow-water, onshore wind, solar
Project	Technical risk	Unproven technology
	Project economics	Meet investor's hurdle rate
	Project commercial risks	Good project structure, careful selection of contractors

Largely responsibility of governments -> out of project's control

Heavily influenced by project

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3. Factors considered by an investor/lender

Market factors – how they compare						
Factor	UK	Portugal	Norway	France	USA	Japan
Support scheme	✓	?	?	✓	?	?
Political and country risk	✓	?	✓	✓	✓	✓
Existing offshore wind market	✓	×	×	~	×	×
Alternative investment options	✓	✓	✓	✓	✓	~

- Germany may also become a consideration but for these purposes could be considered similar to the UK in terms of the above drivers

- Projects should preferably be situated in a market understood by and familiar to investors
- Persuading investors to take investments with new technology and market risks will be much harder
- Start by working in a sector known by the existing investor/lender community or with suitable government linked organisation support

4. Deep water specific issues: technology

Technology risk depends on whether foundations are fixed or floating

Advantages of the floating technology	Minus of the floating technology
• Assembly at dock leading to minimisation of offshore construction works (limited dependence to weather and specialized vessels) • Possibility to transfer the turbine to port in case of major repairs • No limit in water depth site • Limited damage to seabed ecosystems	• Non-static cables • Availability of vessels in case of major repairs • Few precedents compared with fixed foundations

Are there new key risks?

	Fixed	Floating
Wind turbines	No	Yes, likely to be a more dynamic structure
Foundations	No, done in oil and gas albeit static structures	Yes
Cables	No, done in oil and gas	Yes, dynamic cables needed
Substations	No	No
Constr. and op.	Small	Yes, vessel availability
	No major issues foreseen	At least rigorous prototype testing likely to be required

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4. Deep water specific issues: economics and commercial risks

Increased costs and risks need to be offset

Economics

- Key additional challenges include:
  - **Foundation costs** - could be 50% more than current "shallow water" foundations
  - **New or larger installation and maintenance vessels** – lead to increased costs
  - Initial projects are likely to **lack scale in terms of WTG size or installed capacity** so economies of scale will be lost
- In time scale and access to better wind regimes may offset these costs but in the meantime support required is likely to be higher than shallow water sites, particularly for floating foundations
- Additional support needs to be considered carefully though as investors are wary of too much reliance on government involvement

Commercial risks

- Key additional challenges include:
  - Insolvency risks – lesson learnt from existing shallow water projects
  - Cable failures
- As is the case now, careful consideration will need to be given from an early stage to ensure the contractual structure is "bankable"
- Additional risks will not be taken without increased returns, particularly if other investment opportunities exist
- Investor/lender due diligence is likely to take longer, so early involvement is absolutely key

5. Making a project bankable

How to make a deal bankable

- **Structuring a deal is time-intensive**
  - Non recourse finance requires a specific discipline and approach to project risks
  - Multiple complex tasks to run in parallel, with numerous third parties (with often contradictory requirements)
  - Several critical paths to manage (ongoing development work, external advisors, contract negotiations, internal approvals)

- **Lenders ideally want strong equity commitments**
  - Someone clearly in charge – a strong majority investor (or consortium) is usually a must have
  - An acceptable management team, via a dedicated team or direct involvement of the sponsors
  - For large projects, equity commitments paid upfront or backed by strong entities
  - A long term commitment to the sector by the majority investor (track record, explicit strategy, etc…)
  - Specific long term retention commitments by the majority investor restricting divesting rights

- **Conversely, investors want less interference**
  - No micro-management of the project by lenders through intrusive covenants (no reserved discretions!)
  - Flexibility to sell stakes
  - Limited restrictions to dividend payments, in downside (lockups, reserve accounts) and upside scenarios (sweeps)

- **The quality of the contracts can help bridge the difference**
  - The more « bankable » the contracts are, the more flexible banks will be on equity issues
  - The stronger the contractual commitments, the less important the owner will be

6. Conclusion

Steps from shallow to deep waters are not that big!

Getting access to vast new markets

- Deployment of deep water wind farms will unlock areas with stronger and more stable wind
- Necessary in countries without shallow water coasts

Attracting investment does not only depend on water depth

- Market risks (support scheme, political and country, existence of an offshore wind market) are part of the investment decision process but these are not easily influenced by the project
- Project risks (technical and commercial together with economics) are also critical and are largely set by the project
- The deal will be more complicated if new risks are introduced in both of these categories

Technology risk has been taken before

- Fixed foundations appear to offer limited additional risk
- Floating technology is likely to need to be proven through prototypes but to what extent is still to be confirmed
- This work is already underway but more could be done

Economics and commercial risks

- Early projects will more than likely require additional support
- Foundation contractor insolvency risk may become more acute

Given the right framework there is no reason why deep water projects should not be able to secure financing, provided the project is well structured and sufficient time is given to investors and lenders for their due diligence

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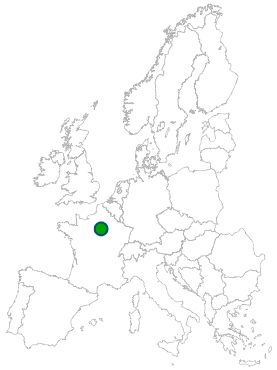
Paris



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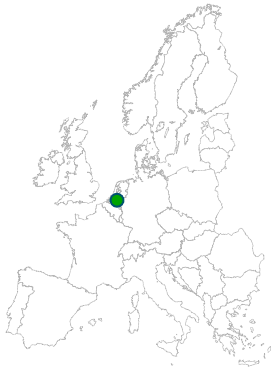

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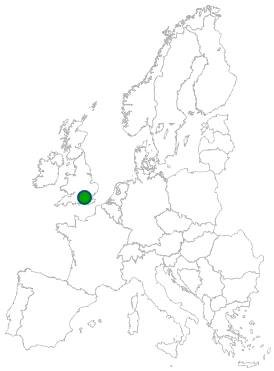

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