Le financement de l’éolien en mer
Conférence de l’OFAEnR – Bremerhaven, 20 février 2014
Jérôme Guillet
Financing offshore wind

Table of contents

1. How projects are financed
2. The equity market
3. The debt market
4. Risk analysis by the lenders
GGE – the offshore wind finance specialists

A strong focus on offshore wind

A strong presence in the offshore wind sector

North Sea projects (end 2012) and GGE involvement

GGE involved
GGE not involved
Debt financing closed
GGE – 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, M&A & contracting expertise
- Focus on offshore wind

Advisory to C-Power to raise project finance debt

325 MW
Belgium
2010

Advisory to Northwind to raise project finance debt

216 MW
Belgium
2012

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

367 MW
UK
2012

Advisory to WindMW to raise project finance debt

288 MW
WindMW
Germany
2011

Financial advisory services
French offshore wind tender

1,428 MW
France
2012

Advisory to Highland in the acquisition of the Deutsche Bucht project

210 MW
Highland Group Holdings
Germany
2012

Conférence de l'OFAEnR - 20/2/14
Financing offshore wind

Table of contents

1. How projects are financed
2. The equity market
3. The debt market
4. Risk analysis by the lenders
1. How projects are financed

“Balance sheet” (equity) vs “non-recourse” (debt)

- Large projects are typically developed through a stand alone project company:
  - Owned by the project investors
  - With its own revenues & balance sheet and thus the ability to raise debt on its own merits

- There are only two discrete sources of funding:
  - By the owners (directly via equity or shareholder loans, or indirectly via guarantees)
  - By banks without recourse to the equity investors – this is “project finance”

- The way a project is funded will have a material impact on how it deals with contractors.
  - In a project finance deal, you need to deal with the banks’ requirements!
  - Tax, accounting, consolidation and rating issues

Direct contractors have a direct incentive to understand who will be funding the project
1. How projects are financed

<table>
<thead>
<tr>
<th>IPPs</th>
<th>Utilities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>It’s vital</strong></td>
<td><strong>It’s too much trouble</strong></td>
</tr>
<tr>
<td>• Not enough funding otherwise</td>
<td>• Banks interfere with contract negotiation</td>
</tr>
<tr>
<td>• Leverage required to improve returns</td>
<td>• It’s too expensive</td>
</tr>
<tr>
<td><strong>It’s actually useful</strong></td>
<td><strong>It wasn’t really needed so far</strong></td>
</tr>
<tr>
<td>• Better terms thanks to the “bad cop” banks</td>
<td>• Big enough balance sheets</td>
</tr>
<tr>
<td>• Better mitigation of risk thanks to due diligence-driven contractual discipline</td>
<td>• Plentiful (and cheap) corporate funding</td>
</tr>
</tbody>
</table>
1. How projects are financed

Project finance already finances a significant fraction of overall capacity

Offshore wind project financed volumes

<table>
<thead>
<tr>
<th>Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume</td>
<td>32%</td>
<td>5%</td>
<td>0%</td>
<td>41%</td>
<td>45%</td>
<td>47%</td>
<td>37%</td>
<td>35%</td>
</tr>
</tbody>
</table>

Conférence de l'OFAEnR - 20/2/14
1. How projects are financed

Utilities are still avoiding project finance in Europe

- **Utilities have gone toward equity solutions**
  - Use of UJVs or IJVs which allow pro rata consolidation of project equity
  - Sale of minority stakes (up to 49.9%) in projects

- **Rating agencies have a negative view on non-recourse debt**
  - They consider that utilities will not walk away from a strategic project and thus debt is not really non-recourse
  - In countries where power is sold to the market, utilities which provide PPAs are considered to have a long term liability under the project and this is counted against them by ratings agencies
  - Finally, certain utilities have covenants in their corporate credit facilities which prevent them from doing project finance if they control the project (and utilities typically prefer to control projects)

- **This comes in addition to the other perceived issues of non-recourse debt**
  - More expensive
  - Intrusive involvement of multiple external parties
  - No results (UK market perception)
Financing offshore wind

Table of contents

1. How projects are financed
2. The equity market
3. The debt market
4. Risk analysis by the lenders
2. The equity market

- Renewable energy projects generally follow a similar pattern
- Project risk/return profiles change over time: a project “de-risks” as key development milestones are realised
- Most value is created during the development phase
- Most investor appetite is for the construction or operational phase
- Some investors are not keen to take permitting or financing risk

TIME/RISK

Permit obtained

Start of construction

Completion

Operational phase

Peak investment during construction (can be financed 60-70% with debt)

Highly visible cash yield Infrastructure like risk profile

De-risking of the project upon completion of major development milestones

3-9 months

12-24 months

15-25 years

3-9 months

3-9 months

Potentially years

Renewable energy projects generally follow a similar pattern

Project risk/return profiles change over time: a project “de-risks” as key development milestones are realised

Most value is created during the development phase

Most investor appetite is for the construction or operational phase

Some investors are not keen to take permitting or financing risk

Significant development equity is required to bring the projects to FID/start construction

<table>
<thead>
<tr>
<th></th>
<th>Equity</th>
<th>Debt</th>
<th>Project cash flow</th>
</tr>
</thead>
</table>

Conférence de l’OFAEnR - 20/2/14
## 2. The equity market

### Recent transactions - projects under development

<table>
<thead>
<tr>
<th>Project</th>
<th>Transaction</th>
<th>Specifics</th>
</tr>
</thead>
</table>
| Gode Wind I, II & III    | ✓ 900 MW, sold by PNE  
                       ✓ 100% sold to DONG | ✓ Purchase of 3 projects at various stages of development  
                       ✓ Transaction price at EUR 157 M – 0.17 MEUR/MW |
| Deutsche Bucht           | ✓ 210 MW, sold by Windreich  
                       ✓ 100% sold to Highland Holding in 2012 | ✓ Purchase from an independent developer by a financial investor |
| Aquamarin, Bernstein and Citrin | ✓ portfolio of +/- 1,400 MW  
                       ✓ Sold by BARD to PNE in 2013 | ✓ Purchase of 3 projects by PNE at EUR 17M – 14kEUR/MW  
                       ✓ Projects in early development stage, construction planned for 2020 - 2025 |
| NSWP 4-7                 | ✓ 4 projects sold by Enova  
                       ✓ 100% sold to Hochtief/Ventizz in 2012 | ✓ Projects in early development stage, construction planned for 2020 - 2025 |
| Dudgeon                  | ✓ UK, 560 MW, sold by Warwick Energy  
                       ✓ 100% sold to Statkraft/Statoil in 2012 | ✓ One of the few projects developed by an independent taken up by utilities |
| Navitus Bay              | ✓ UK Round 3, up to 1,200 MW, sold by ENECO  
                       ✓ 50% sold to EDF in 2012 | ✓ Part of the “reshuffling of the cards” of the UK Round 3 projects |
| Rhiannon                 | ✓ UK Round 3, up to 4,200 MW, sold by Centrica  
                       ✓ 50% sold to DONG in 2012 | ✓ Part of the “reshuffling of the cards” of the UK Round 3 projects |
## 2. The equity market

<table>
<thead>
<tr>
<th>Project</th>
<th>Transaction</th>
<th>Specifics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Borkum Riffgrund I</strong></td>
<td>✓ 277 MW, Siemens 3.6 MW, sold by DONG ✓ 50% sold to Oticon/LEGO group</td>
<td>✓ Project previously purchased from PNE in 2009 at EUR 56 M – 0.2 MEUR/MW ✓ Sale of 50% to private investor at DKK 4,700 M (EUR 630 M – 4.7 MEUR/MW) includes construction costs + development premium</td>
</tr>
<tr>
<td><strong>Parkwind</strong></td>
<td>✓ BE, 381 MW sold by Parkwind (Colruyt group) ✓ Sold to Sumitomo ✓ 39% of Belwind I (operational, 165 MW) and 33.3% in Northwind (under construction, 216MW)</td>
<td>✓ Parkwind and Sumitomo have also entered into a project development agreement to work together on the development of the Belwind 2 project, a 165 MW offshore wind farm adjacent to the Belwind 1 wind farm.</td>
</tr>
<tr>
<td><strong>Luchterduinen</strong></td>
<td>✓ NL, 129 MW, 50% sold by Eneco to Mitsubishi</td>
<td>✓ Part of a larger investment by Mitsubishi in offshore wind (e.g interconnectors) ✓ Japanese trading companies increasingly involved in the sector</td>
</tr>
<tr>
<td><strong>Gemini</strong></td>
<td>✓ NL, 600MW sold by Typhoon and HVC ✓ Sold to NPI (55%), SFS (20%), Van Oord (10%)</td>
<td>✓ Project under development (financial close expected in 2014) ✓ Two contractors (Siemens and Van Oord) co-invest</td>
</tr>
<tr>
<td><strong>Rhyl Flats</strong></td>
<td>✓ UK, 90 MW, sold by RWE ✓ 25% sold to the GIB and 25% to Greencoat</td>
<td>✓ Operational asset (fully commissioned in 2009) ✓ New source of capital through Greencoat’s IPO ✓ First investment by the GIB in equity in offshore wind ✓ Acquisition price: 2.6 MGBP/MW</td>
</tr>
<tr>
<td><strong>Butendiek</strong></td>
<td>✓ 288 MW sold by WPD ✓ 90% sold to Marguerite, SFS, PKA, IndustriesPension</td>
<td>✓ Transaction simultaneous with closing of non recourse debt financing ✓ First time pension funds &amp; infrastructure funds take construction risk</td>
</tr>
</tbody>
</table>
2. The equity market

Some lessons

- **An active market – and a wider range of investors beyond utilities than people assume**
  - Infrastructure funds and pensions funds (PensionDanmark, PKA, Industries Pension, TCW, PGGM)
  - Private equity groups (Blackstone, etc.)
  - Corporations with specific strategies (LEGO, Colruyt, Marubeni)
  - …. and many more sniffing around the sector

- **Valuations are actually relatively consistent**
  - Permitted projects – development cost + premium @ 200kEUR/MW
  - Contracted projects – construction cost @ 3.5MEUR/MW unlevered (or 1.1 MEUR/MW levered)
  - Operational projects – linked to regulatory framework and IRR target of investors (8-10%)

- **Trade off between construction risk and returns now closely examined**
  - As more assets are operational, the universe of investors grows and IRR targets are going down
  - A number of investors are now looking to take construction risk to improve returns (to double digits)
  - A “bankable” deal is also one which many investors can find attractive

Conférence de l'OFAEnR - 20/2/14
2. The equity market

**A waiting game**

- **A lot of uncertainty right now**
  - Regulatory uncertainty on the two main markets
  - Utilities reconsidering their strategies, both for existing assets and for new projects
  - New entrants still wary of construction risk

- **UK projects awaiting EMR process conclusion**
  - Lack of clarity on EMR “end game” is beginning to delay things
  - Gap between Round 2 (now almost completely built) and Round 3 is going to be longer than expected, with 1-3 year delay
  - On the other hand, there are 3+GW of operational assets and some of these will come on the market

- **Germany awaiting coalition decisions**
  - Grid issues have been solved; the solution proposed (grid “queue”) is likely to slow down overall pipeline development
  - Recent announcements suggest regime stability, but lower overall volume, i.e. pragmatism and realism
  - Projects currently under construction have faced multiple issues and delays

- **Elsewhere, France and the Netherlands could be the good surprise(s)**
  - Projects moving ahead, on a scale that is relevant, in the same timeframe as Germany and early Round 3
  - There will be requirements for external equity (wpd, RES, etc... need to find construction equity in FR; Dutch players use PF)
Financing offshore wind

Table of contents

1. How projects are financed
2. The equity market
3. The debt market
4. Risk analysis by the lenders
3. The debt market

<table>
<thead>
<tr>
<th>No recourse</th>
<th>No upside</th>
</tr>
</thead>
</table>
| • Recourse to investors is contractually limited  
  • Lenders rely on project revenues only  
  • Capital intensive projects requiring long term financing  
  • Lenders need LT operational performance | • Lenders receive a fixed remuneration  
  • Lenders do not benefit from better performance  
  • Low single digits margins vs high leverage  
  • Risks to be commensurate to remuneration |

Lenders need to make sure that the project works on a standalone basis, with no third party commitments than those made at financial close. Such commitments must be realistic, credible and durable, both contractually and economically. This typically entails very detailed contractual frameworks and extensive due diligence.

Lenders need risks to be measurable and to have probabilities of occurring in the low single digits for investment to make sense. Risks which are (seen as) well understood are thus easier to bear.

Project finance lenders will usually have priority access to cash-flows (after certain pre-agreed operation expenses necessary to keep the project running) and security on all assets, contracts and equity of the project.
3. The debt market

**Revenue side constraint**

- Offshore DSCR constraint: 1.50 with p50 or 1.30 with p90
  - No or very limited price risk on revenue side
  - Net availability number in the 90-92% range
  - Conservative O&M cost assumptions

**Capital expenditure constraint**

- Debt : Equity < 70:30
  - Limited tolerance for junior debt mechanisms
  - Limited tolerance for pre-completion revenues
  - Strong requirement for equity to be paid upfront

**Total capital expenditures**

- Turbines
- Foundations
- Electricals
- Installation
- Insurance
- Construction engineering
- Development costs
- MLA and due diligence costs
- Debt fees (arranging + commitment)
- Interest during construction
- DSRA

---

Conférence de l'OFAEnR - 20/2/14
3. The debt market

**Past deals**

**Offshore wind non recourse transactions**

- **Q7**
- **C-Power-1**
- **Boreas**
- **Belwind**
- **C-Power-2**
- **Borkum West 2**
- **Global Tech 1**
- **Meerwind**
- **Baltic 1**
- **OFTO**
- **Northwind**
- **Lincs**
- **Gunfleet Sands**
- **OFTO**
- **OFTO**
- **OFTO**
- **London Array**
- **Butendiek**

**Financial breakdown**:
- **MEUR**
- **2006**
- **2007**
- **2008**
- **2009**
- **2010**
- **2011**
- **2012**
- **2013**

**Past deals**:
- **With construction risk**
- **Financing of minority stake**
- **Without construction risk**
- **OFTO refinancing**
3. The debt market

### Market trends

<table>
<thead>
<tr>
<th>Typical project finance conditions - offshore</th>
<th>Leverage</th>
<th>Maturity post-completion</th>
<th>Pricing</th>
<th>Maximum underwriting</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-2007</td>
<td>60:40</td>
<td>10-15 years</td>
<td>150-200 bp</td>
<td>50-100 M</td>
</tr>
<tr>
<td>2009</td>
<td>70:30</td>
<td>15 years</td>
<td>300 bp</td>
<td>30-50 M</td>
</tr>
<tr>
<td>2010-2011</td>
<td>65:35</td>
<td>12-15 years</td>
<td>250-300 bp</td>
<td>50-75 M</td>
</tr>
<tr>
<td>2012</td>
<td>70:30</td>
<td>10-15 years</td>
<td>300-375 bp</td>
<td>30-50 M</td>
</tr>
<tr>
<td>Current market</td>
<td>70:30</td>
<td>10-15 years</td>
<td>250-350 bp</td>
<td>50-125 M</td>
</tr>
</tbody>
</table>

- **Debt costs are relatively stable**
  - Higher margins reflect an increase in the banks’ cost of funding rather than an increase in the cost of risk
  - As the underlying long term cost of money has fallen (in a mirror image), the overall cost of debt is stable or decreasing
- **Structures (ratios, maturity, covenants) have actually been quite stable since 2007**
  - Debt terms fundamentally driven by regulatory framework (duration of price regime, merchant risk, public financing opportunities)
  - Commercial fights are rarely about debt sizing or pricing
3. The debt market

4 transactions in 2012

- **Gunfleet Sands** (UK, 86 MW, Siemens 3.6 MW, GBP 158 M financing)
  - Refinancing of Marubeni’s 49% stake in the (operational) project – the first financing of a minority stake
  - NEXI-driven transaction, demonstrating “Japan Inc.” appetite for offshore wind

- **Lincs** (UK, 270 MW, Siemens 3.6 MW, GBP 500 M financing)
  - First construction risk transaction in the UK
  - Large commercial banking group (10 banks) – and no public financing institutions
  - 15-year debt, again with standard debt sizing (UK “blended” DSCR)

- **Northwind** (Belgium, 216 MW, Vestas V112, EUR 595 M financing)
  - Traditional Belgian offshore wind deal – including construction risk, and showing that Vestas is still bankable
  - New ECAs involved – ONDD and GIEK/EksportKreditt Norge, alongside EIB and EKF (funded by PensionDanmark)
  - 15-year debt funding made available, under traditional debt sizing rules (70:30 gearing)

- **Walney** (UK, 92 MW offshore, Siemens 3.6 MW, GBP 224 M financing)
  - Refinancing of PGGM and Ampere’s 25% stake in the 367 MW (operational) project
  - First transaction for the GIB – but the transaction was largely funded by commercial banks
3. The debt market

2 transactions in 2013 and more in the pipeline

- **Butendiek** (DE, 288 MW, Siemens 3.6 MW, EUR 940 M financing)
  - First transaction under the new grid law in Germany
  - Full construction risk, on a billion-euro scale, borne by both lenders and financial investors

- **London Array** (UK, 126 MW, Siemens 3.6 MW, GBP 266 M financing)
  - Refinancing of Masdar’s 20% stake in the 630 MW project at completion
  - Very long process, as it was started in 2009

And pending...

- **Gemini** (NL, 600 MW, Siemens 4.0 MW, launched)
  - Transaction currently on the banking market
  - Would be the largest ever wind financing (PFI has reported an amount of EUR 2.26 billion)
  - Closing expected Q1 2014

- **Innogy Nordsee 1** (DE, 288 MW, Repower 6M, pending)
  - Financing launched by utility with parallel equity and debt transactions

- **MEG 1** (DE, 400 MW, Areva M5000, pending)
  - New attempt expected following the bankruptcy of Windreich
3. The debt market

**The lessons from the past 2 years**

- **Good projects can find money**
  - Active market, despite the crisis and the atmosphere of gloom
  - Very different transaction profiles, but all managed to obtain competitive debt conditions
  - There is no “UK malediction” (just like there is no “Germany malediction” – and no “US malediction”)
  - No bank or individual institution is indispensable

- **The market is consistent in its requirements**
  - Debt sizing principles are quite stable and predictable
  - Due diligence standards and main covenants are similar across transactions
  - The same rules apply in different countries and with different banks involved

*And meanwhile, the projects under construction have been giving a lot of work to project finance bankers...*

- **Construction finance is a full time job**
  - Multiple time-consuming issues need to be dealt with throughout the construction period
  - Project management competence is of overriding importance
  - Banks are building a lot of experience which will be valuable for future projects*
Financing offshore wind

Table of contents

1. How projects are financed
2. The equity market
3. The debt market
4. Risk analysis by the lenders
4. Risk analysis by the lenders

Stuff happens, offshore

A crane collapsed in the marshalling harbour (2007)

A monopile sank and was damaged (2009)
4. Risk analysis by the lenders

Offshore wind adds new risks to traditional PF risks

- **Regulatory / political risk** – no to permitting risk, yes to (some) regulatory change risk
- **Price / market risk** – no to volume risk, yes to (some) price risk
- **Counterparty risk** – increasing attention as projects grow in size
- **Technology risk** – core risk, but banks have shown willingness to bank new turbines
- **Wind risk** – easier offshore than onshore; wake effect is key worry
- **Construction risk** – still the toughest risk (multi-contracting)
- **Operating risk** – taken on the basis of long term O&M agreements with WTG manufacturers

Offshore wind is one of the most complex industries to be project-financed
4. Risk analysis by the lenders

Construction risk - banks focus on interfaces between key tasks as much as those between contracts

Several completely different industries

- Turbine manufacture
- Foundation / steelwork supplies
- Electricals
- Cabling
- Marine construction work

☐ No obvious general contractor!

And yet banks do take construction risk

- Focus on project management
- Focus on key interfaces
- Understanding of critical path items
- Heavy involvement in contract negotiation

The higher risks borne by the banks impose different development and contractual approaches
Green Giraffe Energy Bankers

Paris
8 rue d’Uzès, 75002 Paris
tel: + 331 4221 3663
email: fr@green-giraffe.eu

Utrecht
Maliebaan 83a, 3581 CG Utrecht
tel: + 31 30 820 0334
email: nl@green-giraffe.eu

London
30 Crown Place, London EC2A 4EB
tel: + 4420 7856 2417
email: uk@green-giraffe.eu

Hamburg
Mattentwiete 5, 20457 Hamburg
tel: + 4917 6551 28283
email: de@green-giraffe.eu