



Wind Energy – The Facts: Offshore

*Jérôme Guillet – 28 November 2011 –
Project Finance for offshore wind*

Contents

1. Project finance for offshore wind – the theory
2. The early deals
3. The market(s) today
4. What's next?

Green Giraffe Energy Bankers is a specialist advisory boutique focused on renewable energy

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

- 18 professionals in London (UK), Utrecht (Netherlands) and Paris (France)
- project & structured finance, M&A, legal & contracting expertise
- priority given to a limited number of clients, based on long term relationships

Advisor to C-Power to raise project finance debt

325 MW




Belgium
2010



Advisor to WindMW to raise project finance debt

288 MW



The Blackstone Group*

Germany
2011



<p>Acquisition and refinancing of a portfolio of onshore wind assets</p> <p>45MW</p>  <p>Germany</p>	<p>Acquisition of a stake in an offshore wind farm</p> <p>Undisclosed</p>  <p>Europe</p>	<p>Non-recourse financing of two offshore wind farms</p> <p>600 MW</p>  <p>The Netherlands</p>
<p>Acquisition and financing of geothermal project in Southern Europe</p> <p>400 MW</p>  <p>Turkey</p>	<p>Non-recourse financing of an offshore wind farm</p> <p>252 MW</p>  <p>Germany</p>	<p>Acquisition of a stake in an offshore wind farm</p> <p>Undisclosed</p>  <p>North America</p>
<p>Non-recourse financing of 25% stake in Walney offshore wind farm</p> <p>92 MW</p> <p>Ampere Equity Fund</p>  <p>UK</p>	<p>Non-recourse refinancing of a portfolio of solar PV assets</p> <p>24 MW</p>  <p>Spain</p>	<p>Non-recourse financing of an offshore wind farm</p> <p>216 MW</p>  <p>Belgium</p>
<p>Non-recourse financing of an offshore wind farm</p> <p>468 MW</p>  <p>US</p>	<p>Non-recourse financing of an onshore wind farm</p> <p>Undisclosed</p>  <p>Europe</p>	<p>Tendering strategy of turbine manufacturer on offshore wind project</p> <p>Undisclosed</p>  <p>Europe</p>



1. Project finance for offshore wind – the theory

Two fundamental principles

No recourse

- 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 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

No upside

- 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 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

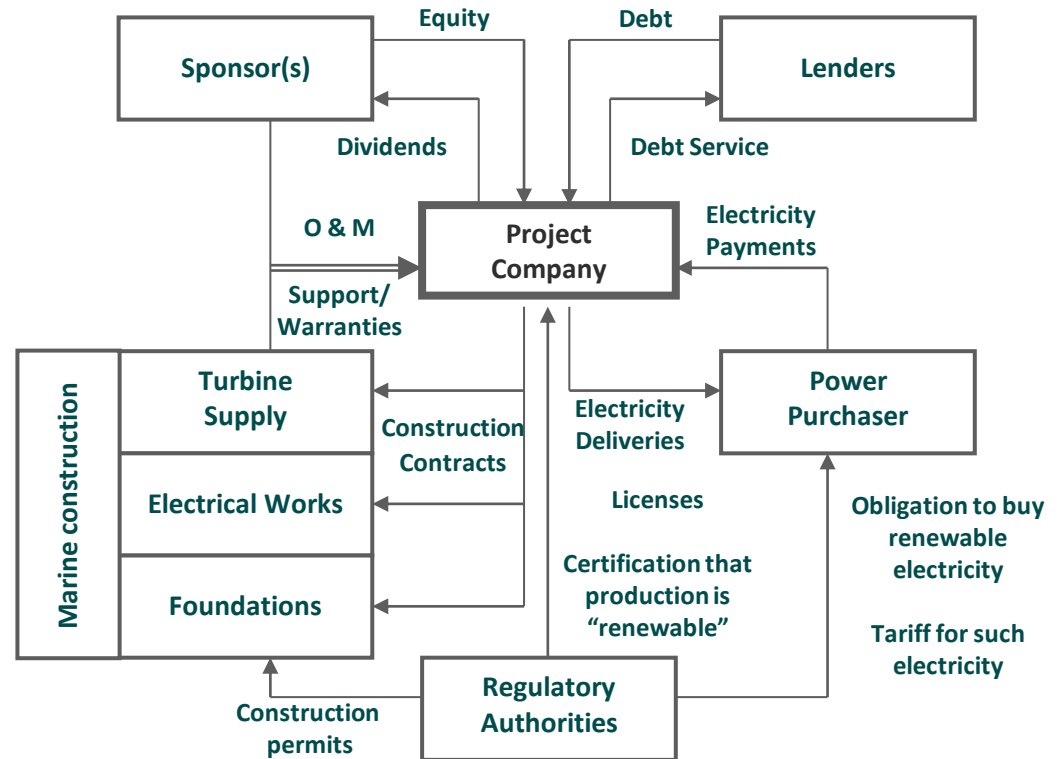
Project finance lenders will usually have priority access to cash-flows (after certain pre-agreed operation expenses necessary to keep the project running) and security on all assets, contracts and equity of the project

An overriding focus on the contractual package

PF transactions are always heavily contracted

Major contracts include:

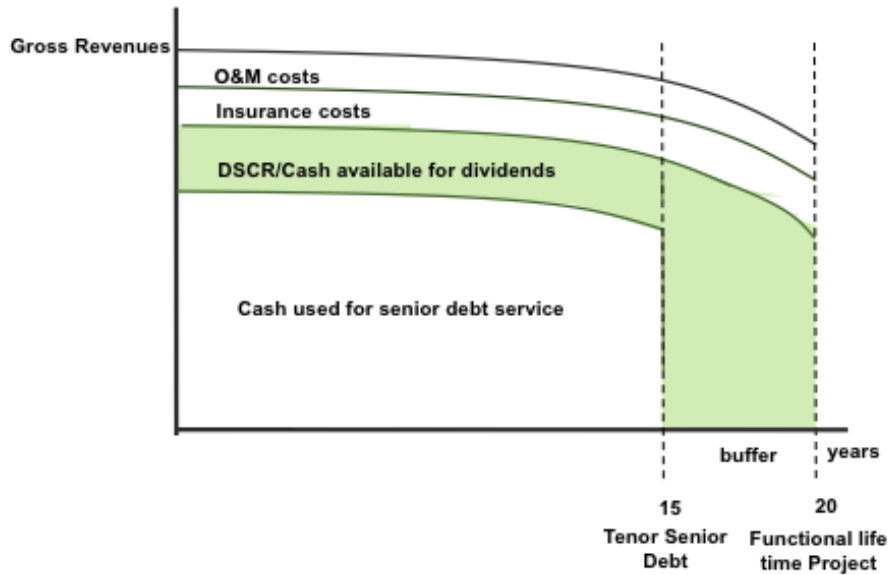
- permits, licenses, authorisations, etc...
- construction/supply contracts
- electricity sales contracts (and, if applicable, green certificates contracts)
- O&M contracts
- financing documents



Wind and offshore wind in particular are quintessential examples of comprehensive contractual structures

Offshore wind - debt sizing principles

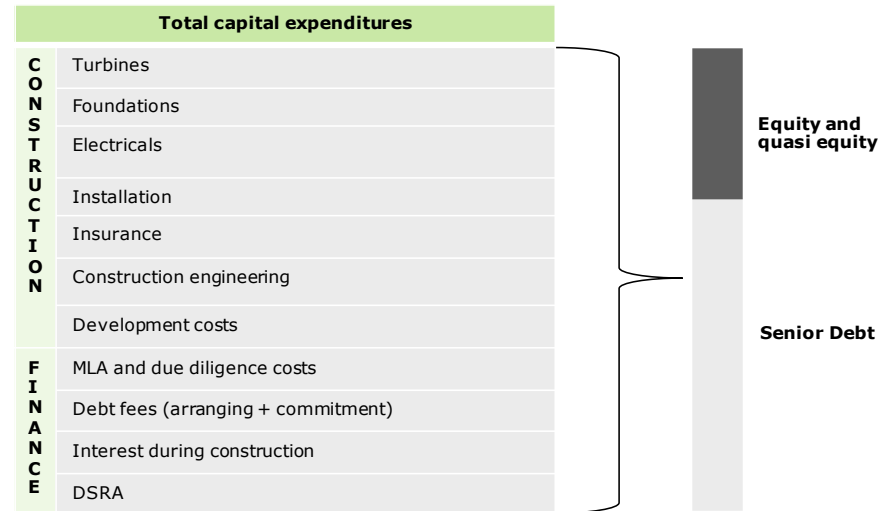
Revenue side constraint



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 taking into account pre-completion revenues
- Strong requirement for equity to be paid upfront

Offshore wind – risk analysis (1)

Risk are different in each project phase

Development phase
(never borne by banks)



Construction phase
(can be borne by banks)



Operational phase
(typically borne by banks)

No project!

No permits
No tariff / PPA
No contracts
Not enough money

Delay and cost overruns

Scope gaps
Contractor delays
Adverse weather
Accidents

Lost revenue

Lower availability
Higher O&M cost
Lower prices
Less wind

Mitigation cascade

Project management
Detailed planning
Committed sponsors

Project coordination
Solid contracts (LDs)
Contingency budget
Insurance

Project management
Long term O&M contract
Turbine manufacturer commitment
Insurance

Offshore wind – risk analysis (2)

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 (multicontracting), not done in London market yet
- **Operating** risk – taken on the basis of long term O&M agreements with WTG manufacturers

An « oval » foundation after it sank during transport to site



A crane collapsed in the marshalling harbor

Offshore wind can still look quite scary

2. The early deals

The early deals (1)

4 deals just before and after the financial crisis

- **Q7 princesamalia** (2006, the Netherlands, 120 MW, Vestas V80, EUR 219 M financing)
 - The very first deal – set a number of precedents (debt sizing principles, multi-contract construction risk taken via heavy due diligence and contingent funding, 10-year O&M package)
 - 3 MLAs, 3 additional banks, plus key support from EKF
- **C-Power phase 1** (2007, Belgium, 30 MW, Repower 5M, EUR 126 M financing)
 - Consolidation deal – a more aggressive version the Q7 structure (construction risk, longer tenor thanks to the longer term support framework, some merchant risk)
 - Confirms that new turbines, even very large ones, are bankable
 - 1 MLA, 3 additional banks, no multilateral
- **Belwind** (2009, Belgium, 165 MW, Vestas V90, EUR 544 M financing)
 - First deal post-financial crisis – allowed to confirm that the early structures were sound (construction risk, some merchant risk) while increasing the size thanks to heavy multilateral involvement
 - 3 MLAs, EIB and EKF, no syndication – heralded the “club deal” period
- **Boreas** (2009, UK, 194 MW offshore, Siemens 3.6-107, GBP 340 M financing)
 - First UK deal, with a large number of banks (14 altogether)
 - No construction risk, but funding under the UK ROC regime, with some merchant risk

The early deals (2)

Pioneers – precedent-setting, but with a small number of players

- **Successful structures – and really non recourse!**
 - DD + Contingent mechanism structure to bear construction risk validated in subsequent deals
 - Construction risk with multi-contract structure validated and repeated
 - Repeated with several different turbines, sponsors and regulatory regimes
 - All early projects built within agreed budget and timetable, and now operating to full satisfaction

- **A fairly small number of players involved**
 - Only a small number of institutions actually took construction risk
 - Heavy reliance on a small number of multilaterals (EKF, EIB)
 - The same advisors and people in almost every deal

- **A difficult market context**
 - No syndication market for what are fairly large deals – thus a need for *everybody* on each deal
 - Lack of precedents at a time banks were retreating to favored clients and familiar risks

3. The market(s) today

Market segments

There are at least two semi-separate markets

▪ The UK market

- Only one deal closed (without construction risk) and several delayed by over 2 years
- Large gap between expectations of investors and what the market was willing to do
- Bad image generated by persistent, if relatively minor, technical glitches (ie grouting issues)
- Mutual perception by utilities and banks that the other group was not reasonable

▪ The continental market

- Large scale transactions with construction risk are becoming a regular occurrence
- Increasing number of banks and sponsors with the right experience and track record
- Range of commercial terms is widening, as actors seek different objectives:
 - Raising funds
 - Increasing leverage and returns

The recent deals

4 deals in the past year – all in continental Europe

- **C-Power phase 2** (2010, Belgium, 325 MW, Repower 6M, EUR 913 M financing)
 - First non recourse deal for an industrial wind farm (>200 MW), in the billion-euro scale
 - Aggressive structure building on existing precedents (18 year financing, 70:30 leverage, multi-contracting construction strategy with contingency structure, use of a 6MW turbine)
 - 7 MLAs, EKF, Euler-Hermes, EIB
- **Borkum West 2** (2010, Germany, 200 MW, Areva M5000, EUR 510 M financing)
 - First deal in Germany, and first deal with (relatively recent) Areva 5MW turbines; building on precedents (construction risk with contingency structure) but slightly less aggressive terms (leverage)
 - 4 MLAs, 7 additional banks, EIB and NRW
- **Meerwind** (2011, Germany, 288 MW, Siemens 3.6-120, EUR 884 M financing)
 - First transaction with construction risk for Siemens turbines, first with a private equity investor, and first under the new KfW offshore wind programme
 - 7 MLAs (including London-based banks), EKF, KfW
- **Globaltech 1** (2011, Germany, 400 MW, Areva M5000, EUR 1027 M financing)
 - First deal for a 400 MW wind farm and beyond EUR 1 bn, supported by the KfW programme
 - 4 MLAs, 12 additional banks (including several newcomers to offshore), EIB, KfW

The project finance constraints in current deals which sponsors don't like

Key items in current financing structures

- **Equity retention clauses are more stringent than usual**
 - Lenders are very sensitive to both who owns and who manages the project

- **Requirement for direct agreements and oversight of commercial contracts**
 - Traditional in PF but more systematic (and with more counterparties) in offshore wind
 - Lenders also want stronger involvement in commercial contracts
 - More intrusive due diligence in contracts & subcontractors and more information provisions

- **Long warranty and strong O&M package from turbine manufacturer required**
 - 5 year DNP / 10 year O&M is a standard requirement, especially for newer turbines, with logistics risk to be borne by manufacturer, fixed prices and backed by strong LDs with sufficiently high caps and, preferably, fixed prices

- **Comprehensive due diligence requirements**
 - Focus on identifying and formalizing interfaces extensively with extensive reporting
 - Review of project management team

So – why the split markets and will they last?

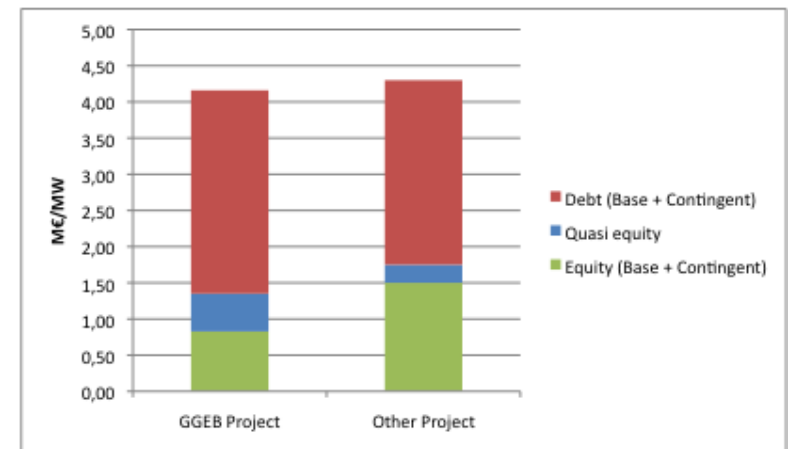
There are two very different fault lines in the market

■ Utilities vs IPPs

- Utilities did not really need project finance (whereas IPPs did and had to accept market terms)
- Project finance is seen as more complex, more expensive, and more time-consuming – and not really non-recourse (at least in the eyes of the rating agencies, which matters)
- Project finance requirements for early deals were seen as especially annoying by utilities (intrusive due diligence, desire by banks to influence contractual structure) and generally incompatible with their own way of mitigating project risks

■ Investors looking for money vs investors looking for higher IRRs

- Amongst investors going the project finance route, not everybody has the same objectives or the same ability to negotiate terms with banks
- Some investors have successfully obtained more favorable terms from the banking market – notably leverage and pricing
- As the market broadens, investors will increasingly be able to extract more competitive terms – if they have the right project and market approach



The players (1)

Commercial banks

- **Banks with deal structuring experience and active in market**
 - Rabobank, Dexia, KfW-IPEX, Unicredit, BoTM, SocGen
 - BNPPFortis, NIBC, ASN, Santander, Commerzbank
 - HSH, NordLB (German focus)

- **Banks with limited experience but involved in recent deals or having expressed appetite**
 - BBVA, Calyon, Lloyds, Bayern LB
 - NAB, Barclays, RBS, BoI, RBC, HSBC (UK focus)
 - Deutsche Bank, Helaba, LBBW, West LB, Deutsche Girozentrale, Deka Bank
 - Natixis, SEB, DnB Nor, KBC, Investec

The players (2)

Public Financial Institutions

▪ EKF – offshore’s best kept secret

- Participation linked to Danish exports – Vestas, Siemens, LM Windpower, Per Aarsleff, Bladt
- Very pragmatic and proactive
- Up to EUR 250M (or even more) per transaction, and seeking to increase capacity
- Experience includes Q7, Belwind, C-Power 2, Meerwind
- Active on a number of other transactions today (Eldepasco, Gode Wind)

▪ EIB – a lot of cheaper funds, but very conservative

- Support to European offshore projects
- Very conservative, not commercially minded, not very flexible
- Risk adverse on new turbines and project maturity (has to be <15 years)
- Up to 50% of project investment costs in funding (and EUR 100-150M in risk participation)
- Experience includes Belwind, C-Power 2, Borkum West and Globaltech 1
- Has done a number of corporate financings linked to the sector (Dong, E.On, etc)
- Continues to look at deals in the market (Baltic 1, Butendiek, etc...)

The players (3)

Public Financial Institutions

- **Euler-Hermes – a promising new entrant (outside Germany)**
 - Direct support to German exports (Repower, Siemens (electricals), Areva, sub-contractors)
 - Amount as per traditional export finance formula (85% of exports + IDC + premium)
 - Quite pragmatic within its existing rules, and predictable
 - Involved in C-Power 2

- **KfW – potentially large amounts available (in Germany)**
 - Explicit mandate to support offshore wind – in Germany
 - New programme as part of the “EnergieKonzept” – EUR 5bn, just launched and now tapped twice
 - Involvement alongside commercial banks, pari passu, on a funding and/or risk basis
 - Largely a passive lender (involvement requires deal to be CC-approved by commercial banks)
 - Able to provide cheaper funding in significant volumes
 - Involved in Meerwind and Globaltech 1

The money available

Available volumes

▪ Commercial banks

- EUR 100-150 M exposure per bank per year, in 1-3 deals
- 20-30 banks currently open to offshore today

➤ **At least EUR 2 billion in risk commitments available per year from the commercial market**

▪ Public Financial Institutions

- Will typically bear approximately half of the risk and/or funding of a transaction
- Some geographical / national restrictions (ECAs linked to exports, EIB to European projects)
- Will only do deals alongside commercial banks, so cannot be tapped on their own
- Small deal teams, so availability is a constraint

➤ **Can contribute as much as the commercial banks in a given deal**

Altogether, there is debt funding available for 4-6 industrial size projects (400 MW) per year today

The lessons of today

The banking market is there if the transactions are well structured

- **It is possible to close billion-euro transactions**
 - 4 deals in one year, including 2 in Germany in the exact same time frame
 - More than 30 banks are now active, and more than 20 have construction risk exposure
 - A number of different public financing institutions can be tapped – none is indispensable
- **A consensus is slowly emerging on how to structure deals**
 - Multi-contracting structures with a small number of counterparties (2-7) and strong due diligence
 - Early involvement of banks or bank advisors in contractual negotiations, with input on specific issues (warranty exclusions, LD caps, interface definition & matrix, availability of vessels and other critical path equipment, project management)
 - Debt sizing rules and underlying operational assumptions are becoming more consistent across deals
 - Specific focus on appropriate long term O&M arrangements

There is enough money for good projects

- Non recourse finance requires a specific discipline and approach to project risks
- Sponsors which cannot or *do not want to* follow that discipline will not raise non recourse debt

4. What's next

Why should investors go for Project Finance?

- **It helps improve risk discipline for the project**
 - More external eyes on contracts, interfaces and detailed project structure
 - Specific focus by banks and their advisors on potential downside scenarios
 - Project can “work” on a stand-alone basis (which makes it easier to sell)
- **It can help investors obtain more favorable contractual terms**
 - Using banks as a “bad cop” can be useful in contractual negotiations
 - 3-way negotiations make it possible to get away from zero-sum negotiations
- **It’s *really* non-recourse**
 - Banks take construction risk on the basis of the contracts and committed contingency mechanisms
 - While sponsor involvement is valued, banks evaluate deals with no expectation of additional cash in
- **It’s no longer so expensive**
 - Recent deals have seen overall cost of >15-year debt at 5-6%

And – *how* should investors go for Project Finance?

▪ **It needs to be an early decision**

- A lot of the value from project finance discipline comes at an early stage, when choosing the contractual structure and negotiating the relevant contracts
- The good news is that a lot of that work can be done without involving large banking groups, by using a small number of specialised advisors

▪ **Use experienced advisors**

- Bring in at your side entities which have credibility as lenders' advisors and ask them to look at the project from the perspective of lenders
- Technical advisors are indispensable
- Financial and legal advisors with debt structuring experience highly advisable

▪ **Be committed to it**

- Contractors will accept to incorporate banks' requirements in their commercial offers only if they really believe that the project will not happen without external financing
- Do take into account the feedback from the advisors you have hired, otherwise it won't work

So - *will* utilities go for project finance?

Financing routes are broadening

- **Increasing needs for finance vs opening of new paths**
 - Higher investment requirements may push some utilities towards the debt markets
 - Other routes are opening to recycle capital (such as sales of minority stakes in operational assets)
 - Opinion of rating agencies (on recourse) will be an important factor
 - Improvement in debt terms will help

- **There is a need for utilities and banks to stop talking past each other**
 - Sector offers a uniquely difficult combination of risks (multiple suppliers from very distinct industries with no natural coordinator, unavoidable weather uncertainty, ongoing technological change, rapid industrial buildup) to which there is no obvious, or single, mitigation route
 - Different approach to risk (not better or worse, different!) has led to misunderstandings
 - Increasingly positive and broad industry track record will help in the long term, but for the next few years, bank requirements will need to be heeded by utilities, even if that's inconvenient, if they want banks to take construction risk

The PF market for offshore wind – what's coming next

Active transactions currently in the market

- UK
 - Lincs (270 MW, Centrica/Siemens/Dong, Siemens 3.6MW, BoTM advisor)
 - London Array (126 MW (Masdar 20% stake), Siemens 3.6MW, BoTM advisor, no construction risk)
 - Walney (92 MW (PGGM/Ampere 25% stake), Siemens 3.6MW, GGEB advisor, no construction risk)
 - Gunfleet Sands (86 MW (Marubeni 50% stake), Siemens 3.6MW, SG, advisor, no construction risk)

- Germany
 - Baltic 1 (61 MW, EnBW, Siemens 2.3MW, IPEX, LBBW, NIBC arrangers, no construction risk)
 - Butendiek (288 MW, wpd, Siemens 3.6MW, Unicredit, IPEX, Bremer LB arrangers)
 - Gode Wind 2 (252 MW, PNE Wind, Vestas V112, GGEB advisor)
 - Nordergrunde (90 MW, EnergieKontor, Repower 5M, NIBC advisor)

The PF market for offshore wind – what's coming next

Forthcoming transactions (advisors selected and announced)

- Belgium
 - Belwind 2 (Colruyt et al., 165 MW, BNPP advisor)
 - Northwind (Colruyt, Aspiravi, 216 MW, Vestas V112, Dexia, BNPP arrangers, GGEB advisor)

- Germany
 - MEG I (windreich, 80 turbines, Deutsche Bank advisor)

- US
 - Cape Wind (468 MW, Cape Wind Associates, Siemens 3.6MW, GGEB advisor)

Final words...

Offshore wind can be financed

The problem is not finding the money

- Make the regulatory framework workable and stable (done!)
- Get the economics to work (done!)
- Do the due diligence
- Have realistic expectations for the early deals

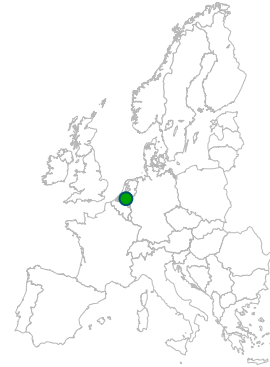
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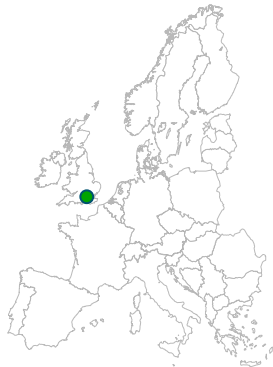
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