



Financing Wind Power Projects

Banks' risk assessments and some experiences...

EWEA wind policy framework workshop

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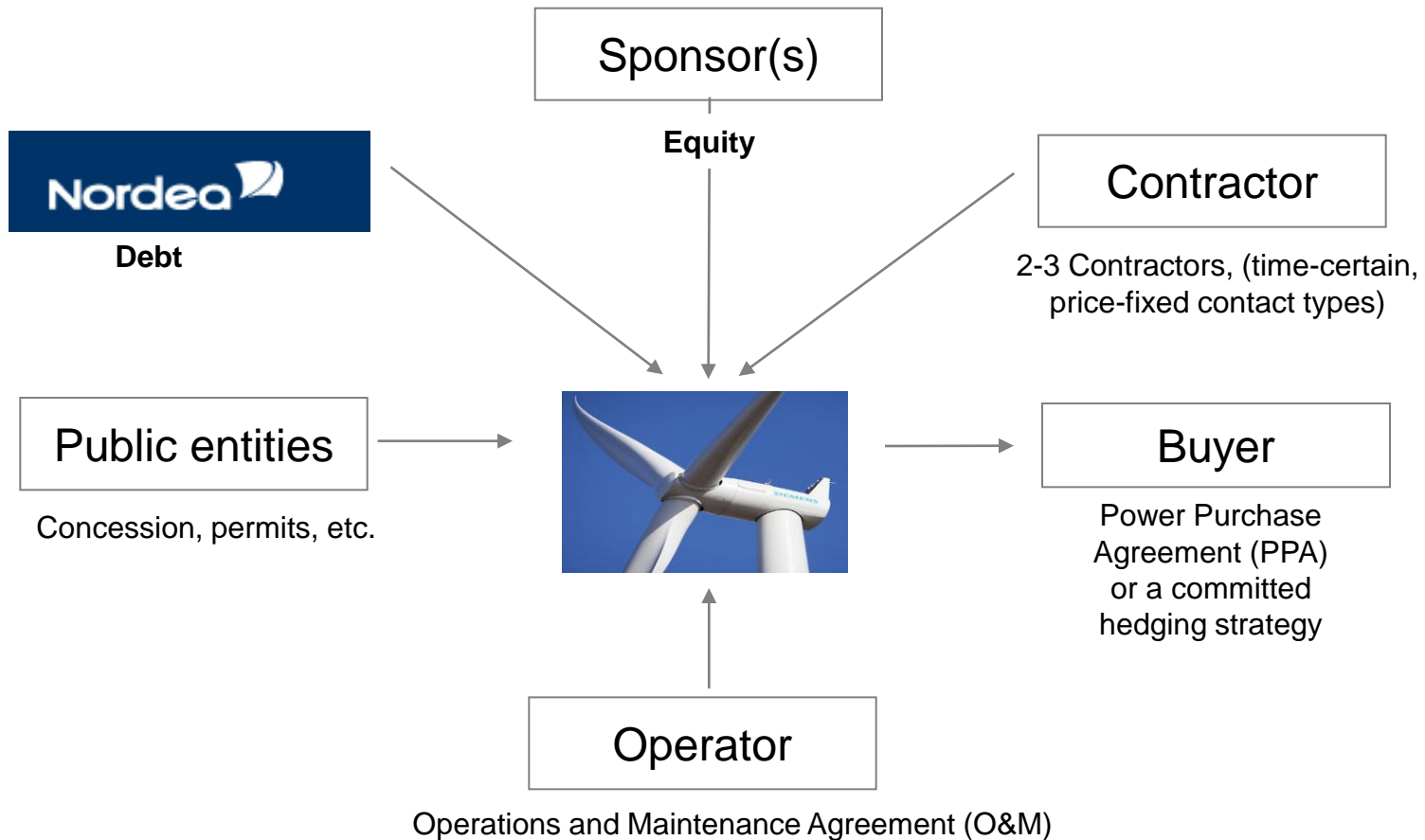


Making it possible

Wind Power Project Finance – Agenda

1. Off-Balance Sheet Financing – the essence of Project Finance – and its advantages
2. KPMG 2011 Survey on Lenders' preconditions for financing
3. Digging into the risks.....
4. Experiences from past projects

1. Wind Power Project Finance – single asset financing



Debt repayment is dependent on the cash flow from the asset being financed – only – no recourse to the Sponsor(s)

The advantages of off-balance sheet Project Finance

Despite higher costs (than a corporate financing) PF is often chosen because:

- Project debt is not consolidated into the Sponsor's/investor's balance sheet (when the ownership share stays below 50%),
- Risks-taking is reduced to the equity share in the Project...
- ... and shared with the lender(s),
- Practical in the case of a JV multi-party Sponsor/investor group,
- The financial partner party analyzes and OK's the Project – and often introduces mutually beneficiary mitigants (risk reducing measures)
- A well structured Project Financing may be attractive for refinancing in the bond market – or as a Project Finance for other banks

2. Wind Power Project Finance – Lenders’ preferences

KPMG’s 2011 conclusions on Lenders’ major financing preconditions:

- PPA in place, i.e. limited appetite for merchant risk, minimum PPA for a “majority” of output for a period in “excess of “ 10 years
- Quality EPC turnkey contract (Nordea: in wind, 2-3 suppliers acceptable)

In addition to:

- Good relationship with a credible management
- Solid Sponsor(s)
- Stable and credible regulation
- and.... construction risk a concern for off-shore wind

In line with Nordea’s Wind Credit Principles with additional concerns like; proven technology with reputable suppliers, mitigation of construction risk, comprehensive wind survey etc.

➤ *Bankable if there is a solid and predictable cash generating ability*

3. Wind Power Project Finance – Digging into the risks

- A. Credit Risks on Sponsors and project Parties**
- B. Wind Resource Risk**
- C. Equipment Risk (pre- and post Completion)**
- D. Price Risk**
- E. Financial Risk**
- F. Political and Legal Risk**



Risk evaluation of wind power projects

A. Credit risk on Sponsors and key project parties

- Reputable Sponsors/Investors with industrial experience
- Technically able and financially strong suppliers and off-takers

B. Wind resource risk

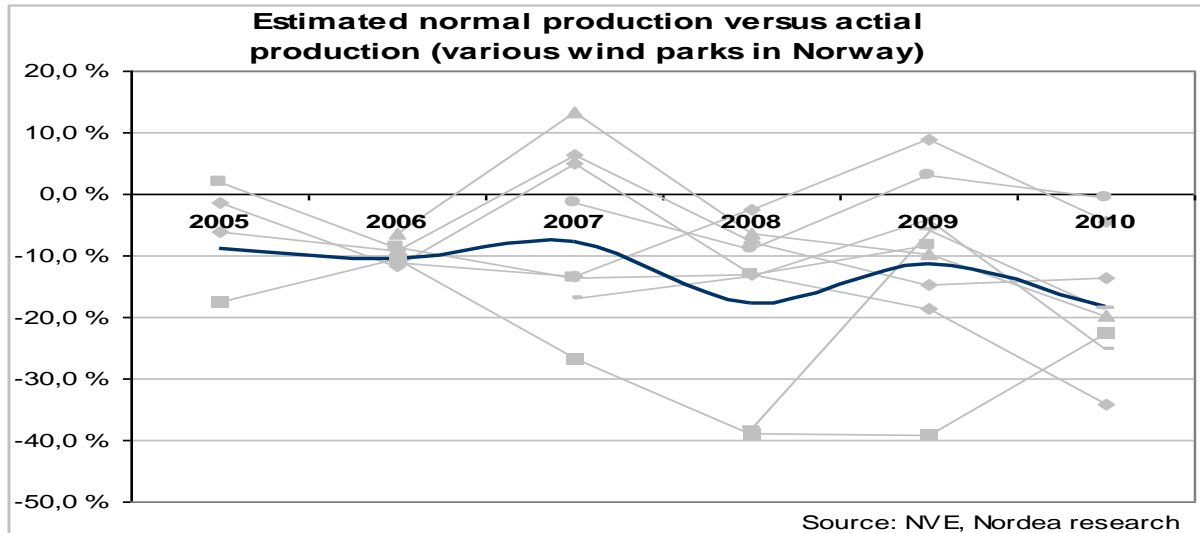
- To the Banker, the wind resource “fuels” cash flow and thus debt repayment.....
- Wind study is key (minimum 1 year of data, preferably two years)
- Provides analysis on average wind speed, gross and net Annual Energy Production (AEP) (after uncertainties, technical issues linked to site, terrain, icing, wind shear, turbulence, etc.) at P50, P75 and P90
- Study to be verified by an Independent Engineer (IE) appointed by the Bank

Risk evaluation ctd.

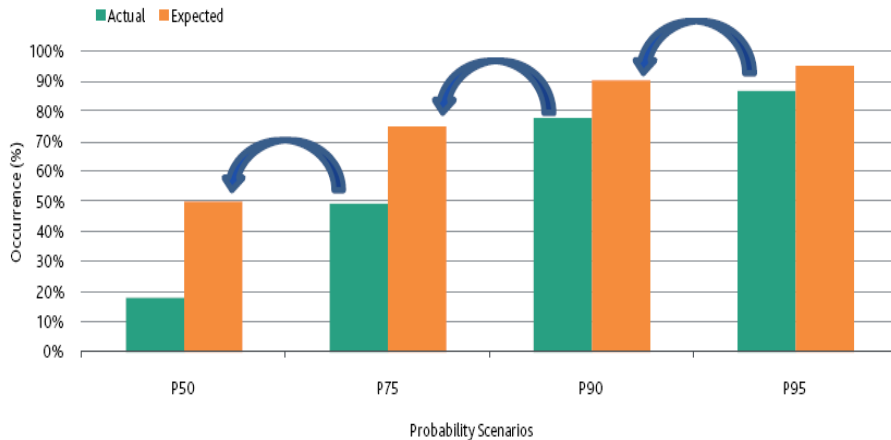
C. Technical risk (pre- and post Completion)

- Reputable turbine supplier with proven technology WTG (experience, financial strength, power curve, track record)
- Construction risks:
 - ✓ Preferably turn-key, fixed price, date certain, EPC contract, or maximum 3 separate contracts – well managed
 - ✓ Sponsor Guarantee cuts risks and thus cost of financing
 - ✓ Buffer for cost overruns
 - ✓ Independent Engineer to sign off progress and successful Completion
- Operational risks:
 - ✓ Warranty and Operations and Maintenance Agreement (O&M) with the turbine supplier, incl. availability guarantee (the longer the better)
 - ✓ All-risk insurance, including business interruption
 - ✓ Maintenance Reserve Account (MRA)

Risk evaluation ctd. Wind and operational risks – statistical evidence

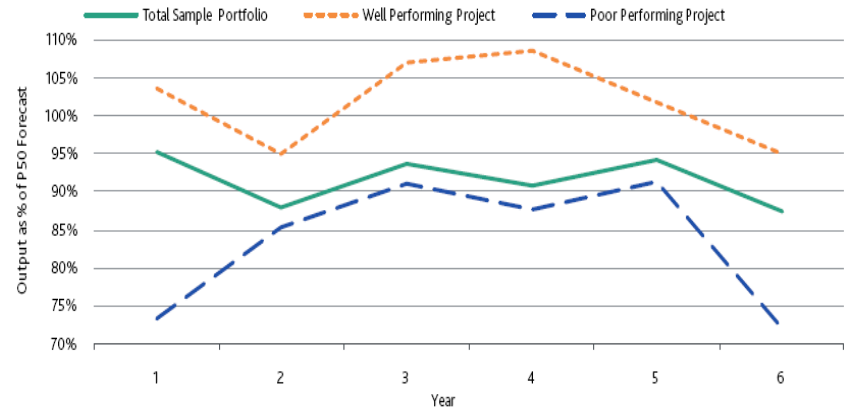


Occurrence of Probability Scenarios (Actual vs Expected)



Source: Moody's research – Breezing Past 50

Portfolio vs Single Asset Energy Production



Moody's survey of 34 US onshore wind projects - median energy production was approximately 9% below expected case

Risk evaluation ctd.

D. Price risk with respect to electricity and certificates

- Long-term Power Purchase Agreement (PPA) / El. Certificate Purchase Agreement with creditworthy off-taker – if no «feed-in tariff, as in Latvia»
- Substantial portion of price risk should be hedged
- Maturity – equal to, or longer than, loan maturity
- Fixed price, preferably inflation adjusted (with escalator)
- or, Market price secured by market instruments
 - ❖ Nord Pool instruments (up to 5 years rolling hedge possible)
 - ❖ Zero cost collar, defining a price floor and a price ceiling, the price moving within this tunnel
 - ❖ Other commodity market derivatives, some of which may also cover volume risk

Risk evaluation ctd.

E. Financial risk

- Strong DSCR in Base Case based on projected cash flow (P-75 production assumption), normally Average DSCR of min. 1.35
- Tenor and repayment period
- Debt Service Reserve Account (DSRA), normally equalling 6 months of debt service
- Maintenance Reserve Account (MRA)
- Hedging of interest rate
- Hedging of FX exposure

F. Political and legal risk: to be acceptable

4. Experiencing risks – and their mitigation

Pre-Completion



Høg-Jæren Project (2011):

Foundation no. 32 placed 6 meters wrongly – removal implied:

- Destruction and new construction, i.e. delays
- Extra costs for contractor – requires financial strength



Havøygavlen Project (2003):

Three days after issued «acceptance certificate» a turbine crashed to the ground

- Completion-definition not affected by this – Sponsor gty's expired 3 months later (bad definition!)
- Requires financial strength of insurance / supplier

Experiencing risks – and their mitigation ctd.

Post-Completion



Havøygavlen, location of the site

- **Maintenance with a crane only possible April-September because of limited weather window**
- **Closest crane in Tromsø, about 600 km away**



Havøygavlen, wind / wind-direction(s)

- **«Good» wind may be too much....**
- **Puts strain on the equipment, which has to be especially adapted**
- **Puts pressure on the supplier and on the operator, needing to be well organized, be good on logistics and have financial strength**

Conclusions

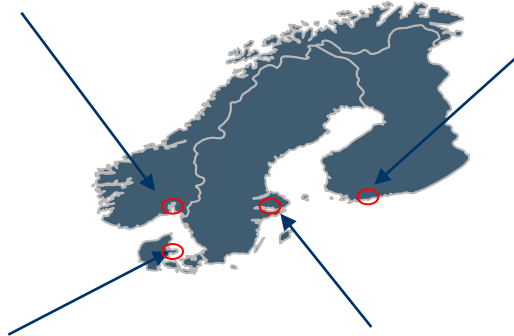
- Project Financing puts focus on the ability of the Project to withstand risks in order to produce a cash flow which may repay debt
- KPMG study shows that Banks are fairly united on what they require of a Wind Power Project Finance
- Digging into the risks – the devil lies in the detail – the solution in putting the risks on strong participants
- Experience shows that things will go wrong – then one needs to have taken the precautions ahead of time
- Flash on the current loan market:
 - ✓ Basel III rules under implementation – project rating (i.e. high quality in terms of risks) is key to obtain good pricing from the Banks
 - ✓ Banks still provide 15 yr amortization plans, but will seek repricing rights after 5 – 7 yrs
 - ✓ Banks will seek to provide loan financing with external funding, if possible....

Project financing team and credentials

- EPF in Nordea has an extensive competence and knowledge in financing of wind parks

The EPF wind team

• Hans Jacob Bull-Berg, EPF Oslo
Deal Manager



• Juha Sulkanen,
EPF Helsinki
Deal Manager

• Henrik Brink, EPF Copenhagen
Head of Wind Energy

• Niclas Ringblom, EPF Stockholm
Deal Manager

Gudny Eysturoy, EPF
Copenhagen
Deal Manager

Lars Nybom, EPF Stockholm
Deal Manager

Selected transactions

Borrower	Country	Nordea role	Sign ed
VindIn	Sweden	Arranger	2011
Arise Windpower, Idhult	Sweden	Arranger	2011
TuuliWatti	Finland	Arranger	2011
Wallenstam, Rålanda	Sweden	Arranger	2010
Wallenstam, Vettåsen	Sweden	Arranger	2010
Jæren Energi	Norway	Co-arranger	2010
INPO 5	Latvia	Arranger	2010
Arise Wind Power	Sweden	Arranger	2010
Tooma Tuulepark	Estonia	Co-arranger	2009
Vader Piet B.V.	Aruba	Lender	2009



Havøygavlen (Arctic Wind)

Norway

Co-arranger

2002

+ many more projects



Nordea 

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