Prerequisites for Project Finance in the challenging but exciting offshore renewable energy sector
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ING Bank at a glance
Strong Commercial Bank with international network

- **Leading commercial bank**: Supporting domestic economy. Leaders in specialised finance and financial markets, cash management, leasing and commercial finance products.
- **Leading global Structured Finance franchise** with recognised origination, structuring and risk management expertise in selected industries (a.o. Power & Renewables, Telecom, Infrastructure, Transportation, Natural Resources)
- **International network spanning 40 countries.**
ING Structured Finance – Power & Renewables

Global sector-based expertise

Long-standing Reputation

- EMEA team: International team of fifteen dedicated professionals based in Amsterdam, Madrid and Milan.
- We offer a fully integrated origination and execution service focused exclusively on the Utilities-Power sector in Europe, Middle East & Africa.
- Senior team members have extensive experience of advising on, structuring and arranging non-recourse debt financing transactions in a wide variety of countries in the EMEA region.
- The team has an uninterrupted track record in the sector since 1993.
- We capitalise on ING’s expertise developed within the power sector globally.

Principal Activities

- Our core activities encompass non-recourse financing of (green-field) thermal and renewable energy power generation
- Close and long-standing relationships with a variety of multi-lateral agencies (e.g. IFC, EBRD, ECAs and EIB)
- Strong links and experience with Export Credit Agencies via our Structured Export Finance group
Our track record in renewable energy financing

ING is committed to support our clients across Europe

<table>
<thead>
<tr>
<th>Case</th>
<th>Country</th>
<th>Technology</th>
<th>ING Role(s)</th>
<th>Deal Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ardoch Over Enoch</td>
<td>United Kingdom</td>
<td>Onshore Wind</td>
<td>MLA, Hedging Bank, Account Bank</td>
<td>GBP 21m</td>
</tr>
<tr>
<td>Amaroni</td>
<td>Italy</td>
<td>Onshore Wind</td>
<td>MLA, Hedging Bank</td>
<td>EUR 35m</td>
</tr>
<tr>
<td>Eoxis Gioia &amp; Carinola</td>
<td>Italy</td>
<td>PV Solar</td>
<td>MLA, Hedging Bank</td>
<td>EUR 21.5m</td>
</tr>
<tr>
<td>Butendiek</td>
<td>Germany</td>
<td>Offshore Wind</td>
<td>MLA, Hedging Bank</td>
<td>EUR 1,023m</td>
</tr>
<tr>
<td>Chirnogeni</td>
<td>Romania</td>
<td>Onshore Wind</td>
<td>EBRD Loan Co-Arranger</td>
<td>EUR 97m</td>
</tr>
<tr>
<td>Drax Power Ltd.</td>
<td>United Kingdom</td>
<td>Biomass</td>
<td>MLA</td>
<td>GBP 400m</td>
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<tr>
<td>Green Wind</td>
<td>Belgium</td>
<td>Onshore Wind</td>
<td>MLA</td>
<td>EUR 46m</td>
</tr>
<tr>
<td>EP Energy</td>
<td>Czech Republic</td>
<td>Thermal and Mining</td>
<td>MLA</td>
<td>EUR 1bn</td>
</tr>
<tr>
<td>Northwind</td>
<td>Belgium</td>
<td>Offshore Wind</td>
<td>MLA, Joint Hedging Bank</td>
<td>EUR 653m</td>
</tr>
<tr>
<td>Edipower</td>
<td>Italy</td>
<td>Thermal and Hydro</td>
<td>MLA</td>
<td>EUR 1.25bn</td>
</tr>
<tr>
<td>Yelvertoft</td>
<td>United Kingdom</td>
<td>Onshore Wind</td>
<td>MLA, Hedging &amp; Account Bank</td>
<td>GBP 25m</td>
</tr>
<tr>
<td>Elpida</td>
<td>Italy</td>
<td>PV Solar</td>
<td>MLA, Hedging Bank</td>
<td>EUR 77m</td>
</tr>
<tr>
<td>Fossa del Lupo</td>
<td>Italy</td>
<td>Onshore Wind</td>
<td>MLA, Hedging Bank</td>
<td>EUR 126m</td>
</tr>
<tr>
<td>Jæren Energi</td>
<td>Norway</td>
<td>Onshore Wind</td>
<td>MLA, Hedging Bank</td>
<td>EUR 77m / EUR 16m</td>
</tr>
<tr>
<td>Monteboli</td>
<td>Italy</td>
<td>PV Solar</td>
<td>MLA, Hedging Bank</td>
<td>EUR 75m</td>
</tr>
<tr>
<td>Fontesol</td>
<td>Italy</td>
<td>PV Solar</td>
<td>MLA</td>
<td>EUR 68m</td>
</tr>
<tr>
<td>Global Tech I</td>
<td>Germany</td>
<td>Offshore Wind</td>
<td>MLA</td>
<td>EUR 1,047m</td>
</tr>
<tr>
<td>Soemina</td>
<td>Italy</td>
<td>PV Solar</td>
<td>Participant</td>
<td>EUR 103m</td>
</tr>
<tr>
<td>EnerCap Wind Farm</td>
<td>Poland</td>
<td>Onshore Wind</td>
<td>MLA, Bookrunner</td>
<td>EUR 37.5m</td>
</tr>
<tr>
<td>Geopower Sardegna</td>
<td>Italy</td>
<td>Onshore Wind</td>
<td>MLA, Bookrunner</td>
<td>EUR 230m</td>
</tr>
</tbody>
</table>
Typical project finance structure

a brief introduction

- Project finance is typically lend to a special purpose vehicle (OpCo) which owns the project and is counterparty to all project contracts
- Debt is non-recourse i.e. shareholder does not guarantee bank loans.
- Debt is sized on the basis of projected cash flows
- Security provided by Assets and contracts
- Long tenors potentially up to the tenor of the off-take agreements possible

- A project has a number of phases:
  - Development (permitting planning & feasibility studies)
  - Construction (Funding is received from the investors and the banks to pay for the various construction contracts)
  - Operation (The revenues from the PPA will pay for the repayment of the loans & equity)
# Prerequisites for Project finance

## Project risk mitigants

<table>
<thead>
<tr>
<th>Main Risks</th>
<th>Mitigants</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction and Interface Risks</strong></td>
<td>Reliable, sound and experienced contractors; fixed price date certain construction contracts</td>
</tr>
<tr>
<td><strong>Technology Risks</strong></td>
<td>Proven technology with positive track record; satisfactory technical due diligence performed by technical adviser</td>
</tr>
<tr>
<td><strong>Operational Risks</strong></td>
<td>Reliable, sound and experienced O&amp;M contractors;</td>
</tr>
<tr>
<td><strong>Resource Availability Risk</strong></td>
<td>(Wind) energy resource analysis carried out by recognized advisors. Conservative assumptions will form basis of project base case</td>
</tr>
<tr>
<td><strong>Legal Risks</strong></td>
<td>Due Diligence carried out by legal advisors mandated by the lenders (including property, permits, contracts)</td>
</tr>
<tr>
<td><strong>Regulatory Risk</strong></td>
<td>Reliable &amp; consistent regulatory support regime is key</td>
</tr>
<tr>
<td><strong>Business and Market Risks</strong></td>
<td>Full understanding of market and business risk obtained through market due diligence</td>
</tr>
<tr>
<td><strong>Off-take Risk</strong></td>
<td>Route to market for full underlying tenor of the loan is required. This can be achieved by having a power purchase agreement in place with an acceptable counterparty</td>
</tr>
<tr>
<td><strong>Interest rate risks</strong></td>
<td>Secure interest rate and currency risk to be mitigated by hedging arrangements</td>
</tr>
<tr>
<td><strong>Repayment risk</strong></td>
<td>Achieve full repayment from project cash flow evidenced by financial modeling</td>
</tr>
</tbody>
</table>
Significant role for offshore wind to achieve 2020 targets – government support key

- 6 GW of offshore wind operational
- 5 GW of offshore wind in construction
- Target for UK, Germany, France, NL, Belgium and Denmark combined is approximately 40 GW (est. required funding need between €100bn – €150bn)
- Offshore wind is to capture a very large portion of the UK and Germany’s renewables energy mix by 2020
- New turbines with limited track record: Areva M5000 5MW, Alstom Haliade 6MW, RePower 5MW, Siemens 6MW
- Costs have been underestimated. Bringing costs down is industry wide goal:
  - Direct drive – less components, higher reliability, reduced maintenance cost
  - More intelligent O&M
  - Economy of scale – larger turbines
- Long term policy uncertainty (2030 targets unclear / crisis has reduced RE ambitions of governments)

ING is supportive of offshore wind evidenced by recent investments in three offshore wind farms totalling an commitment of over €125m to date
Status of wave and tidal industry
early stage of a promising industry

• Main developments in Marine renewable technology focused in the UK. At European Marine Energy Test Center (EMEC) in Orkney over 10MW in wave and tidal energy is currently installed.

• EU member states have a target to deploy around 2GW of marine energy by 2020. Significant ambition to develop marine energy especially in Ireland, UK, France Spain and Portugal

• Several large technical companies (ABB, Andritz, Voith, Siemens, Rolls Royce, Alstom, Tocardo) and utilities (SSE, E.On UK, GDF Suez, Vattenfall) have entered the industry

• Significant funding available in the UK (5 ROCs/MWh, several infrastructure and innovation schemes open for wave and tidal energy) and EU (NER 300)

• Next few years first arrays of marine current turbines & wave devices will be built

• In order to get marine energy projects bankable, banks need to get further comfort in
  o Technology (reliability, survivability, track record);
  o Adequate long term (submerged) O&M arrangements;
  o Experience of contractors and sponsors

ING keen to support wave and tidal with project financing once first arrays come online and industry proves performance
Conclusions

- Renewable energy is here to stay
- Funding from all sources will be required to meet 2020 targets
- Industry will depend on EU wide political support after 2020 (ambitious 2030 targets will be key)
- Costs of offshore renewable energy need to come down
- ING is a top player in renewable energy across Europe and committed to fund projects that are sustainable and good for society and the environment
- ING provides continuous support for offshore wind
- ING keen to support wave and tidal once industry proves performance
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