

ING Structured Finance

Power & Renewables

**Prerequisites for Project Finance in the
challenging but exciting offshore renewable
energy sector**

Lisbon , 25 November 2013



Agenda

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2. ING Structured Finance Utilities, Power & Renewables
3. Our track record in renewable Energy
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8. Conclusions

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

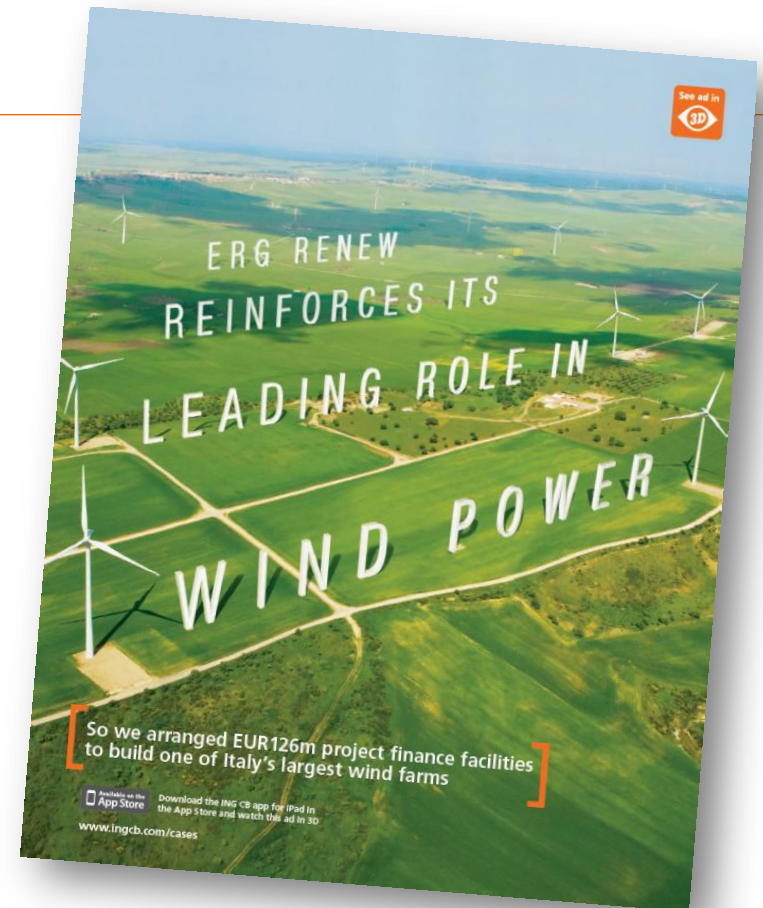
Global sector-based expertise

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

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

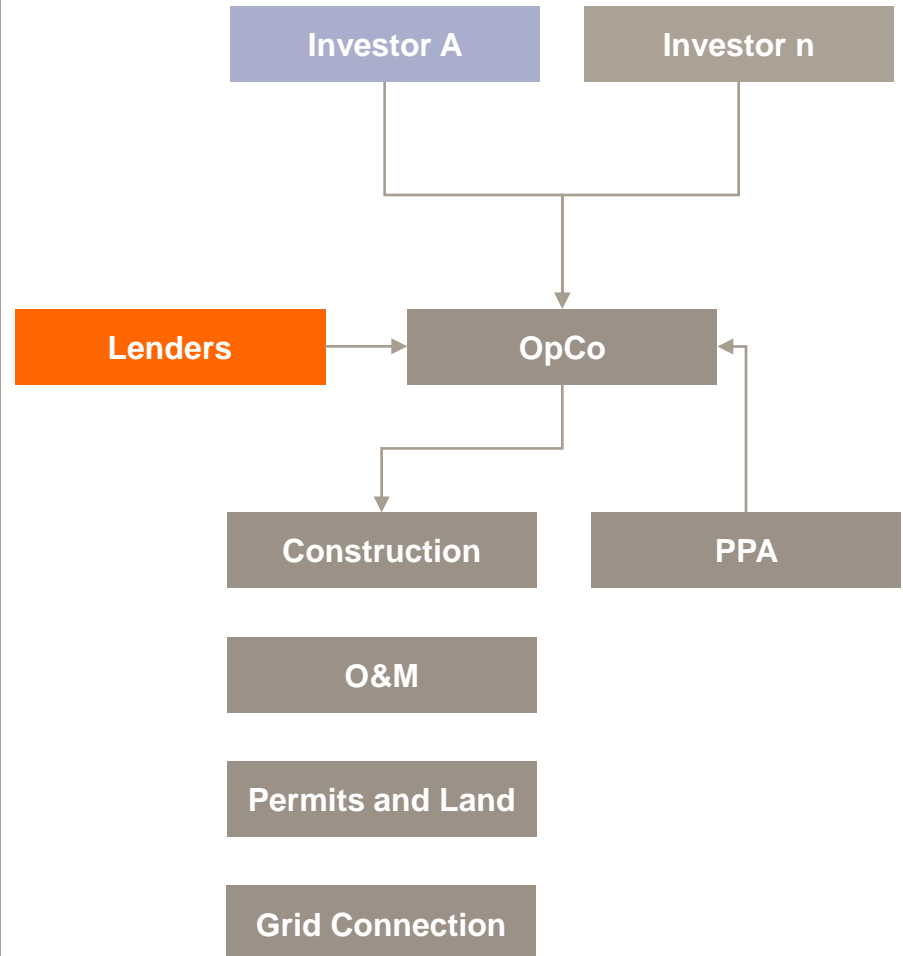
Typical project finance structure

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)

Typical project structure



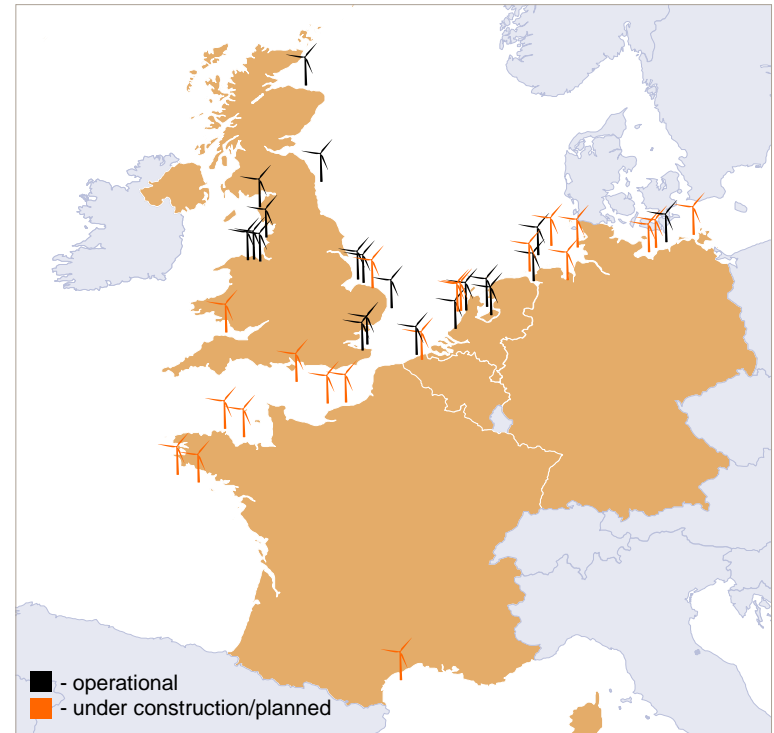
Prerequisites for Project finance

project risk mitigants

Main Risks	Mitigants
Construction and Interface Risks	Reliable, sound and experienced contractors; fixed price date certain construction contracts
Technology Risks	Proven technology with positive track record; satisfactory technical due diligence performed by technical adviser
Operational Risks	Reliable, sound and experienced O&M contractors;
Resource Availability Risk	(Wind) energy resource analysis carried out by recognized advisors. Conservative assumptions will form basis of project base case
Legal Risks	Due Diligence carried out by legal advisors mandated by the lenders (including property, permits, contracts)
Regulatory Risk	Reliable & consistent regulatory support regime is key
Business and Market Risks	Full understanding of market and business risk obtained through market due diligence
Off-take Risk	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
Interest rate risks	Secure interest rate and currency risk to be mitigated by hedging arrangements
Repayment risk	Achieve full repayment from project cash flow evidenced by financial modeling

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
 - Technology (reliability, survivability, track record);
 - Adequate long term (submerged) O&M arrangements;
 - 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

Contact Details

ING Structured Finance

Utilities, Power & Renewables EMEA

AMP D 04.028, Bijlmerplein 888
P.O. Box 1800, 1000 BV Amsterdam
The Netherlands

Thérèse Brouwer

Managing Director

T +31 20 563 5870

M +31 6 2958 4476

F +31 20 565 8213

E therese.brouwer@ingbank.com

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