



# Introduction to wind project finance

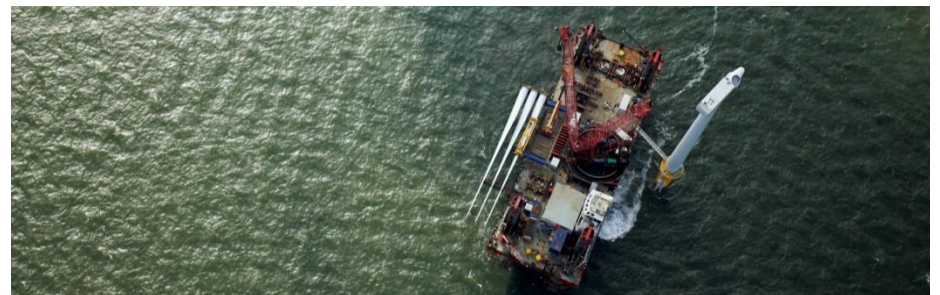
15 March 2017

IEEFA Conference, New York City

# Introduction to RE project finance

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2. How projects are financed
3. Project finance for RE



# 1. Green Giraffe – The renewable energy finance specialist

## We get deals done

### Deep roots in renewable energy finance

- Launched in 2010 by experienced finance specialists with a **strong and proven track record** in renewable energy
- 60+ professionals with offices in Hamburg (Germany), London (UK), Paris (France) and Utrecht (the Netherlands)
- Multi-disciplinary skill set including **project & structured finance, contract management, M&A, and legal** expertise



Close to **EUR 15 billion** funding raised for renewable energy projects in **7 years**



**60+ professionals** in **4 countries**

### High quality, specialised advisory services

- Focus on projects where we can actually add value
- We can provide a holistic approach and are able to include sector-specific tasks in addition to traditional debt or equity advisory (such as contracting, strategic advisory and development services)
- Widening geographical reach with a burgeoning presence in the Americas and Africa in addition to Europe
- Priority given to **getting the deal done!**

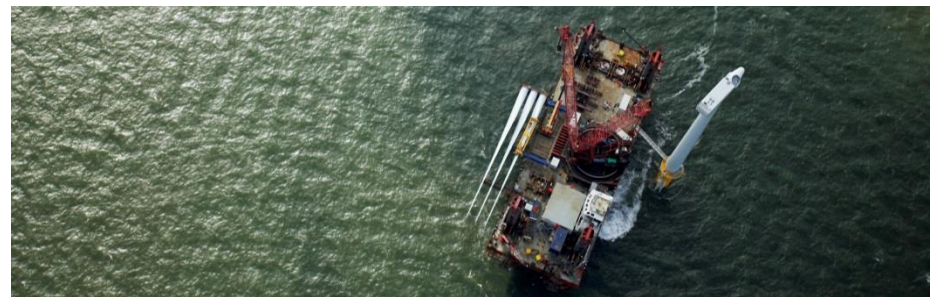


Involved in over **80 renewable energy projects** with a capacity of more than **18 GW**

# Introduction to RE project finance

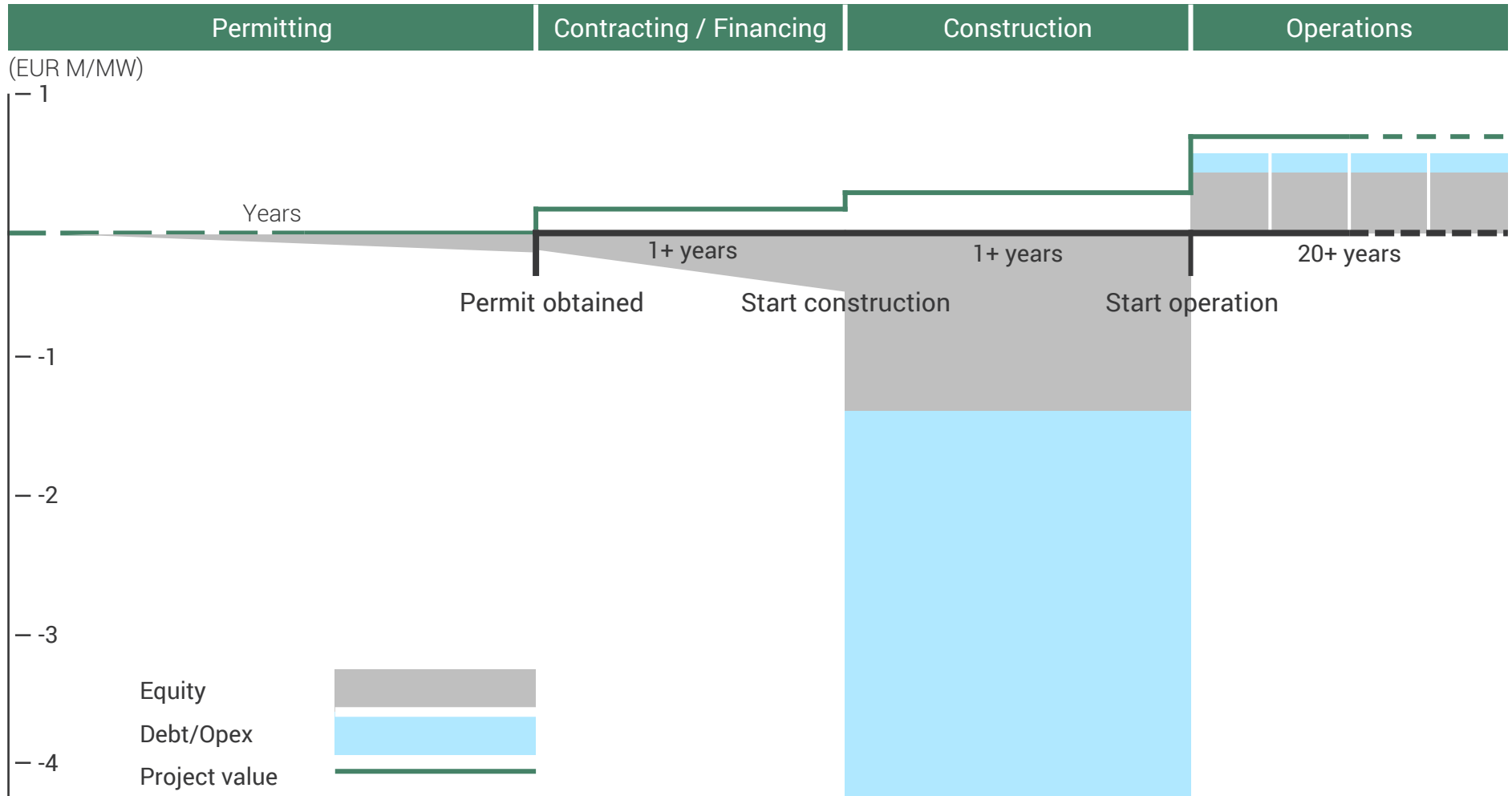
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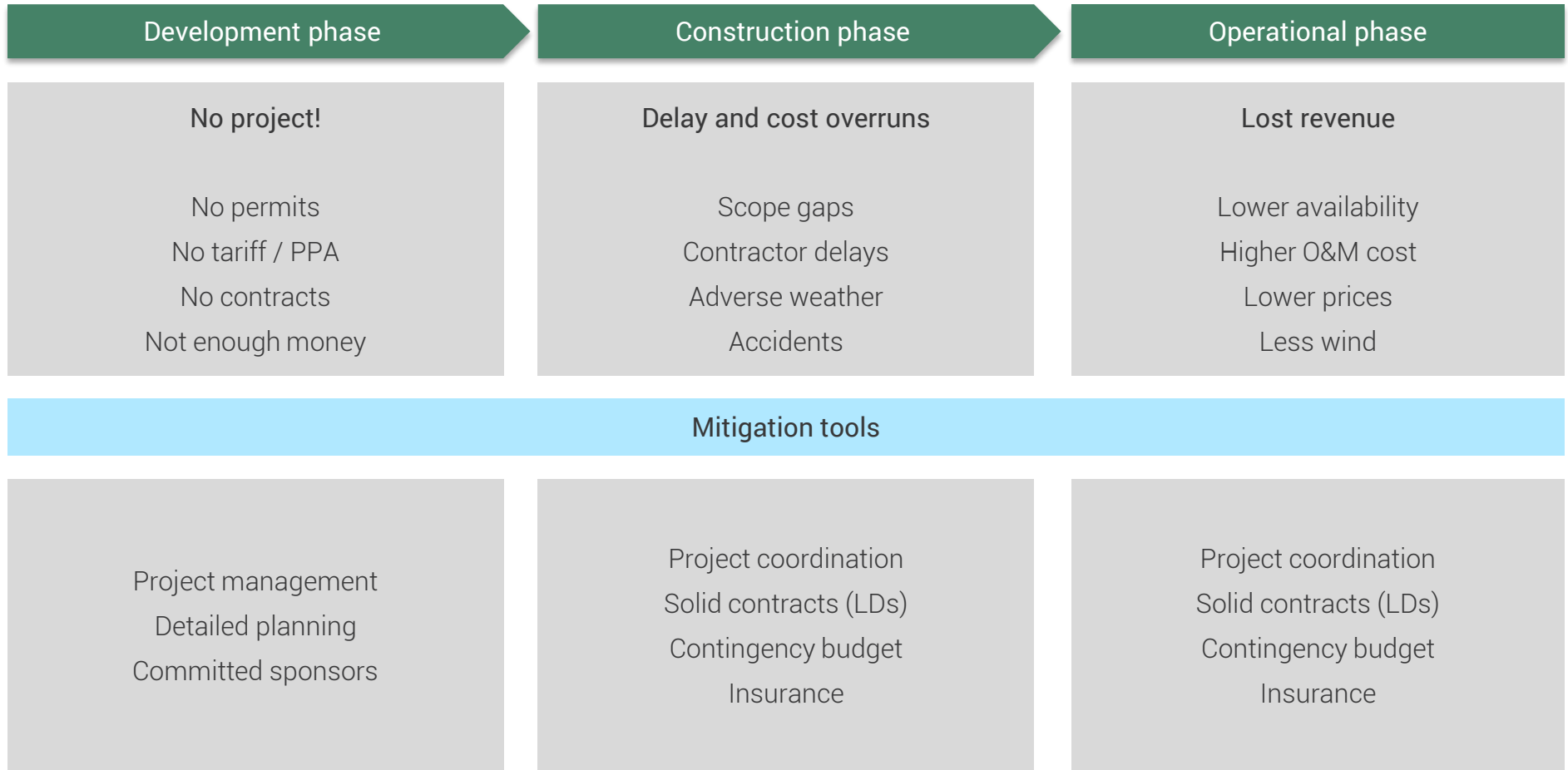
## 2. How projects are financed – steps to project value creation

Most value is created during the development & contracting phases



## 2. How projects are financed – Risk analysis

Risks are different in each project phase



## 2. How projects are financed – Equity providers

### Investors and appetite for risk

Investor	Perm.	Dev.	Constr.	Ops.	Notes	PF
Utility	Yes	Yes	Yes	Yes	A proven solution. Dislike small projects, want control	If possible
IPP	Yes	Yes	Yes	Yes	Active across the value chain. Typically sell all or part of the project after developing and financing it but like to keep an operational role	Yes
Private equity	Some	Yes	Yes	No	Require high returns and are typically involved in early dev and/or use aggressive long term assumptions. Focus on control & exit	Yes
Municipal utility	No	Maybe	Some	Yes	Have small but strong balance sheets. Can be part owners. Slow decision process. Stringent risk requirements. Required IRR is low	Probably
Sovereign wealth funds	No	Maybe	Some	Yes	Require simple contracting structure, long term O&M agreements and controlling partner. Some can take more risk	Not necessarily
Infra funds	No	No	Maybe	Yes	A large universe of potentially interested parties. Most still require construction risk mitigation and long term O&M agreements	Probably
Corporations	No	No	Maybe	Yes	Invest to hedge power price risk or for strategic/marketing reasons. Happy (or need) to be minority shareholder behind strategic investor	Not necessarily
Pension funds	No	No	Maybe	Yes	Generally do not like construction risk, but can increasingly do it for onshore wind and solar. Need long term O&M agreements	Not necessarily
Contractors	No	Maybe	Yes	No	Are taking stakes or providing subordinated vendor loans to secure project pipeline. Often need a clear perspective on exit after COD	Not necessarily

## 2. How projects are financed – with or without debt

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

Large projects are typically developed through a stand alone project company

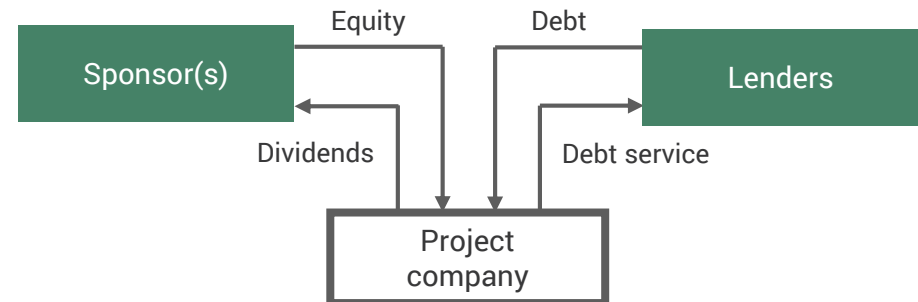
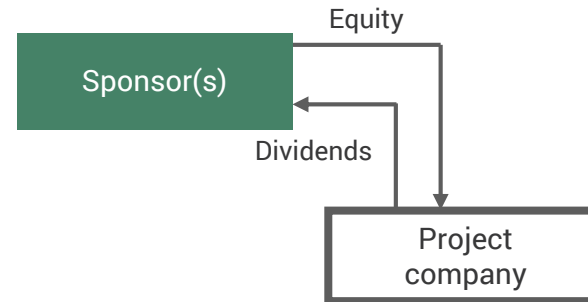
- Owned by the project investors
- With its own revenues & balance sheet and thus the ability to raise debt on its own merits

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 senior lenders' requirements!
- Tax, accounting, consolidation and rating issues



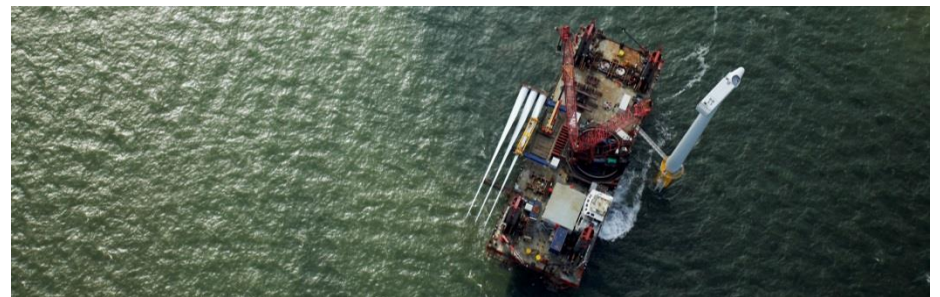
All parties have a direct incentive to understand who will be funding the project



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# 3. Introduction to project finance

## A quick reminder about project finance

### No recourse

Recourse to investors is contractually limited

Lenders rely on project revenues only

Capital intensive projects requiring long term financing

Lenders need long term operational performance

### 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 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 from a contractual and an economic standpoint
- 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 and security on all assets, contracts and equity of the project

# 3. Introduction to project finance

## Different views on project finance

### IPPs

#### It's vital

Not enough funding otherwise  
Leverage required to improve returns

#### It's actually useful

Better terms thanks to the "bad cop" banks  
Better mitigation of risk thanks to due diligence-driven contractual discipline

### Utilities

#### It's too much trouble

Banks interfere with contract negotiations  
It's too expensive  
No ratings benefit

#### It wasn't really needed so far

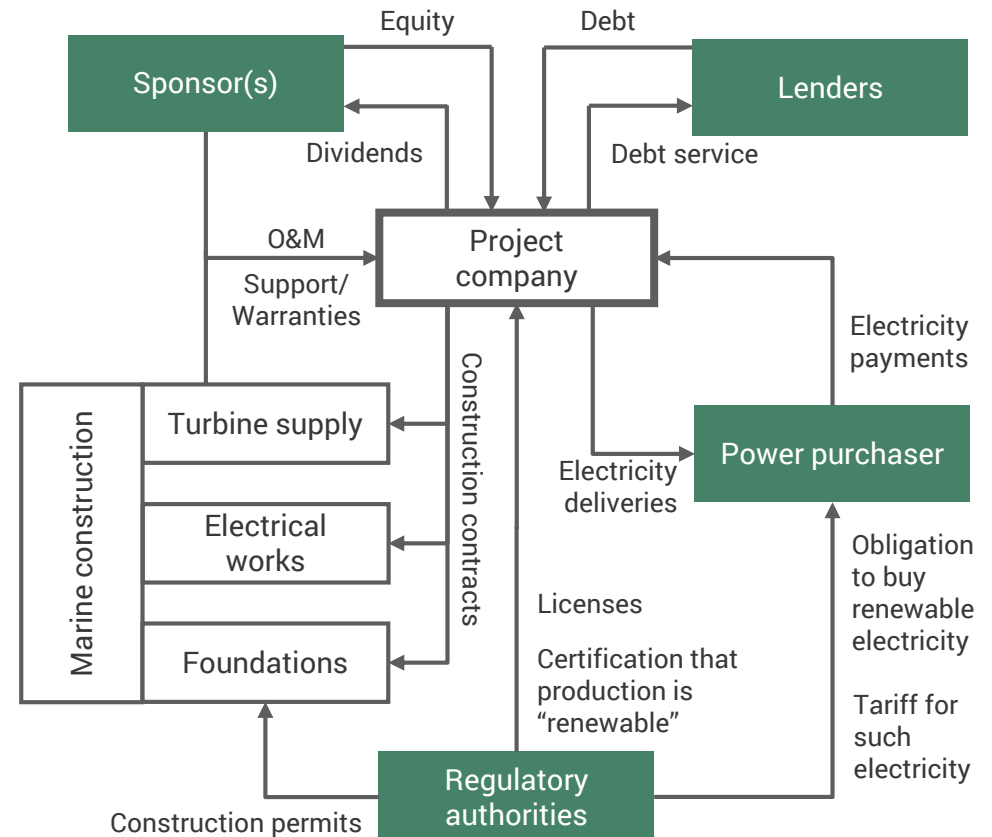
Big enough balance sheets  
Plentiful (and cheap) corporate funding

# 3. Introduction to project finance

Project finance transactions are always heavily contracted

Major contracts include

- Permits, licenses, authorisations, etc...
- Construction/supply contracts
- Electricity sales contracts (and, if applicable, green certificates / RO contracts)
- O&M contracts
- Financing documents



Offshore wind is a quintessential example of a comprehensive contractual structure

# 3. Introduction to project finance – Risk analysis

## (1/3) – traditional project finance risks

### Regulatory / political risk

- Lenders will not take any permitting risk at any time
- Lenders do accept the (political) risk that regulatory regime may change
- Financing structures can be more aggressive when the legal framework is more stable or friendly

### Price / market risk

- Only exists in certain jurisdictions (linked to regulatory framework) or after a certain time (relevant for refinancing/resale)
- Lenders can take market risk provided that they do not bear volume risk (“balancing costs”)
- Financial structures are inherently more conservative when they carry price risk

### Counterparty risk

- Only the top 3-5 turbine manufacturers are seen as acceptable counterparties today
- Financial risk linked to manufacturer warranties is significant for larger projects
- Counterparty risk is critical when power sales take place under a long term PPA
- Counterparty risk increasingly scrutinized for sub-contractors following a number of failures and bankruptcies

The framework to analyse wind projects is similar to that for other sectors which use PF

# 3. Introduction to project finance – Risk analysis

## (2/3) – Specific renewable energy risks

### Technology risk

- Lenders take technology risk in the wind sector
- All new turbines brought to the market have been banked, with stronger warranties for early deals
- Guarantee package needs to be stronger from manufacturers with less experience or weaker balance sheets
- It is widely accepted that most turbines can be expected to have long term availability levels above 95%
- Most turbine models have suffered from serious design issues – what matters is transparency / reactivity of manufacturer

### Wind risk

- Wind variability is a measurable statistical risk and is mostly seen as well understood
- Enough respectable experts are available in the market to provide useful estimates
- Offshore wind is seen as easier to assess
- Offshore projects have a better track record in actually achieving (or outperforming) the initial estimates
- Specific care is given to wake losses

Risks which are specific to the RE sector are now well understood and accepted by banks

# 3. Introduction to project finance – Risk analysis

## (3/3) – Performance risk

### Construction risk

- Offshore construction is materially more complex than onshore, given the combination of multi-contracting, still limited experience of working together by the turbine and marine industries and sheer size of the projects
- The London market still suffers (wrongly) from the perception that offshore construction risk cannot be borne by banks
- Past complications on German projects under construction cause banks to give new attention to the contracting structure, now gradually favouring an 'international experience' approach over a 'made in Germany' approach
- Preference currently expressed by banks for very low number of contracts (2-3 preferred)

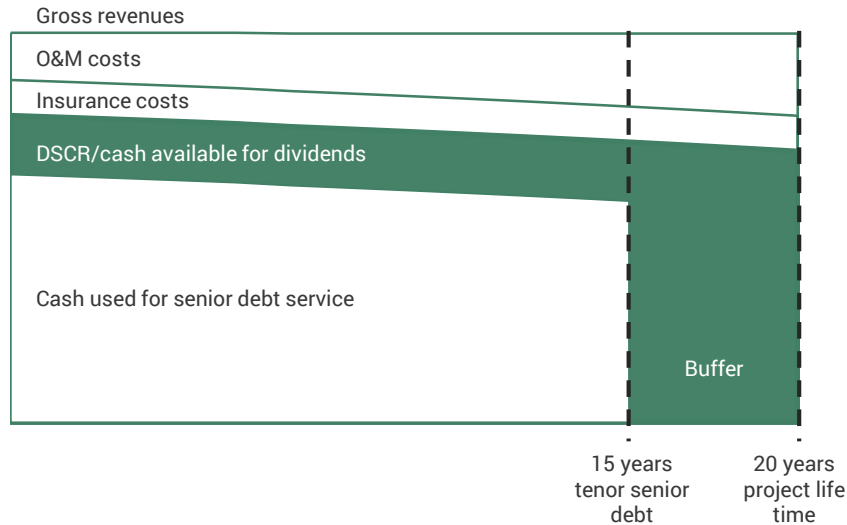
### Operating risk

- Long term operational risk is accepted on the basis of performance commitments by manufacturers
- O&M competence is widespread onshore; it is still concentrated with manufacturers offshore
- Early years of operation are seen as critical offshore (serial defects, teething problems)
- Current track record of offshore turbines fleet seen as quite satisfactory

Traditional long term project finance performance risk is accepted in renewable energy

# 3. Introduction to project finance – how much debt?

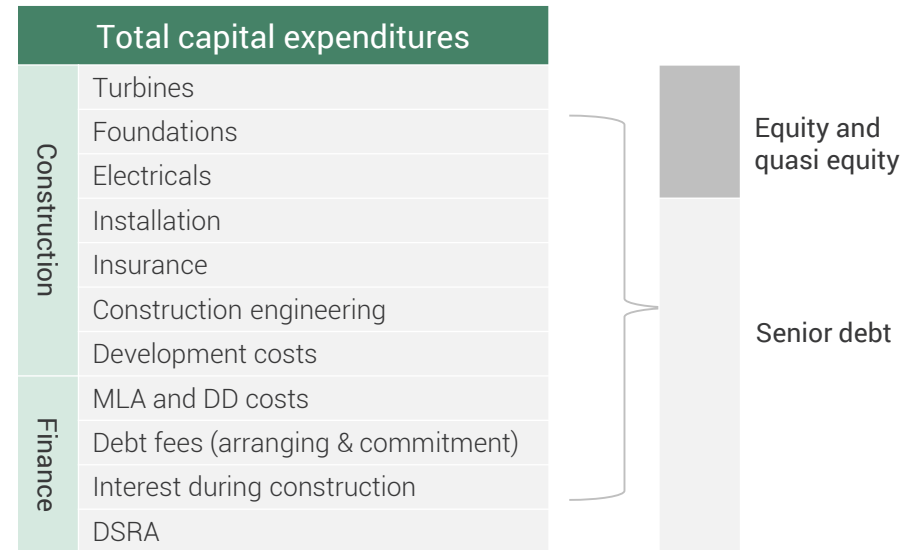
## Revenue side constraint



Offshore DSCR constraint: 1.50 P50 / 1.30 with P90

- No or very limited price risk on revenue side
- Net availability number in the 92-95% range
- Conservative O&M cost assumptions
- Full insurance package included

## Capital expenditure constraint



Debt : Equity < 75:25

- No tolerance for junior debt mechanisms
- Some tolerance for pre-completion revenues
- General precedent for equity to be paid upfront



# In conclusion... good projects always find funding

.. if they are structured well!

## The obvious – a stable and appropriate regulatory framework

- Stable, consistent, reliable legal framework
- No volume risk (certainty about grid connection)
- Incentive & support mechanism that makes the economics acceptable

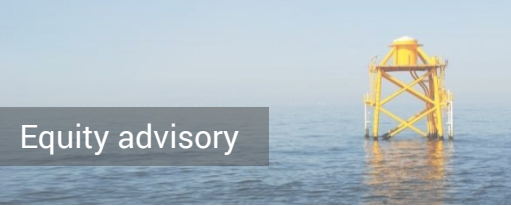
## The developer's job

- Be clear about your financing structure early on - it will impact your contractual structure
- The debt market is consistent in its requirements –structures are predictable and you can prepare for that
- When using project finance, do extensive risk analysis and expect (intrusive) due diligence
- Use the lessons learnt (sometimes the hard way!) by hiring experienced advisors

**Increased liquidity does not translate into lower standards, weak projects will not be financed!**



Debt advisory



Equity advisory



Modelling



Strategic advisory

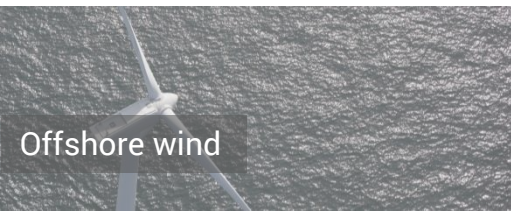


**Green Giraffe**

The renewable energy financial advisors

HAMBURG • LONDON • PARIS • UTRECHT

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Offshore wind



Onshore wind



Solar



Other renewables