

OW debt capacity in TW – Risks & opportunities

4th Asia offshore wind conference – 18 September 2018

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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
- 70+ professionals with offices in Paris (France), Utrecht (the Netherlands), London (UK), Hamburg (Germany), and Cape Town (South Africa)
- Multi-disciplinary skillset including **project & structured finance, contract management, M&A, and legal** expertise



More than **EUR 20 billion** funding raised for renewable energy projects in **8 years**



70+ professionals in **5 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 beyond Europe, with a burgeoning presence in the Americas, Africa, and Asia
- Priority given to **getting the deal done!**

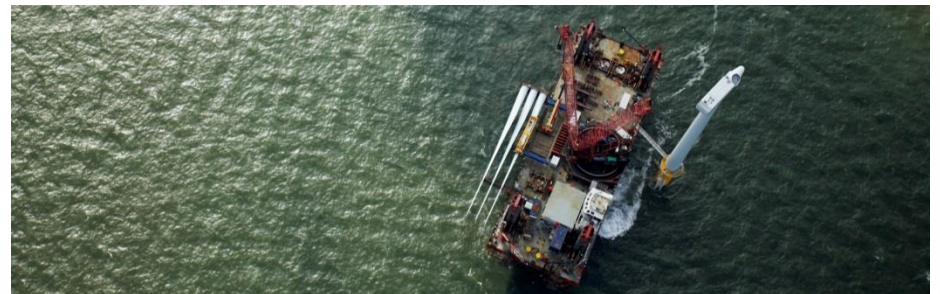


Involved in over **120 renewable energy projects** with a total capacity of almost **30 GW**

OW debt capacity in TW – Risks & opportunities

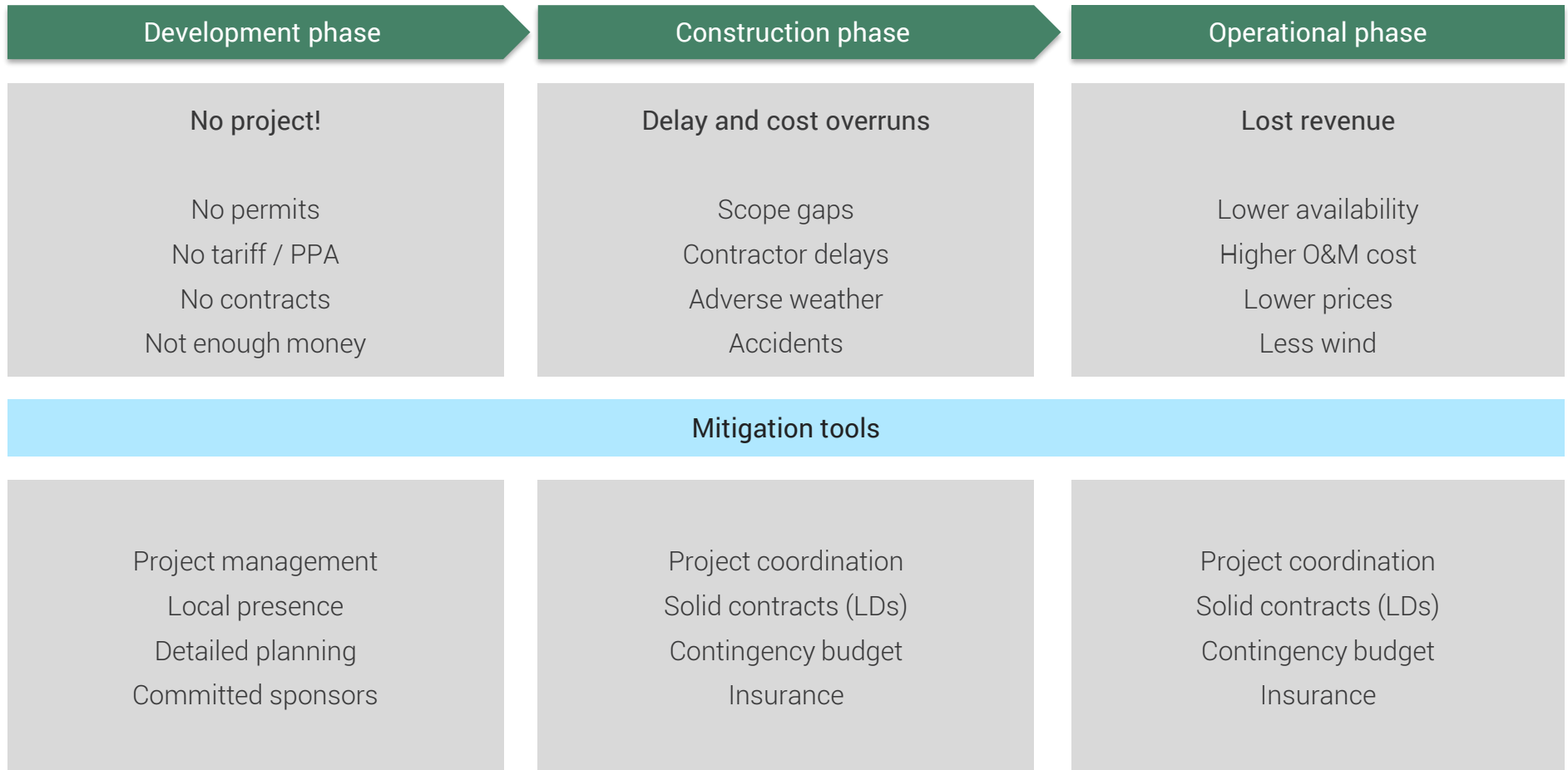
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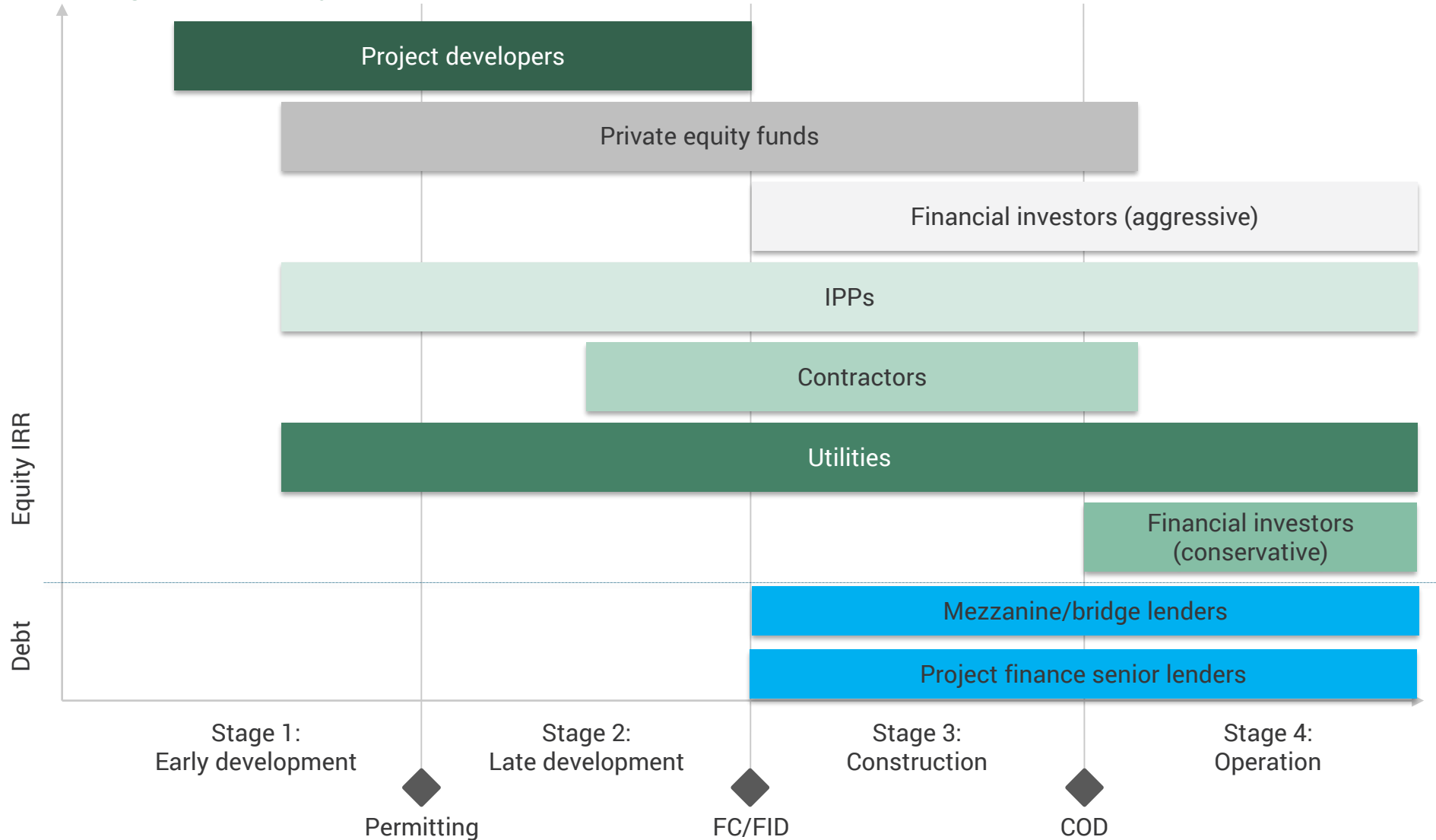
1. Funding offshore wind – The risks

Risks are different in each project phase



1. Funding offshore wind – Who takes the risks

Looking at the equity side – Investor profiles



1. Funding offshore wind – The stakeholders

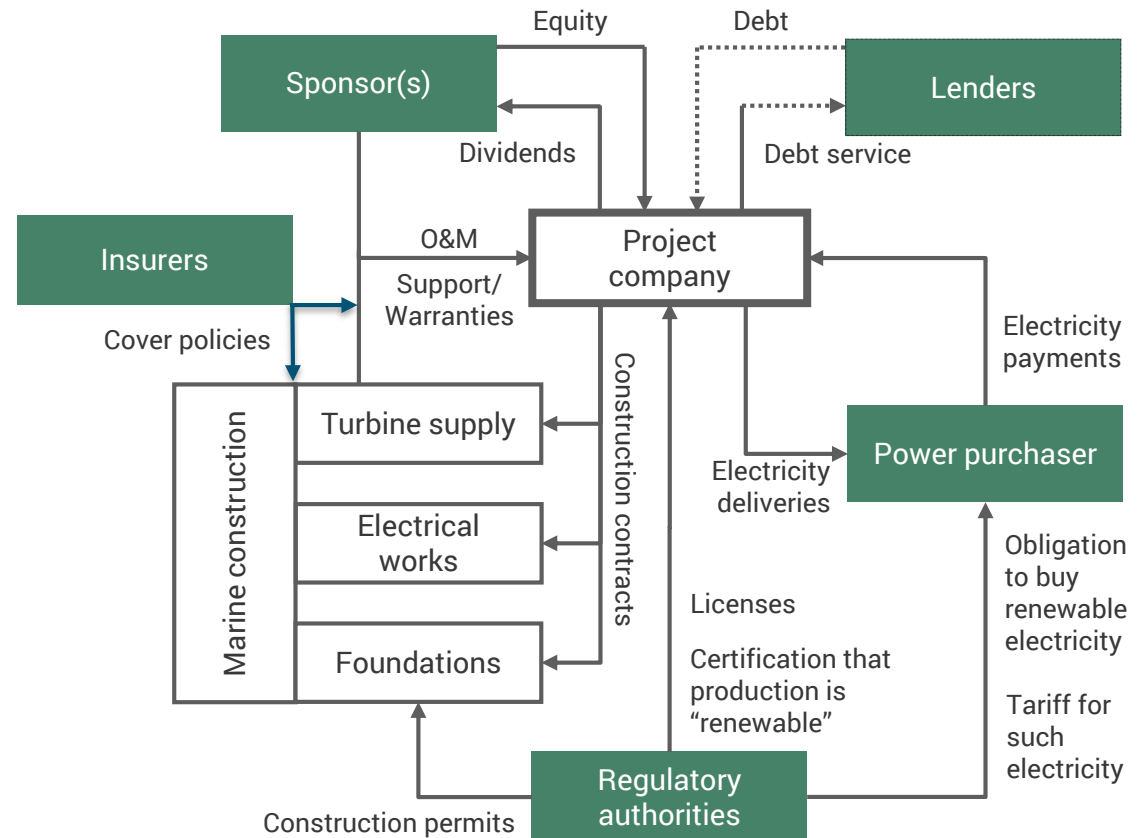
Offshore wind transactions are always heavily contracted

Major contracts include

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

Parties with a stake in the financing, and potentially a say in the project structure, include

- Sponsors/investors
- Lenders (and their advisors)
- Contractors
- Insurers (and their advisors)



Offshore wind is a quintessential example of a comprehensive contractual structure

1. Funding offshore wind – Debt or no debt

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

Large projects are typically developed through a stand alone project company

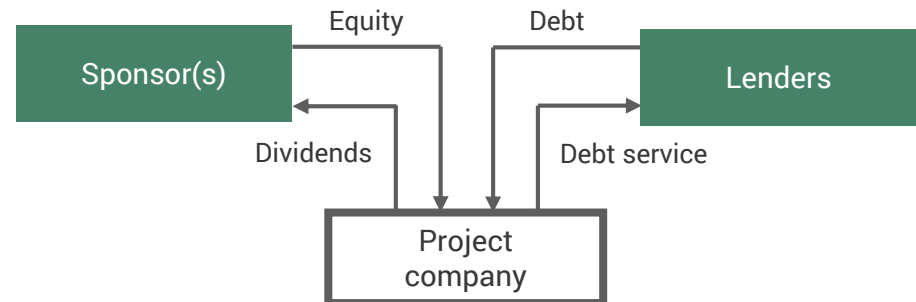
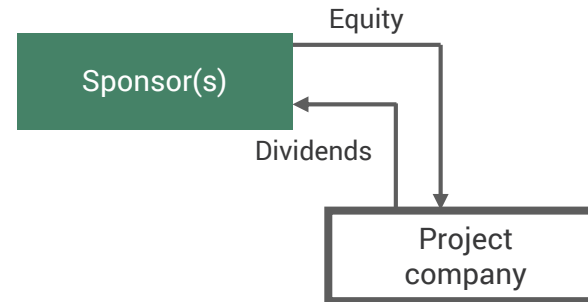
- Owned by the project investors
- With its own revenues & balance sheet and thus the ability to raise debt on its own merits

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

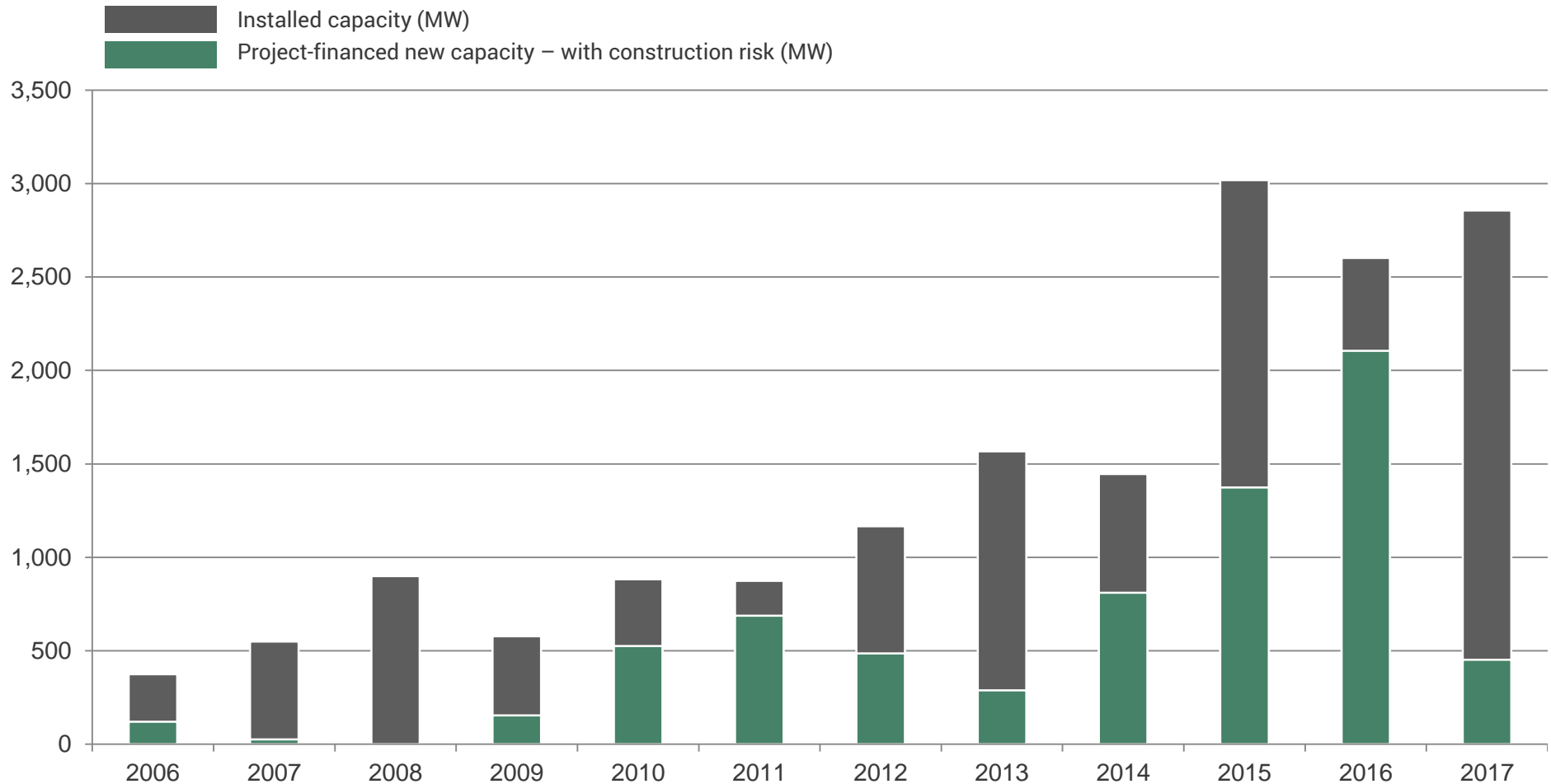
- In a project finance deal, you need to deal with the senior lenders' requirements!
- Tax, accounting, consolidation and rating issues



Using non recourse debt means lenders will have a say over contracts. Doing so prior to construction imposes substantial changes to how such contracts are negotiated

1. Funding offshore wind – With or without PF

Project finance already finances a significant fraction of overall new capacity



2. Debt capacity required for OW in Taiwan

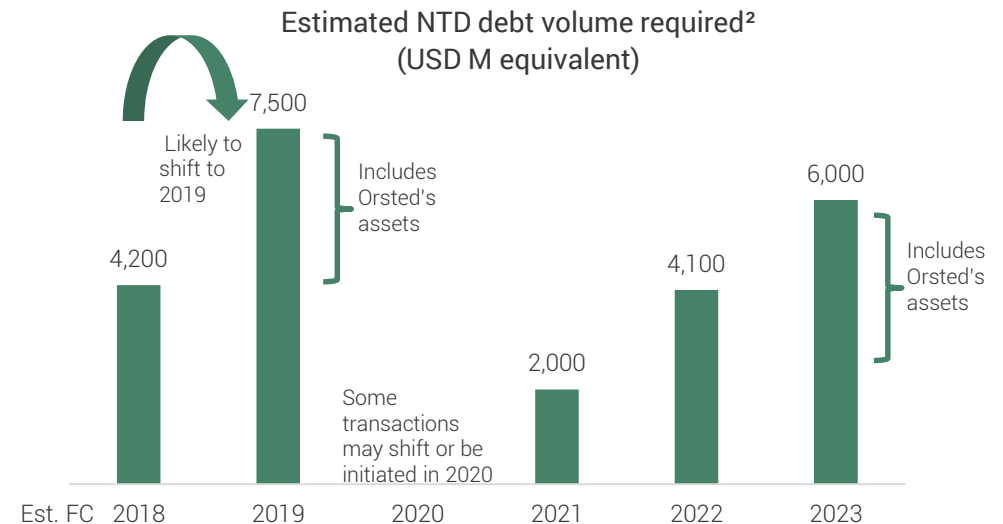
Competition for debt funding in the coming 5 years

Many projects will seek to raise debt finance at the same time as competing projects

- 5.5 GW of projects granted feed-in tariff support in April & June 2018 with expected COD between 2020 and 2025
- The majority of competing projects will also be seeking non-recourse financing to fund their capex needs
- Total non-recourse debt to be raised in the coming 3 to 5 years could exceed USD 20 to 25 billion equivalent¹

Timing & clean market approach will be key for success

- Debt capacity in a given year will be constrained
- Lenders may pick projects with the strongest business cases/most conservative structures
- Formosa 1 (128 MW) reached FC but
 - The size was limited
 - It was the only transaction in the market at the time
- On top of regulatory constraints, banks will have overall limits per sponsor and a capped exposure to OW



² The volume above is based on various high level assumptions

- Debt leverage around 75% (on average)
- Taipower's project is excluded
- Orsted's projects are included (as leverage may be in the form of corporate debt or via holdco financings)
- Timing based on project allocation & grid connection dates
- FC/FID assumed to be raised 2 to 3 years in advance of expected COD

¹based on a 5.5 GW OW pipeline by 2025

3. Key challenges for the financing

High level overview

Large debt volumes in a new OW market

- Average project size is similar to those of the largest offshore wind deals in Europe
- No utility-scale OW project has ever been financed on a non-recourse basis in Taiwan
- Taiwanese OW market framework is untested

Limited availability of NTD funding

- Some Taiwanese banks struggle to offer long tenors
- Some international banks are unable to provide NTD funding
- Taiwanese insurance companies cannot take construction nor FX risks

Competition for debt funding

- Some projects will be competing for funding required at the same time
- In excess of USD 20 to 25 billion of non-recourse debt may be required in the coming 5 years¹

FX and IR risks

- Projects will be exposed to usual FX/IR risks (capex in foreign currencies, floating rates etc.)
- There is limited availability of FX and IR hedging products in Taiwan esp. for long tenors

Restrictive regulatory environment

- Both local & international banks have single borrower/sponsor caps on max NTD loan amounts¹
- Heavy regulation of foreign exchange market
- Offshore entities cannot hold direct security over Taiwanese assets (legal mechanics)

¹Local banks are limited to 5% of the bank's net worth for unsecured loans and 15% of the bank's net worth for secured loans. Local branches of foreign banks are regulated in the same way as local banks (see above) and in addition are subject to a single borrower limit¹ of NTD 7 bn (~USD 240 M)

4. Debt funding available

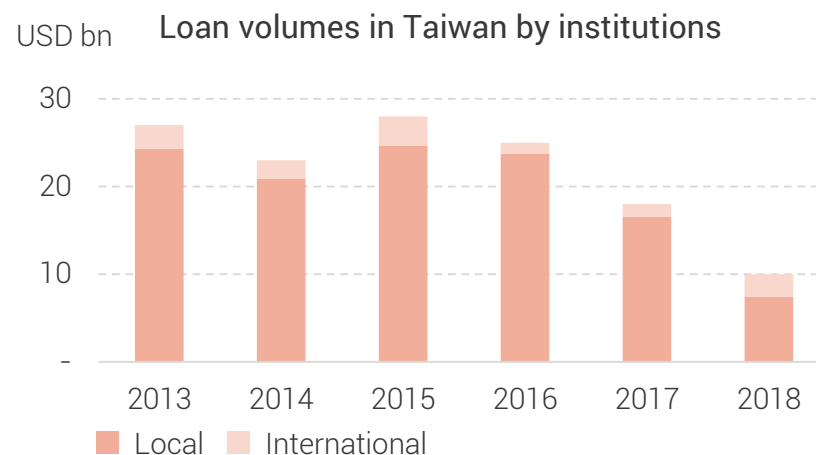
Focus on Taiwanese debt market – Bank market

The Taiwanese bank market relies heavily on local banks due to prevalence of NTD funding

- Volumes of syndicated loans have exceeded USD 20 bn per year over the past 5 years (except in 2017)
- 90% of these loans were provided by local banks, 80% were denominated in NTD
- Foreign banks have limited ability to provide NTD funding

Long tenors are a limiting factor vs. liquidity & pricing

- Most loans have a 3 to 5 year tenor. Tenors can be extended to 7 years for large corporates
- Financings are structured with pre-agreed extension (7+8 or 5+5+5 years) provided the project is performing¹
- Longer tenors are rare and struggle to get credit approval
- Public banks are price takers while private banks are price setters



¹solar and onshore wind projects financed on that basis – performance measured via pre-negotiated criteria

4. Debt funding available

Focus on Taiwanese debt market – Project finance market

Taiwan project finance market is very limited

- Active between 1995 & 2005 when IPP projects got built
- Infrastructure projects are financed with corporate debt
- Participation of foreign banks has been very limited

Some variations exist compared to the European PF market

- Shorter tenors (although can go up to 15/16 years using ECA cover – e.g. onshore/solar)
- No or limited interest rate hedging requirements
- Lighter due diligence process
- Lighter documentation under Taiwanese law

Change is expected in the coming years

- Some local banks are gaining PF knowledge by exploring neighbouring PF markets (Southeast Asia and Australia)
- Offshore wind financings will bring international standards for PF transactions

Project finance transactions in Taiwan (2008-2018)

Year	Name	Sector	Capacity (MW)	Amount (USD M)	Tenor (years)
2018	Formosa 1	Wind	128	550	16
2016	Formosa 1	Wind	8	85	5
2016	TW Solar	Solar	550	200	n/a
2012	Tongyuan	Wind	53	106	n/a
2012	Star Buck	Gas IPP ¹	490	325	7
2011	Houlong	Wind	58	97	n/a
2011	Star Energy	Gas IPP ¹	490	145	7
2011	Sun Ba	Gas IPP ¹	980	249	7
2010	Ever Power	Gas IPP ¹	-	205	5
2009	Guanyin	Wind	-	86	n/a
2008	Miaoli II	Wind	50	56	13

¹ refinancings

4. Debt funding available

Sources of debt available to sponsors – Pros and cons

	OW and PF experience	Knowledge of the Taiwanese market	NTD funding	Long tenor
Export credit agencies (EKF/Credendo/EH etc.)	Very experienced in OW and PF	Limited knowledge of the Taiwanese market	Can guarantee NTD loans and/or Taiwanese banks	Can provide long tenors (up to 15/18 years + construction)
International banks	Very experienced in OW and PF	Limited knowledge of the Taiwanese market	Limited ability to fund in NTD	Some are constrained on tenor
Taiwanese banks	Very limited knowledge of OW and PF	Familiar with the regulatory framework	NTD is their home funding currency	Some are constrained on tenor
Taiwanese institutional investors/LifeCos	No knowledge of OW and PF	Regulatory constraints prevents them from funding construction period	NTD is their home funding currency	Ability to provide long-term fixed-rate funding in NTD

Given the volume to be financed over the next 5 years, combining all these sources of funding in an efficient manner will be key for sponsors

4. Debt funding available

Alternatives for debt funding

Appetite from mezzanine lenders

- A number of mezzanine lenders are exploring opportunities to provide additional leverage to sponsors
- Short term (construction bridge) or longer term products (up to C+15) are available
- Key constraint remains availability of funding in NTD (mostly USD denominated)

Securitization scheme (cover via ECA)

- Using 'securitization' guarantees provided by ECAs, combined with funding in NTD from local banks helps solving the currency mismatch
- ECAs will be limited by the export value generated by the country of origin

Bringing LifeCos earlier than post construction

- They would only take risk after completion, once security over "physical" assets is available
- Pricing would include a slight premium as it would be fixed as of FC (i.e. for a longer period of time)
- Some outstanding items remain to be further explored (FX risk, internal process, rating etc.)

The market depth will increase as track record builds up & thus perception of OW risk improves



Debt



Equity



Strategic



Contracting

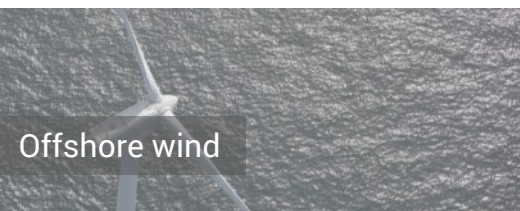


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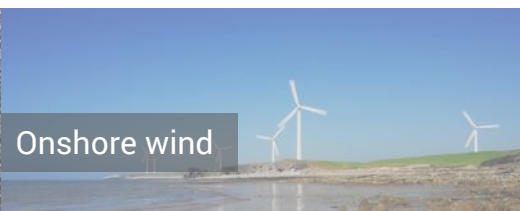
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Offshore wind



Onshore wind



Solar power



Other renewables