



Who will fund US OW – and on what terms?

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Jérôme Guillet

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!**

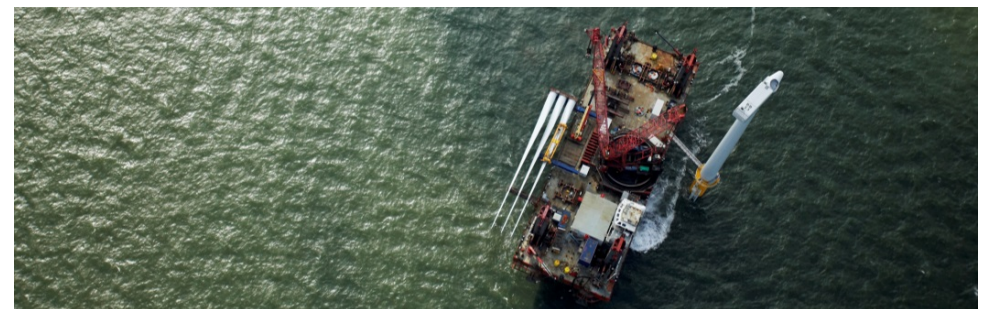


Involved in over **120 renewable energy projects** with a total capacity of almost **30 GW**

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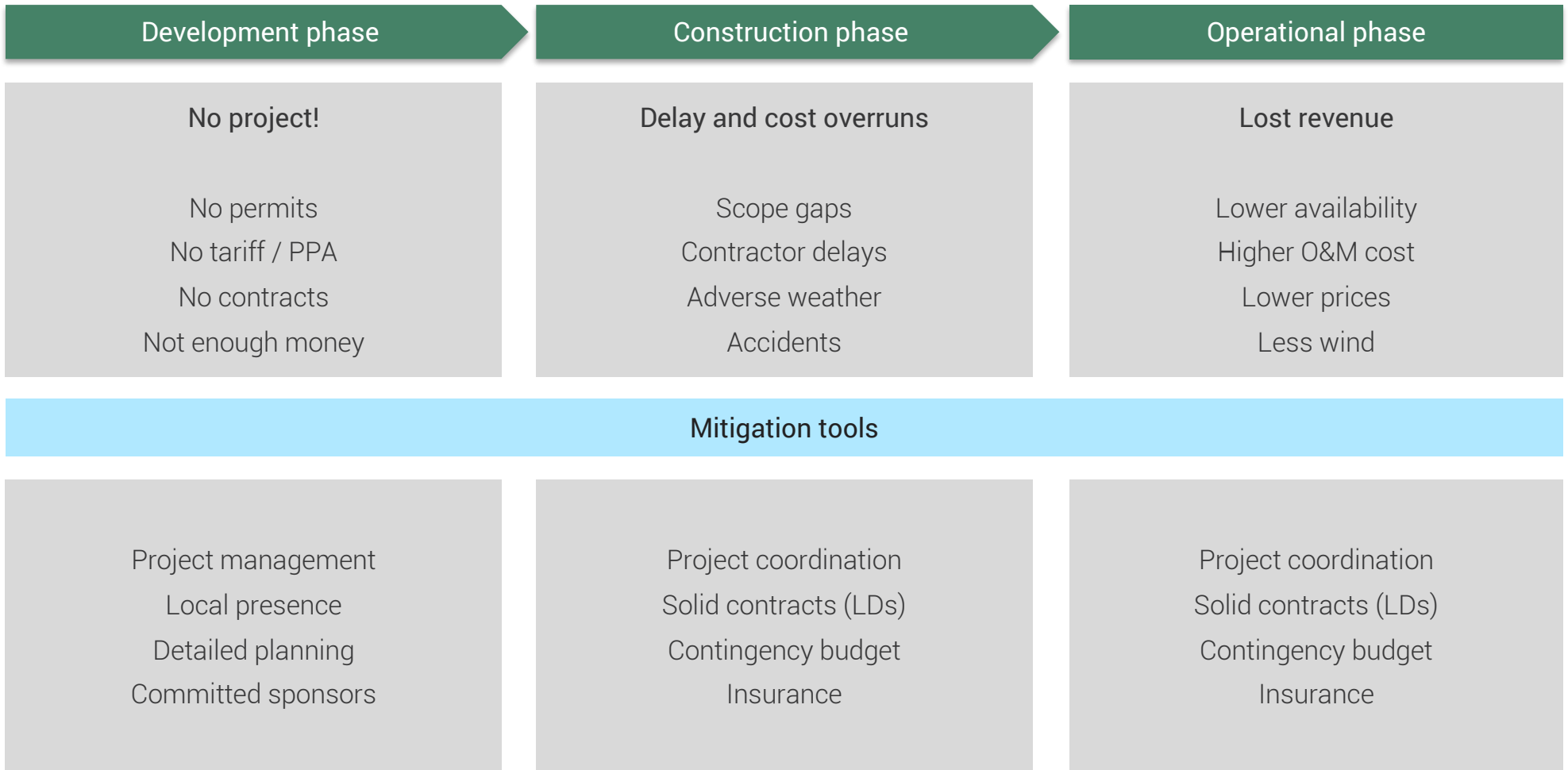
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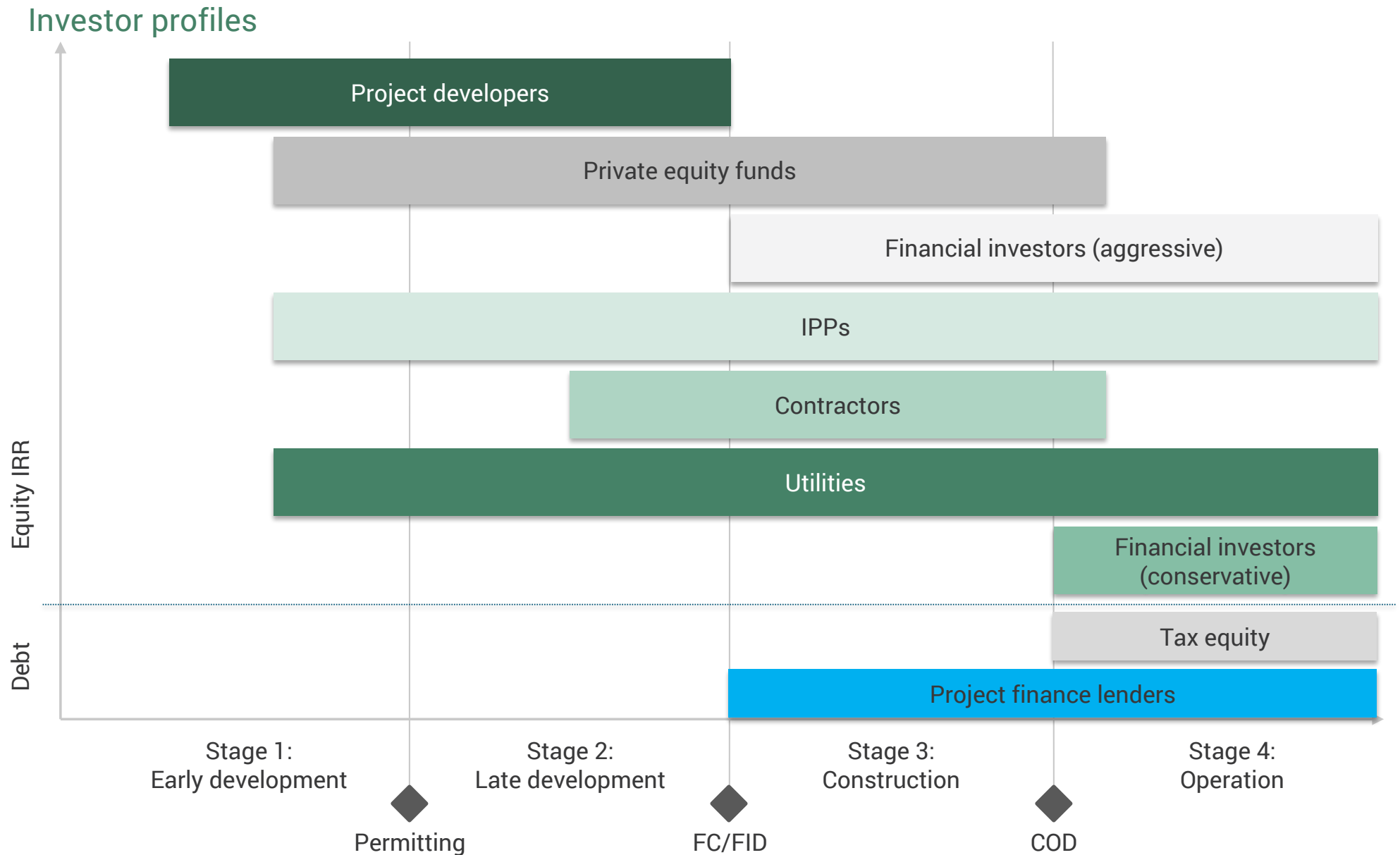


1. The risks

Risks are different in each project phase



1. The risks – and who will take them



1. The risks – the stakeholders

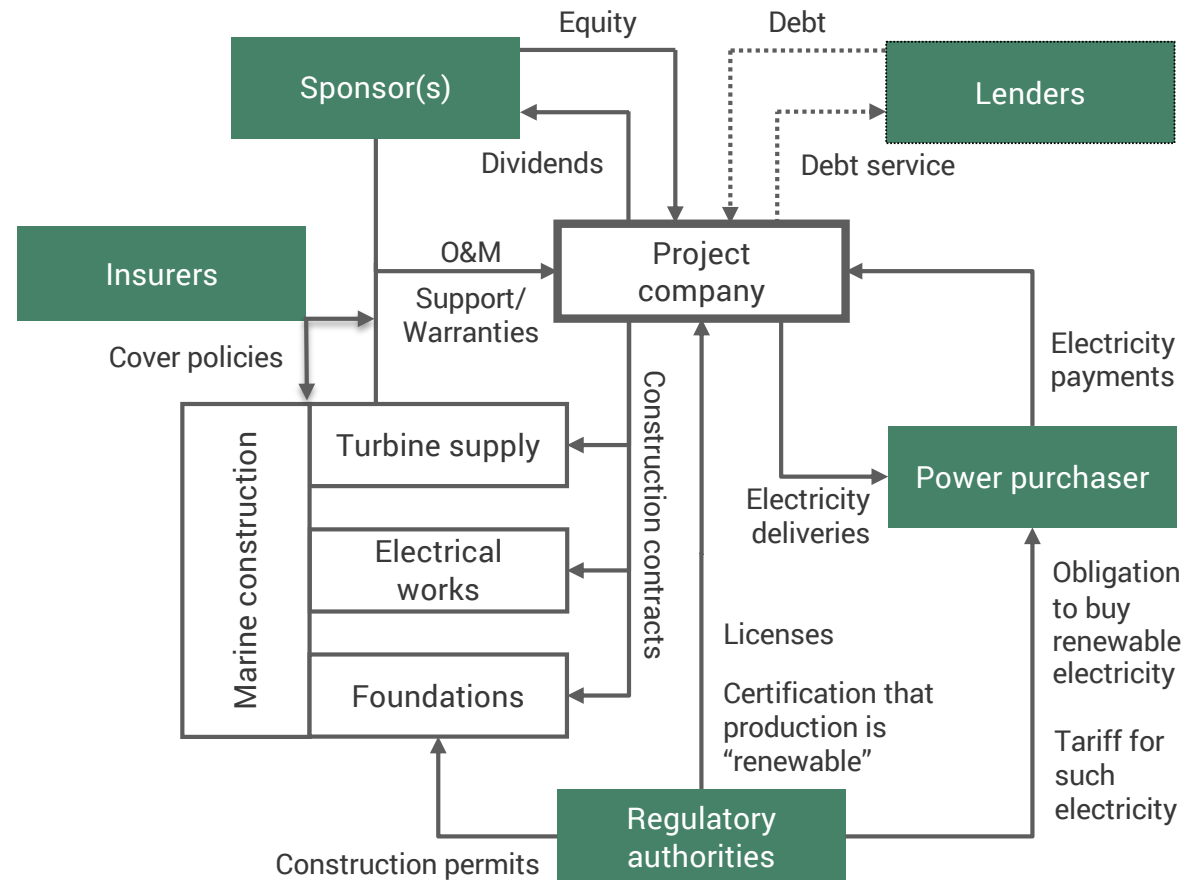
Offshore wind transactions are always heavily contracted

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 a say on the overall project structure may include

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



Offshore wind is a quintessential example of a comprehensive contractual structure

1. The risks – the first major decision (1)

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

Large projects are typically developed through a stand alone project company

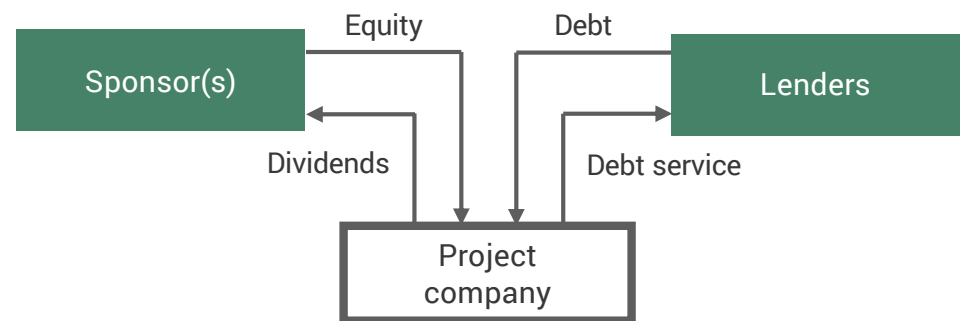
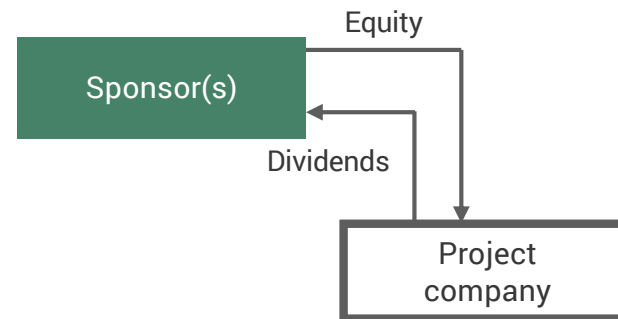
- Owned by the project investors
- With its own revenues & balance sheet and thus the ability to raise debt on its own merits

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 meander lenders will have a say over contracts. Doing so prior to construction imposes substantial changes to how such contracts are negotiated

1. The risks – the first major decision (2)

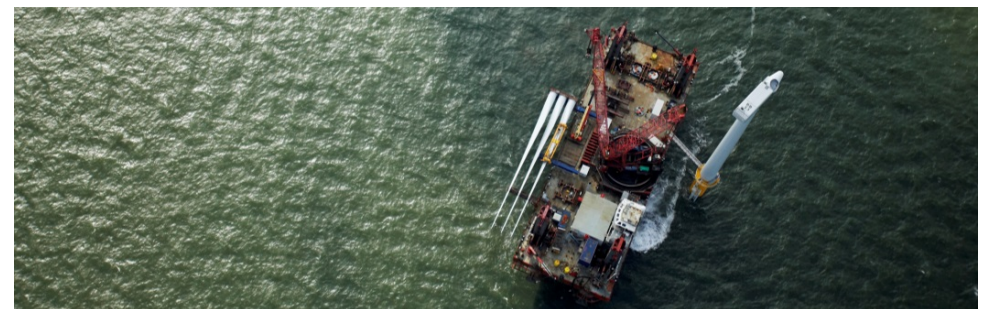
Project finance already finances a significant fraction of overall new capacity



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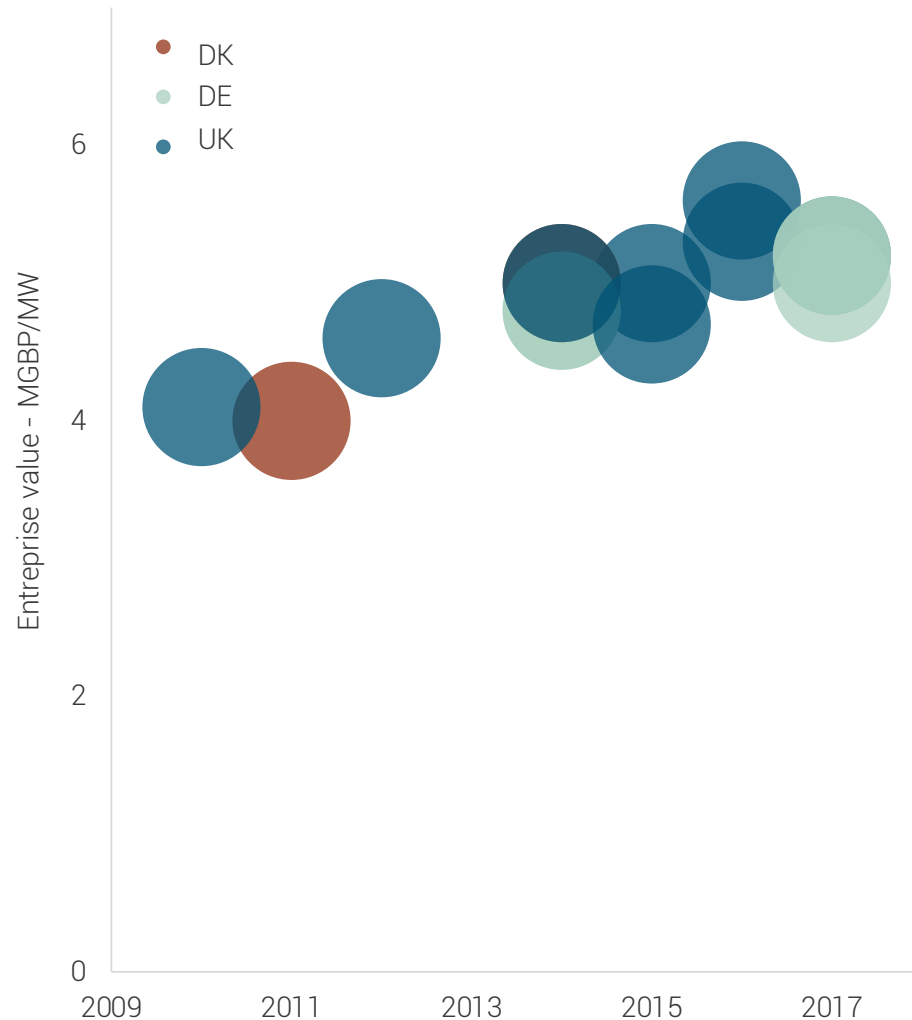
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2. Equity strategies – we see consistent project valuations

The baseline – recent operating projects with long term (high) fixed tariff



An attractive asset class

- Long term, highly stable and predictable cash flows
- Large volumes for individual transactions
- Increasingly understood risk, with good track record

Offshore wind 101

- The natural first step for new investors in the sector is to buy a stake in an already built project, with a strong operator and a fixed tariff
- The IRR for such unlevered assets is the "sovereign risk" reference for all other offshore wind projects

Additional risks are then priced in

- Leverage
- Construction risk
- Merchant risk (beyond tariff, or even earlier)

This graph only shows transactions after COD

2. Equity strategies – a long term decrease in OW premia

The market as it was before the tenders

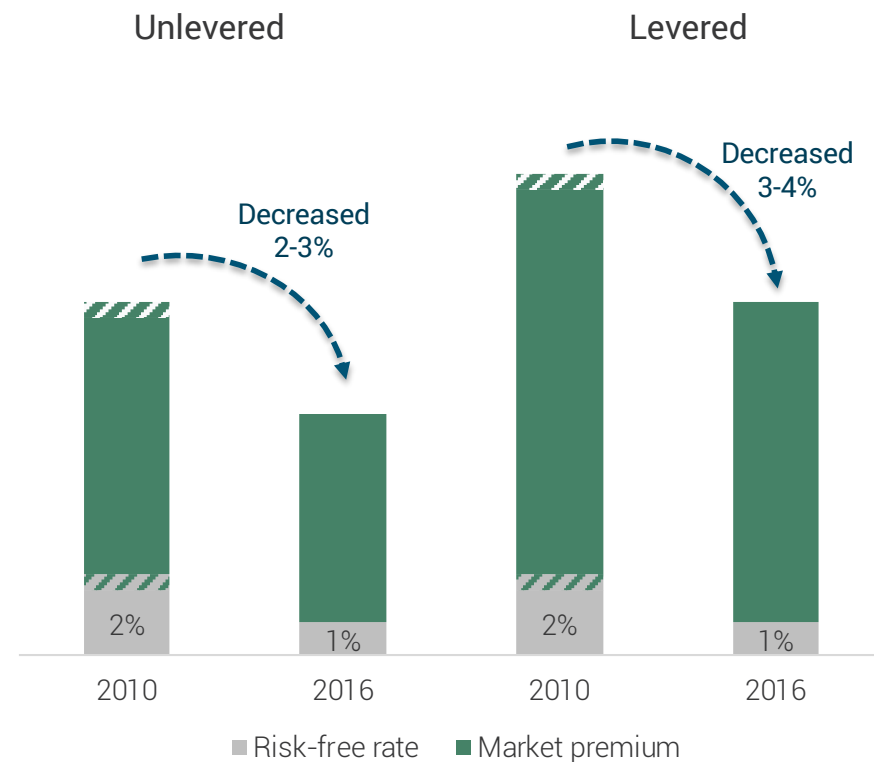
An active equity market

- Renewable energy assets are trading at high prices as investors competitively chase yield, pushing down IRRs
- Continued high transaction volume in offshore wind in 2017 (both for projects and companies like GIB & A2Sea)
- Transactions for assets under development (Dogger Bank), at FC (Deutsche Bucht) or operational (North Hoyle)
- Emergence of Chinese buyers (CTG, SDIC) and continued active presence of Japanese and Canadian investors

Prices have been very consistent

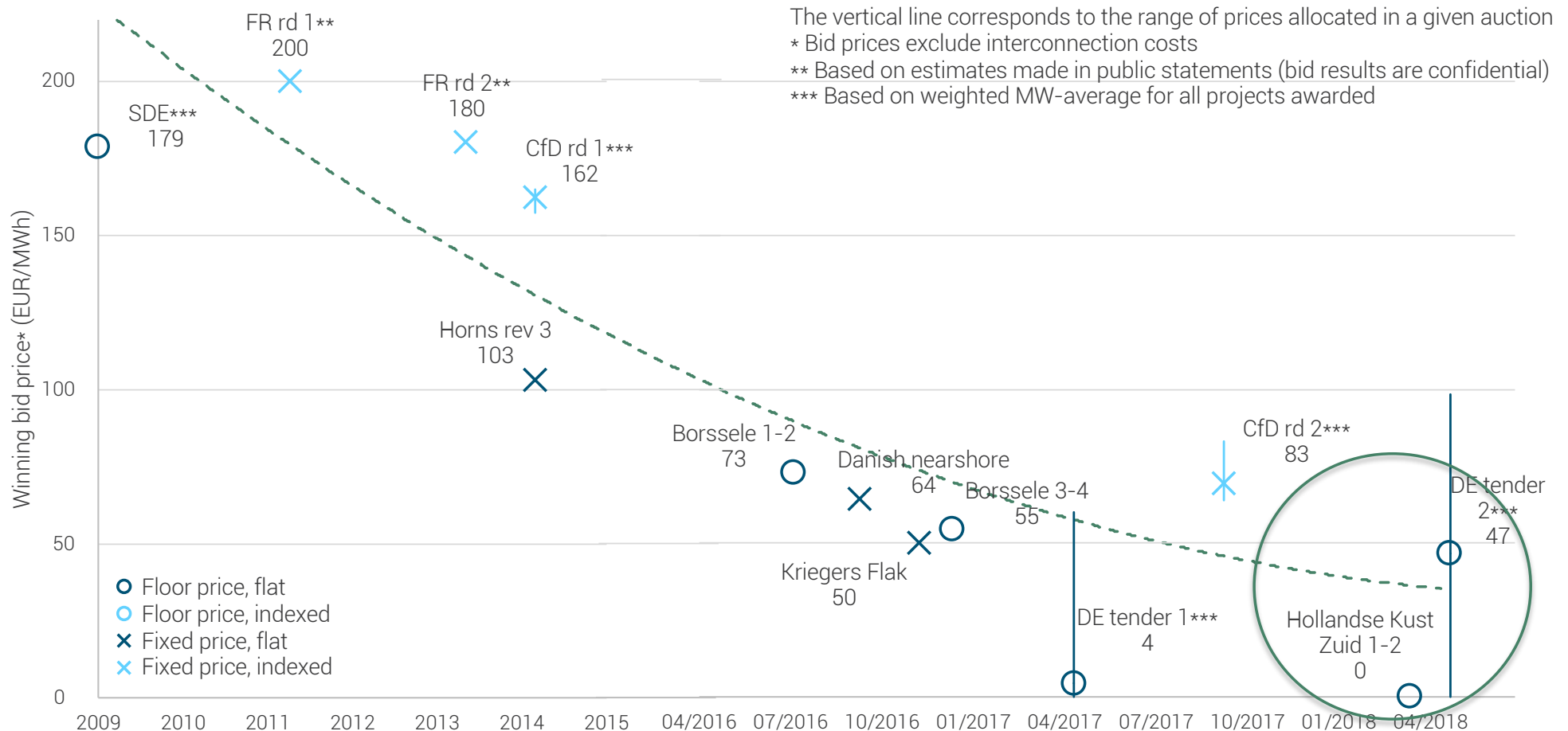
- There was a clear differentiation between development stages all the way to operating projects
- Decent, if regularly shrinking, premium for construction risk and early development (permitting) risk
- Prices are relatively insensitive to technology or tariff and regulatory regime

Evolution of investor return expectations (2010-2016)



2. Equity strategies – What do tenders change?

Background context – falling power prices for offshore wind projects



Recent tenders in continental Europe have shown that some investors are willing to build offshore wind projects with 40 EUR/MWh tariffs i.e. 50 USD/MWh (2018 prices) ex-grid

2. Equity strategies – what the tenders tell us

What made the price drops possible: a maturing industry plus regulatory pressure

More experience and more competition across the value chain

- Competitive funding for all phases of projects – development, construction and operation, with multiple willing investors
- The supply chain is getting more comfortable with the risks and both costs and “buffers” are going down
- The consolidation of the sector has actually helped build strong competition amongst a small number of credible players for all core tasks (turbine suppliers, marine construction companies with “wrap capabilities”, suppliers for cables, offshore substations, foundations, and installation vessels)

Developers are also willing to be more aggressive, especially in the context of tenders

- Build up of experience and know-how translates into more willingness to take construction and long term operation risks
- Knowledge of the potential upsides from projects (improved performance, lower costs, and sale/refinancing potential)
- The move to tenders for pre-developed sites reduces the need to commit high-risk (and thus expensive) devex

Local incentives

- Tenders are still national, and there are local reasons for parties to bid, especially for “home” players
- Scarcity effect of some tenders (e.g. Germany under the transition tenders of 2017 and 2018)

The auctions accelerated the downward movement of tariffs but the industry was ready

2. Equity strategies – what the tenders tell us

What made the price drops possible: financial optimisation was essential

The financial context is favourable (but that is the only factor the industry does not control)

- Record low cost of money
- Investors seeking higher returns and finding the long term stable revenue flows of the industry very attractive

But the background context is only a small part of the story, and the other factors will not go away

- Perception of offshore wind risk is improving as experience and track record builds up
- Downward movement on returns has been steady but reasonably slow – nobody has done anything stupid
- Industry has built up a solid, highly professional track record of solving issues and avoiding losses – there's still a premium as marine construction will always be risky, but risk is managed transparently and effectively

Financial optimisation has become sophisticated

- Increasing experience in selling (stakes of) operational projects to long term financial investors at high valuations
- Such equity refinancings can be incorporated from the start in assumptions, lowering the long term cost of capital and bid prices (but of course reducing the opportunities for capital gains that existed under the old price regimes)
- In parallel, the debt market has shown it was ready to take construction risk on attractive terms (leverage, pricing, covenants) and to offer even more attractive terms once projects are completed (and such refinancing terms can also be anticipated)

The lower pricing of offshore wind risk is not going away

2. Equity strategies – What kind of tenders?

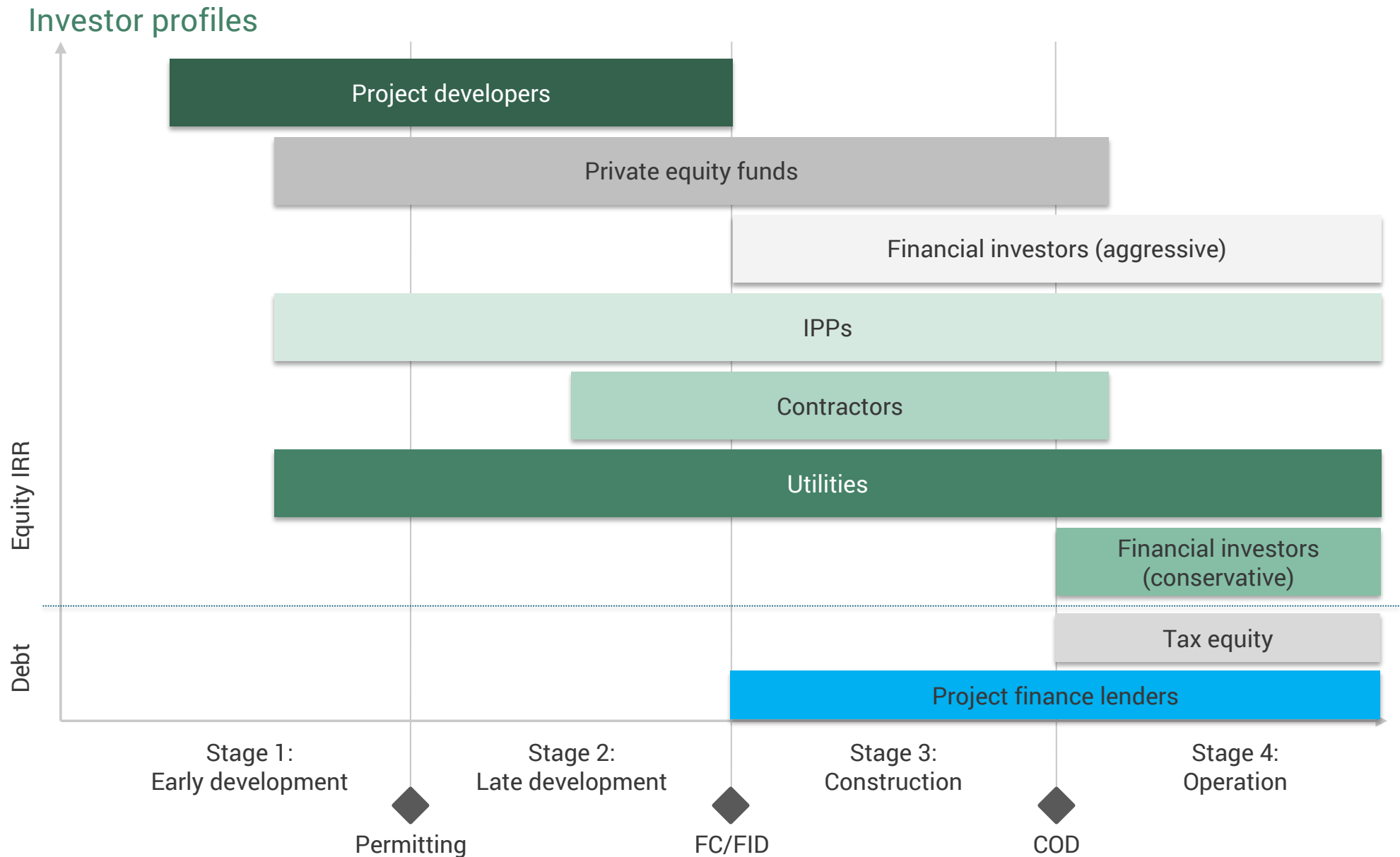
Comparison of the main existing regimes – DE, FR, NL, UK

	DE	FR	NL	UK
Allocation	Tender	Tender	Tender	Accreditation
Tenor (years)	20	20	15	15
Price regime	Floor	Fixed	Floor	Fixed
Inflated / indexed	No	Yes, for 60% of the tariff	No	Yes
Negative prices	No support for periods of > 6 consecutive hours	No risk	No support for periods of > 6 consecutive hours	Support cap = strike price
Grid connection	TSO	TSO (via separate tariff)	TSO	Project
Permits	With tariff	No	With tariff	Condition to auction
Devex support	Pre-development by BSH	No	Soil studies & EIA	No

Tender regimes can lead to very different outcomes

- Including the permit in the tender makes a huge difference (FR vs. NL)
- The price formula (floor vs. fixed, maturity, indexation) creates wildly different incentives (UK/FR vs. NL/DE)

2. Equity strategies – a bit more about the investors, again



2. Equity strategies – what works

Several successful equity strategies

There are buyers for almost every profile of risk

- There is appetite for every kind of risk (development, construction, operations, merchant, etc.)
- There is appetite for every size of ticket (minority, majority, levered, unlevered)
- Returns are consistent with the risks taken

Current European equity strategies are based on aggressive assumptions

- Lower capital expenditure thanks to competitive supply chain
- Assumptions that projects will be refinanced with cheaper capital (whether debt or equity) once operational
- Limited premium for construction risk

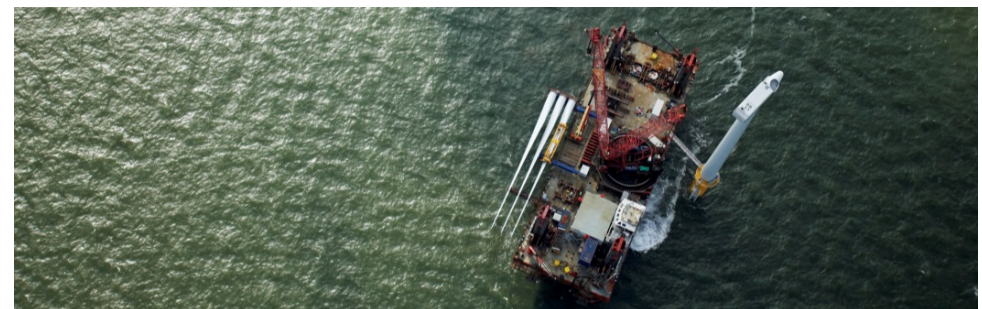
Recent new auction results (Massachusetts, Taiwan) suggest there will be a minimal premium for “new market” risk

- Major European contractors expected to follow investors in new markets and build the local supply chain
- Aggressive financial structuring from the get-go, on the assumption that refinancings will indeed take place
- Experienced players involved in the projects

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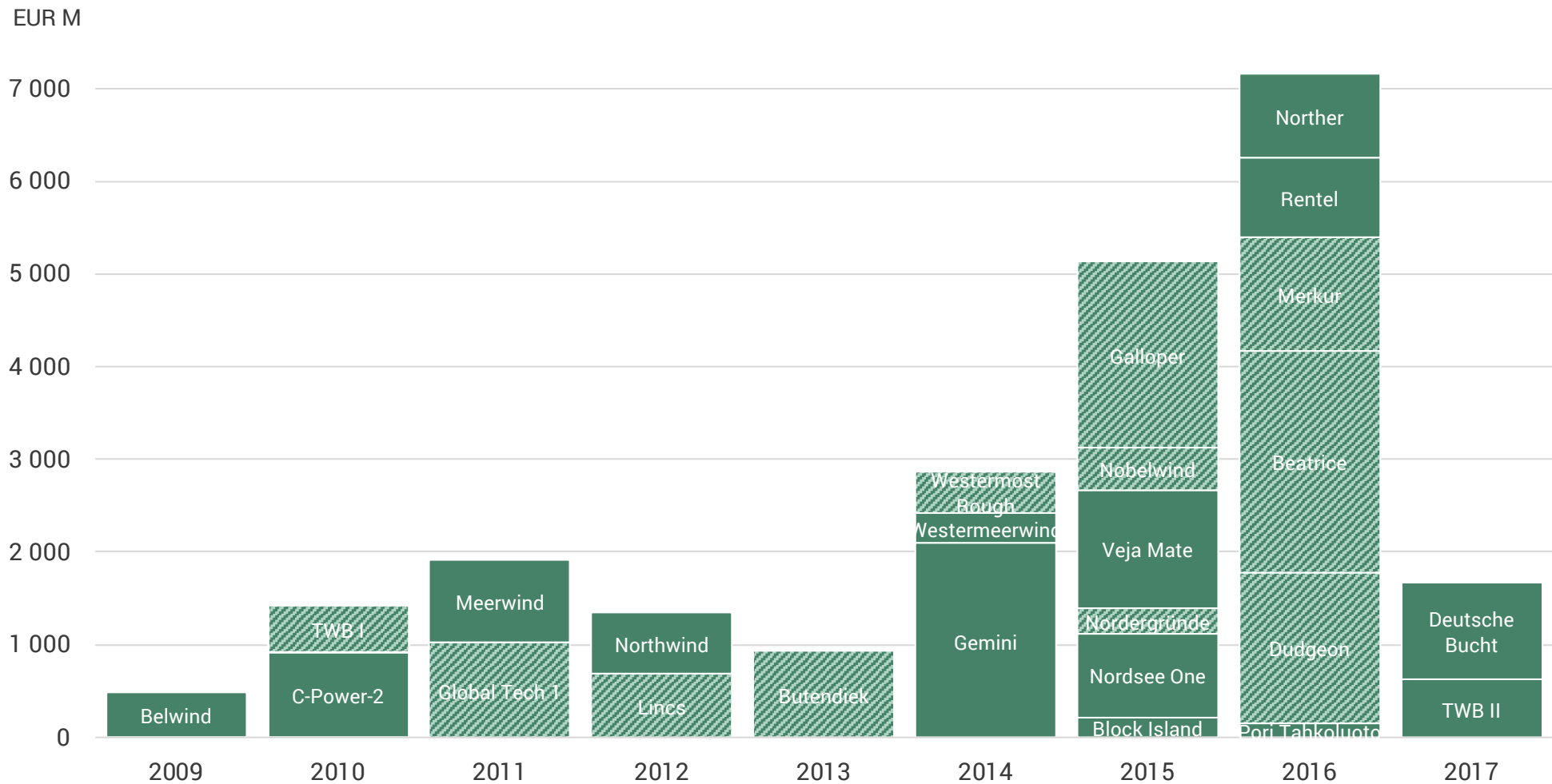
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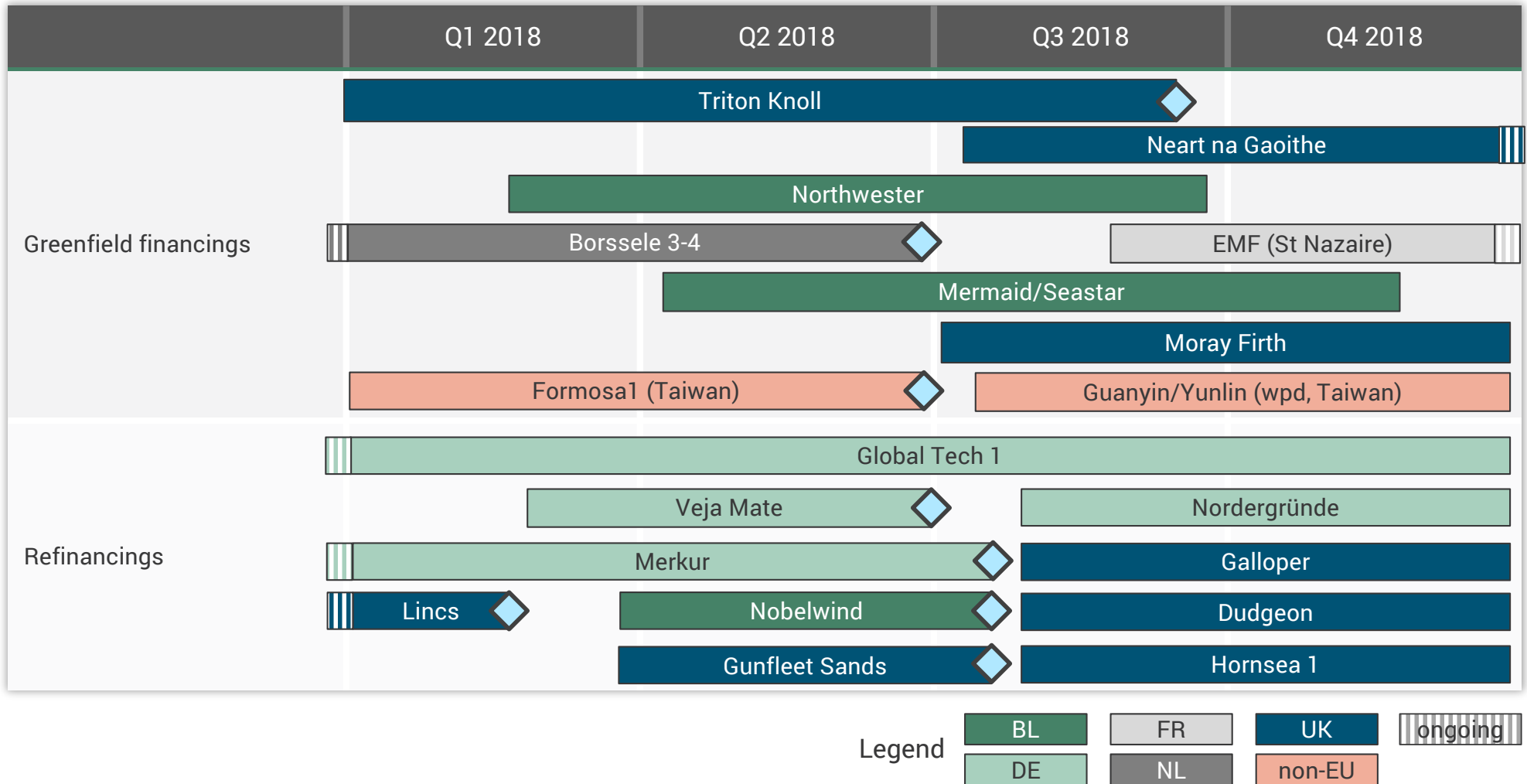
3. Debt providers – a quick history of offshore wind

The debt market has grown with the industry



3. Debt providers – the activity in 2018

Current market activity shows there is plenty of funding for the industry



Project finance for offshore wind is fully mature

3. Debt providers – the current status

There is and will be plenty of liquidity for the sector

Since the crisis, banks have refocused on known clients, core countries and strategic sectors of activity

- The good news is that offshore wind is unambiguously “strategic” for most banks
- Countries where offshore wind is developing are seen as “safe” (Northern Europe) and core for most banks

In 2017 and 2018, there was (again) more funding available than there were bankable deals

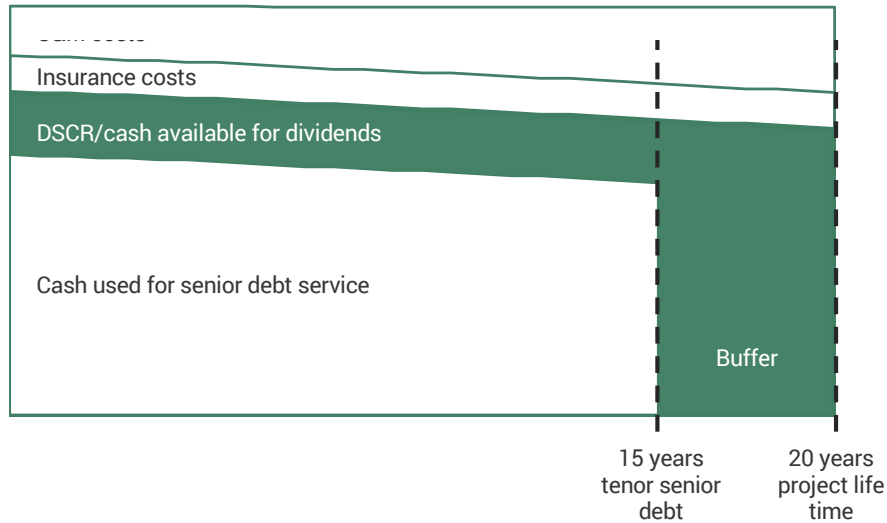
- Lumpy greenfield activity, along with weak activity in other sectors
- Increased capacity does not translate into lower standards, so weak projects will not be financed
- Excellent liquidity for good projects, which was taken advantage of by existing projects for refinancings

Increased diversity of structures

- Post-construction refinancing
- Minority stake (re)financings, including prior to completion, with construction guarantees
- Construction risk capacity available in all jurisdictions (Europe, US, Taiwan)

3. Debt providers – current terms and conditions

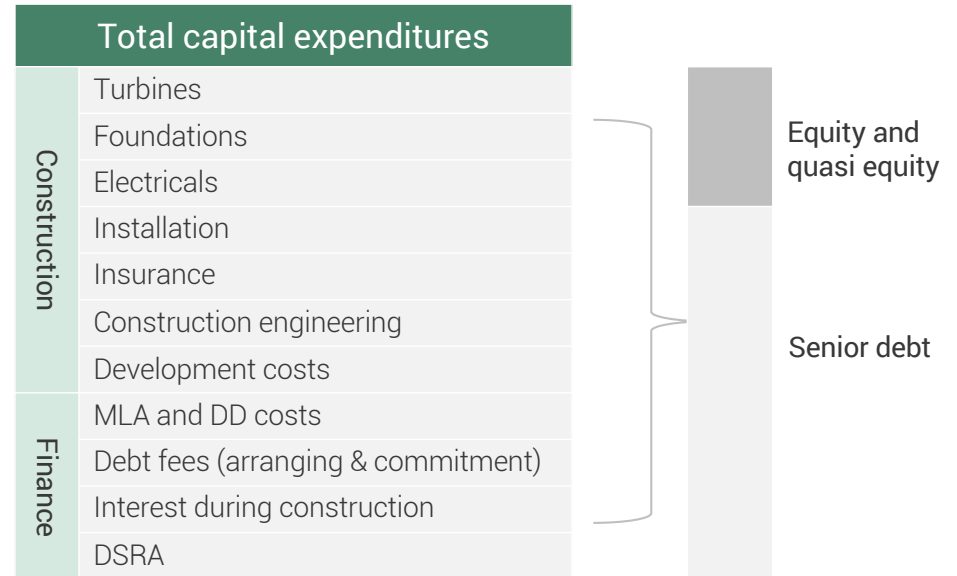
Revenue side constraint



Offshore DSCR constraint: 1.25/1.30 with P90

- No or very limited price risk on revenue side
- Net availability number in the 95-96% range
- Contracted O&M cost assumptions
- Full insurance package included

Capital expenditure constraint



Debt : Equity < 75:25

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

3. Debt providers – current terms and conditions

Market trends (for greenfield projects)

Typical project finance conditions - offshore	Leverage	Maturity post-completion	Pricing	Maximum underwriting
2006-2007	60:40	10-15 years	150-200 bps	EUR 50-100 M
2009-2013	65:35	10-15 years	300-350 bps	EUR 30-75 M
2014-2015	70:30	10-15 years	200-250 bps	EUR 100-200 M
2016-2017	75:25	15-17 years	150-225 bps	EUR 100-150 M
2018	70:30	15-18 years	120-175 bps	EUR 100-150 M

Debt is currently extremely cheap

- Margins rose after the crisis (reflecting higher bank cost of funding), but have been trending down since 2014
- With low underlying rates, the overall cost of >15-year debt is now around 3%

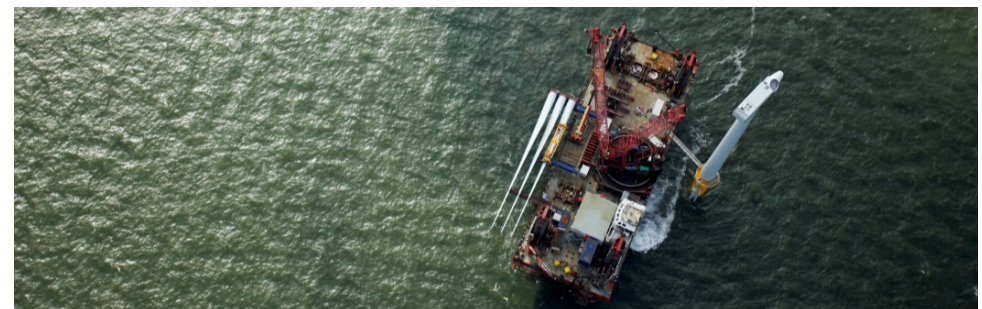
Structures (ratios, maturity, covenants) have actually been quite stable since 2007

- Debt terms fundamentally driven by regulatory framework (duration, merchant risk, public financing opportunities)
- Commercial fights are rarely about debt sizing or pricing
- General improvement in commercial terms over the past few years

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4. Predictions for the US

A combination of European terms and local structures

Heavy involvement of European investors who will bring their experience and terms

- Focus on balance sheet funding with equity-side capital recycling
- Likely desire to remain in full control for construction phase and operational control afterwards

Mastery of local financing structures can make other players competitive

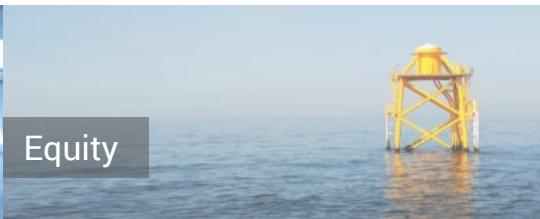
- Levered structures have proven to be both attractive and competitive in Europe, and it will be the same in the US
- Terms for offshore wind will be closer to what is done for onshore wind in the US than for offshore wind in Europe
- Due diligence standards will be closer to what has been done in Europe as the underlying risks are similar
- Access to the cheapest long term capital will be a key differentiator

The tax equity conundrum

- Tax equity structures are unlikely to be available at FC as COD is much further away in time than with onshore wind projects
- Investors and potential non recourse lenders will need to take the risk that tax equity is brought in after FC (but before COD)
- The willingness to take that risk will make a big difference



Debt



Equity



Strategic



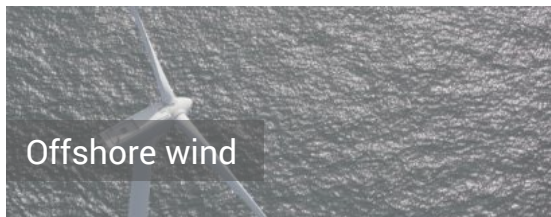
Contracting



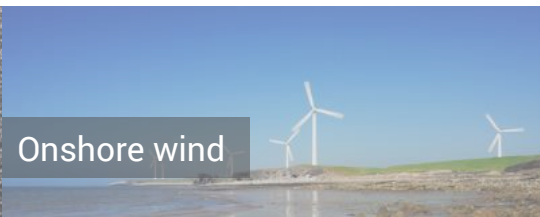
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Other renewables