



# How renewable energy projects are financed

12 June 2018

OFATE conference – Berlin

# OFATE – How renewable energy projects are financed

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# 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
- 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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## 2. How projects are financed

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

Large projects are typically developed through a standalone project company

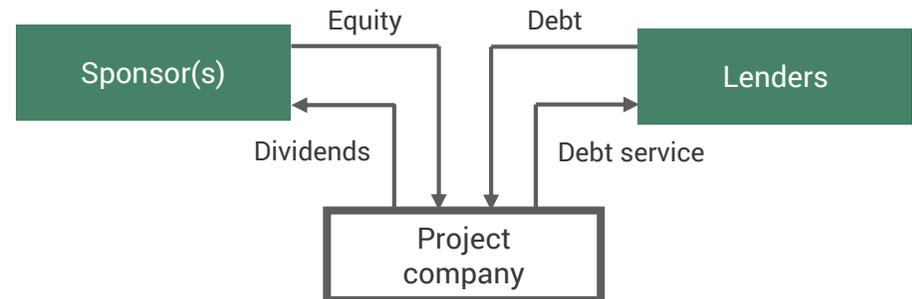
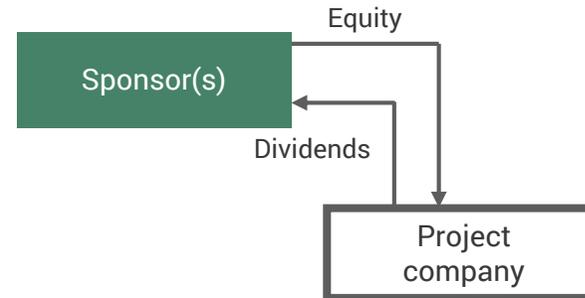
- Owned by the project investors
- With its own revenues & balance sheet and thus the ability to raise debt on its own merits

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

## 2. How projects are financed

Construction risk – banks focus on interfaces between key tasks as well as between contracts

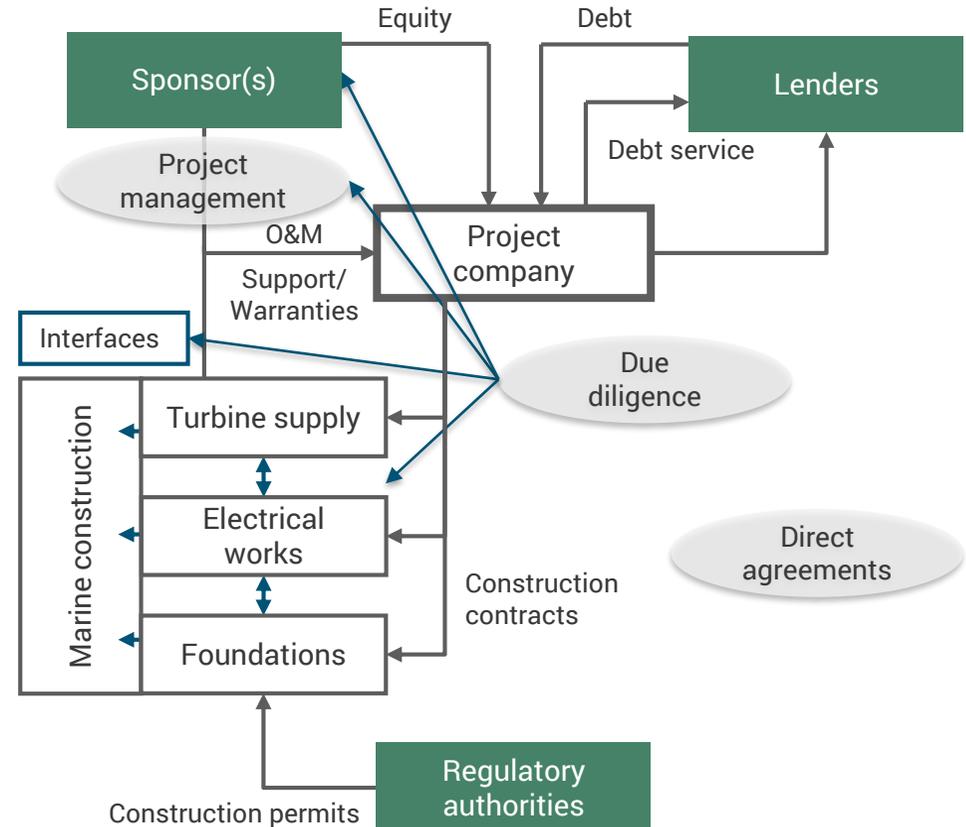
Several completely different industries

- Turbine manufacture
- Foundation / steelwork supplies
- Electricals
- Cabling
- Marine construction work

No obvious general contractor!

And yet banks do take construction risk

- Focus on project management
- Focus on key interfaces
- Understanding of critical path items
- Heavy involvement in contract negotiation



The higher risks borne by the banks impose different development and contractual approaches

## 2. How projects are financed

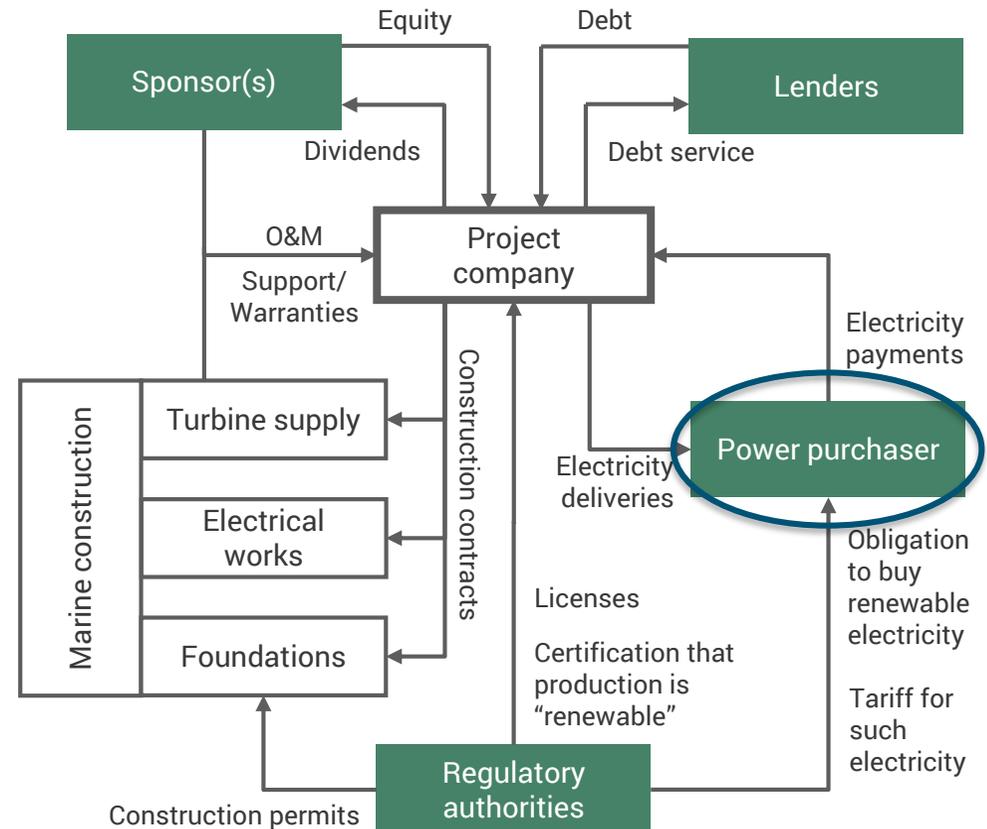
Large-scale wind transactions are always heavily contracted...

...and a power purchase agreement (PPA) is always an important aspect of the contractual package

- The PPA provides a route to the market for the project's produced electricity
- Together with revenues from the applicable support regime, PPAs typically provide the bulk of a project's income
- As such, lenders will have specific demands on the structure of a PPA and will scrutinise the actual contract in great detail

Even under contract for difference (CfD) mechanisms, lenders scrutinize the PPA

- Management of sales on the wholesale power market with no volume or balancing risk
- Price index to match with CfD



PPAs are crucial elements in the contractual structure of wind projects

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# 3. Bankability of the French CfD

## Balancing and M0 mismatch

The feed-in-premium paid to the project is based on the M0 which may deviates from the project monthly average price

- Each wind or solar farm has its own M which deviates from the national M0 depending on the production profile of the project. Some projects may outperform the M0 while others may have a lower M
- Projects generally choose to sell their production to an aggregator which commits to purchase the production at the M0 price
- Therefore, the risk of deviation to the M0 is transferred to the aggregator. This risk is taken into account in the **risk premium** paid to the aggregator

As aggregation contracts duration usually lasts from 3 to 5 years, the long term prevision of this risk premium is uncertain

- In 5 years, the aggregators may choose to increase the risk premium depending on the project variation to the M0 or on new market conditions

A potential solution would consist in a gradual increase in the risk premium over the project lifetime

# 3. Bankability of the French CfD

## Counterparty risk

Under the CfD, the project will have two counterparties: the state-owned utility EDF for the CfD and the aggregator for the market revenues

- The aggregator counterparty risk has to be considered
- Banks will request a creditworthy counterparty or parent company (typically European utilities)

**Potential solution: the aggregator will provide a first demand guarantee**

- A guarantee covering 3 months of revenues is market standard
- 3 months is the expected time required to terminate the contract with the defaulting aggregator and to enter into a new contract with another aggregator

To be noted that the 2016 CfD decree provided for a last resort buyer mechanism. However, it is understood that this mechanism will be complicated to be implemented. It is not taken into account in the banks risk analysis

# 3. Bankability of the French CfD

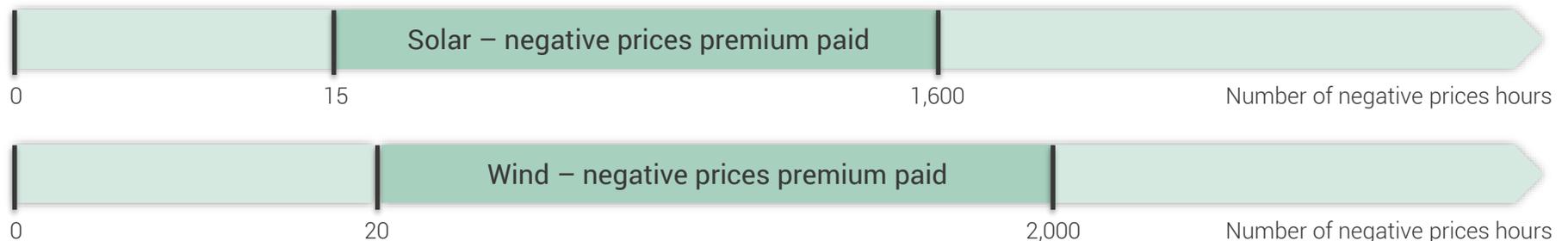
## Negative market prices risk (1/2)

When electricity prices are negative, projects are not paid a feed-in premium

- The incentive not to produce is very strong as this is applied from the 1<sup>st</sup> hour of negative price
- This directly penalizes the power producer but aims to rebalance the market rapidly
- As a comparison, projects in Germany do not receive CfD from the 6<sup>th</sup> consecutive hour of negative price

Project may receive a negative prices premium if they stop producing during these periods

- This compensation is paid from the (i) 15th and (ii) 20th hour of negative price in a civil year for (i) solar and (ii) onshore wind projects respectively
- However, the number of indemnified hours is capped so that highly producing projects do not get any compensation
- This cap is set as 1,600 FLHs per year for solar projects and 2,000 FLHs for onshore wind projects



Given the production cap to receive the negative prices premium, we do not consider any compensation for most of projects

# 3. Bankability of the French CfD

## Negative market prices risk (2/2)

### The negative prices risk fully remain within the project

- An hour of negative price directly entails a loss in revenue if the project stops producing. If it does not, the aggregator usually requires the project to pay a financial penalty

### Lenders request long term forecasts of negative price hour per annum from an independent advisor

- Analyses differ dramatically between advisors, from 15 to 300 hours lost per year
- Technical advisors offer that service but usually from external consultants, which banks tend to dislike
- Banks prefer merchant advisors (surprisingly the most optimistic thus far)

### How the base case is changed from this new risk structure (Green Giraffe proprietary home made secret)

- The debt is sized on the basis of a reasonable number of negative prices hours curve
- During the project life, if in a given year the project materially deviates from the original forecast a lock-up is triggered
- If the lock-up is activated for more than 2 years in a row, the amount on the lock-up account will be used to prepaid the debt to restore the project LLCR (pro-rata cash sweep)

We consider negative prices to be the main risk for projects under French CfD



Debt



Equity



Strategic

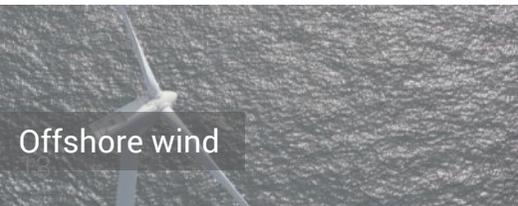


Contracting



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Offshore wind



Onshore wind



Solar power



Other renewables