



Financing floating offshore wind projects

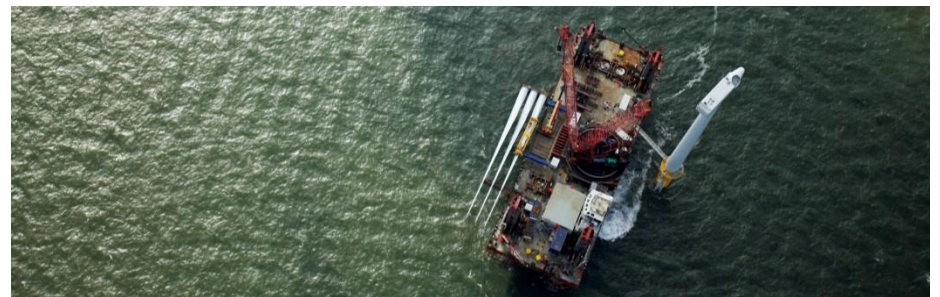
Floating Offshore Wind UK – 30 November 2018

Clément Weber

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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



Close to **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 with a burgeoning presence in the Americas and Africa in addition to Europe
- Priority given to **getting the deal done!**

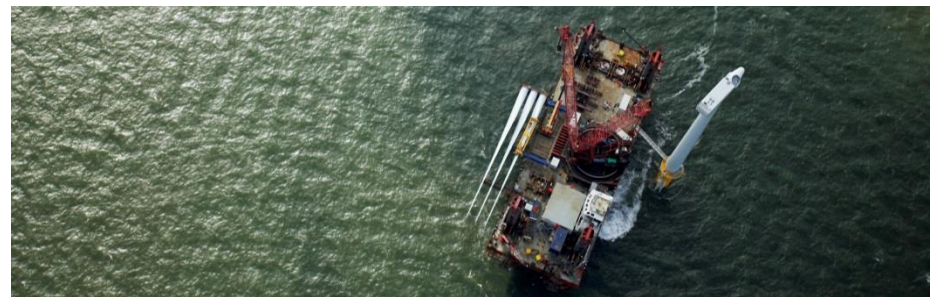


Involved in over **100 renewable energy projects** with a total capacity of ca. **25 GW**

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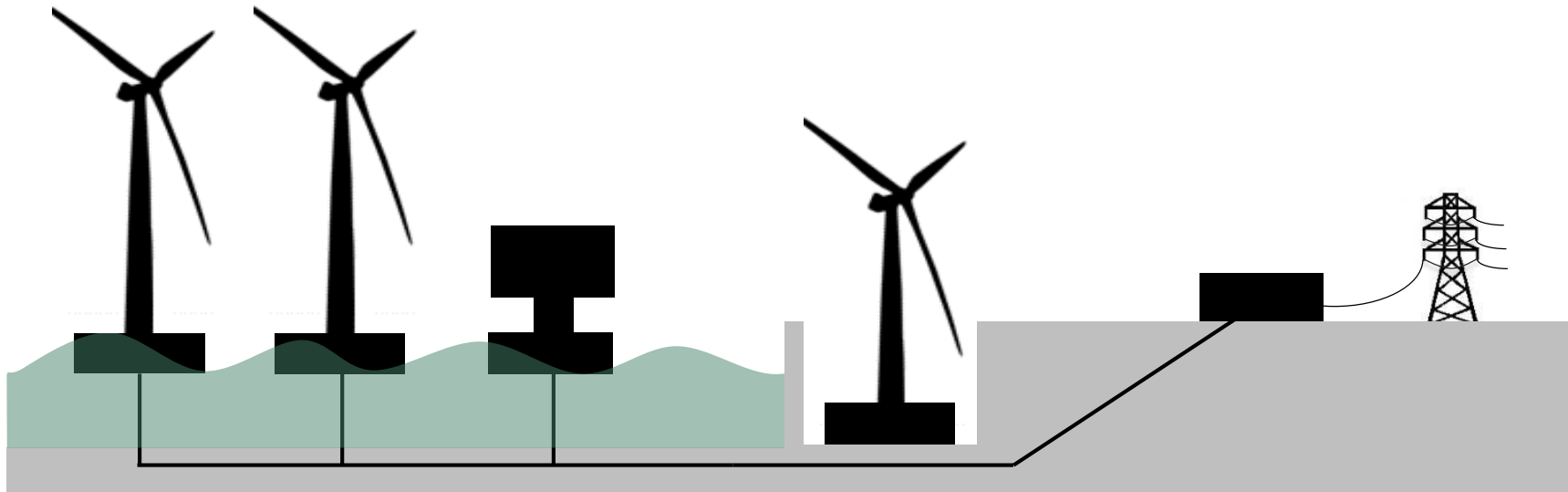
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2. Floating wind at a turning point

Having reached technical maturity, floating needs now to demonstrate commercial viability

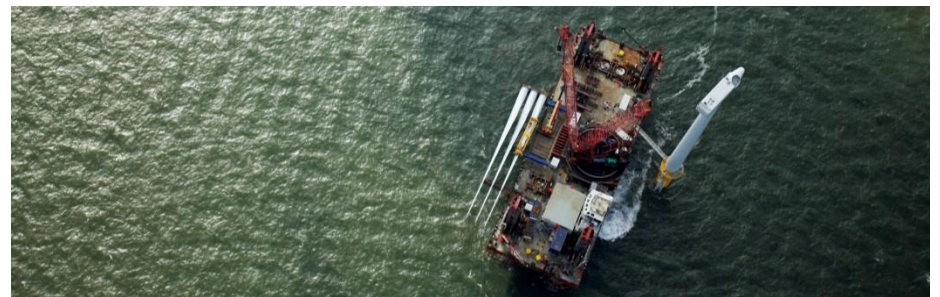
- Large scale prototypes have been in operation for several years, some decommissioned, and demonstration continues for new foundation concepts (barge, tension-leg-platform, integrated turbine)
- The first array of floating wind turbines has been operational for several months, and several pilot projects of few turbines are expected to be connected to the European grid in the coming years (FR, PT, SP, UK)
- Large scale farms for hundreds of MW are under serious development across the globe (KR, TW, US)
- New national plans for sites and regimes specific for floating may soon be launched by governments (FR, JP, NO, TR, UK, US)



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3. The equity market – how projects are financed

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

Large projects are typically developed through a stand alone project company

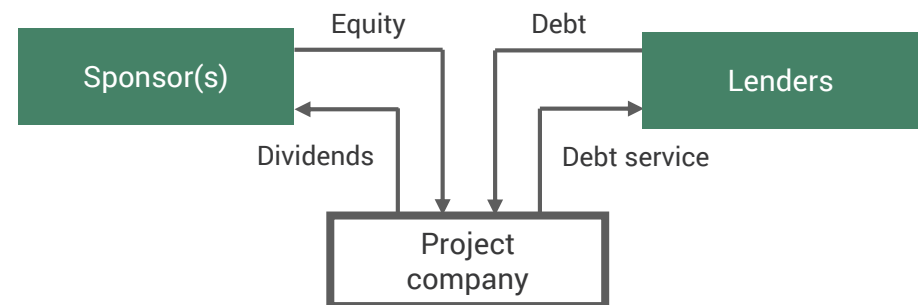
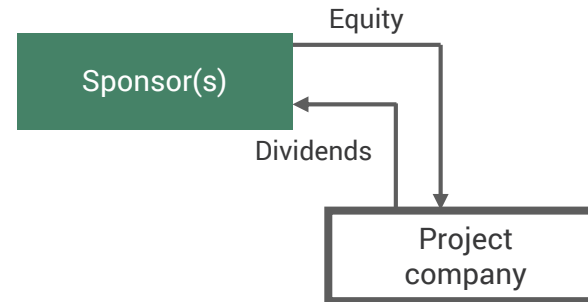
- Owned by the project investors
- With its own revenues & balance sheet and thus the ability to raise debt on its own merits

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

3. The equity market – early development

Focus on the early development stage

Early stage projects with development risk generally see low transaction values

- As a general principle: early stage projects with development risk are not valued on the basis of expected future cash flows because these cash flows are regarded as highly speculative, instead projects are valued on a ratio per MW
- Though floating projects economics are less known and more uncertain, the same principle is applied
- However investors will negotiate the value based on their view of the 4 major following risks
 - Offtake: PPA secured and/or benefits from a contract for difference (CfD)?
 - Grid: connection obtained?
 - Permitting: free from any claims?
 - Design: certified and/or track record?

More than 5 floaters being tested now so the design risk is the main critical element. However, there is still a strong appetite for projects being developed now

- Many players have missed the opportunity to be active in the fixed foundation offshore wind market. They now see floating wind as an opportunity to take part in a market that won't be restricted to a few European countries
- First successful projects will attract cheap capital, and sponsors will then be able to deploy their development pipeline

3. The equity market – the different profiles

A selected group of investors with different appetites for development and construction risk

Investor	Early dev.	Late dev.	Constr.	Notes	Samples
IPP	Yes	Yes	Some	Actively involved from early stage, looking for potentially higher returns. Flexible & pragmatic co-developers	Eolfi, Progression Hawaii, Quadran, Trident Winds
Trading house	Yes	Yes	Yes	Some actively involved. Others considering investing. In alignment with Japanese gov. strategy for floating wind	Hitachi, Marubeni, Mitsubishi
Utility / Oil & gas	Yes	Yes	Yes	Several involved, sensing large scale potential. Want active role. With conservative assumptions & long term plans	CGN, EDF, EDPR, Engie, Repsol, Statoil
Private equity	Maybe	Yes	Some	Looking for multiple returns, but timing can be an issue. Active involvement in the late dev. phase with likely an early exit	Masdar, Meridiam
Financial investors	No	Maybe	Yes	Looking for high returns, so could be interested, but will need comfort with the technology, so will likely seek investment partners	Caisse des dépôts
Civil & offshore contractors	Maybe	Yes	Yes	Can provide funding to support projects & secure pipeline. Want perspective on exit after COD	ACS, Aker, Bouygues, Eiffage, Saipem, Siem, Toda

3. The equity market

Some degree of appetite for early deals

Industrial investors will dominate the early projects

- Utilities interested to test a new market segment
- Oil & gas companies looking to enter into the renewable energy sector, making use of their competence in offshore structures
- IPPs looking for the “next new thing”
- Small developers – if they can find the early development equity
- A few private equity players who want to take advantage of projects which are first-movers

Strong political support required

- Outright funding required for early projects (demonstrators and pilot projects), in addition to a specific tariff for power
- EU programmes (via EIB or otherwise) can contribute

Lateral investments also required, which require public support or at least encouragement; these are needed to

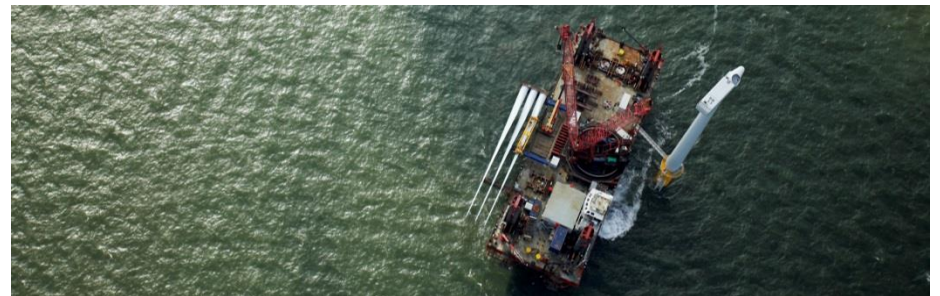
- Foster technology advancement
- Improve the coastal infrastructure capacity, and
- Support, where relevant, the necessary onshore grid upgrades and transmission extensions

With the 1st array in operation and more to be connected, investors are actively looking at FOW

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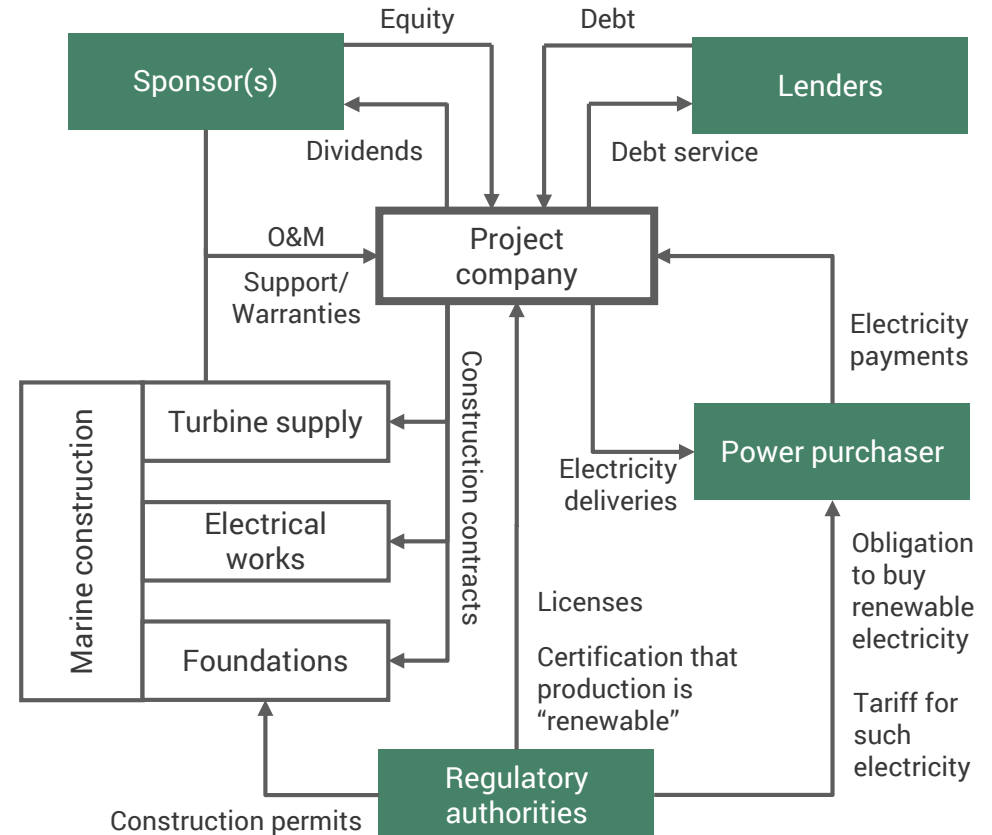


4. The debt market – how projects are financed

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 contracts)
- O&M contracts
- Financing documents



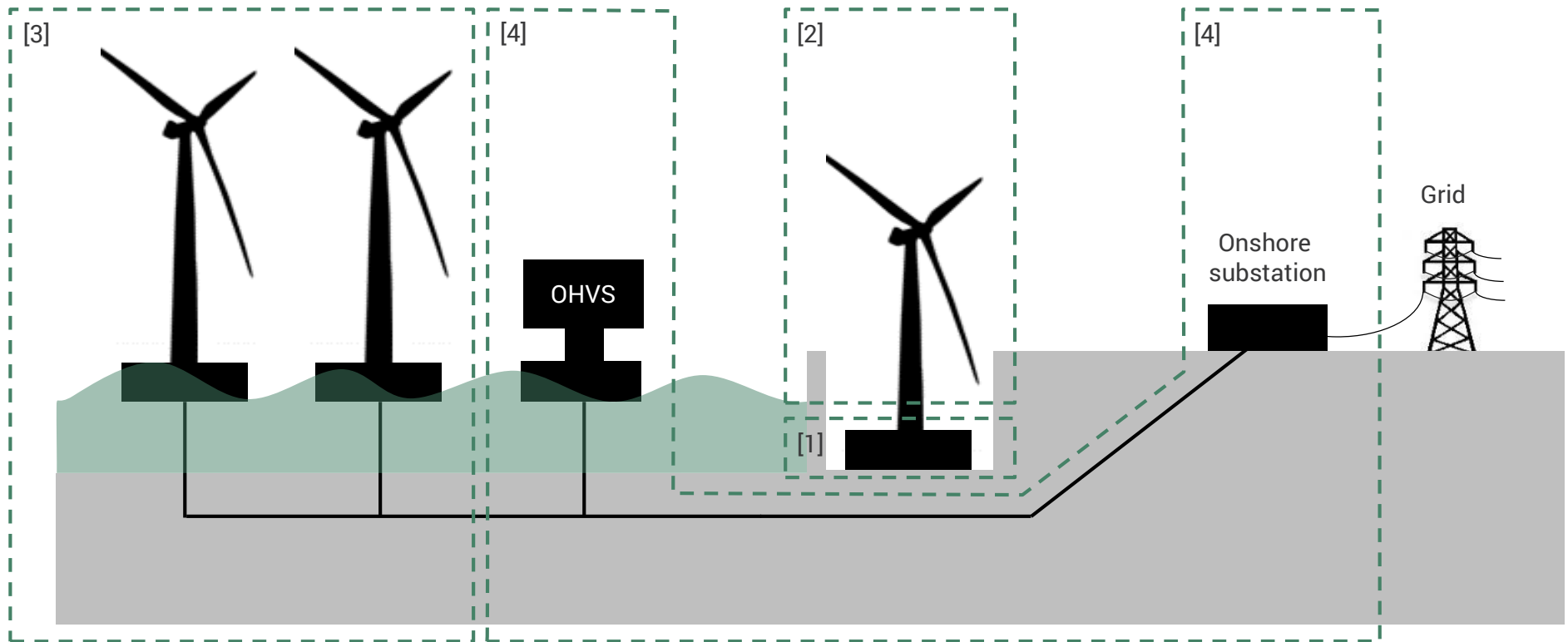
Offshore wind is a quintessential example of a comprehensive contractual structure

4. The debt market – contractual structuring

Built on the fixed-bottom offshore wind experience with technology-specific adjustments

With pricing based on lump sum contracts, preferred structuring is for a low number of contracts (3 or fewer)

- Though scope can also be divided in more contract lots: [1]. foundations, [2]. WTGs, [3]. offshore services, [4]. export system
- Or be wrapped up in few (2) EPCI contracts (likely [1]+[3]+[4] and [2])



4. The debt market

Debt could be raised for the first commercial projects

The players

- By necessity, public financing institutions such as BPI, EIB and EKF will need to play a strong role
- Some commercial banks should be willing to finance early projects with the right parties and structure

The terms

- The early deals will naturally have conservative debt terms compared to traditional offshore wind
- A key requirement will be to have lower leverage – we would expect 50:50 or 60:40 to be a reasonable target for early projects
- Pricing will be above offshore wind, but likely not by that much (50-100 bps premium)

The other requirements

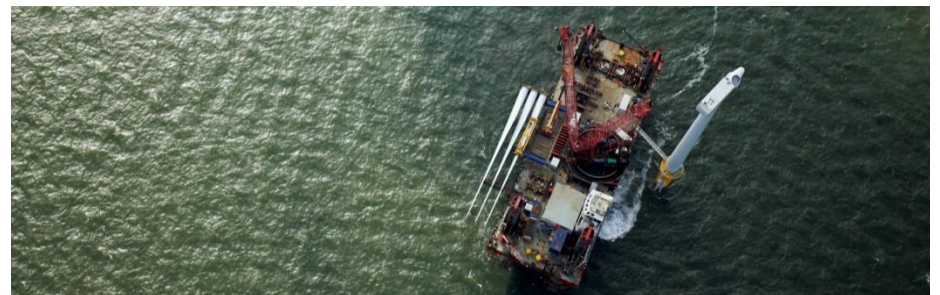
- Specific due diligence will be required on the items which are new to lenders (e.g. interaction turbine-floater, dynamicity and dis/connectivity of electrical cabling, mooring and ballast systems, floating offshore substation, tow-to-shore maintenance)
- Availability guarantees (for both the turbine and the substructure), together with the power curve warranty, to be discussed extensively (with strong commitments from the floating technology provider)
- Ample contingency budget, both for construction and for maintenance
- Focus on transparency, availability of track record (when available), design certification and strength of counterparties

Debt terms will not be aggressive, but should still help investors

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5. Conclusion

Funding is available, but will be subject to strict conditions and realistic LCOE expectations

The most advanced technologies will be the first to be financed

- Those with full scale prototypes already installed, and with a satisfactory operating track-record
- Project sponsors will need to make the effort and take the time to educate financiers on this new technology
- Terms will be guided by market precedents, to the extent they are applicable

Extensive due diligence and contractual requirements

- Transparency regarding the technology is critical
- Technical advisors trusted by the financiers should be involved early
- Thorough risk assessment and management process are paramount
- The contractual structure should be adapted on the corporate strength of the technology providers
- Specific focus on the experience of the supply chain and development team

Different players for different stages

- Venture capital for technology development financing
- Private equity and developers for early projects
- Infrastructure funds and PF banks for larger projects

You can raise financing if you target the right providers and meet their requirements



Debt



Equity



Strategic



Contracting

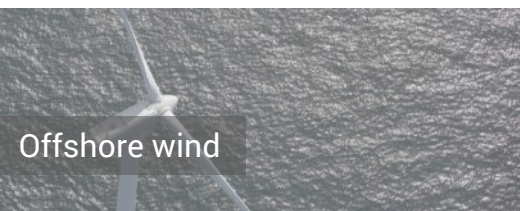


Green Giraffe

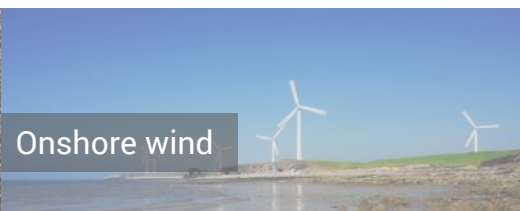
The renewable energy financial advisors

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Offshore wind



Onshore wind



Solar power



Other renewables