



OFATE – DFBEW

Onshore wind financing landscape in France and Germany

12 November 2019

Green Giraffe – We provide a wide set of services and skills

Specialised financial services to renewable energy projects and investors

Debt and M&A advisory

We design and execute the most suitable financing structure, or provide independent valuations, based on project characteristics and market conditions. We ensure contracts are bankable, project economics work, and the transaction successfully closes. We know most lenders & investors, and their preferences



Development, contracting & PPAs

We help your project achieve critical milestones (permit, tariff) and support you during business plan development, and contract structuring and negotiation, including bankable PPAs, whether with utilities or corporate buyers



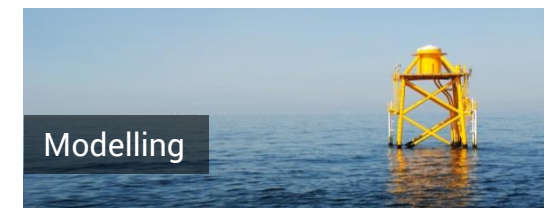
Strategic & tenders advisory

We provide benchmarking services, reviews of regulatory frameworks, analysis of market developments, and offer full-fledged support to bidders for tenders. We know the latest market insights, terms and conditions on corporate and contractual structures, debt and equity deals, participants and commercial terms



Modelling

We offer a full suite of standalone modelling services: review of existing models, implementation of sensitivities or design of new models from scratch



Green Giraffe – The renewable energy finance specialist

An unparalleled track record in successfully closing deals for our clients



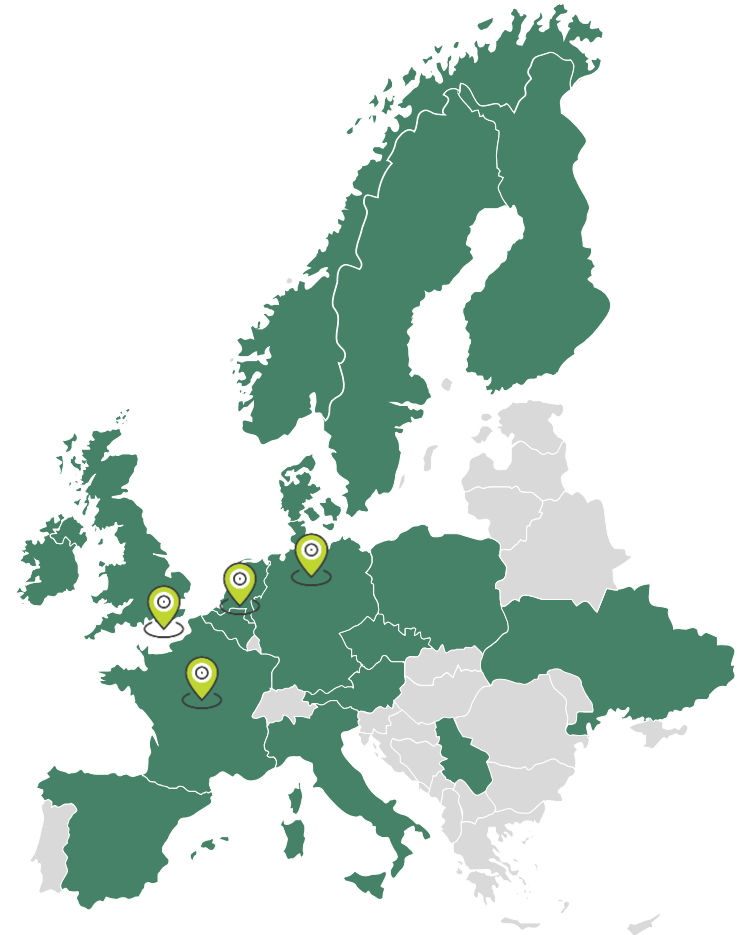
Active in **46 countries**, including 18 in Europe



Close to **EUR 25 billion** funding raised for renewable energy projects in **9 years**



Involved in over **150 renewable energy transactions or projects** with a total capacity of circa **35 GW**



 Green Giraffe office

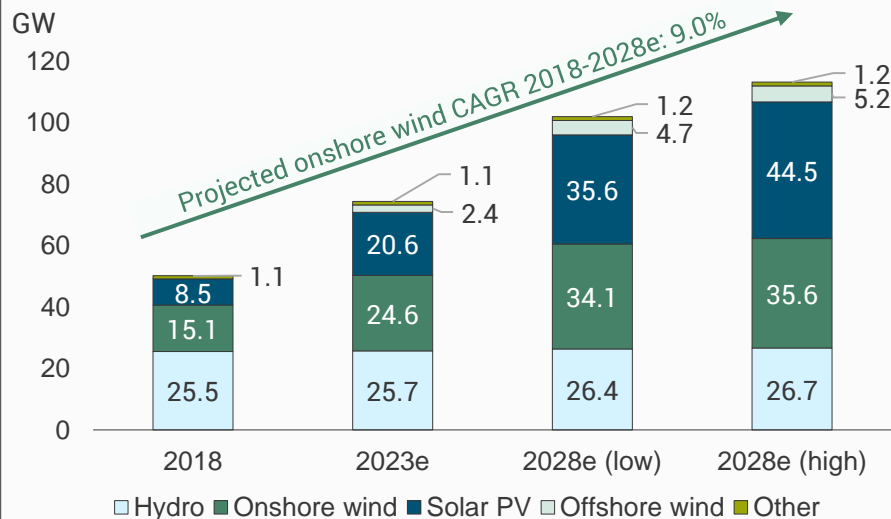
French onshore wind market

Positive momentum for the French onshore wind sector

Ambitious political agenda for renewable energy

- Strong and stable macroeconomic fundamentals, supportive political dynamics for renewable energy
- Three onshore wind regimes providing production diversity
- The recently enacted PPE aims at doubling the share of renewables in electricity generation to reach 40% by 2030

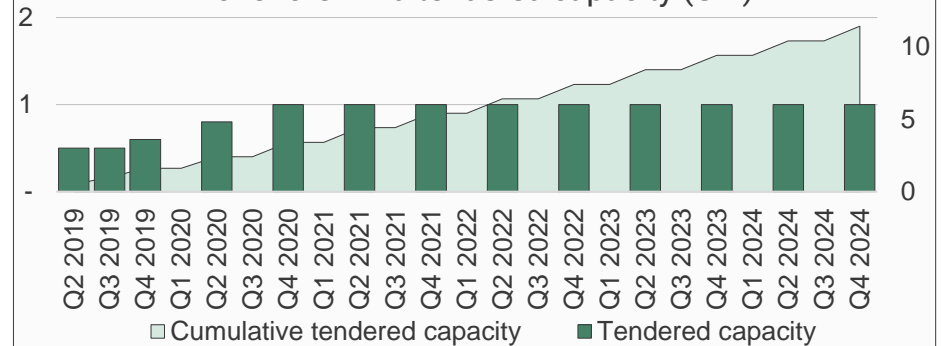
Planned renewables installed capacity increase (PPE)



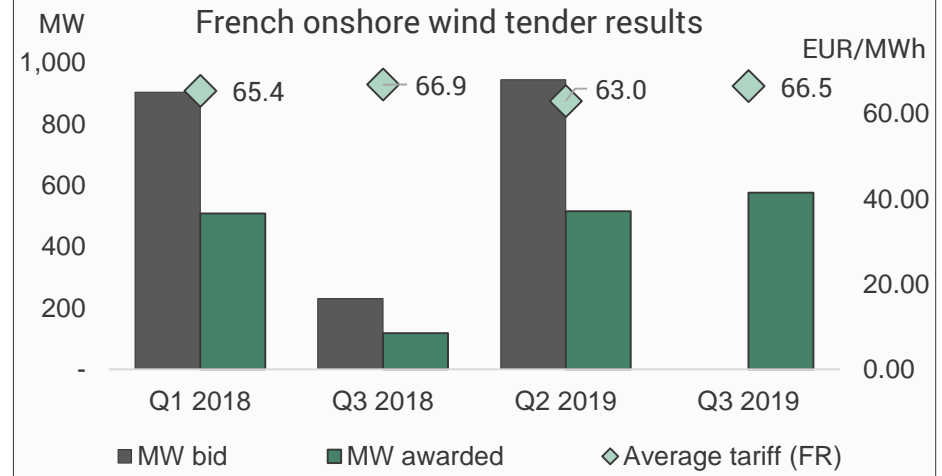
Source: 2019-2028 Programmation Pluriannuelle de l'Énergie (PPE)

Strong market fundamentals for onshore wind

PPE onshore wind tendered capacity (GW)



French onshore wind tender results



Source: CRE, Bundesnetzagentur

French onshore wind market

Since 2016, the contract for difference has replaced the feed-in-tariff support mechanism

The operator receives a feed-in premium from EDF OA, calculated ex-post, topping-up the sale of electricity on the wholesale market or to an aggregator

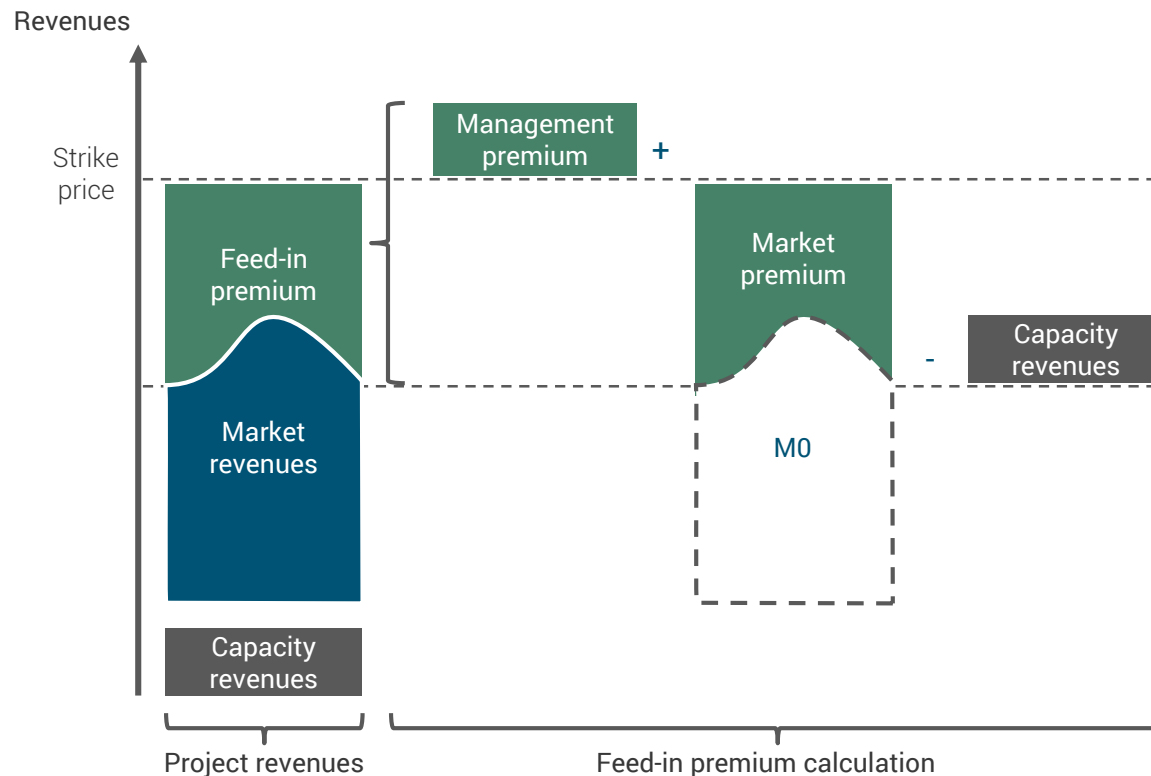
The feed-in premium is calculated as

The sum of

- **Market premium**, difference between the strike price and the MO (the monthly average of market prices in the sector)
- **Management premium**, compensation for the costs of direct marketing

Less

- **Capacity revenues** (except for projects under a tender CfD) received separately to remunerate the ability to generate electricity during peak-demand periods



Sources: Official decrees

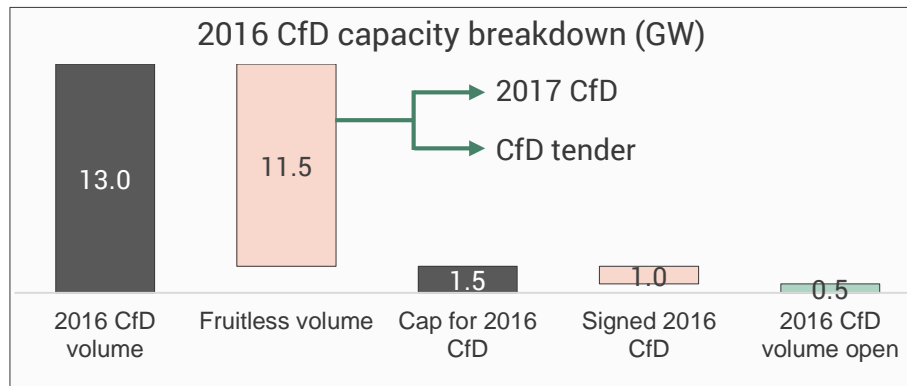
French onshore wind market

11.5 GW pipeline to fall out of 2016 CfD

A total of 13.0 GW of onshore wind projects had applied for a 2016 CfD with signing pending (at mechanical completion)

DGEC confirmed early October that only the first 1.5 GW of projects will be able to sign their 2016 CfD (EC notification)

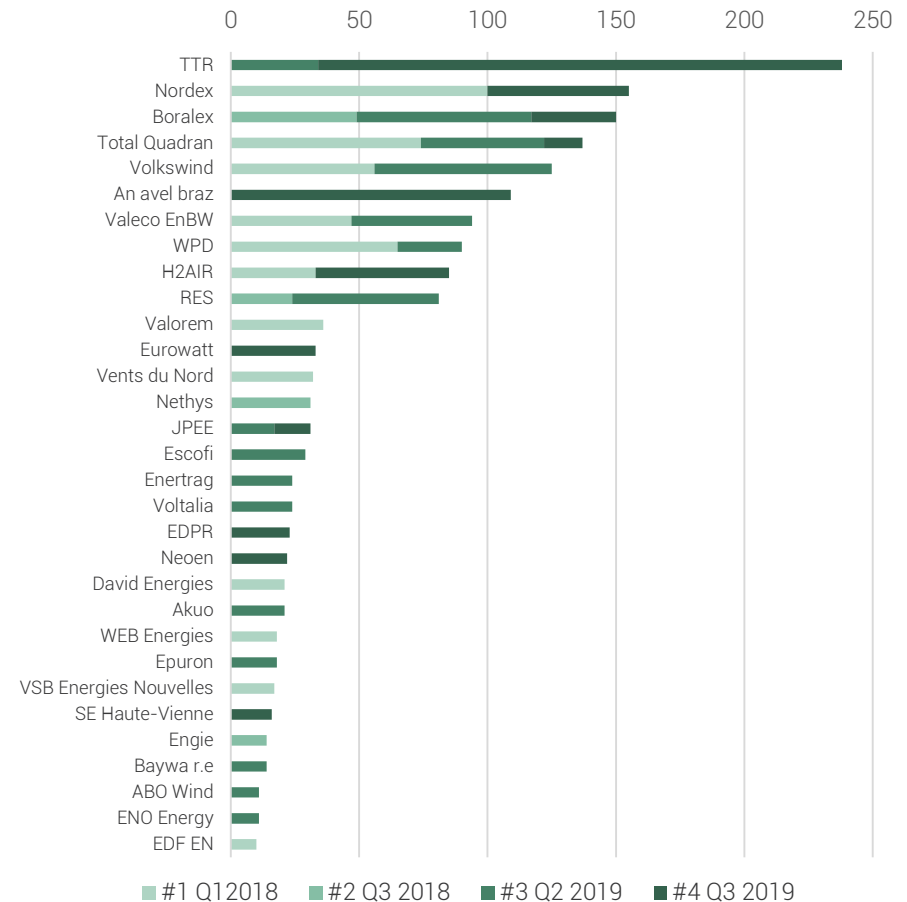
- ca. 1.0 GW of projects already signed their 2016 CfD, leaving room for only the first next 500 MW of projects
- Amongst the 11.5 GW that will fall outside the 2016 CfD scheme, some will look for 2017 CfD and not all others are expected to bid into the upcoming tenders as some permitting/procurement work is still needed



Source: Green Giraffe

Developers/IPP's still dominate tenders

French onshore wind tenders (MW)



German onshore wind market

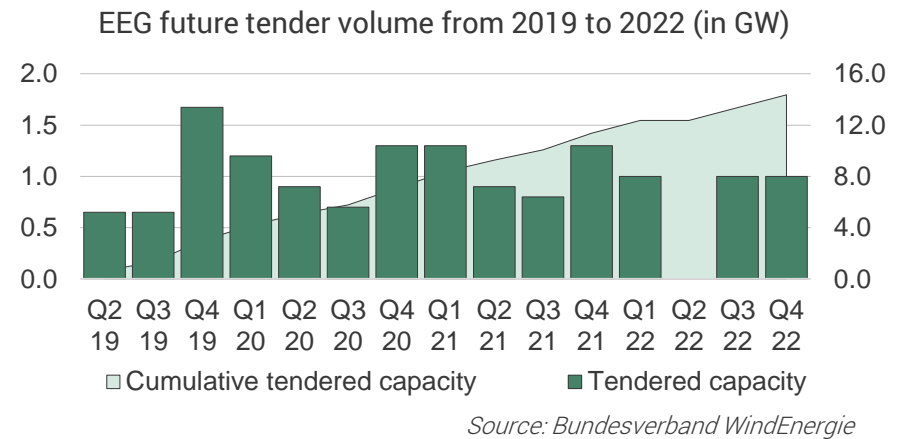
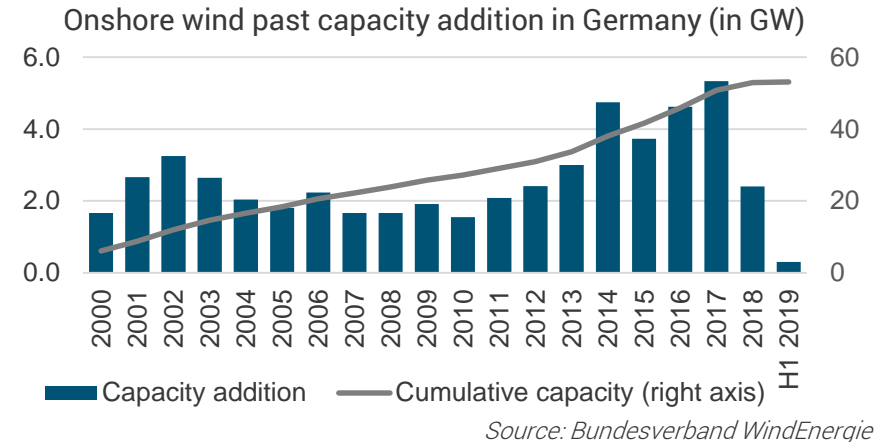
German onshore wind market snapshot

Local and small developers have been the most active in the past decade and shaped the German onshore wind market

- Many projects were developed by local communities, farmers and other land owners ("Bürgerwindparks")
- The sharp decrease of costs combined with the introduction of auctions in 2017 led to an increased competition
- The decrease of developers' returns pushed them to look for new drivers of growth and to develop internationally

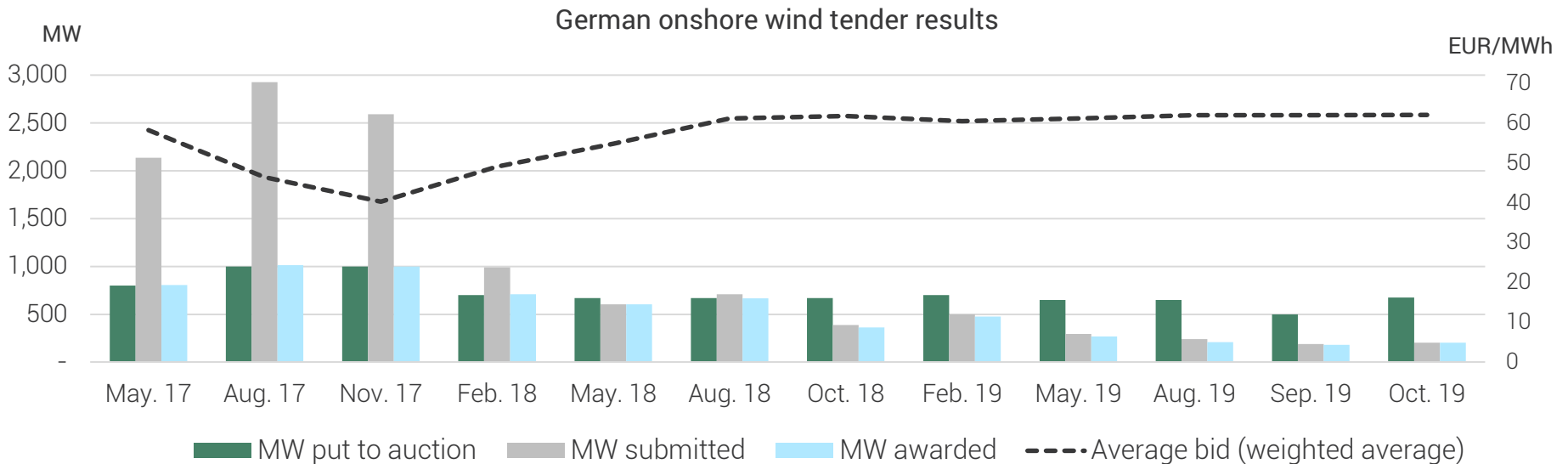
German developers are now facing new challenges

- Developing internationally comes at a cost and local lenders and investors are not always able to fund the projects abroad
- Amidst concerns around land scarcity and increasing number of appeals against projects, the high new capacity addition in 2018 and 2019 hide disappointing auctions
- The end of the EEG tariff for the first operating projects and the pipeline of stranded projects is increasing



German onshore wind market

Success of tenders is at risk since 2019



Source: Bundesnetzagentur

After promising and heavily oversubscribed auctions in 2017, the pace rapidly decreased to reach a worrying level in 2019

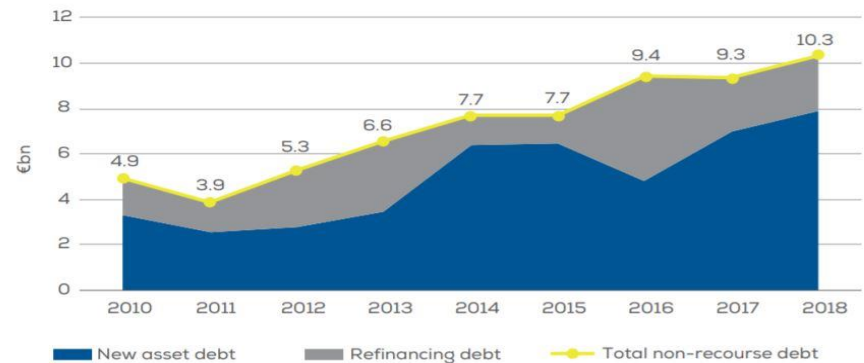
- When 2 GW of projects were bidding in each of the three auctions in 2017, less than 500 MW have bid in the last four auctions
- The absence of competition in 2019 led to bid price stabilizing close to 62 EUR/MWh, i.e. the maximum price allowed
- Germany would have accumulated a backlog of 11 GW of stranded projects according to public sources
- Decision makers are calling for an update of the spatial development plan and unlocking of permitting hurdles

Senior debt market trends

How we see the current debt market for onshore wind assets with CfDs

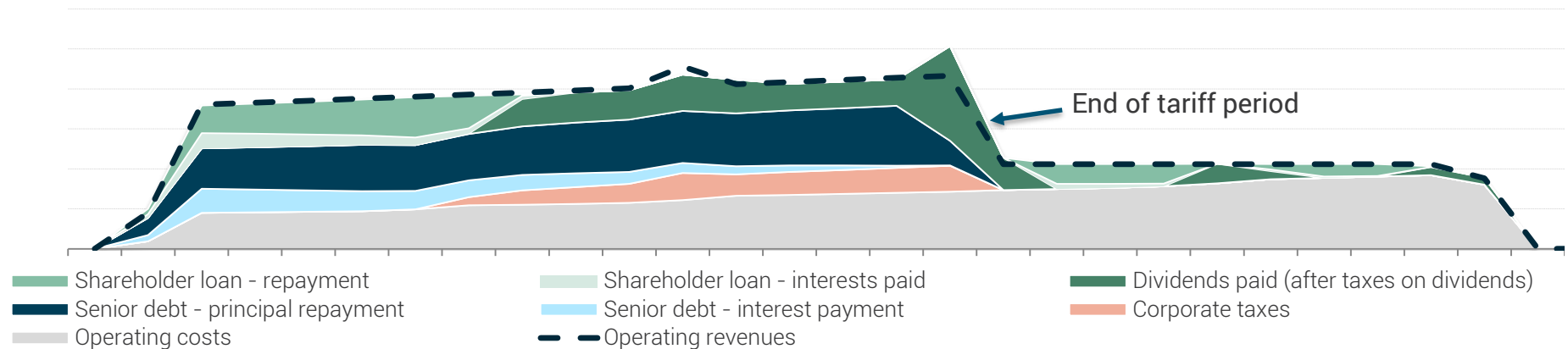
	Germany	France
Margin	85–95 bps	105–115 bps
Sizing min. P90 DSCR	1.15x–1.20x	1.15x–1.20x
Max. gearing	90%	90%
Debt tenor	CfD + 3 years	CfD + 3 years

Non-recourse debt financing in European onshore wind



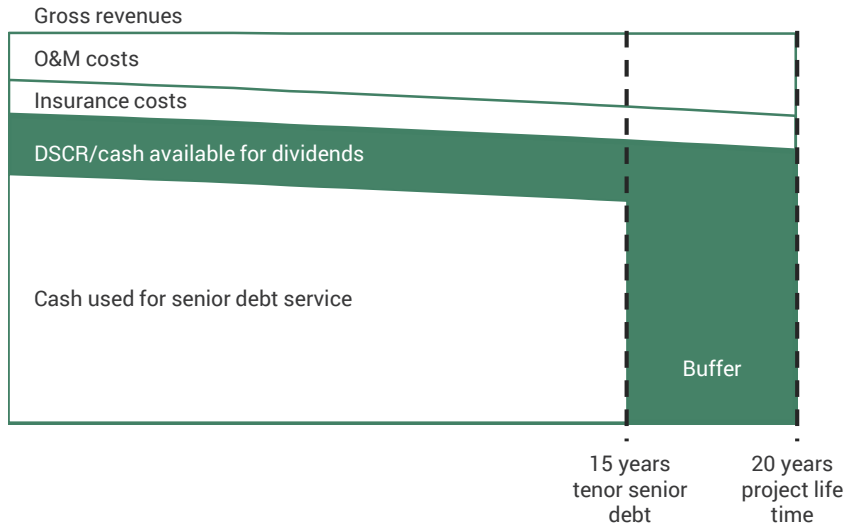
Source: WindEurope

Typical project cashflows for debt financed onshore wind assets with CfDs



Senior debt market trends

Revenue side constraint – Low/no tariff

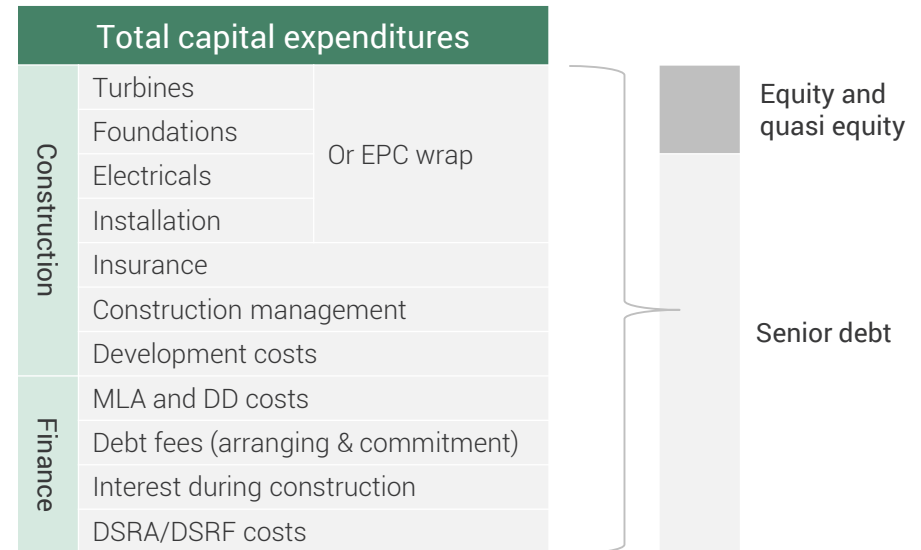


P90 DSCR constraint on fixed-price revenues: 1.15x–1.20x

- No or very limited price risk on revenue side
- Net availability number in the 95-97% range
- Contracted O&M & insurance cost assumptions

Higher DSCR constraint for merchant price revenues

Capex constraint – Current tariffs



Debt : Equity < 90:10

- No tolerance for junior debt mechanisms
- General preference for equity to be paid upfront

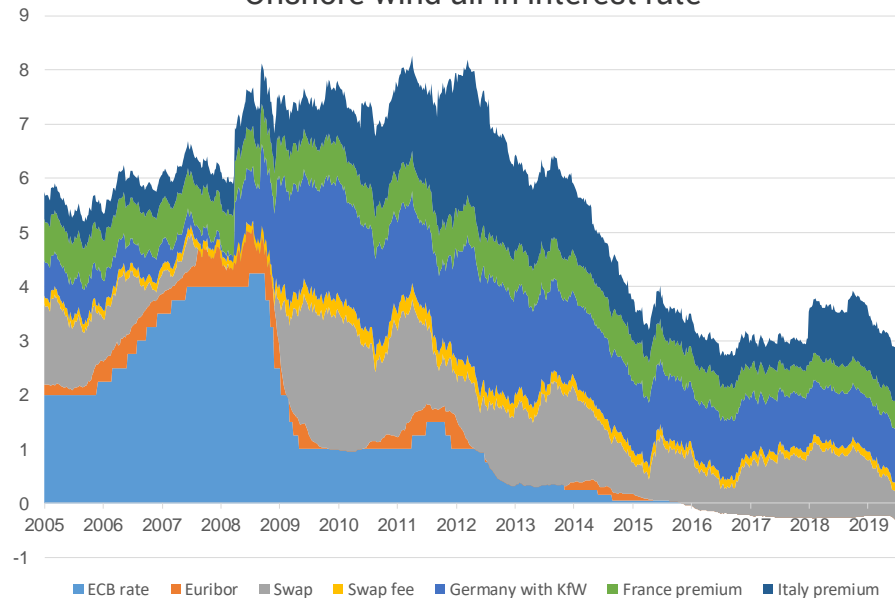
Senior debt market trends

All-in interest rate is plummeting

All-in interest rates have decreased since 2014

- Were relatively stable until 2014, base rate and margins being compensated by ECB rate
- Have decreased since 2014 to an all-time low today
- Onshore wind risk margin remained around 70 bps

Onshore wind all-in interest rate



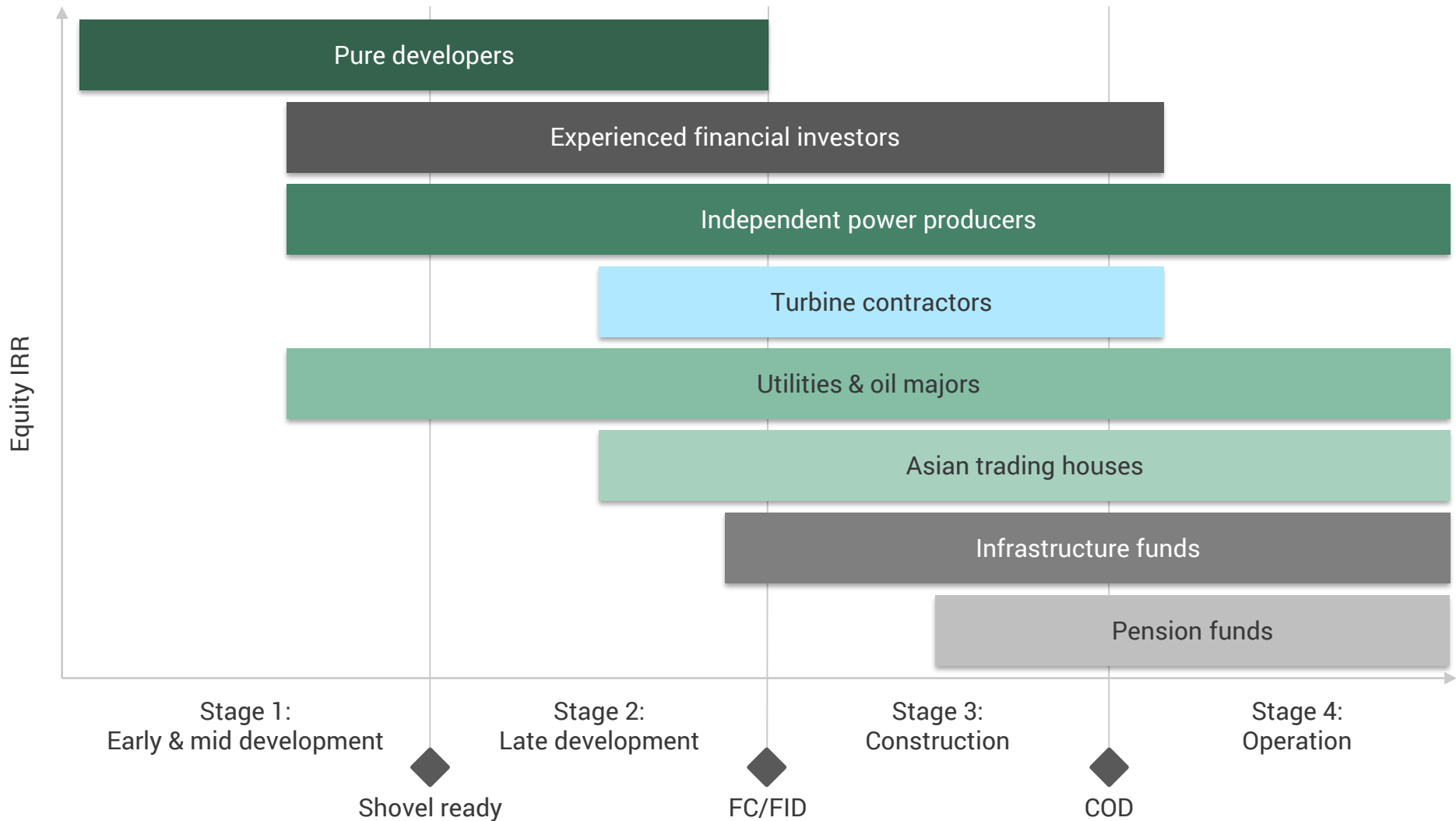
Source: BloombergNEF

Active lenders

	Germany	France
Small projects < 30 MW	Landesbanks Sparkassen KfW funding program	French regional banks <ul style="list-style-type: none"> • CIC • CEPAC • Natixis Energieco • Crédit Agricole regional banks • Auxifip • Crédit coopératif German banks <ul style="list-style-type: none"> • Saar LB • Nord LB • Hamburg CB
Big projects > 30 MW	Commercial banks <ul style="list-style-type: none"> • CommerzBank • DekaBank • Unicredit 	French banks <ul style="list-style-type: none"> • Natixis • Société Générale • BNP Paribas • Crédit Agricole International banks

Project M&A market

Various investor profiles





Debt



M&A



Strategic



Contracting

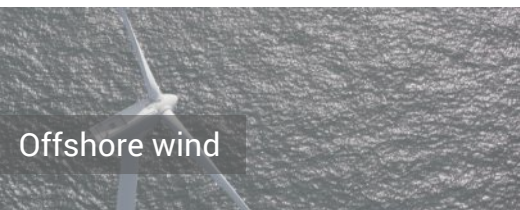


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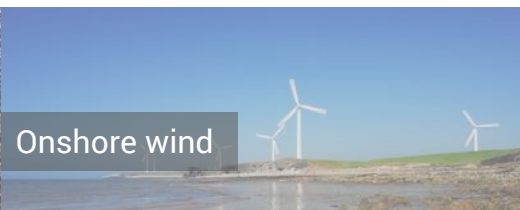
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Offshore wind



Onshore wind



Solar power



Other renewables