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Finance Quarterly

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What developers can
do to prevent delayed
and cancelled projects



Reframing the key issues

Insight, connections and communications for the global energy transition.



Editorial

BY CRISTINA BROOKS, ANALYST AND JOURNALIST

It's a time of change for the wind industry. From inflation driven by war in Ukraine to new EU power market rules, wind investors are looking over a cliff edge as old practices come under pressure from rising costs.

Last year's inflation was one reason EU wind turbine makers' bottom lines sunk and their supply chains snagged.

Recently, rating agency Moody's predicted another "year of transition" for EU turbine OEMs before the US Inflation Reduction Act and EU decarbonisation policies kicked in, allowing OEM's credit metrics to improve in 2024.

Ultimately, EU wind turbine makers' business will pick up as much of the West moves to reduce reliance on Russian energy, according to the agency.

But we still have 2023 to get through. One way out of this quagmire is tweaking many contracts and agreements.

In the UK, some developers that won offshore wind farm subsidies in auctions are looking into ways to adjust contracts. They say that it will be difficult to follow through at the prices originally agreed and some are reportedly seeking tax breaks.

Adding to the call for more price flexibility in auctions, trade body WindEurope urges more strongly index-linked contracts.

Meanwhile, wind turbine OEMs are aiming to link the prices agreed in wind turbine contracts to commodities beyond steel: copper, nickel and fuel.

But even if manufacturers improve contracts, higher turbine prices will not immediately boost their bottom lines. Lead times of up to two years in on-shore and six years in offshore mean they will not instantly see the upside, according to Moody's.

Others are feeling the pinch of old ways in this brave new world. UK-based association for the global marine contracting industry IMCA in February issued updated Renewables Contracting Principles, highlighting issues with contractors being hit with what it called "unrealistic expectations" around capital costs and risk-sharing.

For example, IMCA suggested developers agree to compensate contractors for certain delays and bear certain project risks.

A similar shift took place in the oil and gas industry years ago. The IMCA hyped "the development of a suite of standardised contracts and more collaborative risk-sharing ways of working" to likewise drive costs down and let new wind projects move ahead.

Likewise, we hear advisors warning that developers and wind turbine manufacturers must soften their tone and find ways to "share the pain."

Kasra Jamshidi, Founding Partner of Danish offshore wind project management consultancy Naver, notes on page 7 of this issue that OEMs' need to raise prices is affecting developers' returns. He says that collaboration on sharing risk-related costs is key to getting the industry through these rough waters. ■



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Wind turbine OEMs battle supply chain risks

Concerns have grown for Western wind project sponsors as for two years they have watched turbine parts arrive late to sites and commodity prices soar.

Some European turbine OEMs have struggled to deliver. Shashi Barla, Head of Renewables Research at Danish advisory firm Brinckmann Group, explains that European turbine manufacturers balked at costly logistics during a surge of post-pandemic demand in 2021.

"In markets like Latin America, the US or Australia, there are many projects that were delayed during the COVID times due to raw material and component shortages, higher logistics costs, higher installation costs, and COVID restrictions during turbine installations," he notes.

Barla says the problems worsened last year as European turbine manufacturers were hit by high prices for a second time. The knock-on impacts of high fuel prices after Russia's invasion of Ukraine meant their combined supply chain, commodity and logistics costs respecting onshore wind turbines increased 40-50 per cent in the eight quarters ending Q4 2022.

At the start of this year, European turbine OEMs remain stuck in the middle, saddled with penalties for non-delivery from developers on one side, and wrangling with their suppliers and shippers over costs on the other. "They

are threatened by the developers because they could not simply get the delivery of the components because the component price has increased dramatically," says Barla.

"The turbine OEMs could not supply the components or turbines in time, and the developers have to pay penalties to the grid operators or the energy regulators, with whom they have secured the projects in auctions. I know of certain projects that were delayed, and the developers are threatening the turbine OEMs with court cases," says Barla.

Sometimes in markets like Australia where turbine OEMs enter into turnkey contracts, projects are delayed due to a lack of grid connection. Barla says, "This is no fault of turbine OEMs, but they still end up paying penalties to developers due to the lack of electrical commissioning of turbines. I don't want to cherry-pick the projects, but I know several projects that were delayed in Europe, Brazil, Chile or Australia."

Even in the best of times, OEMs charged with shipping 85-metre-long 7MW onshore turbine blades face a challenging task. "In Europe, if you think about some of the large-scale

projects in Scandinavia, we are talking about hundreds of megawatts size, these projects warrant longer blades and taller towers," Barla explains, adding, "That is good from an energy yield perspective. However, these new technologies also bring in other challenges such as logistics, which are a nightmare."

Developers have noticed not just the delays, but higher costs for turbines. "Offshore prices are going up, but not to the same extent as onshore," says Barla.

Kasra Jamshidi is a Founding Partner of Danish offshore wind project management consultancy Naver, advising both wind turbine OEMs and developers.

Jamshidi points out that Iberdrola's US subsidiary Avangrid Renewables has flagged supply chain issues as a reason for its two-year delay to two offshore wind projects, 804MW Park City Wind and 1.2GW Commonwealth Wind. "As things look today, one observable trend is that projects are being delayed or cancelled until the market stabilises and all parties involved find a way to become profitable," says Jamshidi.

Steel the commodity to watch

In the pandemic era, demand for global logistics was disrupted. Global ocean freight rates hit an all-time-high in 2021.

In the second quarter of last year, European turbine OEMs faced continued worries about the high price and low availability of logistics. The European contract road freight rate index reached an all-time high, partly because diesel prices rose amid the war in Ukraine, and US freight rates rose 28 per cent year-on-year.

So far, this year's silver lining is lower logistics costs. Western ocean and road freight rates are on their way down as markets, fearing recession, put on the brakes.



But volatility in the price of fuel continues to worry European turbine manufacturers across the board after a US ban on Russian fossil fuel imports in March 2022 hiked oil prices, and Russia-EU tensions coincided with cuts to cheap Russian natural gas supplies.

"We are not yet out of COVID, and we have commodity price inflation, where a number of goods were hit by Russia's invasion of Ukraine and this energy crisis. It's like one after the other," Barla said, adding, "If you just look at the example of 30 per cent of Europe-

an gas that used to be imported from Russia, that decline has had a significant effect on the overall prices of commodities."

Benchmark crude oil futures saw a 6.3 per cent price spike the day after a production cut announcement by OPEC+ on 3 April, a possible sign of more inflation to come. But debates are raging over whether the price spike will last. At the start of the year, benchmark Brent crude oil prices appeared to be on their way back down to pre-invasion levels.

Energy markets in Europe remain nervous. The EU's strained access to Russian natural gas supplies in August briefly impacted the price of diesel as natural gas is used in diesel refining, according to Argus.

Steel, which makes up 50-60 per cent of turbine cost, is the commodity to watch in 2023.

Further, the EU in December declared a full embargo on Russian imports of diesel. As diesel is needed for transporting goods, higher-cost diesel could lead to higher costs for goods bought or transported in the bloc.

OEMs are now most worried about the commodity input costs of wind turbines, says Barla. He points to the price of flat hot-rolled steel plates in particular, followed by the price of carbon fibre used in wind turbine blades, which increased dramatically throughout 2022 before flattening out. "One of the exposures with the turbine itself, as it makes up the majority of the turbine, is steel. You've seen steel prices fluctuate throughout 2022, and that has an effect on the turbine pricing," says Barla.

Steel, which makes up 50-60 per cent of turbine cost, is the commodity to watch in 2023, but high uncertainty and volatility has reportedly prevented some analysts from forecasting.

Steel prices had tripled to three times their usual level during the pandemic, and Russia's invasion led to another spike. It saw steel prices rise by \$500 per ton in Europe and the United States, before falling back below this level in mid-July, according to S&P Global. In the wake of the invasion, both the EU and US took action to prevent some Russian steel imports.

"Although [Ukraine] has largely stopped exporting, Brussels has not prevented imports of Russian slab due to the EU's dependence on this key raw material for the production of hot rolled plate," says Leo Rawlence, a steel broker based in the UK.

Lower steel prices in UK and Europe may be on the way, but not for long. "While prices have increased by 20 to 25 per cent for [hot rolled coil and plate] in the last six weeks to two months, I do not anticipate that this trend will last beyond the end of this quarter. It seems that volatility will persist in 2023 as supply chain disruptions, protectionism and environmental concerns or measures keep shifting the parameters of the global playing field," says Rawlence.

In September, the OECD Steel Committee expressed concerns over the need to prevent a potential steel crisis emerging in the short- to medium-term, worsened by not only rising energy prices but also a range of inflationary factors.

Steel prices are having an impact on OEMs. "Steel is competitive and still very elevated, so that still exerts pressure on the big turbine OEMs. For most of 2023 and also all of 2024 I'd expect that companies like Siemens, GE and Nordex would continue to report losses," Barla says.

Barla expects Danish turbine manufacturer Vestas may recover faster due to its premium price structure and cost controls.



Supply contracts add indexation

Wind turbine manufacturers in Europe are not standing idly by: They are pushing to add indexation mechanisms linking the price of commodities to the prices of turbines in supply contracts they sign with developers.

The mechanisms link to not only steel but also commodities such as copper, nickel and fuel. The move helps to safeguard their margins amid volatile pricing for raw materials.

It is thought that European OEMs are successfully ensuring the mechanisms are part of the contracts they are negotiating and signing now, says Jamshidi. "This is a direct consequence of the sudden hike in cost for such things which the OEMs have had to take the hit on because contracts up until this point didn't include such mechanisms.

"And by doing so, this then adds risk to the business case seen from a developer point of view, as they would then have to add further contingencies or find creative ways to hedge the risk to show the lenders that the risk is identified and mitigations are in place," he adds.

With respect to the typical offshore wind financing process, OEMs are taking the opportunity to leverage their

risk concerns with developers during the parallel discussions developers have with lenders on risk and IRR.

"Obviously, the OEMs play a major role in the developers' ability to hit their targets on the IRR and, at the same time, convince lenders that the risks of the project are capped within whatever mandate is given to the project by the lenders before they would accept to issue financial close and allow the project to proceed into execution," Jamshidi says.

Developers are focussed on several risks. They are concerned with OEMs' ability to deliver on the signed contracts without the need for re-opening lending terms, conditions or pricing, but they also need to make sure OEMs can continue to produce for expected market growth in the future, he says.

Markets have pushed the balance of power in favour of OEMs in the contracting phase as it has become a "supplier's market" where demand is higher than supply capability, whether due to OEM or commodity price issues, Jamshidi notes.

"The OEMs have been running with red figures for years. The shift in OEMs' risk appetite and the need for OEMs to raise their prices and introduce

indexation mechanisms has a direct impact on the achievable IRR for the projects in development today and the ability for the developer to say that all risks are capped," adds Jamshidi.

Developers and OEMs should collaborate more so that negotiations look less like a 'push risk away game' and more like a 'mitigate risks together game', he says.

Recent delays to projects and fewer wind turbine supply bids may serve as a preview of what markets would look like with fewer wind turbine manufacturers. "At present, the OEMs and their sub-suppliers' ability to become profitable remains the main objective for the entire sector ... If one or more OEMs fail in becoming profitable and therefore disappear from the market, the competition that is necessary to improve on technology and pricing is reduced, making projects less profitable and achieving the renewable energy targets nearly impossible," warns Jamshidi.



Outlook for Europe's OEMs

Hit by crisis after crisis, wind OEMs may finally have the spotlight. It seems like Western governments are taking some of the steps needed to help long-beleaguered OEMs survive.

European and American leaders promise to incentivise OEMs to build factories. The EU Commission has proposed a Green Deal Industrial Plan and EU Sovereignty Fund, while the US recently passed the Inflation Reduction Act. "It's certainly very encouraging to see that the industrial plan that encourages local manufacturing with components," Barla says of the EU effort.

"The most important thing besides the cost is the demand itself. If there is enough demand, you could still make decent margins by producing in high-cost markets like Europe."

Shashi Barla, Brinckmann Group

Appealing to regulators, Spanish-German turbine OEM Siemens Gamesa published a paper proposing inflation compensation in state auctions for wind development and investment in more reliable supply chains.

New wind facility investments should be part of the EU's Green Deal Industrial Plan, and local content rules will mean manufacturers may have to reopen the plants they mothballed in the past few years, Barla adds. "I would expect that offshore [turbine] investments will flow into Europe, but

whether it would make a difference to onshore, it is hard to say," says Barla.

Local content rules alone won't drive new supply chain investments, he says. "The most important thing besides the cost is the demand itself. If there is enough demand, you could still make decent margins by producing in high-cost markets like Europe. However, when we look at onshore, demand is declining, despite the fact that, overall, onshore installations in 2020 increased 5 per cent," says Barla, adding that the decline is partly due to fewer available sites.

In particular, there is a lack of incentives driving new European onshore wind supply chain investments, as for the next one to two years global onshore wind turbine demand may decline outside China. "Local content rules are not going to entice the OEMs to come and invest in those factories, even if there is a local content policy, because they're not going to make money. Unless there is a stable demand on the horizon, they're not going to bring back those investments," continues Barla.

Chinese wind turbine manufacturers don't face the same financial concerns. The main reason for this is Chinese companies receive three kinds of subsidies for manufacturing and producing parts, but European OEMs do not receive any in the markets where they operate. "We're not talking about a level playing field, and certainly when you think about the procurement of the materials that's talked about today," says Barla.

Material costs are lower for Chinese OEMs than they are for European ones, in particular for rare earth metals as China dominates global supply. China also has access to cheap steel as the world's largest producer and consumer. The fact that China's wind supply chain uses mostly interchangeable parts makes procurement easier for its OEMs, too.

In Europe, not just regulators, but also developers must do their part to help



OEMs survive. “In Europe in general for developers I think the biggest challenge is to raise the auction prices, because the input costs have increased dramatically,” says Barla. “The first thing that the developers are concerned about if turbine OEMs are raising the prices is they will also have to negotiate with the regulators to increase the auction prices.”

Many governments index the prices paid for wind energy in auctions, but not enough, and the indices the prices

link to can change between the time of the bids and the time when OEMs procure their components. “Governments need to ensure full indexation,” says association WindEurope.

Germany has already taken a “good stance” by raising onshore wind auction prices to from €58 to €73 per MWh, Barla adds. “Other countries will have to make sure that in the auctions — whether it is in the UK or in subsequent auctions in France, Italy or Spain — regulators take stock of the situa-

tion. They should acknowledge the cost increases, and they should raise the auction prices,” says Barla.

The rising cost of construction debt in Europe, impacted by inflation, is another reason to award higher prices in auctions. Inflation doesn’t impact balance-sheet financed projects as much as it impacts the project finance costs of smaller European wind developers. “For them the cost is going to be significantly higher because of the increasing interest rates,” says Barla.

A lower return for investors

The outlook for European offshore supply chain costs is elevated, but onshore supply chain costs are set to be higher.

Offshore projects face less cost risk because European turbine OEMs have longer project timelines during which to secure cheap supplies. “Offshore prices are going up, but not to the same extent as onshore, because in offshore you have a longer delivery time of four years,” says Barla.

But the impacts of financially weakened turbine manufacturers in Europe are set to be felt strongly in developing markets. The wind sectors most exposed could be those in new markets, for example in the US and selected countries in the Asia-Pacific, predicts Jamshidi.

European wind turbine manufacturers will be less tempted to venture into

developing markets. This is because of the hike in risks threatening their baseline as they are trying to return to being profitable. It is especially true in developing markets with local content rules, says Jamshidi, as OEMs may prefer to supply projects closer to manufacturing facilities. “OEMs will, of course, also bid in emerging markets, but on their own terms and conditions and with premium pricing,” he adds.

Seizing opportunities for growth as countries ramp up wind incentives to meet 2030 climate targets, European wind stakeholders are likely to incorporate more risk structures in both supply and financing contracts and accept lower returns.

Jamshidi says, “Developers and investors are aware of the importance for the entire industry of ensuring that all players can achieve a profitable busi-

“Developers and investors would have to find ways to accept more risk and less financially attractive projects.”

Kasra Jamshidi, Naver

ness to see the growth that everyone expects for the wind industry.

“This means that developers and investors would have to find ways to accept more risk and less financially attractive projects.” ■

DEVELOPER Q&A:

Developer pipeline: ABO Wind

ABO Wind is venturing further afield from its home market of Germany while bringing along its hybrid and hydrogen know-how and strong balance sheet, explains Public and Investor Relations General Manager Alexander Koffka.

The developer's portfolio spreads across Europe, Latin America and Africa. The company sold 19.8MW Donaborów wind in Poland in November and 50MW Margariti solar farm in Greece in December, both to German IPP Encavis. Recently in Germany, ABO Wind sold three hybrid battery-solar projects to a European utility. Finance Quarterly interviewed Koffka in mid-January.

FQ: What kinds of PPA deals has ABO Wind secured recently?

AK: We still don't have that many PPA deals. Most of our projects are realised under tariffs. We participate in auctions in most of our markets. In Germany and France, all our wind projects so far are realised with Feed-in Tariffs awarded in auctions.

But PPAs are quite common in Finland, where we are in the process of realising our biggest wind project so far, 86.8 MW Pajuperänkangas. We have already secured a PPA for this project.

The current energy crisis has slightly changed PPA conditions. Formerly it was quite attractive to get a baseload PPA, so that you guarantee an amount of energy you deliver in a certain time period. But now, it's quite difficult and expensive to secure energy at times. In Finland, the wind is blowing constantly, but you still have times when wind turbines don't produce. With a PPA baseload tariff, the developer then has to secure the energy on the market, and

that could be quite expensive. Nowadays it is more favourable to conclude pay-as-produced PPAs, so only you deliver what you produce with turbines and don't guarantee a certain amount of electricity in a period of time. This is true now at least in every European market because of the energy crisis we face in Europe. In Latin America, the problem is not as big.

“There is a constant flow of projects being financed in Germany.”

Alexander Koffka, ABO Wind

FQ: What projects does ABO Wind plan to develop in Latin America?

AK: In Colombia, we have projects with PPAs as well, but there we have PV projects that are not as big. For a 10 MW finished project in Colombia, we have already secured a PPA. Now we are going ahead with this project, and we are quite confident that we will realise it by 2024, but will still have to secure the modules and do the purchasing. It will be our first project in Colombia.

FQ: Is ABO Wind in financing talks for any newly developed wind projects,



ABO Wind and Investor Relations General Manager Alexander Koffka

and if so, at what stage are those talks?

AK: We are regularly working with several banks that do the project financing for us. There is a constant flow of projects being financed in Germany. We prefer working with partners we have already worked with. Of course, sometimes we work with a new partner, but we find that the first time the processes can be difficult. You need much more time to get to a common understanding. Therefore we value long-term relationships with banks and investors. It's also important to have different kinds of investors, and not just to work with utilities, big oil companies, or financial investors. We have good clients in all these groups of investors. The mix of investors makes us independent from fashions and trends in the various industries.

FQ: Is the company planning any public equity or bond issuances for wind this year?

AK: We plan neither public nor private issuances this year. We did some financing transactions in the last few years: We issued promissory notes in 2022 and bonds in 2021 and we had capital increases in 2019 and 2020. Now we are quite well-financed, and we are able to realise bigger projects on a turnkey basis by ourselves. Two or three years ago, we weren't able to realise big projects on a turnkey basis. It was necessary to sell the projects before the construction phase, and then

do construction as a service provider without bearing the risks ourselves.

Now, with a strong financial basis, we carry out the construction of projects in the category of the 86.8MW wind farm in Finland by ourselves. It is no longer necessary to sell these projects at an early stage. But sometimes we still realise projects at an early phase. It depends on market conditions.

For example, in Spain we see demand for projects is high and we have very good offers for projects, even in the development phase when they are ready to build. We are in negotiations on selling these projects, but we also have the power to build them by ourselves.

FQ: Which of the company's wind projects will start construction this year?

AK: Several projects in Germany and in France are going into the construction phase, as well as the PV project in Colombia. In Finland the project is still in a construction phase, and that will last the whole year. It will be commissioned in 2024. We have some PV projects in Hungary that will enter the construction phase in 2023.

FQ: What wind projects do you expect to offer for sale, or have been offered recently?

AK: We are always in talks. We have a few clients who repeatedly buy projects and we are in constant talks with them.

In December we sold Margariti, a 50MW solar project in Greece. It's our biggest turnkey erected solar project so far. The buyer is a family-owned investment company for renewable energy projects worldwide called Wirtgen Invest. In November, Aquila Capital, a sustainability-focused investment company, bought our first wind farm in Poland. That project, the 20MW-project Donaborów was erected on a turnkey basis as well.

Recently we also sold Sheskin Wind Farm in County Mayo in the West of Ireland to the IPP Encavis. It is a project in two phases: Phase 1 comprises five Nordex N117 turbines with a total of

16.8MW, which ABO Wind is currently building on a turnkey basis, and which will be commissioned in late 2023. The sale of Phase 2 includes the project rights to another three turbines with a total of 10MW.

We are in negotiations on some other wind and solar projects that are already permitted or in the construction phase in Germany. Usually, we start the selling process when we get the permit for a wind farm, and then either we do a PPA or take part in a tariff auction.

In the usual selling process, we ask six or seven of our clients from different groups of investors: utility and financial investors like investment companies or pension funds. Then the client with the best offer goes into a due diligence process which lasts about two months, and afterwards we sell the project.

We just sold a portfolio of three battery projects in Germany to a European utility a few weeks ago. These are standalone batteries in Germany that do balancing of the grid where there is wind and PV. We sold a single standalone battery in Northern Ireland to SUSI Partners in October. We are in negotiations about some other wind and solar projects, especially in Germany, where we constantly have projects in the selling phase.

FQ: It seems that ABO Wind has two hybrid solar projects in Germany, both subsidised. How is the revenue strategy for a hybrid project different from a traditional wind project?

AK: So far, our hybrid projects in Germany are always battery and solar. In Germany there are innovation tenders, which award a special tariff for projects seen as innovative. The revenue of innovative projects stands on two pillars. They get a market price for electricity and a fixed premium as a subsidy. In the auction, projects secure the premium. Currently our second hybrid project is in the construction phase and is due to be commissioned in a few weeks. There are three more which are being built in 2023, always solar and battery.





FQ: What are your plans for hybrid-wind projects outside of Germany?

AK: Greece is going to establish auctions for hybrid projects as well. Some Greek islands are not connected to the main grid, so they have an independent small grid. Today diesel generators usually deliver the power for these islands. It's cheaper and much better for the environment to produce power with hybrid projects using a combination of PV, wind and batteries. We have some projects under development and hope to participate in these tariff auctions, so we may be able to build some of them.

FQ: ABO Wind is building hydrogen projects tied to new wind development in Canada, Argentina and Germany for export, maritime fuel/export and vehicle fuel respectively. Would you please tell us how green hydrogen fits into your wind development strategy?

AK: The international wind-to-hydrogen projects in Canada, and in Argentina especially, are in an early stage. We have secured land for wind farms, and these projects are in areas where there is not much need for electricity — not many people are living there. You have a lot of space, but you don't have a strong grid.

These sites are near ports and wind conditions are very good. Internationally, there is a big demand for green hydrogen, so we secured places with favourable conditions to produce electricity from wind and then green hydrogen.

ABO Wind is working on the development of several large wind farms in three Atlantic provinces in Canada. The planned wind farms have a capacity of 11GW. The green electricity could be used to produce up to 900,000 tonnes of hydrogen, convert it into ammonia and ship it to Germany, for example.

“It's cheaper and much better for the environment to produce power with hybrid projects using a combination of PV, wind, and batteries.”

Alexander Koffka, ABO Wind

Four months ago, German chancellor Olaf Scholz and Robert Habeck, Minister for Economic Affairs and Climate Action met the Canadian Premier Minister Justin Trudeau. In Newfoundland they signed an MOU on delivery of hydrogen from Canada to Germany. We took the opportunity to present our projects in the region.

But ABO Wind is a mid-size company and could not realise a hydrogen project with an investment volume of several billion euros, so our part in these projects is mainly to develop and build

the wind energy projects. For the rest we need partners.

For some of these projects, we are in negotiation with partners, and some are making good progress. In Germany, our hydrogen activities are different: We have a small, advanced hydrogen project which we do all by ourselves. We are building a little wind farm near the town Fulda. There is a logistics centre for a supermarket chain that wants to decarbonise its logistics. We will build an electrolyser, a wind farm and a hydrogen filling station in close proximity to the logistics centre. The project funded by the German government shows how hydrogen can enable the decarbonisation of the transport sector.

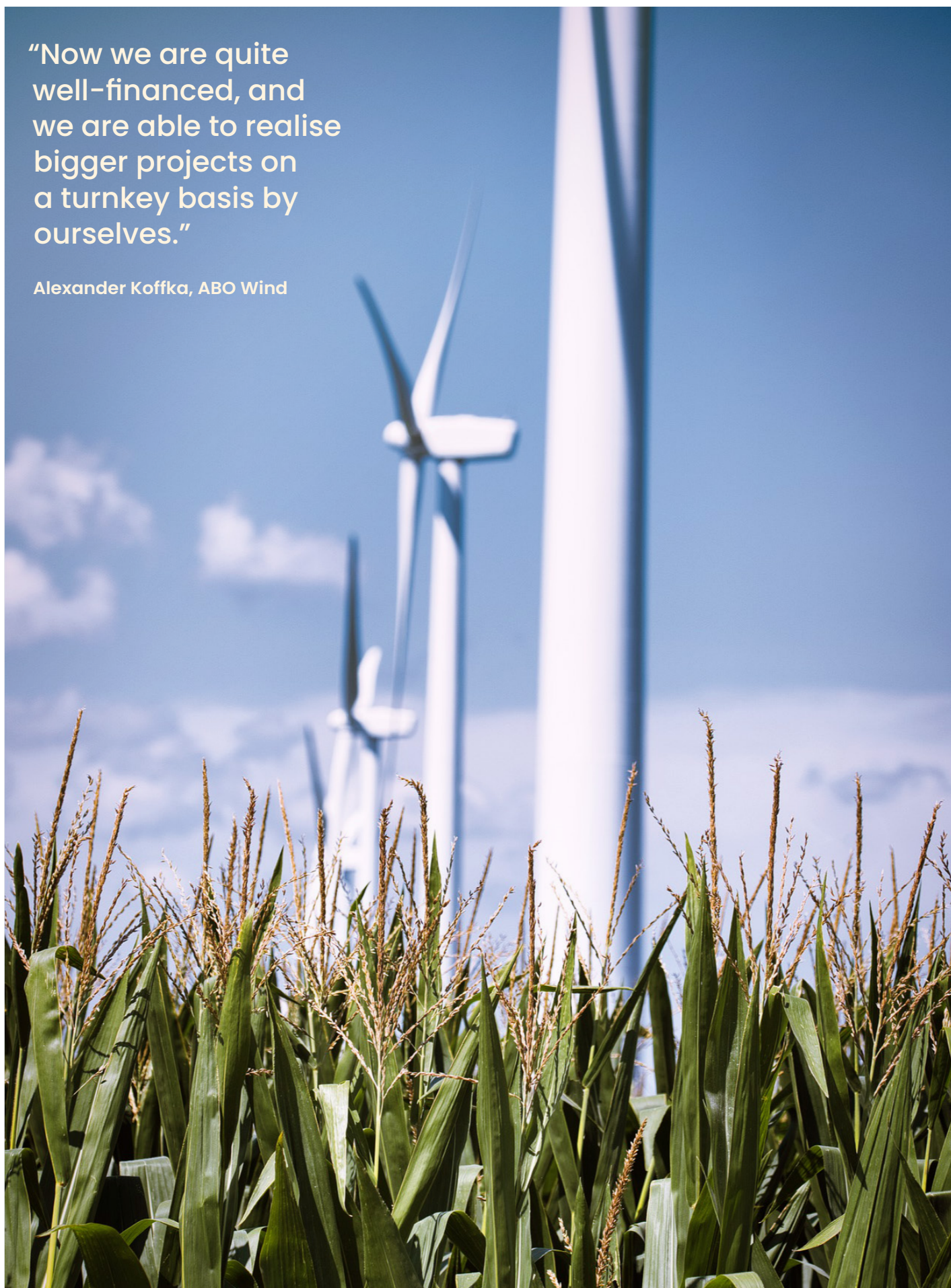
FQ: How would you describe the financing environment for wind-to-hydrogen development projects?

AK: The business models for hydrogen projects are just emerging. Currently, mainly pilot projects are being implemented that are subsidised. But it is foreseeable that the value of green hydrogen will continue to rise. At the same time, it is important to reduce the costs of production, for example, through economies of scale. If the projects are economically viable, sufficient investors will be found, just as they are for wind and solar parks.

Our international projects in Canada or Argentina, whose hydrogen production is intended for export, are extraordinarily large. The enormous size of the investments limits the circle of possible investors. ■

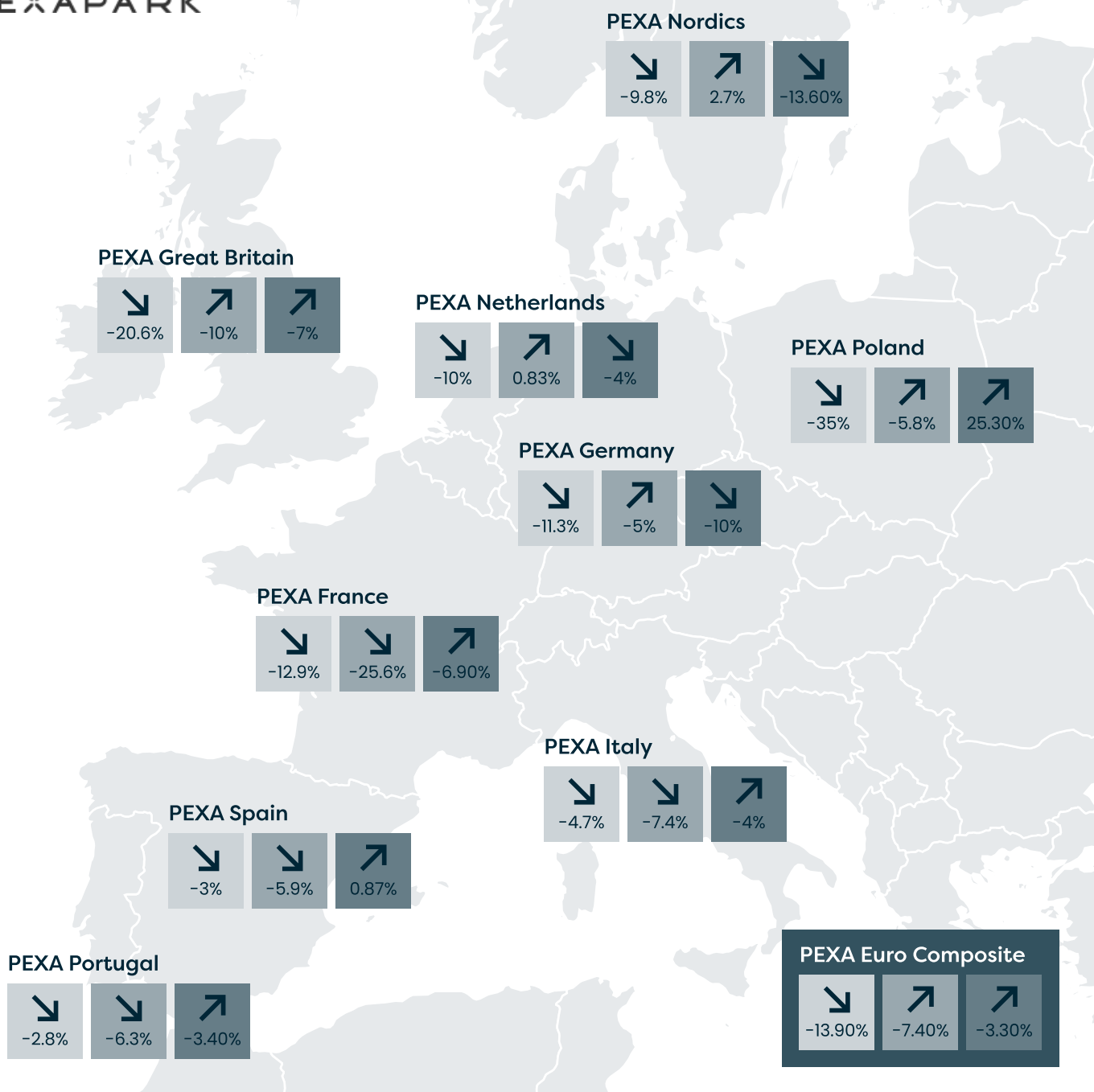
“Now we are quite well-financed, and we are able to realise bigger projects on a turnkey basis by ourselves.”

Alexander Koffka, ABO Wind



PPA market trends and deals agreed

PEXAPARK



PPA % price change

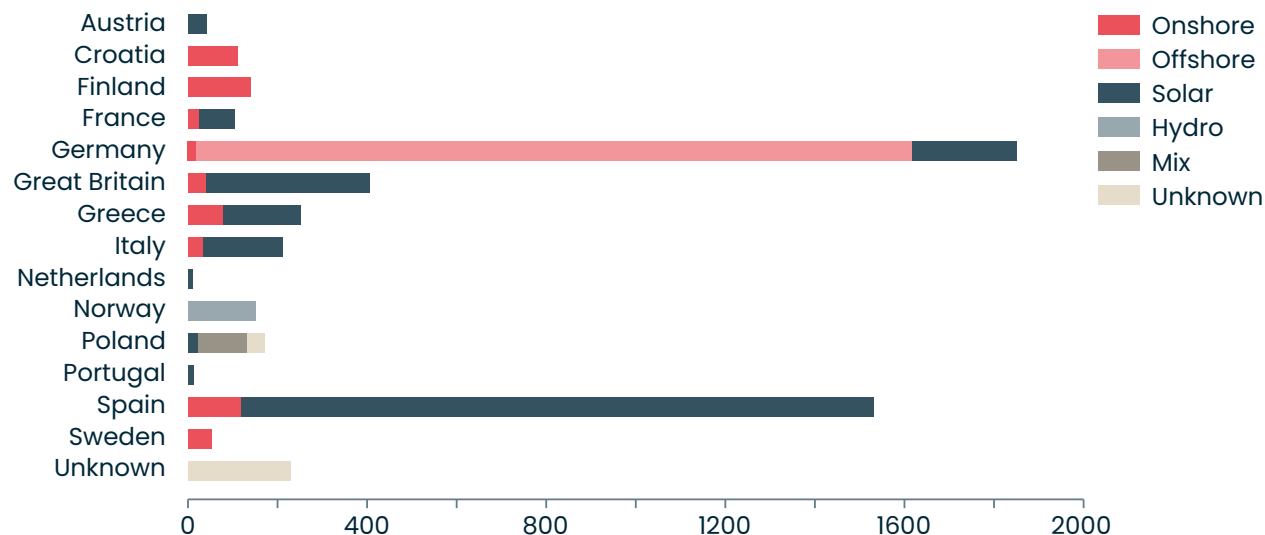
Jan 2023	Feb 2023	Mar 2023
-2.8%	-6.3%	-3.40%

Pexapark's PPA Trends Methodology

PPA Trends have been provided by **Pexapark**. The PEXA EURO family of PPA Trends in the form of percentage rate changes provide an aggregated glimpse of the evolution of 10-year Pay as Produced (PAP) prices. The start date of the PPAs is based on a rolling average of the front- and second-year starting contracts. PEXA EURO Composite is the weighted average of all countries across Europe (Austria, Belgium, Czechia, France, Germany, Romania, Spain, Netherlands, Norway Sweden, Slovakia, Denmark, Finland, Italy, Portugal, Poland, Great Britain, Hungary, Greece) and collective technologies (solar, onshore and offshore wind). Country-specific PPA Trends represent a weighted average of all technologies in the specific region. PPA Trends are recalculated daily using Pexapark's valuation models based on the forward curve.

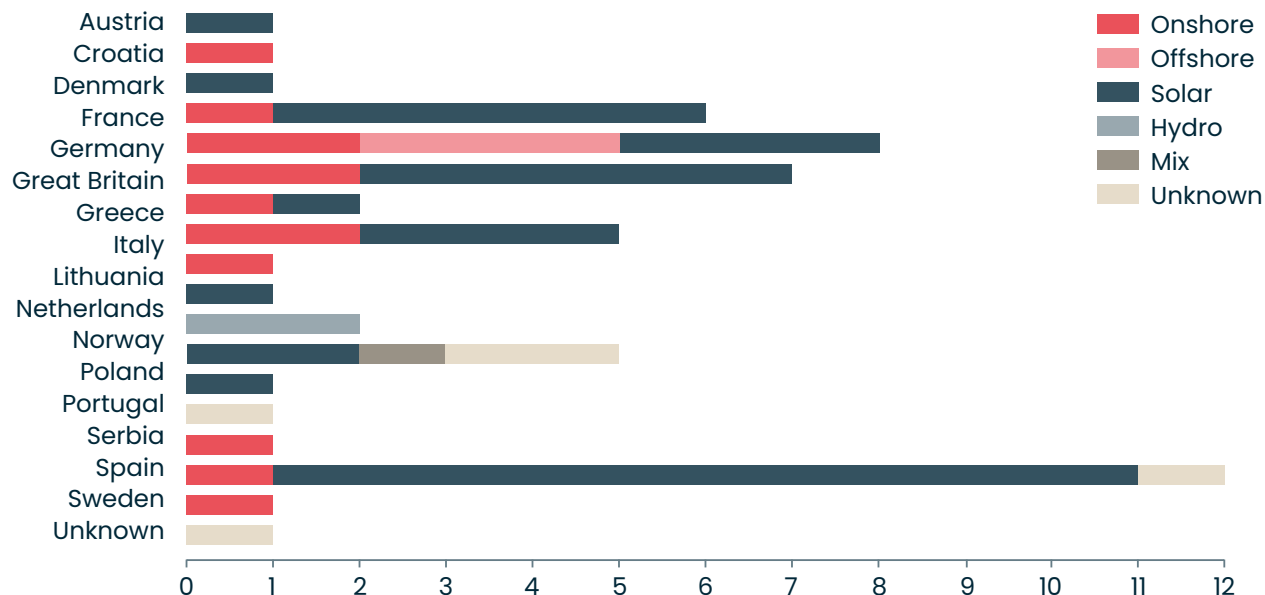
Contracted PPA volumes by country, per technology

JAN-MAR 2023



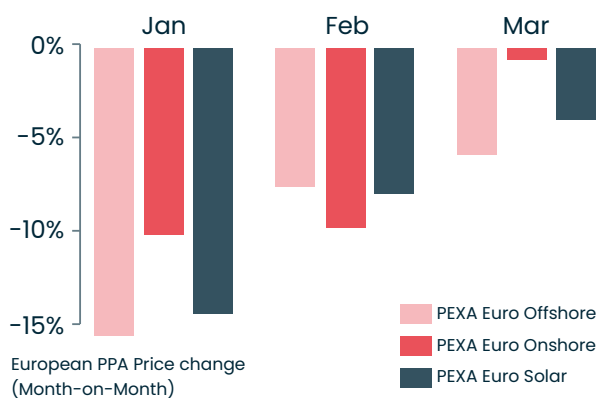
Number of PPAs by country, per technology

JAN-MAR 2023



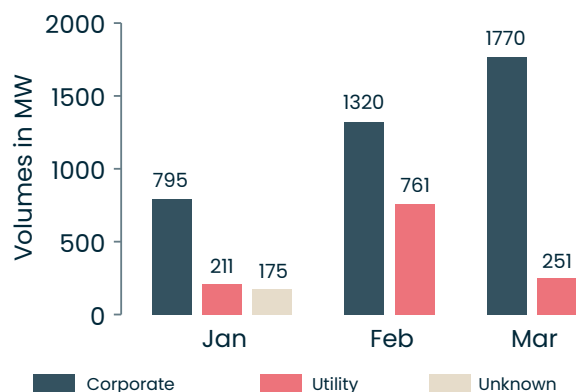
PPA market trends, by technology

JAN-MAR 2023



Volumes (MW) by offtake type

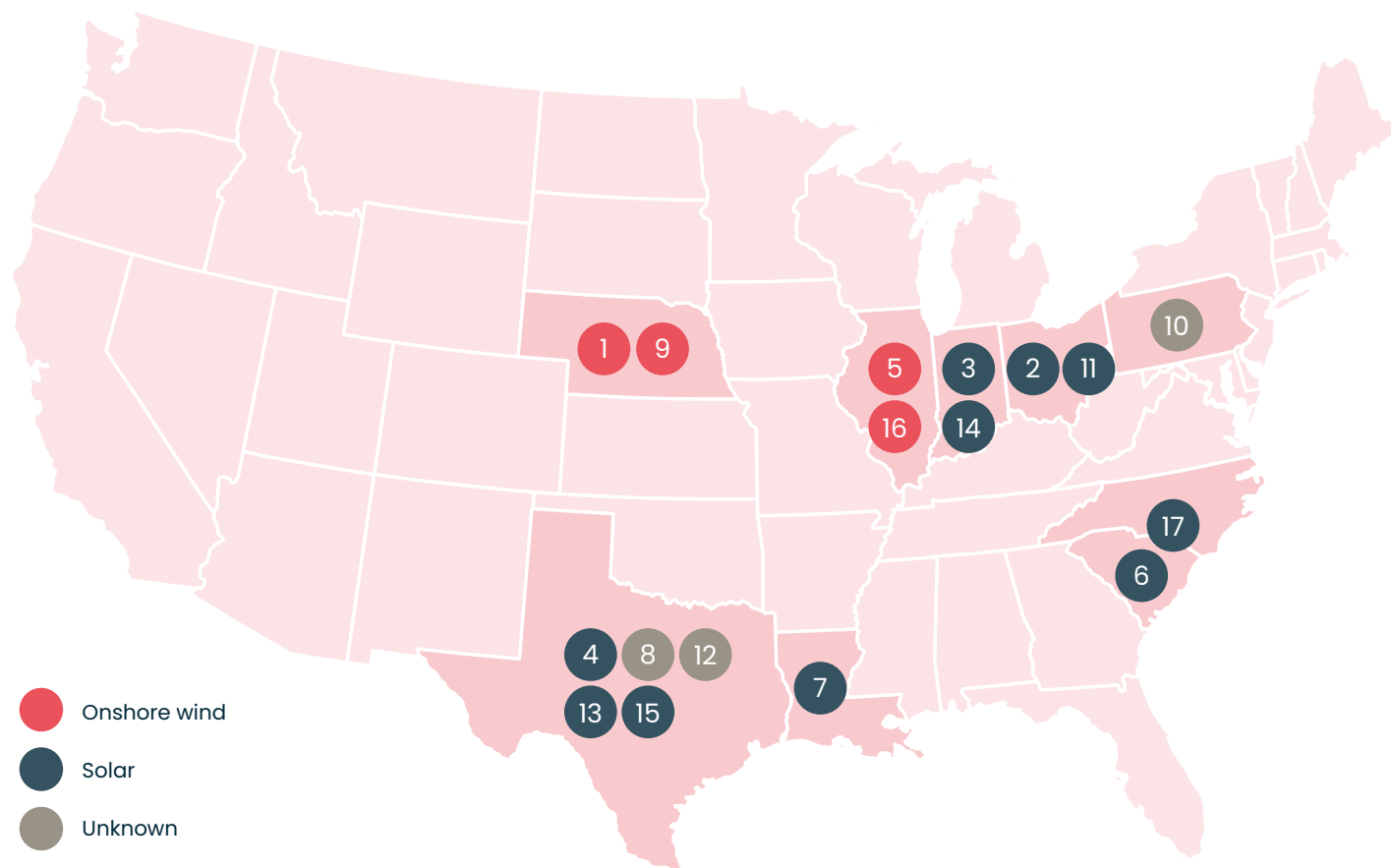
JAN-MAR 2023



PPA deals agreed in the US

Selection of key deals in the market

PEXAPARK



Location	Buyer	Seller	PPA Size (MW)	Offtaker Type	Technology	
1	Southwest Power Pool (SPP)	Verizon Communications	Southwest Power Pool (SPP)	100.00	Telecommunication Services	Onshore wind
2	Ohio	Meta (Facebook)	BP	107.00	Information Technology	Solar
3	Indiana	AEP Energy Partners	Lightsource bp	188.00	Utility	Solar
4	Texas	Thermo Fisher Scientific	EDF Renewables North America	200.00	Healthcare	Solar
5	Illinois	Cargill	Apex Clean Energy		Consumer Durables	Onshore wind
6	South Carolina	Southern Current	Dominion Energy South Carolina (DESC)	107.80	Utility	Solar
7	Louisiana	McDonald's	Lightsource bp	145.00	Hospitality	Solar

Location		Buyer	Seller	PPA Size (MW)	Offtaker Type	Technology
8	Texas	Verizon Communications	Invenergy	240.00	Telecommunication Services	Unknown
9	Southwest Power Pool (SPP)	Verizon Communications	Enel North America	100.00	Telecommunication Services	Onshore wind
10	Pennsylvania Jersey Maryland	Verizon Communications	Unknown	70.00	Telecommunication Services	Unknown
11	Ohio	Meta (Facebook)	BP	107.00	Information Technology	Solar
12	Texas	LyondellBasell	Undisclosed	320.00	Chemicals	Unknown
13	Texas	Entergy Texas	Longroad Energy	150.00		Solar
14	Indiana	AEP Energy Partners	Lightsource bp	188.00		Solar
15	Texas	Thermo Fisher Scientific	EDF Renewables North America	200.00	Healthcare	Solar
16	Illinois	Cargill	Apex Clean Energy	50.00	Consumer Durables	Onshore wind
17	North and South Carolina	Google	Sol Systems	225.00	Information Technology	Solar

Remarks on notable deals		
6	South Carolina	PPA linked to the 107.8MWdc Lone Star Solar project in Calhoun County, South Carolina, which will be co-located with an 198MWh battery storage system. energyRE acquired South Current in Q3 2022.
7	Louisiana	PPA linked to the 145MW Prairie Ronde Solar project in Louisiana. Construction is set to begin in early 2023, with expected COD in Q4 2024. Expected output 327GWh/year, equivalent to electricity needs of 630 restaurants. Expected COD in 2024.
8	Texas	PPA linked to two facilities, one located in the Electric Reliability Council of Texas regional market commissioned in 2022, and one in the Southwest Power Pool (SPP) regional market.
9	Southwest Power Pool (SPP)	PPA linked to what appears to be 100MW of onshore wind capacity, from a facility in the SPP regional market commissioned in Dec 2022.
10	Pennsylvania Jersey Maryland	PPA linked to a facility in the Pennsylvania Jersey Maryland (PJM) Interconnection regional market.
11	Ohio	As part of announcing the commencement of construction of the 134 MWdc (107MWac) Arche Solar project in Fulton County, Ohio, BP announced the asset is underpinned by a PPA with Meta.
12	Texas	Two PPAs with projects located in Texas.
13	Texas	PPA linked to the 150MWac (202MWdc) Umbriel Solar. Entergy Texas will offtake the project's entire output. Expected COD by end of 2023.
14	Indiana	PPA linked to a 188MWdc solar project in New Carlisle, Indiana. Expected COD start of 2024.
15	Texas	VPPA for the full output of the 200MWac (256MWdc) Millers Branch solar pv project in Texas. Expected COD Dec 2025. Estimated annual output of 545GWh.
16	Illinois	Cargill contracted 50MW of the upcoming 300MW Goose Creek Wind project in Piatt County, Illinois. Expected COD in 2024.
17	North and South Carolina	The partnership will enable the construction of 225MWdc of solar projects, alongside 18MW of battery storage.

The rainbow after the storm



PEXAPARK

*Pexapark Senior Insights Analyst
Martina Kanellakopoulou*

Maritina Kanellakopoulou, Senior Insights Analyst at Pexapark, presents the following reflections on Europe's PPA landscape in the first quarter. Pexapark is an enterprise software and advisory company and a reference for buying, selling and managing renewable energy across more than 25 GW of renewable PPA transactions.

Despite 2022 having been the most turbulent year in the recent history of European energy markets, the PPA market exhibited remarkable resiliency. Last year's activity was a testament that the maturity of the PPA market is stronger than the dire straits posed by volatility levels that sometimes disarmed even the most risk-savvy trading agent. Corporates proved the energy transition heroes, accounting for over 80% of Europe's PPA offtake activity, taming the waves to persist with their hedging and decarbonisation targets, and making a statement that they mean business.

Hedging against volatility and securing lower-than-market rates has become, for many, the primary reason for contracting PPAs – not the ESG targets that principally gave birth to the European corporate PPA space. Last year, despite the impressively stable activity, our gut feeling was telling us that corporate ambition was much larger than the deal flow numbers indicated. Turns out, the real appetite revealed itself in Q1 2023.

A key development that enabled a significant ramp-up of activity was that regulatory concerns relatively smoothed out. Regulatory risk peaked in December 2022 after the European Commission made the check-mate move announcing an EU-wide revenue cap of €180/MWh to deal with surging power prices. Member states retained creative control of how to customise the regulation's implementation on a national level, which resulted in a medley of differing rules across the continent. However, it seems that the move at least put an end to a domino of unexpected developments in the price-cap setting space, and re-

moved the often unconstructive 'element of surprise'.

Renewable players started 2023 with a refreshed mindset and an increased sense of stability, bringing back confidence in long-term PPA deal-making. Q1's numbers speak for themselves.

January started strong with PPA announcements giving an early indication of the rainbow after the storm with a total 1.2GW disclosed capacity across 12 deals. RWE's impressive announcement (counted as one in our deal count) of more than a dozen post-EEG-subsidy PPAs for its 583MW Nordsee Ost and Amrumbank West offshore wind projects in Germany was the big highlight of the month.

What followed in February's deal flow was beyond our wildest expectations. With 29 deals of over 2GW of contracted capacity, the month marked the highest deal count activity we have experienced since the outset of the European PPA market. The second month of the year also saw the largest utility PPA activity in the past 18 months, both in terms of deal count and contracted volumes.

March continued with equally high deal-making, with a total of 23 PPAs of more than 2.1GW of fresh contracted volumes. In essence, Q1 2023 saw at least 57 PPA announcements – 38 of which with corporate offtakers – of approximately 5.2GW disclosed volumes. To put these numbers in context, that's more than 50% of 2022's aggregated disclosed volumes, and around 40% of deal count. Could 2023 be the absolute record year for PPA activity? We are looking forward to finding out.

Solar accounted for the lion's share, with a total of 2.5GW contracted volumes across 33 deals. Offshore wind saw 1.6GW capacity across three deals. Interestingly, all three are in Germany, reviving the country's offshore wind sector which went a bit quiet over the past 12 months. Onshore wind follows suit with 661MW across 13 announcements.

The pricing landscape in Q1 2023 was defined by the stable downward trajectory of both power and gas futures prices. Consequently, PPA Prices across Europe mimicked the movement, with different levels for each.

Our signature index, PEXA EURO Composite dropped 24% quarter-on-quarter, getting closer to levels seen before the massive shake-up of Europe's energy availability and pricing crisis. All of Pexapark's Technology Trends indices saw similar range drops, with PEXA Solar ending the quarter at -25.8%, PEXA Offshore Wind -28.5%, and PEXA Onshore Wind -20%.

On a country level, the sharpest decline was seen in France, as PPA Price Trends in the country dropped 45% over the quarter. The decline partly reflects an update of the risk discounts based on available market price evidence as part of Pexapark's regular back-testing modelling process. Great Britain follows second with a total drop of 37.5%, and Germany third, ending the quarter at -26.4%.

On the flip side, Spain (-8%) and Portugal (-12.5%) experienced the lightest percentage rate changes due to the fact that the introduction of the Iberian gas price cap from June 2022 through to May 2023 is resulting in notably mild fluctuations in power prices. ■



Upcoming conferences

Financing Wind &
Wind Investment Awards

LONDON | 25 MAY

Financing Wind North
America - Onshore Wind
& Transmission

DENVER | 21 SEPTEMBER

Financing Wind North
America - Offshore Wind

BOSTON | 16 NOVEMBER

Connect with a network of experts

Premier events designed to bring together
the key players in the global renewables industry.



Wind debt finance trends for the inflation era

The EU's central bank has raised borrowing costs to their highest point in 14 years, following a parallel increase in the US.

Wind project backers have braced themselves as the world's major central banks hiked interest rates faster than at any point in twenty years in the past year.

The hikes continued at the start of 2023, with EU and UK central banks announcing February interest rate hikes.

Around the same time, the US central bank made its eighth consecutive hike, bringing interest rates to the range of 4.5-4.75 per cent.

But the rate hikes, seen in at least 45 countries in the past year, have been largely uniform across all major economies apart from Japan.

The hikes are a response to the inflated prices seen by consumers following Russia's invasion of Ukraine. "The war in Ukraine and the market volatility that comes with it creates a lot of uncertainty, and for banks that obvi-

ously means higher risk, which banks have to price accordingly," says Piotr Nerwiński, a Banking and Finance Practice Partner specialising in renewable energy projects in the Polish arm of law firm Dentons.

Poland is among a group of countries that saw steeper rate hikes. In the country rates shot up to 6.75 per cent in February, Nerwiński notes.

Other countries that had high rates last June were Russia (20 per cent), Ukraine (15 per cent), Brazil (13.25 per cent), Sri Lanka (7 per cent) and Mexico (7 per cent).

In countries with higher interest rate hikes, the hikes mean a wider bank margin in debt deals to account for both the higher cost of borrowing and larger risks for wind projects. However, is not always clear to legal advisors how much of a bank's margin ac-

counts for the interest rates and how much for the risks.

"In fact, it is the geopolitical situation as a whole and all the changes we are seeing in the market that are driving up pricing, resulting in margins that are slightly higher than we saw in 2021 or early 2022," says Nerwiński.

Some say war in Ukraine also worsened ongoing hyperinflation in places like Argentina (44 per cent) and Zimbabwe (80 per cent).

"Today, projects are more likely to fail because of inflation and factors like higher capex. And with fewer projects expected to be completed on time, banks have to price in that risk," says Nerwiński, adding, "And it is not just the high cost of financing that is hurting projects, but also inflation. All of this is causing some projects to be put on hold or delayed."

Higher costs of funding

The elevated cost of funding in Eurozone countries comes from banks using the six-month Euro Interbank Offered Rate benchmark, which had risen by around 3 per cent in February.

Banks in Poland, which uses the Zloty currency, have seen the national interest rate rise by around 7 per cent. Lenders there have seen a steep increase in cost of their funding leading to wider bank margins in wind project finance deals, according to Nerwiński.

“This is a massive increase that is bound to have an impact not only on the availability of funding but also on financial models. Add to this the cost of Interest Rate Swaps hedging, which has also risen quite dramatically recently, and it is no wonder that some investors are finding it difficult to finance or even complete their projects. Of course, these circumstances also threaten new projects,” says Nerwiński.

In addition to higher bank margins in Poland, Dentons is also seeing higher borrowing costs in some other jurisdictions where the cost of funding is in US dollars. Nerwiński noted that some investors in the US had seen higher borrowing costs.

Reflecting on the current US debt market in a January webinar, Beth Waters, Managing Director, Project Finance Americas at Mitsubishi UFJ Financial Group, said, “What has happened over the year, starting last spring, was the market was extremely aggressive on pricing and what started happening is banks’ cost of funds were going up ... So now I’m seeing say 125 [basis points] would be the lowest on construction financing. We’re not doing anything lower than that.” She noted the basis points had increased from a year ago and that because of the high cost of funds, some bank margins were higher.

“There are a lot of banks out there, a lot of appetite, but our cost of funds is affecting our decision-making ... It’s coming back in a little bit, but we don’t know where it’s going,” continued Waters, later adding, “The pendulum is now swinging in favour of lenders. It hasn’t been that way for a long time.”

Keith Martin, Co-Head of Projects and Partner at law firm Norton Rose Fulbright in the US, said in February that construction debt prices, reaching 125 to 150 basis points over the American daily Secured Overnight Financing Rate, had risen 75 to 90 basis points a year ago.

However, he did not think this would lead to a financing slowdown for US wind projects. “Labor shortages and inability to connect new projects to the congested US grid are bigger issues,” he says.

“It is the geopolitical situation as a whole and all the changes we are seeing in the market that are driving up pricing.”

Piotr Nerwiński, Dentons

“If there is a slowdown in US wind projects, it is due to labour shortages and continuing supply-chain issues rather than lack of banks’ will to lend. There are 90 banks chasing deals in the US project finance market,” continues Martin.

He says that wind debt service coverage ratios have not changed, and revenue typically should be at least 1.3 times the debt serviced. Unlike in Europe, American wind project debt is back-levered and subordinate to tax equity finance, a market that is expected to grow under the new Inflation Reduction Act.

In some parts of the Eurozone, for example Germany, finance for wind is also seen as readily available. There, bank margins look stable to lenders.

Dutch-headquartered bank ABN AMRO Managing Director, Project Finance, Lisa McDermott says competition in the market in Northwest

Europe has kept lending rates low. “It is not across the board: We’ve seen margins in some sectors go up, for instance, digital infrastructure lending. But there’s less liquidity for that sector than for renewables. The conventional renewables deals are still being compressed on margins, despite interest rates rising,” she says.

In other parts of the Eurozone, the interest rate hikes coincided with increased bank margins. “For instance, in Spain the market seems to have recognised somewhat of an increase to reflect the increase in the underlying cost of lending by banks, but in the more overbanked renewables markets, like Northwest Europe, the higher costs are not being fully passed on. Banks are, in some way, subsidising lending to the sector due to the high demand for green assets,” says McDermott.

Sometimes, smaller deals might actually have an edge over larger ones in terms of bank margins. “Where we tend to see margins going up a little bit or terms being more attractive is when you need a lot of liquidity in one deal, so the bigger deals. However, if a deal is very small, then operational costs for lending may weigh too heavily against the returns, so lenders will deploy their capital where they can make a better return. But from what we are seeing, wind deals of 50MW and similar – on the smaller size – are still being funded quite easily. If I look at the Dutch market, there is a lot of lending appetite, even for smaller scale projects, and they are being funded on very, very competitive terms,” McDermott adds.

Waters also commented on margins for banks in small deals in the US market. “The smaller the deal the more aggressive the terms you could get, because you have certain banks whose cost of funds are lower, and can quote lower, and the bigger it gets, you got to get the last guy in so the pricing will trend upward, because of peoples’ cost of funding being high.”

Jérôme Guillet; Enterprize Energy Board Member and Founder of advi-



sory firm Green Giraffe, notes that inflation impacts vary project-by-project because of their individual agreements on the cost of funding, cost of supplies and cost of electricity. “You have very one-sided movements of the cost of money and the cost of certain goods. It’s going to impact some people positively and others negatively and others not at all. To some extent, it may even be a matter of luck.”

Inflation hurt projects that were at a certain point the financing process when the inflation hit, says Guillet, explaining, “The people that are being squeezed right now are those that have revenues that were fixed, defined

before the interest rates increased, or before the need arose to deal with inflation and increased costs with the same revenue as before.”

“There can be a gap between the moment when the price for the electricity you sell is set and when your costs are set. That’s a risk that happens under some regulatory frameworks, and it’s a difficult one to protect against,” says Guillet.

Trade body WindEurope found that inflation-driven supply chain costs, lower revenues, and regulatory intervention were to blame for a 47 per cent year-on-year drop in wind turbine orders across the continent last year.

“It’s going to impact some people positively and others negatively and others not at all. To some extent, it may even be a matter of luck.”

**Jérôme Guillet,
Enterprize Energy**

Hedging costs rise

Prior to today’s inflation, few wind developers in Europe had hedged against interest rate risk using contingent Interest Rate Swaps because they were not cheap.

“If developers hedged against interest rate movements, they can now say that they were prudent to do so. But to large extent developers that are on the right side of these recent price movements were lucky and those on the wrong side, unlucky, as they were largely unexpected,” says Guillet.

The cost of debt increased simply because of increased central bank rates

and volatility he says. “But again, that’s not something that is controlled by the players in the market. It applies uniformly to everybody,” he notes.

In parts of Europe like Poland, the cost for Interest Rate Swaps has increased to such an extent that it has required reworking project financial models, on top of other financing pressures. “Add to this the cost of interest rate swaps hedging, which has also risen quite dramatically recently, and it is no wonder that some investors are finding it difficult to finance or even complete their projects. Of course, these

circumstances also threaten new projects,” says Nerwiński.

New hedging costs have compounded developers’ financial worries. “Lenders are requiring borrowers to enter into long-term Interest Rate Swap hedging arrangements, which have now become very expensive. So investors are looking for alternative hedging strategies, such as shortening hedging periods and looking for better opportunities within five- or seven-year-timeframes, rather than the traditional long-term hedging periods of 10 to 15 years that used to be the norm,” says Nerwiński.

Keeping PPAs short and sweet

With inflation on the rise, wind players are paying more attention to PPA terms as a critical part of their revenue strategies.

Hikes to electricity prices due to inflated fuel costs may either benefit or harm PPA-linked project economics, depending on whether they are accounted for in the terms, tenor and timing of the PPA.

Projects heavily relying on merchant revenue or a zero-bid tender may be in a situation where, depending on in what power market and under which terms their PPAs have been agreed, they find themselves in more favourable position in terms of profitability, says Guillet.

Some developers are making hay while the sun shines by targeting long-term PPA contracts. "Something to watch however, is where a large

amount of capacity is being sold via a PPA against a flat price, not a price that is inflated. That can cause a really big mismatch between revenues and costs. If you were selling power into the spot market, it would be against a price which is inflated," says McDermott.

"Some sponsors want to be quite conservative and fix their power price exposure long-term, which is typically helpful from a financing perspective. However, that needs to be done sensibly to prevent an inflation mismatch," McDermott says.

"But a more common tension we typically face is where sponsors want to go more and more merchant and hedge a lower percentage of power sales," McDermott says. "A good balance for financing is fixing the majority of power sales via a PPA but leaving some exposed to the merchant power

price market. This allows some equity upside from merchant power price exposure, but also hedges both inflation and production risk where a minimum generation requirement is in place," adds McDermott.

Nerwiński notes the electricity price instability could potentially disrupt the trend towards long-term merchant exposure. "Some off-takers, well aware of the volatility and high prices in the market, are balking at the idea of contracting power for 10 years at high prices, seeing the situation as unsustainable, and prefer to buy power for shorter periods of one to two years, even if this is a more expensive solution, before returning to discussions about long-term PPAs," he says.

The current environment encourages wind developer dependence on either auctions or PPAs rather than moving to full merchant exposure, he adds.

Retreat into equity

In general, the increase in the cost of capital applies to both equity and debt, and is a setback for all wind investment players obtaining capital.

"The cost of capital increase applies to everybody largely in the same way, so it doesn't hurt the smaller or the big guy more," says Guillet.

The cost to obtain equity has also increased. "So basically, the impact of the increase in the central bank rate is pretty much a one-to-one on the cost of capital for projects," Guillet says.

Nonetheless, in Poland where debt finance is less available to small developers, the situation is spurring a hunt for more sources of equity. "The two immediate consequences of the current situation are more expensive financing and less leverage that can be expected from banks. This means, for example, that the smaller devel-

oper has to put more equity into his project," says Nerwiński.

"It is the smaller developers who, in most cases, are not able to finance their entire projects with equity, but still have to provide equity to pay for 50 per cent or at least 40 per cent of their investment. This is significantly more than in the past, and it is understandable that the smaller players are now more interested in finding new investors or new equity for their projects, if only because banks tend to lend less money than they used to," Nerwiński continues.

The lack of availability of cheap bank debt in Poland has opened up a demand for new private debt sources, for example from institutional investors and even IPPs. "This is also a good time for private debt players to come into the market. We are seeing projects financed by private debt, which

is even more expensive but quicker to obtain, and quite often available in euros rather than the currency in which the project collects its revenues. This structure is not without its advantages," Nerwiński says

Traditionally, private lenders only participate in a few mezzanine bridge structures because senior debt is quite cheap. However, Dentons in Poland is currently working on a private transaction model that eliminates the need for all traditional senior bank solutions.

"We have seen some new players opening new private debt funds or expanding into other jurisdictions, not just in the renewables sector but in the economy as a whole. This is definitely a good time for private lenders and an interesting development to watch," says Nerwiński.



Dentons has seen a model where equity can be used in the short term because local prices for equity are getting closer to the price of debt financing. However, equity could be replaced by bank debt when markets are more stable, perhaps three years from now.

On the subject of whether equity investors are feeling similar return pressure to banks, McDermott says that equity providers would also need to see higher returns as their cost of capital goes up, explaining, "If they can get the same return from a government bond, why would they invest in a riskier asset like infrastructure?"

“The two immediate consequences of the current situation are more expensive financing and less leverage that can be expected from banks.”

Piotr Nerwiński, Dentons

Big players in wind investment are still finding plenty of debt financing available. "If you have a good, well-structured project, project debt can easily be raised in today's market. However some sponsors which have very strong ratings or which are owned by a state entity can raise corporate debt very cheaply, so will prefer to finance projects with equity rather than raising project finance, which is both more complex and more expensive for that type of name. But very frequently, there is at least one party in a consortium that hasn't got that type of rating profile, so they will prefer, or require, project debt," says McDermott.

Shorter-term financing structures

Mitsubishi UFJ Financial Group's Waters, speaking about renewable energy project finance in American markets, had seen construction-plus-five and construction-plus-seven-year loan tenors.

"I think it has a lot to do with cost of funds for banks. That's one of the big issues these days. So tenors are coming in and we get better pricing for shorter tenors," she says.

In his corner of Europe, Nerwiński adds, major developers would be well advised to consider some short-term financing structures, even if they have access to debt finance. For example,

they could fund their projects with equity and wait for better times.

"There is a lot of discussion now about financing for the construction period plus a year or two, rather than the usual 15 to 18 years, so that investors can complete their projects, actually see the revenue levels that the projects are capable of generating, wait a year for the final wind measurements to come in, and only then think about refinancing their projects or extending the existing financing arrangements with some good PPAs that will secure their revenue streams. This can be an interesting alternative to traditional structures," Nerwiński says.

Another emerging trend, particularly among some of the larger players, is group-level financing, Nerwiński notes, saying, "Investors are looking for short-term financing to get them through the first two or three years, start their project with equity and wait for better times to raise debt to refinance their projects.

"They are no longer seeking standard senior bank financing, but are relying on their equity first, with a view to financing their projects with debt later on, a year or two after the construction phase is completed," says Nerwiński.

Refinancings could follow a similar short-term trend in Poland. "Projects financed under long-term arrangements will simply continue under the old terms in these unfavourable circumstances. But where debt maturities are approaching, at least some refinancing is a must, and decisions will have to be made whether to opt

for shorter-term financing, private debt or some other alternative," Nerwiński says.

On the whole, however, there is no end in sight for refinancings. "There's a general trend to do refinancings and it's certainly not going to be stopped by this situation. And the fact is that

when you refinance, you can still keep your old, low underlying cost of money, and that is going to make these transactions more attractive than greenfield. So maybe, relatively speaking, there will be a few more refinancings," says Guillet.

Advice for developers

The developers, investors and IPPs active in the wind sector, as well as their advisors, may need to prepare for more lengthy negotiations.

"In general, all investors, developers and banks should be more flexible and willing to spend more time structuring financing than in the past," says Nerwiński.

This could last for several years in affected areas. "In my opinion, the days when we had mostly plain vanilla transactions, very similar to each other, with a lot of renewable energy projects to be financed almost like

commodities, will not return for another two or three years," he continues.

"And it is the lawyers who now also have a huge role to play in bringing together all the parties to the transaction, I would say that in the initial stages of structuring a transaction, you will probably need an extra three to six months to talk to a larger number of banks compared to the previous market situation," says Nerwiński.

The need to allow for extra time carries over into syndication. "You have to knock on more doors before you can put together a good syndicate for financing. And that takes time. You may

need to discuss in advance how your equity will be injected and whether the banks have any special requirements, and these additional discussions can be quite lengthy," Nerwiński says.

McDermott's advice to developers is to fine-tune their revenue strategies. She says, "There are ways that you can structure your financing and your offtake to optimise returns, but at the same time deliver a bankable project which does not seriously increase risk for the financing parties and thereby access attractive lending rates."

Finance costs the tip of the iceberg

Despite a confluence of regulatory and cost risks, Nerwiński is optimistic about the future of wind investment in Eastern Europe.

"There are no realistic alternatives to renewables in Poland. We have to phase out fossil fuels, including coal, and renewables will grow despite all the challenges we face now. We will increase the share of renewables in the electricity mix, I am sure of it," he says, adding, "In fact, renewables are growing in Poland, despite the myriad of challenges. The same can be said for some other countries, such as Romania, which have become quite interesting for investors. I know of a number of noteworthy projects being developed in the Balkans and in Bulgaria, so I will not succumb to pessimism just yet."

While Guillet expects some projects to renegotiate their power prices, he does not think that the availability of capital will be limited, but rather capital costs will be higher and that will be reflected in the higher power price negotiated in auctions or brought to market.

"So, you're likely to see a bump in tender and auction pricing, all other things being equal," he says, adding, "but for sure greenfield projects will still happen."

"The project economics are going to move a little bit. If they're able to pass that increase on into their prices, they will do so," says Guillet.

"Contracts for Difference prices will probably move up a little bit, by maybe 10–20 per cent. So if instead of €40 per MWh, you get €50 per MWh, maybe even smaller changes than that.

Those that have increased costs but cannot increase their sale price will see a drop in profitability. A few may decide to abandon their projects, but that should be a minority – in all likelihood they will try to negotiate with their suppliers to share the pain," he says.

For some in Europe, the cost of capital is not wind's main boogeyman. Even with inflation-driven costs affecting project economics, the fate of the wind finance market still rests largely on the shoulders of regulators imposing price caps, they say.

Starting on 15 February, the EU required states to cap the price of electricity when the Title Transfer Facility exceeds €180 per MWh for three working days, aiming to control volatile electricity prices. The move followed price caps imposed by several EU states.

Poland is one country that had imposed more severe price caps. "In my view, regulatory risk is paramount. Financing costs or higher project costs can be managed in a variety of ways, but regulatory uncertainty precludes predictability in terms of price or revenue stream security, and that can cause some investors to automatically put their projects on hold," Nerwiński says.

McDermott agrees that visibility on the future regulatory environment is what is needed to grow renewable energy investment. "There is an ongoing dialogue about redesigning the electricity market in the EU, to decouple electricity pricing mechanisms from gas. That, as well as the recent price

caps and windfall taxes, has resulted in a lot of regulatory intervention, even in private markets. That makes it really difficult to navigate, especially in an environment with interest rate rises and high inflationary pressure," she says.

The price caps and similar interventions cloud long-term investment horizons, McDermott concludes, saying, "There are a lot of good tailwinds for the [wind] industry, also supported by very high renewables targets within Europe. But you can't keep raising targets and at the same time handicap projects, or make them have to constantly re-evaluate their business cases. That's not how we're going to accelerate." ■

"The project economics are going to move a little bit. If they're able to pass that increase on into their prices, they will do so."

**Jérôme Guillet,
Enterprize Energy**



Quarterly wind disputes



World Forum Offshore Wind
Honorary General Counsel
Christian Knütel

In this edition of our regular column, World Forum Offshore Wind (WFO) Honorary General Counsel Christian Knütel dives into a dispute successfully handled by a private pre-arbitration body appointed by the parties on a European offshore wind project.

Recently, the existence and performance of a standing Dispute Adjudication Board with custom-tailored procedural rules proved to be very instrumental in helping two deeply entrenched parties – the developer and the Wind Turbine Generator supplier – to quickly resolve a complex dispute.

The completion of the offshore wind farm was significantly delayed. The reasons for these delays were multifold and included a delayed connection to the onshore grid, delayed supply of the various WTGs with power and grid connections, various scope gaps and required variation orders, but also the delayed availability of many of the WTGs and quality issues.

The originally planned installation sequence was not followed and the existing documentation was incomplete. Furthermore, the developer asserted the existence of almost 16,000 (!) defects or deficiencies in the installed WTGs, of which a material number were alleged to be serial defects. The overall volume of the disputes exceeded €1 billion.

Each of the parties had started its own DAB proceedings at the same time shortly before Christmas by submitting a lengthy statement of case plus exhibits. Hence the DAB and the parties had to deal with two parallel proceedings at the same time. Since the submission of the statements of case, it took the DAB only six months to issue decisions in both proceedings on all issues in dispute. The parties ultimately accepted the decisions and entered into an overall settlement, of

which conformity to these decisions was a major element.

How was that achieved?

First, the parties had opted for and appointed a standing three-member DAB, consisting of two engineers who also had a business background, and a senior lawyer with experience in acting as arbitrator in complex international arbitrations. The DAB was generally familiar with the project and the parties.

Second, the parties had agreed on a rather rigid procedure: After receipt of a statement of case, the defendant had only 42 days to reply. Counter-claims or set-offs were excluded. The oral hearing was agreed to take place 30 days after receipt of the reply. The DAB had the right to request additional information, and used it. The rules expressly stated that the hearing was not to be turned into a “mini-arbitration”, and that the DAB should issue decisions based on a summary assessment of each matter. The DAB was required to issue its decision within 30 days of the date of the hearing. All deadlines could be extended by agreement of the parties.

Third, the DAB and the parties were rigid and disciplined in meeting agreed deadlines and honoring agreed procedures. Some three weeks after receipt of the two initial statements, case management conferences were held and procedural timetables were agreed. These timetables included oral hearings of some three days each in both proceedings, and some extensions of applicable deadlines for practical reasons but also with a view

to the multitude of claims which were the subject matter of the proceedings. The final deadline was the one for the DAB to issue its decisions in less than half a year after the start of the proceedings. As with all the other deadlines, this final one was met.

Fourth, the parties and their advisors had made available the considerable and sufficiently experienced resources required to deal with such a multitude of complex issues in such a short time. The submissions and the explanations in the hearing enabled the DAB to easily understand the core of the various matters.

Finally, the DAB members and in particular the chairman of the DAB had a certain “gravitas” and not only managed the proceedings well but also issued convincingly and extensively reasoned decisions, which did not necessarily satisfy each party in all respects. However, the decisions were balanced. The risk of achieving a material improvement in a subsequent arbitration was so high that neither party wanted to take it. ■

— CHRISTIAN KNÜTEL
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Christian Knütel is Honorary General Counsel at WFO and a Partner at Hogan Lovells in Hamburg, focusing exclusively on offshore wind. He assists clients during the full life cycle of projects, from development through financing, disputes and divestments.



GLS Bank revs its engines to become IPP

The German bank has grown its renewable asset-managing and owning IPP arm GLS Beteiligungs over the past few years, with its eye on financing wind in Scotland, France, Spain and Greece. We spoke to Marcus Fütterer, a Senior Manager in Structured Participations and Financing, in mid-January.

GLS Bank's wind financing story goes back three decades, since tentatively supporting early wind parks in the 1980s. About 20 years ago it began to issue smaller, closed investment funds in wind parks for private investors. Since then, GLS Bank has made wind into a core focus area. "The whole bank lives renewable energy. The balance sheet is €10 billion and €2.5 billion of that is renewables.

"Our clients were looking to offer ownership in wind parks, and later on, also solar parks. The farms had to be operated by somebody, so the bank start-

"The farms had to be operated by somebody, so the bank started a subsidiary to own and operate parks by itself."

Marcus Fütterer, GLS Beteiligungs



Marcus Fütterer, GLS Beteiligungs

ed subsidiary GLS Energie to own and operate parks by itself," says Fütterer.

GLS Energie is a holding company for all of the bank's renewable energy participations, with no employees, managed by another fully-owned GLS Bank subsidiary, GLS Beteiligungs. This affiliate has been around for over two decades and has about 25 employees.

The bank took on a larger chunk of the supply chain in time. "The investment contract of the fund itself had to be managed and that was how

GLS bank stepped into that business, and a short time later we realized we can do it ourselves: We can own all those assets and refinance them with bonds, for example, mainly with GLS Bank's clients as investors."

"So, we began to build up our own portfolio which is now about 250MW, of which 100MW is solar and 150MW is wind farms, all in Germany."

GLS Bank is a co-operative, which meant it was legally permitted to operate wind farms it owns. Now, it is operating wind farms and selling power in Germany. But it also seeks to do so abroad.

It is not restricted to German investments when it operates as an asset manager and an IPP, Fütterer says. "As a bank we are restricted to German business. We are not allowed to give loans to UK-based companies or Italy-based companies whatsoever. That's restricted by law because of the form of incorporation. But as a subsidiary, asset owner and IPP, we are basically not limited," he explains.

"So, in theory, we can own assets and operate assets, but we have always been limited by personnel. People were completely busy with opportunities in Germany. This is the only reason

why we are not in France, in Spain and in Greece."

"We were in Scotland, we were in France and we looked at Scottish projects, but we have not realised those so far and are very eager to go abroad," adds Fütterer, noting the IPP's international plans.

"As a bank we are restricted to German business [...] But we as a subsidiary, asset owner and IPP are not limited."

Marcus Fütterer, GLS Beteiligungs

"In other markets than Germany we cannot offer any services, we demand services, we need services — for example, technical services to operate the assets, tax and legal services to operate the SPV, and in France and the UK we will need help. We will only own the assets and operate them and sell the energy."

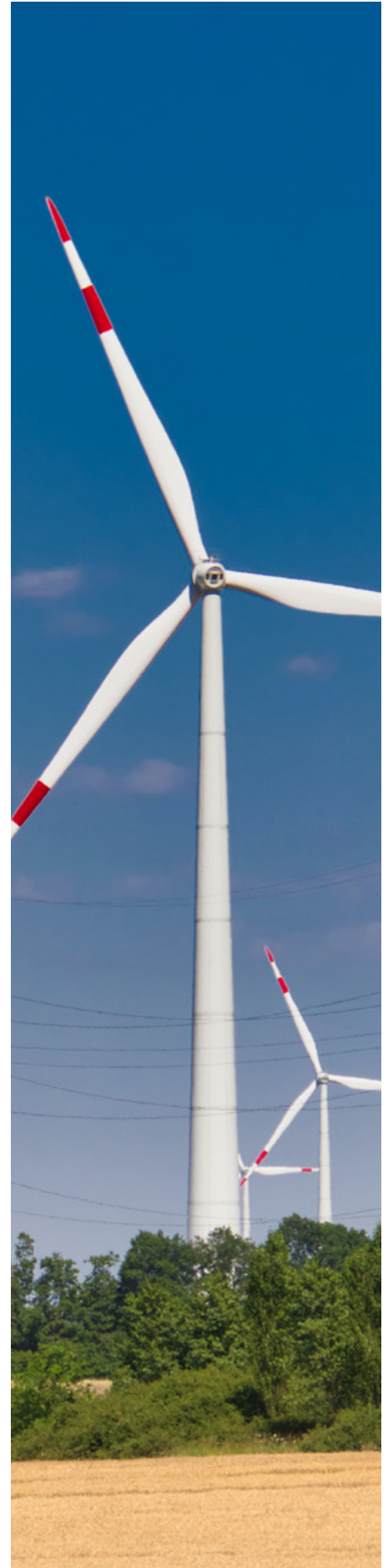
Germany breeds diverse offerings

"In Germany, our homebase, we offer much more. We know our core is financing. We offer refinancing of equity, we offer second-tier equity for clients of the bank we structure bonds for them," says Fütterer. The bank acts as the arranger for the debt and provides all tiers: first tier, second tier or mezzanine financing. What's more, it offers equity and can buy projects.

GLS Bank says it is the only bank in Germany that can provide this combination of services: placing bonds for structures, providing loans, placing green bonds, and stepping in with equity. "I know only one or two other very small co-operative banks which

have taken shares in wind plants as well, the wind farms are near their locations," confides Fütterer. German developer ABO Wind is a long time and fast-growing client of the bank it serves with bond prospectus and distribution power.

The bank also continues to partner with local landowners on co-ownership of wind projects. When GLS looks to acquire wind and solar farms abroad, it will do so using the same model, for example partnering with owners of agricultural or brownfield land. It does not currently work on offshore projects.



Equity demand amid inflation

Looking to the future, Fütterer says 2023 could be a boom year for wind development, but new development projects will need more equity and less debt finance as banks exercise caution amid inflationary risks.

“At the moment, it looks like it will become a very difficult market because interest rates are rising rapidly,” Fütterer observes. “Costs also, because inflation is rising very rapidly. So, I don’t know how this all will affect the overall market. The market is very promising, because regulation in Germany has been made easier, and accelerators and so on. Everybody is very enthusiastic in our market, but I’m not sure whether it will grow exponentially because it’s limited by interest rate and inflation problems at the moment.”

The inflationary cost of debt, growing to account for greater risks, will mean less demand for debt and more for equity for at least the next two years, he predicts. “We had past years where some projects could get 100 per cent debt finance, and I think this will be over in 2023,” says Fütterer.

For GLS Bank, it’s a chance to issue more equity to its developer clients. “The investor bases are still there for equity and we can help to issue green bonds for our clients, which is quasi-equity finance. It’s not really debt; it’s not really equity. From the bank’s position it’s treated as equity, and I think that we will see a couple of interesting placings next year in Germany and German-speaking countries.” ■

“Everybody is very enthusiastic in our market, but I’m not sure whether it will grow exponentially because it’s limited by interest rate and inflation problems...”

Marcus Fütterer, GLS Beteiligungs





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