

Power Finance & Risk



Offshore Wind Roundtable 2020

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EDITOR'S NOTE

Offshore wind is a well-established, known quantity in certain parts of the globe, where it accounts for a large and rapidly growing portion of the total renewable energy that is generated in some countries.

*Take the UK, which has more than 6 GW of offshore wind capacity, representing more than half of its total wind fleet. A further 1.2 GW is about to be added off the coast of Yorkshire in the coming years, after the first two phases of **SSE Renewables** and **Equinor**'s Dogger Bank project reached financial close on £5.5 billion of debt in November.*

Of course, the UK is located on a densely populated archipelago surrounded by the relatively shallow waters of the European continental shelf. In contrast, the US is a land of vast open prairies and – especially in Texas – light-touch planning regimes where developers can easily erect forests of turbine towers. So it's no surprise that the US has lagged a little behind the rest of the developed world in this particular area.

Having said that, the excuses are beginning to wear a little thin. The best onshore wind resources in the US were tapped so long ago that the old machines are now being replaced with new ones, while the coastal horizons remain turbine free. For a few wealthy residents of Nantucket and Martha's Vineyard, this is probably cause for celebration. Meanwhile,

crowded urban centers on the coasts are in need of plentiful clean energy but have little room to build.

The momentum behind large-scale offshore wind development in US waters is building inexorably, as states on the Eastern Seaboard vie to develop not only the wind farms themselves, but also the port infrastructure that will be needed to construct and maintain them.

*There are just a few things left to figure out. First, will the **Bureau of Ocean Energy Management** ever complete the environmental review and permitting for Vineyard Wind? And will that clear a path for all the other gigawatts of projects in the development pipeline to follow? And then, what will be the optimal capital structure? How will sponsors line up the vast quantities of tax equity they want, years before commercial operations are due to begin?*

Power Finance & Risk will be watching every step of the way. But in the meantime, we have brought together six experts to discuss the challenges faced so far and the probable road ahead.

Enjoy!

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PFR: The first question is for Matteo. Ocean Winds, the joint venture between Engie and EDPR, was formed just a year ago. So, Matteo, what are Ocean Wind's plans in North America for the rest of the year and beyond?

Matteo Maino, Ocean Winds: Well, the US is certainly one of our priority markets and one of the areas where we'll focus our resources for the next few years. It's one of the more interesting emerging markets in offshore wind. We're lucky enough that we have two sponsors who have very established businesses in the US. So, to some extent, we have a support network there of expertise and relationships, which helps enormously.

We're also very lucky to have a cornerstone

project in the market, in Mayflower, which we are working on and developing together with Shell, which will take up a lot of our attention and focus over the next couple of years and beyond. We are actively looking at other opportunities on both coasts. Obviously, the West Coast will tend to be, by its very nature, a lot more focused on floating offshore wind given the features of that coast, but we are big believers in floating wind. It's going to form a great part of our portfolio in a few years, and we are extremely active in that technology, not just in the US but in every single market where we operate or are looking to operate today.

We have a base in Boston as a result of our first real project being located over there. We're actively growing the team based there

and we plan to have a fully-fledged operation within the next 12 months or so. We see the US as one of the most interesting markets for us and it will continue to be a focus for the foreseeable future, no doubt.

PFR: On the equity side, a big trend has been oil majors entering the space. Over the summer, BP made its debut in the offshore wind market by buying 50% of Equinor's offshore wind portfolio, namely the Empire Wind and Beacon Wind projects. So what is drawing oil majors to this space?

Carl Fleming, McDermott Will & Emery: In a nutshell, it's just massive, massive demand. A lot of the majors see the scale, the

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proximity, the load and the state mandates. It's a huge market opportunity and that's driving a lot of interest, but when you get into the actual business case for it, it's a case that's well suited for oil and gas companies. They have an implicit understanding of the waters – they've been doing this for decades – and they also know how the infrastructure would operate, where it would be placed, and have a leg up on a lot of other developers that may not understand US coastal waters.

There's some overlap with a lot of the costs. There's some reporting that will show you ranges of around 40% of the costs of offshore wind that would be shared by oil or gas operations. You have a bit of synergy among those types of technologies. But you see a differing view between certain types of majors. Shell and BP, as Europeans, have come out and are looking for a diversified portfolio, so they see offshore wind as the quickest entrée, in terms of the number of gigawatts.

Chris Gladbach, McDermott Will & Emery: That's right. They understand the permitting. It's the same agencies that they're dealing with. They understand how to lease out in the ocean. They've been doing offshore development for decades. They have experience with the Jones Act, all the issues that it takes to permit large infrastructure. Obviously, these are much bigger facilities, but there's a knowledge base there.

McGinnis, PJ Solomon: I'd agree with all those points, Carl and Chris. The other piece of it is relatively patient capital. The oil majors are used to making expenditures that will either pay off in seven years or nine years or even further. In this case, it takes someone with the patience and financial wherewithal to look past a four-, five-year horizon before cash flows would be coming, and that suits the oil majors well.

Brad Fierstein, Apollo Global Management: Carl mentioned the scale. A lot of these investors have gotten into renewable energy in pretty large ways over time, but a lot of those projects are smaller. These offshore wind projects are huge. It allows them to deploy a substantial amount of capital pretty quickly, and the core expertise and confidence around offshore, all the physical

"You also need to look at the size of some of these projects. They're becoming more and more enormous, requiring major contributions in terms of equity from the sponsors."

work, the platforms, the permitting, all of that, is really a core competence of a lot of these oil companies.

This has been a rough year for oil companies – if you haven't noticed – in the stock market. They've just gotten crushed between the commodity volatility, between the decline of demand from Covid, and the Saudi-Russian oil price war. For most of them, they're at near all-time lows on their stock prices.

The public wants renewable energy. These guys are energy companies and they have cash, they can deploy capital in things that position them for the energy transition in the future. Hopefully, their shareholders will reward them for that as it starts to provide some balancing effect to potential long-term concerns around the energy transition and declining demand. Even if they may be temporary, this year, these are big shifts, and many of the oil companies have recognized that and are giving the people, their shareholders, what they want, which is renewables, and this allows them to do it in scale.

McGinnis, PJ Solomon: I agree, Brad. There'll be a valuation difference for those oil majors who are moving in the energy-transition direction versus those who are in denial.

Miguel Del Río, BBVA: There's extreme hunger for green investments. Oil majors are aware, and this is a trend that most of them are following. Total made public their commitment to green energy. BP was mentioned. We also have Repsol in Spain, that made a public commitment to be carbon neutral by the end of this year.

All the oil majors are turning to green investments and one of the most obvious in-

vestments, because of the reasons you just mentioned, in terms of size, returns, and in this particular case, geography, it's offshore wind. They're also taking into account the success that this industry has had in geographies such as Europe, where there's been a lot of successful deployments in offshore wind, with very few defaults in the industry. And that is what we think is moving most of the players to invest in offshore wind.

PFR: Are we also likely to see more involvement from the OEMs and EPC contractors on the equity side? From a developer's perspective, and also a financing perspective, is it preferable for these contractors to be equity holders during construction?

"There's extreme hunger for green investments. Oil majors are aware, and this is a trend that most of them are following."

Maino, OW: I don't think there is an answer in absolute terms. I think it's on a case-by-case basis. We have experience of projects where we have OEM contractors also holding equity in the project. Our experience has been positive.

You also need to look at the size of some of these projects. They're becoming more and more enormous, requiring major contributions in terms of equity from the sponsors. And there aren't that many OEMs with the appetite to stand behind the normal set of liabilities as a contractor to the project and also provide equity on the other side, as an equity investor. So there will be cases where that makes sense, but I'll be surprised if that becomes a widespread trend.

Gladbach, MWE: Yes. I do wonder. OEM financing has been a large part of the growth of the wind industry on the onshore side, of course. **GE Energy Financial Services** placed a lot of tax equity over the years, in large part to place their turbines. It remains an

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open question as to whether they will participate in this market in a similar way. As Matteo said, there's a lot of need for capital in this sector, especially on the development side.

McGinnis, PJ Solomon: Chris, I agree. When I was CEO of **Mainstream Renewable Capital**, we had vendor financing from OEMs that was offered to us. Mainstream was a relatively small financial entity versus the players that are typically engaged in offshore wind, who tend to be the bigger balance sheets, like Matteo's owners, or Brad, who partnered with the **Toto Group** in Maryland. Apollo's size helps that project quite a bit. But in the context of whether OEM or EPC vendor financing takes place here, it's really only relevant for the smaller sponsors. And, in offshore, as Chris was saying, these are all very big guys, for the most part.

Fierstein, Apollo: With the OEMs, obviously there's a lot of competition between the big three for offshore, and you'll see more and more push for any edge they can get. Tax equity is going to be part of the picture as long as some of these projects are still qualified for tax credits, and really, the only OEM who can do anything about that is GE, so maybe you'll see them add value to some of their customers that way.

“With the OEMs, obviously there's a lot of competition between the big three for offshore, and you'll see more and more push for any edge they can get.”

But for the most part, I agree with what everyone's saying. The projects here, you've seen them get scooped up by very large, well-capitalized investors or strategic owners, and that's because you're going to need the balance sheet to get it done. In a lot of ways, it's a little different in that sense, because you've never seen in conventional renewables – onshore wind and solar – this kind of balance sheet behind development before they got going. You'd be looking a decade back or so, but it was always smaller

developers. You'd get a big project on, and somebody buys it, maybe. But for the most part, they were picking the fruit after the crops had grown. Here, you've got some big, long-term strategic owners who are in the weeds helping to develop the project. It's a big difference.

PFR: Apollo was just mentioned, in reference to its equity and convertible debt investment in US Wind to finance the MarWin project off the coast of Maryland. PJ Solomon and McDermott were also involved in that deal as advisers to US Wind. I'm curious to hear what the rationale was behind the convertible debt structure, and if this is something we will see more of in offshore wind financings.

Fierstein, Apollo: I don't think our structure really had anything in particular to do with offshore wind, necessarily. The transaction that we were able to agree with the Toto Group – the developer and sponsor of the project – helped balance everybody's incentives and desires on the valuation of the project and the development path.

What it allowed us to do is acquire a stake in the project, day one. So, we're aligned, and we're an equity owner and give them, effectively, the balance sheet that they need, that we need, to develop the project without having to figure out what the valuation is when we put more equity dollars in over time. It means we have funding available and committed to the project to fund development, get us through construction as we need it, and that is all pre-wired in a deal with the Toto Group where everybody's happy with the trade-offs and the economics of funding that additional capital over time. It was really more about the particular situation and being able to structure the right kind of deal with an entrepreneurial and development-focused sponsor with a large business in Europe – and they've been very successful in the US, as well, with the previous development of the New Jersey Atlantic Shores project, which they sold to **EDF** and Shell. So, they've established themselves, but they needed a capital partner. Apollo was able to fill that role as a financial partner, and we were able to strike a deal that balances those two elements.

If you look at some of the other joint ventures, it's more 50:50 strategic. Both partners look the same. They just both want a piece of it. So it's a little bit of a different dynamic that's tailored to the type of players we have in our deal, versus what you may see in all the other deals, which mostly have strategic owners.

“This is a sector with a fair amount of risk, and it needs thoughtful, patient investors that need to roll up their sleeves and understand the risks and see a path forward.”

McGinnis, PJ Solomon: I'd say that Brad's being modest, in one respect. Apollo really brings American expertise, a strong track record in getting projects done, a deep relationship with other energy players in the US and an understanding of the regulatory environment in the US. Toto, as insightful and brilliant as some of their early moves have been, are not seasoned American influencers, and Apollo plays the role of a substantial US investor sitting side-by-side with this Italian infrastructure firm.

I'd also say that my client, Toto, has very attractive projects to pursue in Italy. Coming out of Covid-19 restrictions, they've got a lot of projects that will require immediate capital attention in Italy, and they are eager to put that capital to work. This frees up some of that dry powder to deploy in Italy, whereas, otherwise, they would have had to direct it to Maryland, so it was a win-win situation.

Gladbach, MWE: One other thing I would say, an interesting part of the deal – and I wonder if Brad and Jim agree with this – is that it seems to pave the way for private equity to get involved in offshore generally. This is a sector with a fair amount of risk, and it needs thoughtful, patient investors that need to roll up their sleeves and understand the risks and see a path forward.

There's a lot of development and there's a lot of promise in the US, but the whole East-

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ern Coast is in a place where there's only one real installed wind farm and there's a lot that needs to happen between now and then to get 10 GW, 15 GW, 20 GW installed. And so, to have a thoughtful private equity investor that can think about risk in the right way and understand how to value it is really valuable.

Fierstein, Apollo: Yes, I agree with all that.

PFR: Were there any major challenges in getting the deal done? And if so, how did you work around those? Take us behind the scenes.

Fierstein, Apollo: Oh, yes, there were some bumps in the road! [Laughter]

Fierstein, Apollo: Jim knows well. Jim introduced me to the Toto team. It must have been April or May of last year, 2019. We started talking to them way back then and it took a lot of getting to know the team, getting to understand the project, obviously tons of diligence and everything, but a long path of building a relationship with them. And most importantly, trust, to really partner together on something that they consider their baby.

They already knocked it out of the park with the New Jersey project, but to be fair, with that one they were an early mover, they bought it cheap, they sold it for an attractive price, and it will be worth a lot to its new owners, as well. But they wanted to develop this project and that required a different approach. We worked very hard to build a relationship and build that trust with them to let us into the tent.

Then you throw into the mix Covid, which threw everything through a loop and made it harder to work together and finalize negotiations, especially with the language barrier virtually. But also, their main business in Italy, which is infrastructure and construction, was heavily impacted by the Covid lockdowns in Italy. And so, between our own investment portfolio and everything on our side and them having to look after their flock and the rest of their business, it definitely threw us through a loop. It was perfectly timed, where we thought we had ironed everything out, and then March happened. We worked through it together. It probably made us stronger and closer because of it, since we

did a lot of problem-solving through that period and ended up with a great deal – a really exciting opportunity for us and for them.

McGinnis, PJ Solomon: It's challenging when you have an Italian infrastructure company, where the toll road traffic was off 97% for the month of March and well into April. Solving around that created a dynamic where the partnership was solidified. It was really remarkable to see, and hats off to Brad and his team, and Chris and his team, and to **Riccardo Toto**, as well.

Gladbach, MWE: It was a pleasure working with Jim and Brad and the US Wind team on the transaction. It was not an easy transaction, and it had a lot of complexity and a lot of issues to think through. We were just happy to be a part of it and to see the success and obviously, the deal is not done. There's a lot more to do. So, we're excited to keep working together and get this project underway.

“Highlighting the European experience is important, and in contrast, the US is still working through supply-chain challenges.”

PFR: Is planning for the next step of the financing – the debt and the tax equity – already underway?

Fierstein, Apollo: Yes. We're obviously focused on the construction financing down the road, but the immediate to-do list is more aligned with the development steps remaining and building out the team. They had relied a lot on consultants, previously, to help get the work done. We're building out the team internally and hope to have some exciting announcements to make around that pretty soon.

PFR: Moving on to debt, what are the biggest risks when it comes to financing these offshore wind projects?

Del Río, BBVA: For banks, I would say for greenfield projects it's mainly focused on construction. For example, UK or Northern Europe are very mature industries, so construction risks are generally accepted by the bank industry. I believe it's fair to say, when you're building an offshore wind park several kilometers away from the shore, and you have to put your wind turbine generators in the middle of the sea, you have to be very much aware of everything that surrounds environmental issues. What's the status of the seabed? Is there rocky seabed, or sand? Everything related to protected species around the site, permits. Everything that goes into construction is something to focus on, because there's so many moving parts there.

You have to not only understand the risks, but you have to coordinate several players at the same time to make sure that the cable is there at the time it should be and that it doesn't delay the next stage of construction. It's all about understanding everything that surrounds construction. Geology already has its own peculiarities, its own risks, and also managing the interface risks between the different stages of construction.

I must say, however, in industries such as the UK's, the industry has been going on for more than 20 years, and I would say construction risk is somehow diminished. There are very few questions about the status of everything I just disclosed. So, there's confidence in the bank industry that there will be few issues that will arise around construction.

McGinnis, PJ Solomon: Highlighting the European experience is important, and in contrast, the US is still working through supply-chain challenges. It'll be some years before we get a clear understanding of how the US supply chain is working, how many Jones Act vessels can be built to erect the turbines, and those are concerns for debt lenders who don't have the upside of equity in the project.

So for debt investors, getting to the first few projects would be a very beneficial step in clearing up credit risks, and getting the US to the place where Europe is now, where it's very understandable, and there are not a lot of risks to the project construction. Here, we haven't done it yet in massive scale. We've done six turbines. Once that gets underway, the debt cost will come down proportionately.



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Maino, OW: I agree with that, and I think those are the risks that were highlighted. Several European countries have, now, quite a number of projects executed and in operation. Some have been in operation for quite a while. Lenders have, therefore, developed their own templates to assess, structure around and manage those risks.

That process needs to happen in the US and I'm sure that some of the risks that will appear in the US will not necessarily be the same, or the solutions for those risks will not be exactly the same, as those that have been identified in other, more advanced markets, but that process needs to take place. And I agree, it will require a few transactions to be done to create those templates and the expertise to manage those risks.

Fleming, MWE: When I think of these types of projects, think of onshore wind availability, you have quick resources to go out and build these things or to repair them. When you think of, exponentially, how far out at sea these things are, and the type of weather and water and just the sheer scale of these projects, the construction risk and the O&M cost can be exponentially increased as well, just due to the fact this is a complex thing to fix. And when you throw in the fact that we have a limited number of vessels, as Jim was mentioning, who knows where these vessels are tied up, how many projects there may be at some point in time, and where we sit with regulatory issues to get those vessels to move freely in the US?

Recently, there's been some amendments introduced to try and make the Jones Act stronger, to protect the US maritime industry. And on one hand, that's great, because we want to build that supply chain and grow the supply chain for the US, but another turn of that is, if we're too pro-American supply chain, we run the risk that people might just do workarounds and launch out of Canada and circumvent the process.

So, there's a bit of a balance that needs to be played out, and this may take a while for us to figure out. Until we can get that construction risk and that exponential risk that's introduced being so far out, it's a bit of a quest, but we'll figure it out. It's just going to take a little time.

PFR: Since we're comparing Europe and North America, what is the cost of capital for offshore wind projects in Europe compared to over here?

Maino, OW: Not a simple question to answer. Based on what I've seen so far, it is clear that the cost of debt will be a little bit higher today in the US than it is in Europe, for the reasons that we've just covered. How much higher – it will require transactions to actually enable us to measure it properly and reliably. In terms of the cost of equity, at least from our point of view, we don't see any material difference. So if there is a difference in cost of capital, it's entirely driven by what's available on the debt side of the equation, rather than on the equity side of things.

Del Río, BBVA: I agree. Regarding financing, we expect there to be a premium in financing costs on new transactions in the US, mainly because of what we've just discussed. There's a certain degree of uncertainty with many issues related to construction, so we expect a premium in financing costs. Also, we have the fact that the US transactions that are expected to come to the market are relatively large in size, and some of them may even come to the market at the same time, so there may be a slight liquidity stretch there to provide liquidity for all the offshore parks that come to the market.

And in terms of capex, the cost per megawatt in the US may be slightly higher than the ones we are seeing in Europe, because of the status of the industry. So, all in all, I don't have the answer, I haven't done the numbers, but we do expect that the cost will be slightly higher. It will be especially applicable to the first transactions. Once the market is up and running, there may be a shrinking of costs, debt costs and capex costs.

McGinnis, PJ Solomon: But, of course, the tariff is also relevant. The initial round of projects, whether it's Vineyard Wind or US Wind, or Boardwalk, for instance, all have auction results that reflect the right risk/reward from an appropriate margin for the production of energy under the contract with the higher initial costs taken into account.

When we get to a place – fast forward five years from now – when US offshore wind is

bidding perhaps even merchant energy, as some limited situations in Europe are now, then that will change the cash flow dynamics. But right now, the margins are fair and achievable and that also affects the attitude of lenders. Our lending affiliate at PJ Solomon, **Natixis**, is involved in the Vineyard Wind consortium, and is very happy to be there, as well as US Wind, and believes the risks are appropriate.

PFR: And what would you say are the relative merits of project bonds versus bank debt for offshore wind? Since these are very large, expensive projects, could financing potentially take the form of hybrid transactions to get the best of both worlds?

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Del Río, BBVA: What I can say is that it does make sense from a size perspective. And due to the fact that these assets, once construction is over, are a different sort of asset, with more limited risks, they are more suitable for bonds or a capital markets takeout. Truth is, we haven't seen many of those in the European or global market – bonds backing up offshore wind projects.

My personal belief, and I may be wrong, is that the construction periods are long and that may present some problems in terms of issuing a bond with three or four years of construction period. However, it's one of the big questions that, if it's in a market that's as solid and as deep as the US, these sorts of bonds will be more common in the new projects.

Fierstein, Apollo: As part of Apollo, we have a very diversified asset management business, a large portion of which includes long-term credit investments across our in-

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insurance portfolios both in the US and Europe. We have over \$200 billion of assets under management in that asset class, so we're constantly on the lookout for high-quality, long-dated investment-grade type profiles for those balance sheets.

My expectation is that you will see a lot of opportunity in offshore wind, especially once the projects are operational, because the demand in the life insurance market, in the annuities market, for high-quality, long-duration paper is very high. And the offshore wind projects have a lot of what onshore renewables have lost in terms of strong credit profiles with offtakers that are generally tied to state balance sheets or state credit profiles.

You have long-term, 20-year contracts. Those are pretty hard to come by with utilities these days and if you can find them, a lot of times in renewables, they're structured as a hedge with some basis differential to a liquid traded node, and they're really just financial products. These offshore wind contracts are true, effectively busbar PPAs with extremely creditworthy counterparties, for a very long duration. So, once you're operational and the construction risk is gone, these projects are investment grade, hands down, and you will find a lot of appetite in the insurance market for 20-year bonds to refinance these projects out.

McGinnis, PJ Solomon: Especially with the strong sponsors that we've talked about.

Fierstein, Apollo: Even more so, yes.

PFR: Where are you seeing construction debt pricing? And where do you think long-term debt will price for US offshore wind projects?

Fierstein, Apollo: We have to defer to the banker! [Laughter]

Del Río, BBVA: I'll give an indication of where we see prices in the European market and try to extrapolate to the US. In the European market, we are seeing tenors of around 19 years. That is three-, four-year construction plus 15 years operation. Normally, those 15 years match either a PPA tenor or a subsidy tenor, which, in most forms, have a 15-year tenor.

So, we are seeing 19-year tenors here in Europe with average margins of around 175 bp, 180 bp. There are differences between the UK and Europe, because there's a premium regarding the pound, but, still, 180 bp. It's a fairly compressed margin, in my opinion, for such long-term financing. I think the discussion regarding the US is traditionally more around shorter tenors. Previous transactions expected to come to the market in the US were expected in the market at around construction plus 10. That tenor, although slightly longer than what we usually see in the US, is still not as long the tenors in Europe. So, there's two variables there, if the tenors are going to stretch to European standards, and if not, if the margins are going to remain high or low.

For deals in the US that are construction plus ten years, you could perhaps expect margins close to 200 bp on average, which includes a premium to what we've seen in Europe. But still, bear in mind that these transactions will generate a lot of appetite in the banking industry and, potentially, banks will be more than happy to be part of the group, so that may lower margins below that level.

PFR: Miguel, since BBVA is one of the lenders for the Vineyard Wind project, is there any color or commentary you can add on that process and what's happening right now with that project?

Del Río, BBVA: BBVA looked at the opportunity at the early stages. According to public information, there has been some sort of issues or delays regarding environmental permits. Lesson to be learned is that even though the projects are at a very advanced status, with banks ready to close in a matter of weeks, for geographies where the industry is relatively new, you have to be extremely cautious and don't expect financial close until everything is closed. Especially in the US, where you have state permits and federal permits so sometimes obtaining full planning permission may cause some delays. It's normal in an industry that's relatively young, as offshore wind is in the US. In practical terms, we expect the project to come to the market by, maybe, beginning of next year, the same as other projects that are currently in the market.

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Gladbach, MWE: What's being referred to by Miguel is the NEPA process and the environmental impact statement that was delayed for Vineyard mid-last year. The announcement that that process was going to get delayed obviously sent shockwaves through the industry. Essentially, what BOEM did was announce that it was going to evaluate not just the impact of the Vineyard project, but the impact of 22 gigawatts of potential installed capacity throughout the Eastern US. So, in June of this year, the supplemental environmental impact statement came out, and the impact of that cumulative capacity build-up was evaluated. That coming out, despite the particular delay for Vineyard, was a really good thing for the industry, because now there's a road map and a template for moving forward, and the industry can learn a lot about what mitigation strategies they can employ. While that impact statement's not programmatic, it really addressed a lot of key issues.

One issue, of course, is the fishing industry and how they are responding to this potential development. The fishing community wanted fishing lanes that were four nautical miles long. The US Coast Guard responded to that concern and said that wasn't necessary, that actually the proposed turbine spacing of one nautical mile and the east/west orientation was sufficient to protect the fishing community and navigation.

Now the agencies have weighed in, the risks have been identified, and everybody in the industry is looking for a resolution at the end of this year to that permitting process for Vineyard. When that gets resolved, it's really going to be a very nice thing. We've been on the edge of major development, major construction, for years, but it feels like the resolution for that is just going to be the spark.

● OFFSHORE WIND ROUNDTABLE 2020

PFR: With the upcoming US presidential elections, what would everyone say would be the impact of a Trump victory, or the impact of a Biden victory, on the US offshore wind industry? (Editor's note: This discussion took place in October, before election day in the US).

[Silence]

PFR: You don't have to say who you're voting for, of course.

[Laughter]

Fierstein, Apollo: There's a lot of momentum, independent of which party wins. It feels, to me, to others in the industry I've spoken to, like we've passed the tipping point here where this is happening. The Trump Administration can slow things down like they did with Vineyard, but at the end of the day, the requests and the reports produced there are not unreasonable. They're things that should be considered.

They've been considered and the people have voted in various states to procure this renewable energy. It's not federally driven. In fact, the federal government, basically, just has to get out of the way and well over \$100 billion of private capital is going to come flooding into the US economy. This is low-hanging fruit for any administration coming out of the recession, which is unavoidable, at this point, coming out of Covid. These are jobs. It's green energy that basically everybody wants. The issues with fisheries and coastal communities, and coastal navigation, are all very solvable. Fishing is not proprietary to the East Coast of the United States. They also go fishing in Europe! And it has been solved very effectively all over the world. It's not rocket science.

Either administration would be foolish not to seize the opportunity to latch on to opening the floodgates of private capital that's going to come in and develop something that basically everybody wants, that is acknowledged as good for the economy, good for the environment. So, either way, this is happening. Maybe it's a little easier, faster, better with a Biden administration, but on the margin, I think.

Del Río, BBVA: Completely agreed. What

we fear, from the lender's perspective, is if it's a Biden administration, and therefore a change in administration, the environmental approvals that Christopher mentioned before, that we were expecting by year-end – the theory is that with this change in administration there may be some short-term delays. Instead of the end of the year, that may slide into next year, but in the long term, I completely agree, there shouldn't be a massive impact depending on who wins the election.

Maino, OW: That's our assessment, as well. Direction of travel is very clear. So, what Brad said, we completely agree with.

"Maybe we have a little more momentum under a Biden administration, just given the fact that his plan calls for doubling offshore by 2030. So it's out there, whether or not that's a goal you can attain, but it's a plan."

Fleming, MWE: I would agree. Maybe we have a little more momentum under a Biden administration, just given the fact that his plan calls for doubling offshore by 2030. So it's out there, whether or not that's a goal you can attain, but it's a plan. It was mentioned how the states are driving a lot of this stuff, and under the Trump administration we've seen a bit of a difficult dialogue between states and the federal government. If we can get a more cohesive dialogue between the administration and states, we could see a pretty big boon to the industry more quickly.

Also, in terms of legislation that gets passed, last week there was a new bill from the Democrats, the Ocean-Based Climate Solutions Act, and that's just trying to speed up wind projects as well as other projects. So, they're repackaging things that have been pledged before, and we're trying to get the oceans in better stead, but some of the offshore items made their way into those proposals. So, that could actually be something in addition to the administration coming in.

PFR: Turning to offshore wind leases and offshore wind tenders, what's the potential for offshore wind leases in the New York Bight area?

McGinnis, PJ Solomon: There are over 1.7 million acres of BOEM land still available in the New York Bight. It's proximate to a large population, with the BP-Equinor project moving ahead, and it is the largest potential BOEM lease area left north of Virginia, on the East Coast, which is a large wind resource south of Maine.

But with Covid-19 disruption and possibly other factors, that New York Bight auction has been postponed. We're not sure how much of the acreage will come to auction or whether it will come in two or three different, separate phases, but it will be an important determinant of what the valuation is for undeveloped acreage. And in connection with that, New York and New Jersey have very large offshore wind objectives. 7 GW in New Jersey and 9 GW in New York, both by 2035.

So, the New York Bight is going to be a huge potential opportunity and that's what the major players, like BP, have announced they're interested in. All of the parties who have the stronger balance sheets will take a close look at that auction and the pricing at that auction will be a very important indicator of the health of the industry.

PFR: Over the summer, New York launched a 2.5 GW offshore wind tender, which has an interesting caveat in that the projects must also include plans to support port development. What is the scope in terms of providing project financing for both the wind projects and other infrastructure, like ports?

Fierstein, Apollo: It's logical for the states to be including the supply-chain infrastructure and ports as part of the picture. That's additional in-state development and jobs and industry for the state. Maryland has something similar as part of the OREC order, which is public, but there are important in-state requirements for participating in the Maryland OREC program, both for in-state sourcing of labor and supplies, also port rehabilitation in Baltimore and a bunch of stuff like that.

It makes complete sense, to me, for these state programs to include stipulations around

OFFSHORE WIND ROUNDTABLE 2020 ●

in-state investment for all of the ancillary infrastructure that will be required for it. It's just another component to the development cycle of these projects, which is inherently very local and needs to be approached that way. You have to work with the local stakeholders and communities and the other jobs that it'll create.

It's a key part of successful development for something like this in the US, which is pretty different than in Europe. Other than the fact that the federal agency BOEM is auctioning off the available lease area to build the projects, the progress is really being driven by the states and the state procurements. So, it's completely fair to include that in-state investment requirement.

McGinnis, PJ Solomon: It's also a source of creativity. New Jersey's done a really good job with their Wind Port investment. They've set aside a couple hundred acres in southern Salem County on the Delaware River, which is geographically appropriate for the mid-Atlantic wind projects. And they've devoted some \$30 million of capital to kick-start some developing and have European-style manufacturing and marshalling onsite on that spot, which is reasonably close to Salem Nuclear Plant. That plant will likely begin decommissioning in the coming few years, but in the meantime, it's not really suitable for major commercial or residential development, so it's a perfect site for the Wind Port. And also, developments up along the East Coast in Massachusetts, New Bedford and farther south in Baltimore, Maryland are other sites which should see significant economic stimulus. It makes a ton of sense for the governors to say, let's use this RFP opportunity to gain both a new source of energy, but also, a new source of jobs in a set of towns that could use the economic flux.

PFR: Focusing on the federal tax credits, with the phaseout of the PTC and ITC, where will developers look to plug the gap? Is it going to be more debt, cash equity, mezzanine capital?

Gladbach, MWE: A number of the projects are safe harbored already, meaning that they've started construction within the meaning of the Treasury regulations, and, of

"I think we all agree we will see major developments, multi-billion developments of floating wind in the near future."

course, if projects start construction by the end of this year, they'd be entitled to the 18% ITC. People are doing that, and looking to do that, for their projects. So a number of these projects will have the benefit of some type of ITC – maybe not the full 30%, but some type of ITC.

Beyond that, we've been tracking various legislative proposals. Carl, I know you've been looking at that, and there is a hope that there will be more traction, maybe a stand-alone ITC for offshore. I think there is political will there. It just hasn't happened yet. So, we're not giving up hope that there'll be some legislative solution here.

Fleming, MWE: I'm always hesitant to go into tax stuff as a transactional attorney, but I'll play tax attorney for a second. So, yes, we've seen the Growing Renewable Energy and Efficiency act, the GREEN Act, to maintain PTC at the current levels for 2019 and 2020. So, 60% and 40% around, and then extending it through 2025. It seems like a lot of offshore wind developers choose to claim the ITC. It would not face the reduction support levels on the proposals, but could still get the 30%.

McGinnis, PJ Solomon: And this may be where we can comment that this election will matter. So, to the extent that the Senate flips, we may have a solution for tax equity, a change in tax equity that could occur that would allow for the broadening of the tax equity appetite. Right now, it's limited to a handful of institutions that have the size of pre-tax balance sheet and the wherewithal to lend into these projects. That solution set can get much broader with a legislative fix, and that's where I think if the Senate flips, there may be a solution there.

PFR: Another interesting sector is floating offshore wind. Mitsubishi's Diamond Offshore Wind subsidiary is exploring the possibility of such projects in the Great Lakes, and since the Great Lakes are not overseen by BOEM, those projects won't face the same permitting challenges. What are the prospects for floating offshore wind in the Great Lakes and along the West Coast, where the wind speeds are higher, but the waters are deeper?

Maino, OW: I can't speak for the Great Lakes, but, certainly the West Coast, for us, is an area of great interest. Yes, it comes with complexities. Yes, it's practically only suitable for floating. Yes, a lot of areas have military complications attached to them. But the wind resource is fantastic and I'd be surprised if in the next few years, we didn't see developments of a floating nature off the West Coast.

Del Río, BBVA: From a lending perspective, we already discussed the huge appetite that fixed-bottom offshore wind industries raise from banks. Banks are very interested in the industry. But speaking about floating, it's a completely different story. As of today, there have been some developments financed by banks such as BBVA, in Europe, of floating wind. Still, I think we all agree we will see major developments, multi-billion developments of floating wind in the near future. However, from a technology point of view, the fact is that banks or lenders want to make sure that the technology is proven. We may be still a little far away from banks financing multi-billion floating wind offshore. I may be wrong, this may happen next year, but I think that's where we stand.

Maino, OW: I think Miguel is correct. There is appetite and there is growing appetite. We went out late last year to get bank proposals for our second pilot, a floating project in France and were very positively impressed by the level of interest expressed by lenders. So appetite is growing. Banks are keen to have the credential on their books to demonstrate exposure to that space. Are we going to get to the scale that we're seeing in fixed offshore quickly? Probably not, but the market is moving and it's moving faster than I thought it would be.

● OFFSHORE WIND ROUNDTABLE 2020

PFR: EDPR is also working on the Humboldt project, right? The floating offshore wind project off the coast of California?

Maino, OW: Yes. It's one of the areas that we're working on. It's not the only one, but yes, it is one of the projects that we are actively spending time and resources on.

Fleming, MWE: To Matteo's point, from a legal perspective, it's always very interesting to watch it developing faster than you would have normally expected. Any sort of non-recourse financing would be a huge vote of confidence for the technology and how far it's come. Given that you're probably going to have to have some pretty bespoke contracts, an iron-clad structure to compensate for that technology risk, and you're probably going to see some pretty large contingency budgets, some pretty bespoke insurance policies, to cover what is a pretty nascent technology, I think a lot of that will also rely upon regulatory clarity, government support for where this may be.

When I look at the various markets for this, I break it down into four sectors. You've got the Gulf of Maine where there's some development and pilot projects. East Coast meets the demand there, just because it's prohibitively more expensive to mount these things as you go further out. So, to our point earlier on, the demand along the coast is just so high with these state mandates, I think people are willing to push the envelope to see if you could get this to work out there.

For the Gulf of Mexico, that's an area where the supply chain is already there, arguably, but there's not a lot of political demand to push for it like off the East Coast. And the West Coast could definitely use this stuff, and it's been pushed ahead there. One of the challenges is to compete with solar and storage out there. Given the size and the advancements in technology, I think the West Coast would be a great market for that too, but it has its own new technology.

PFR: Speaking of technology, the technology for offshore wind turbines is changing so rapidly, with turbines getting bigger, getting cheaper. But with permitting delays like Vineyard Wind faced, how does that affect the ability to arrange fi-

ancing? Because by the time you get the permits, there's the chance that the technology may have already evolved. How do you work around that?

Del Río, BBVA: Well, speaking particularly about the Vineyard project, knowing that the project has already got lender support and lender appetite, it may be that the sponsors decide not to move anything, apart from the fact that they need all the permits, obviously. But it may be that they decide to move on with the deal, or a very similar deal to the one they have, even though they may have smaller turbines that they could have in the market right now, just in order to avoid a full bank process that may delay financial close. We'll see in a few months what they come up with, but it may make sense.

"We're seeing players such as GE that are putting into the market models that are twice the size as the ones as they previously had on the offshore wind market."

With regards to the industry in general, I think you're absolutely right. We're seeing bigger and bigger models. We're seeing players such as GE that are putting into the market models that are twice the size as the ones as they previously had on the offshore wind market, and preparing for the evolution of the market, and in particular, the evolution of the US market, with those very big US parks to come through the pipeline. The trend is there, turbines will be bigger and bigger, and this is something we will see in the sector in the future.

Gladbach, MWE: One thing to think about is whether you're utilizing the whole portion of the lease that you have. Some developers, where they had 500 MW under their project plan five years ago, maybe that's a gigawatt now, because you've got turbines that are 12

MW and 14 MW in size that are coming to market. And if you're redoing your permits along those lines, it's much easier to redo a permit as part of the federal permitting process than it is to bid for a new lease. So, that's enhancing the capacity of a lot of these projects and making bigger projects possible, with the grants that have already been given. So, in that sense, it's a very positive thing.

Maino, OW: It's a pattern that we've seen a lot in the UK, where a lot of the seabed lease concessions were then executed in phases, with sometimes material lags between one phase and the next. This, in turn, can lead to completely different turbine and configuration choice, precisely, to capture the evolution of technology.

PFR: With regards to the evolution of technology in the US, some have posited that adding batteries to offshore wind projects could attract a more interesting financing profile. For example, Bay State Wind, the joint venture between Orsted and Eversource, has teamed up with NEC Energy Solutions to add batteries to their offshore wind project off Massachusetts. Meanwhile, in Europe, Shell Nederland and Eneco recently submitted a bid in a Dutch offshore wind tender, to develop a project that will feed an electrolyzer that produces hydrogen for a Shell refinery. What are your thoughts on all this?

Maino, OW: The benefit of adding dispatch ability to a plant, whether it is a form of batteries or whatever else, depends 100% on how the market where you sell your power is regulated. There are markets where you may be able to genuinely capture extra value by being able to dispatch your output. In many others, it doesn't really make any economic sense, if you're the owner of the wind park, to do so today. Market-by-market, you need to analyze how ancillary services work and whether that makes sense for you.

And in terms of the example in the Netherlands, I would expect this to be driven by the way the tender was structured. It's certainly going to be a trend, and we'll see it more and more, I suspect, in anything which is government-driven. Certainly, in Europe, we're seeing it. ■