



**SPECIAL REPORT**

# HOW TO DE-RISK FLOATING OFFSHORE WIND PROJECTS

Giving investors the assurance they need will be crucial in the development of the offshore wind sector, but will oil and gas companies be willing to take the risk?

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# Summary

Many investors have major doubts when it comes to providing finance for floating offshore wind projects.

Banks and other funders can be nervous when it comes to investing in such innovations because, by definition, there is no precedent.

However, there are ways around this problem. It may involve contractors or technology providers offering substantial warranties, for example. But it will also involve demonstrating to potential investors that the necessary infrastructure and supply chain is in place to support the scaling up of floating offshore wind.

This perhaps represents the biggest challenge, and as a result there is considerable uncertainty about future investment in floating offshore wind.

Consequently, some oil and gas companies, for example, are taking a very cautious 'wait and see' approach before committing any capital.

Yet, despite this, many industry observers highlight the fact that a number of oil and gas companies have already successfully entered the offshore wind sector and more are sure to follow.

In this report, we explore what needs to be done to make offshore wind a more bankable asset, whether the risks associated with the sector are real or perceived, and the likelihood of more oil and gas companies expanding into offshore wind industry. We also analyze the prospects for projects combining offshore wind and green hydrogen.



# Is floating offshore wind a good investment?

Of all the investment opportunities in the offshore wind sector, floating wind may be one of the most promising.

Why? A report by industry body Wind Europe concluded that 80% of all the offshore wind resource in Europe is located in waters 60 metres and deeper – that is, depths at which traditional bottom-fixed offshore wind is not economically attractive. Meanwhile, in the US, 60% of offshore wind resource is located in waters at least 60 metres deep.

Despite this, investors are hesitant about financing floating offshore wind projects due to the fact it is, by and large, an untested technology.

So, what needs to be done to improve the bankability of floating offshore wind?

Banks always prefer to invest in projects that have precedents, which means floating offshore wind has an issue in this respect, says Jerome Guillet, founder and managing director at Green Giraffe. “This is why non-recourse financing has not been provided for floating wind,” he says.

However, Guillet points out that a similar situation faced bottom-fixed offshore wind 15 years ago. So how did that part of the industry make itself bankable and what lessons can be learnt? Guillet says the industry tried to “imagine the worst possible

scenario and cater for that”. He adds: “So the way you do that is the first structures are pretty conservative, you make a lot of assumptions and you inflate costs to deal with potential imaginary problems – you need to go through all the what ifs, and the reality is that, in the early projects, the contractors and foundation technology providers will need to provide warranties that are larger than they’re probably comfortable with.” Guillet says that, once the technology is proven, then the warranties will go down and financial terms will improve.

“Imagine the worst possible scenario and cater for that





# Oil majors eyeing floating wind

## How can you reduce the risk associated with floating offshore wind projects?

It's an intractable problem, but Henrik Stiesdal, chief executive of climate technology company Stiesdal, says that often the risks investors are concerned about are perceived rather than real.

He cites the example of bottom-fixed offshore wind and investors' worries about tsunamis and tankers damaging turbines. There was a time when it was difficult to convince investors about the merits of offshore wind, but over time, attitudes evolved. Stiesdal says: "Around 2012, almost overnight,

it changed, bankers previously had said 'you need to convince us why we should invest money in this', but then they started asking if there were more offshore wind projects they could invest in," he says.

Ultimately, as Stiesdal points out, "numbers make the difference" and once there are several projects of a decent size, investors will develop more confidence in floating offshore wind.

What's the position of the oil majors? Vincent Fromont, president and floating offshore wind general manager at Shell-EOLFI, acknowledges that his company is cautiously evaluating the potential of the sector.

That said, Fromont adds that Shell-EOLFI is a "strong believer" in the industry's potential. "We'll go step by step, yes Shell can play a major role in developing floating offshore wind, but we hate risk and we are trying to de-risk floating by investing in prototypes and demonstrators."



# What are the pitfalls?

Edward Northam, head of Green Investment Group (GIG) Europe & UK, says that, as an equity investor, GIG assumes risk earlier than other investors and the group has already placed fairly significant investments in floating wind, particularly in Asia. “I really don’t worry at all about the availability of capital to support the delivery of floating wind, I worry a lot more about how we’re going to deliver it,” he says.

Northam says key issues that must be addressed to ensure more floating wind projects come to fruition include port infrastructure and the supply chain. He explains: “How are we going to deliver the scale, the efficiencies? This is the much bigger challenge, if we don’t give those capital providers the sort of experience they want to have, we can’t assume they will continue to support the sector.”

Being able to effectively explain the risks associated with floating offshore wind will go a long way to ensuring the technology is more widely adopted, says Dalia Majumder-Russell, partner at CMS. “When something is new it is always scary, you’ve got to figure out where the pitfalls are and what can be done in terms of managing them, whether it’s a change in the law, or of contractual warranties, or insurance,” she says.

Majumder-Russell adds that, while lawyers can on the one hand spot problems, they can also apply the lessons they have learnt from other floating wind farms to determine the scale of potential problems.



# The first design may not be the best

Which of the plethora of different floating wind platform designs will progress to development?

Christos Kolliatsas, offshore wind global director at UL, says the design most widely adopted will be the one that is “going to come out first, which will probably be the simplest, easiest to install and, hopefully, also relatively good from an economic standpoint”.

However, Kolliatsas adds that an important consideration will be whether contractors will be willing to provide the extra security required to make such projects bankable. “We will definitely see losers in the industry,”

he says. “We’ve got too many designs, but it would be great to see a number of designs being financed at roughly the same time – precedent is a huge thing in this industry, so before you know it, you’ve got two or three deals involving the same design and then that’s all you’ll see for the next three, four, five years, but it may not be the best design.”

**“It would be great to see a number of designs being financed at roughly the same time**





# Offshore wind and hydrogen: What's the business case?

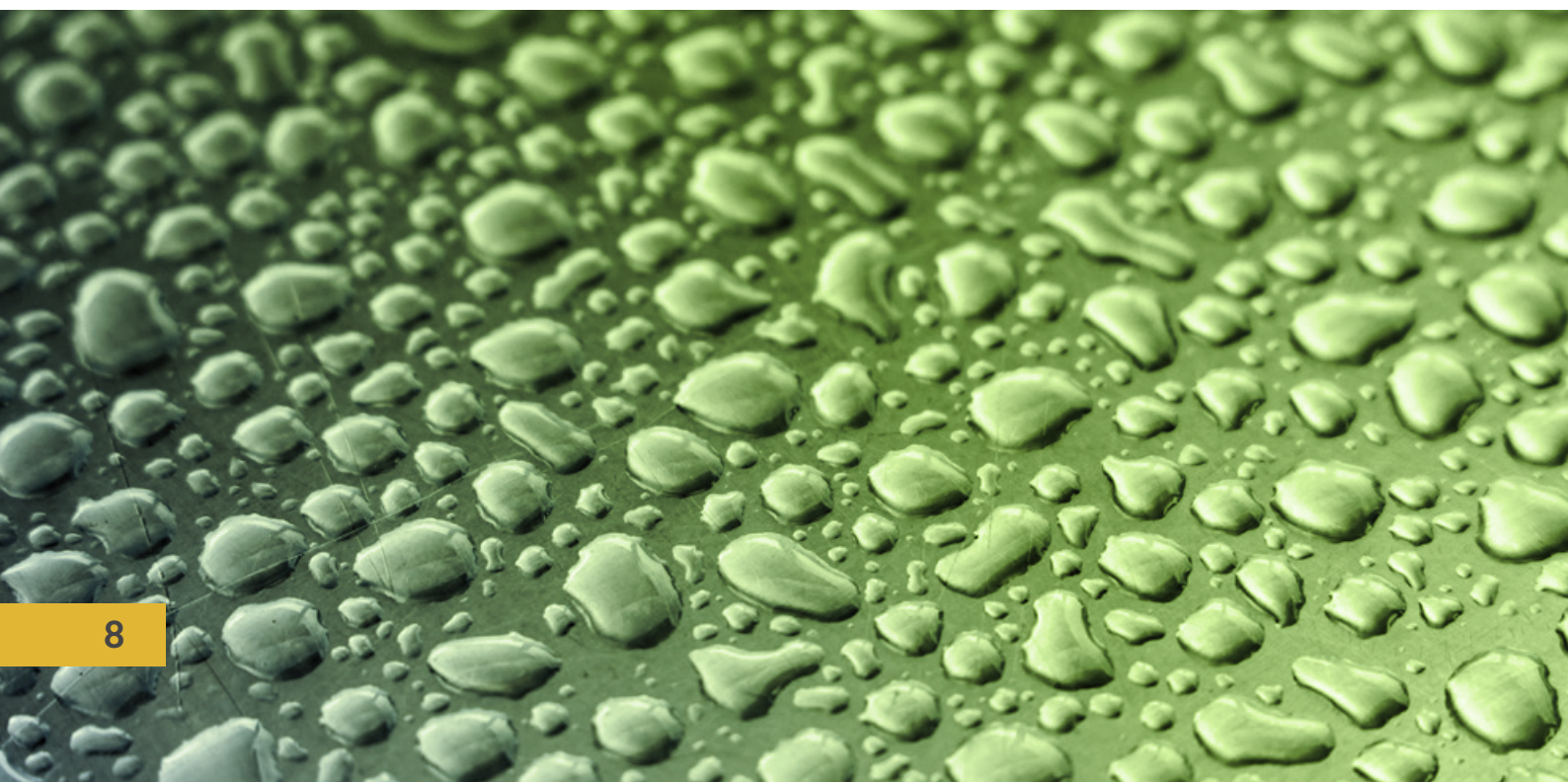
Currently, leading players in the wind energy sector – such as Ørsted and Shell – are exploring ways in which offshore wind energy can be used to produce green hydrogen.

However, in the opinion of Northam, the economics of using offshore wind to produce green hydrogen at scale remain “pretty challenging”. He adds that Green Investment Group is looking for opportunities where there is the perfect combination of a great location – Scotland is a good example – an existing infrastructure that can be repurposed, and the presence of a “broader stakeholder group” that will help a project progress. “The opportunity at the moment is focused on a collection of what you might call pathfinder opportunities,” Northam says.

The whole industry is assessing the combination of offshore wind and green hydrogen, according to Fromont. But he adds that the question is what is the business case? “The technology is ready, but is it ready at a larger scale? That’s a big question.”

Fromont says that Shell-EOLFI is exploring the opportunities with offshore wind and green hydrogen but there are challenges in moving the technology to scale. Work is required to enable the proper distribution channels, and while there is a lot of political momentum across Europe, there is also a need for greater policy coordination to support the opportunity.

One of the biggest issues facing the green hydrogen sector is a lack of coordination from a policy perspective, according to Majumder-Russell. “The challenge we have, and this is a challenge that we’re seeing in Portugal, the Netherlands and Spain, is that there is a lot of research and development money, but we haven’t got the joined-up policies,” she says. “We haven’t got the experience on the ground from our authorities.”





# Taking on the competition

Technical advisors on projects combining offshore wind power and green hydrogen will be looking to see that any proposed financial model makes sense from a technical point of view, says Kolliatsas. “We need to look at the technology itself and see if it is working, and not only in isolation but as an integrated system because you need to consider all the interfaces from generation to the end user.”

Another issue that needs to be considered is cost, according to Stiesdal, who adds that floating wind

will not be able to compete with the cheapest solar. He says: “The cheapest solar is now down to one US cent per kilowatt hour in Saudi Arabia – if you’re talking about exportable forms of hydrogen, essentially ammonia, then it will be difficult to compete with a ship coming from Saudi Arabia.” But it’s a different story for simpler forms of hydrogen, according to Stiesdal. “If you’re talking about gaseous hydrogen, then it has a good competitive edge over imports where there is conversion from ammonia taking place,” he says.

# Saving on costs

Stiesdal believes the gaseous hydrogen market will flourish for the simple reason that there are large parts of society – such as transportation and shipping – that cannot be easily electrified, but cannot rely on fossil fuels. “We are developing an electrolyser that can go with a floating turbine so that the main export article is hydrogen, not electricity, because transporting hydrogen can be done at around one tenth of the cost of transporting electricity,” he says.

Bronwyn Sutton, principal offshore wind at Clir Renewables, says there could potentially be an opportunity to re-use oil and gas portside infrastructure for hydrogen projects. She also adds: “The idea of turbines producing hydrogen molecules for transportation, rather than electricity, is an exciting idea.

# Offshore wind: Do oil and gas companies have an advantage?

There is no doubt that the oil majors will have a huge presence in offshore wind in general, according to Stiesdal, who cites the example of BP and Energie Baden-Wuerttemberg AG (EnBW) of Germany being selected as the preferred bidder for two major leases in the UK Offshore Wind leasing round four earlier this year.

However, oil and gas companies do not necessarily have a significant technological advantage when it comes to offshore wind, according to Guillet. “It’s an open question whether they have more of an edge

on the technical side – it still looks like something they’re hedging their bets on when you look at their overall investment budgets.”

Guillet argues that a better business model for an oil and gas company would be to say “we’re still going to need oil and gas in the future, let’s push for a real carbon tax because we can handle that better than the other players and let’s make the rules tougher and we’ll be the only game in town when it comes to doing oil and gas cleanly”.

## The outlook for offshore wind

The examples of Equinor and Ørsted show that companies can come from the oil and gas sector and go to have dominant positions in the offshore wind industry, according to Sutton. “I think we’re almost at the point where we think of those as offshore wind players rather than oil and gas players,” she adds. “We’ve seen it happen, and other oil and gas companies will be coming with a lot of expertise and varying degrees of commitment to transitioning.”

What does the future hold for offshore wind? Kolliatsas envisages an era of fully automated offshore wind systems. “We’ve got the technology and pretty much all the information we need – as much automation as possible, that is, reducing the need for people to physically go and visit the windfarms is the next stage of evolution of this industry. At the end of the day it’s the turbines being unavailable that is the major problem, the lack of revenue when these turbines are down.”



# Conclusion

**The offshore wind market, and, in particular, floating offshore wind, offers enormous potential.**

However, investors are nervous about committing finance to such projects. As a result, it may be that floating offshore wind contractors, for example, have to provide extensive warranties that are above and beyond the norm in order to kick-start schemes.

But there is another issue. One of the biggest challenges the floating offshore wind industry faces is ensuring the necessary port infrastructure and supply chain is in place in order to create the efficiencies and scale needed to make investment in the sector viable. It is only in this way that investors will be convinced to continue providing support for the sector.

Yet many of the risks associated with floating offshore wind are perceived, rather than real, according to experienced observers. Indeed,

there was a similar scepticism among investors about bottom-fixed offshore wind when the industry was in its infancy around 15 years ago.

But look at where we are today. Global investment in offshore wind has hit new heights, with \$30 billion invested in the sector in 2020, according to The Renewables Consulting Group. This beat the previous record of \$22 billion set in 2018.

Will oil and gas companies be at the forefront of the expansion of offshore wind? The jury's out. Some have already established themselves in the sector, but others are cautious

and, in the view of some market observers, they will not have the edge over the competitors from a technical standpoint despite their extensive offshore experience.

What is certain though is that we are entering an exciting era for offshore wind. With record amounts of investment being ploughed into the industry, there is sure to be an abundance of increasingly innovative offshore wind concepts – including ideas for linking offshore wind with green hydrogen – that will drive the global energy transition.

It won't be long before the shrewdest investors jump aboard.

**One of the biggest challenges the floating offshore wind industry faces is ensuring the necessary port infrastructure and supply chain is in place**





If you'd like to find out more about our Wind Investment Boardroom programme [click here](#) or get in touch with the team:

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