

# Offshore wind – floating an idea

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It's a source of constant consternation for an observer of global infrastructure to watch as nascent technologies make the leap from emergent status to established/bankable in the blink of an eye... and that's exactly what we see once again in the offshore wind space with floating turbines.

While this technology has its roots in the 1970s and was tested with an 80kV turbine off the Italian coast in 2007, it's only really in the last couple of years that it has gained a significant foothold.

Scotland stole a march on this technology with the 30MW [Hywind Floating Offshore Wind Park](#) which is operated by Hywind (Scotland), a JV of Equinor (75%) and Masdar (25%) – the Abu Dhabi state-owned developer having bought into it [in early 2017](#).

Back in 2009, Equinor – then operating as Statoil – ran a two-year test phase for floating offshore with a 2.3MW Siemens Gamesa turbine off Stravanger, Norway, and in 2015 received permission to set up a pilot park off the coast of Scotland for something a little bit more ambitious. They started work on the 6MW turbines and had the wind farm commissioned in October 2017.

Shortly after launching operations Equinor was celebrating performance data – November and December 2017 – that outstripped expectations, operating at 65% of its maximum theoretical capacity.

Portugal was the next to get in on the act with the 25MW [Windplus Floating Offshore Wind Farm](#) which had to be rescued by the EIB when the commercial lenders [walked away](#), possibly prompted by Marubeni's departure. However, the developer – EDP Renewables with Repsol and Principle Power – stuck with it (with €60 million of support from the InnovFin Energy Demonstration Project programme). The sponsor is now talking to the initial lending team in a bid to bring them back to the table for an €85 million debt package.

The Portuguese project is scheduled to start operations this quarter (Q2 2019) anchored 20km off the Viana do Castelo coast in water 85-100 metres deep.

Back in Scotland – as the battle rages for developers, lenders and advisers to build a reputation in this space – and the 50MW [Kincardine Floating Offshore Wind Farm](#) is gathering pace having signed up [MHI Vestas](#) to supply its 9.5MW turbines. These will be located 15km south east of Aberdeen Bay with wind-float semi-submersible foundations anchored at depths of 60-80 metres.

Furthermore, the [Dounreay Tri Offshore Floating Wind Farm](#) is back on track to deliver a 10MW facility off the north of Scotland, but scepticism is rife over this project's ability to make it off the drawing board. Meanwhile the 60MW [Forthwind Floating Offshore Wind Farm](#) does not really meet the criteria as some of the units are fixed... and it sounds a bit shonky.

And that's just the tip of the European iceberg.

Quite apart from lively interest in floating offshore wind around Europe, it is gaining traction on the west coast of the US, Japan, Taiwan, Vietnam, South Korea... and pretty much every country out there with significant coastlines that drop off swiftly to deep waters. And there's a lot of them.

## Going to need a bigger barge

One year ago (May 2018), the *IJGlobal* data team pulled together a piece of analysis on the [European offshore wind](#) scene that anticipated a significant uptick in activity in floating farms – and not without good reason.

Floating offshore enjoys a number of advantages over the more traditional fixed alternative which have to be in water of less than 40 metres (the shallower, the better). For a start, they use the same turbines as fixed facilities and they are assembled onshore (or close to shore) before being shipped out by barge – which is considerably cheaper – and construction takes a lot less time.

Putting those elements together, the cost commissioning a floating offshore wind farm is coming a lot closer the installation of onshore turbines – yet benefiting from the more consistent and stronger wind resources.

Analysis by our data team points to the UK and France leading the agenda in Europe, but with Portugal stepping up the pace.

France has been running a number of offshore test sites for prototype floating wind turbines, including the Nenaphur test site, Nenuphar twin float, Floatgen Project and Sem-Rev Site d'Experimentation en Mer.

It has serious ambitions in this space and sources involved in the delivery of offshore wind in France say that the floating option is being looked upon with considerable favour – even on projects that had previously been identified as fixed.

The European Commission in February (2019) gave the green light to four, 24MW French demonstration floating wind farms – one in the Atlantic and three in the Mediterranean:

- [Groix Belle Ile](#) – Atlantic
- [Golfe du Lion](#)
- [Eolmed](#)
- [Provence Grand Large](#)

However, given France's history with offshore wind, it will likely still be a painful experience to bring these to fruition... never mind all the projects – floating or otherwise – that are struggling through procurement.

While France's tariff issue has been laid to rest, these projects face considerable opposition and [numerous legal challenges](#) which – finally – are being dealt with by just the one court in Nantes, Brittany. Previously all the courts of the land had been tied up with spurious complaints over blighted vistas.

## All fair and good for Europe

Europe now has the bit firmly gripped between teeth for floating offshore and its future looks to be assured.

Naysayers have been told to go boil their heads by those in the oil industry who have been working offshore for many years and reckon that anchoring a floating turbine to the sea floor is one of the less challenging issues they face on a daily basis.

Those who are involved in the roll-out of floating offshore in Europe and looking to benefit from this experience as new markets come online are looking towards the US – with 13,000 miles of coastline – as the next big market.

And it's not entirely a virgin market. Maine Aqua Ventus in New England, for example, has a 12MW floating pilot project with two 6MW turbines on floating semisubmersible concrete hulls, designed by the Advanced Structures & Composites Center at the University of Maine.

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For those who are seeking to take their newly-come-by skills to more exotic markets, there is more opportunity on the market than you can shake a stick at.

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