

RECHARGE

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'Optimising today's offshore wind turbines will build US skills and supply chain – sustainably'

Vestas North American CTO John Eggers. Photo: Vestas



The Olympian rush to engineer ever-bigger machines was crucial to the sector's ascent into the global energy mainstream. But now, writes John Eggers, not least in a fledgling play like the US, a new growth model is needed that creates an industry around it

By **John Eggers**

Deploying offshore wind in the US has never been more crucial. The rise of the sector here in the US is on an upward trajectory as government and industry join forces to meet the Biden Administration's national goal of having **30GW of offshore turbines turning by the end of the decade**.

But this remains a formidable challenge and one taking place against the backdrop of the calculations by the International Renewable Energy Agency that an estimated 2TW of turbines will need to be installed globally at sea by 2050 to keep global heating to 1.5°C above pre-industrial temperatures.

While the US offshore wind market is in its infancy compared to some other parts of the world, there is positive momentum to develop a resilient, sustainable, and scalable industry that will last for decades. To achieve this, a robust supply chain and workforce must be built, along with the execution capabilities to meet demand for the next decade and beyond.

Technology development is rightly viewed as a key mechanism in driving the offshore industry forward. In recent years, this ethos has resulted in the sector bringing larger and larger wind turbines to market as quickly as possible before existing products had been fully matured.

But bigger is not always better. Accelerated technology development is no longer sustainable on a global level and will have adverse effects on the US industry, as it will in other regions. Rapidly introducing new, high nameplate turbine designs challenge the industry's ability to develop reliable, optimised technology – and hinders the ability to establish sustainable and efficient supply chains.

To enable the massive build out of offshore wind that will support the clean energy transition in the US, we must focus on developing 1) a sustainable regional supply chain, 2) a properly trained workforce, and 3) the infrastructure needed to execute and operate offshore wind projects without sacrificing quality or safety.

To that end, prioritisation must be given to the optimisation of existing turbine designs rather than simply introducing new platforms before the current generation of technology has matured in time with the US market. This will result in a sustainable industry that is ready to scale and resilient enough to meet the growing demand.

The offshore market requires superior technology and increased reliability. Experience tells us that cycles are key to product optimisation and cost efficiency in manufacturing and execution. And it should be added, the scale of modern offshore turbines will necessitate a longer product lifetime to achieve those same benefits.

It is crucial that existing technology has been properly implemented and matured before introducing new platforms to ensure high-quality, reliable products. Fine-tuning our technology and capitalising on efficiencies gained from this process will result in a stronger business case for project operators and financing parties and increased profitability.

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Thinking ahead, let's not forget that west coast states are poised to account for a considerable share of the future US offshore market. In December, the Bureau of Ocean Energy Management, the federal agency in charge of industrial development of federal waters, **plans to auction leases off the coast of California to support construction of at least 4.5GW of floating wind** and the California Energy Commission recently adopted offshore planning goals of between 2-5GW by 2030.

By optimising current offshore turbine platforms, we will be better able to implement reliable floating technology and successfully expand wind energy in the US Pacific to meet this growing ambition.

Products must also be backed by supply chain excellence and robust infrastructure. The US must develop the full value chain, from manufacturing to vessels to the workforce, in order to bring offshore technology to market.

Optimising the complete supply chain calls for a more thoughtful approach to product development and longer product life cycles. Designing technology with the US supply chain and infrastructure in mind will result in shorter execution times for projects, allowing us to better scale offshore wind expansion and support a long-term, resilient offshore market.

Offshore wind turbines are massive feats of engineering operating 10-30 miles – and sometimes much further – off the coast. There is significant cost and downtime incurred to repair turbines out at sea, making it crucial that quality products are supplied into the market. Delivering perfected, long-lasting turbines will ensure more reliable, safe operations and reduce risk for project owners and financing parties.

We are on the verge of a clean energy transition and the stakes could not be higher. Now is the time to future-proof our industry to make sure reliable, affordable energy and clean-energy jobs are here over the next decade and beyond.

Optimising existing technology and investing in an efficient, cost-effective supply chain and reliable execution capabilities will facilitate rapid expansion of offshore wind and support a long-term, sustainable industry in the US.

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