

A Short History of Offshore Wind

By Jonathan B. Fairbanks, Managing Partner, GEC

The installed base of offshore wind generation worldwide will grow 7x over the coming decade ¹

Fifteen years ago, when I was an entrepreneur, I was a founder of Seajacks in the UK, which has become one of the largest offshore wind turbine installation vessel (WTIV) companies in the world.

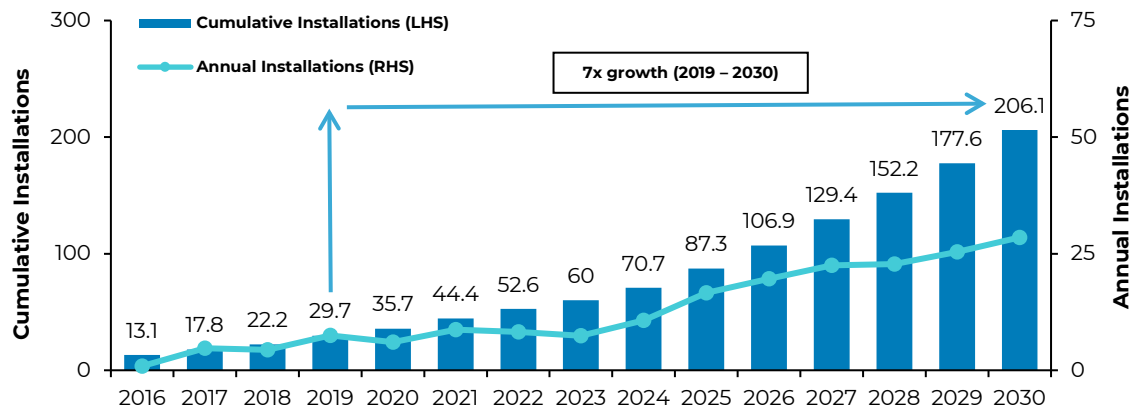
Seajacks “Leviathan” – generation 1 WTIV



Source: Seajacks

At that time, the North Sea represented over 90% of global offshore installed capacity, and we all celebrated as the industry reached the milestone of one Gigawatt (GW) of capacity being added in a year. There are now approximately 5,000 offshore wind turbines operating in Europe. Global annual installations during 2019 to 2023 are expected to average 7.4 GW, with over half of this being generated in Asia. The pace of acceleration is expected to continue between 2024 to 2029, when the average installed capacity is forecasted to reach 18.4 GW per annum. At this point, the U.S. is expected to represent 10% of installed capacity, with the balance split between Europe and Asia.

Offshore wind installations (GW)

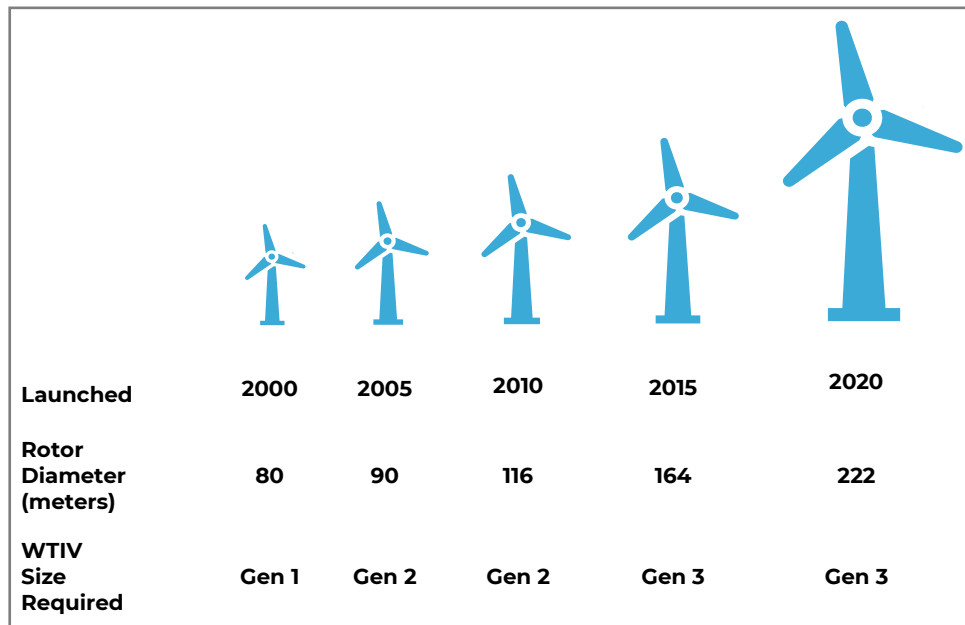


Source: BloombergNEF



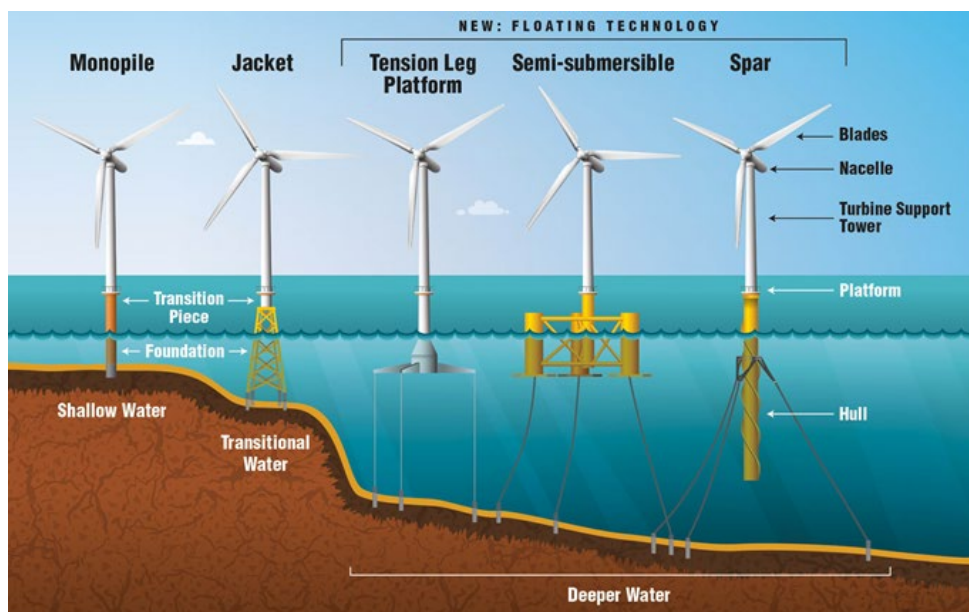
As important as the globalization of this industry, is the dramatic increase in the size of turbines being installed, which has reduced the levelized cost of electricity from offshore wind and brought it more in line with traditional sources of energy. With this increase in turbine size has come demand for new, larger installation vessels. While Seajacks' Generation 1 WTIVs could install 2-3 MW turbines, the latest Generation 3 WTIVs are designed to install 15MW turbines in deeper waters located further offshore.

Turbines are becoming larger, both in physical size and weight, and capacity
Evolution of offshore wind turbines (icon size represents capacity in MW)



Source: Arctic Securities

Offshore wind turbine structures are diverse and complex



Source: Bureau of Safety and Environmental Enforcement



Whereas Generation 1 units cost ~\$100 million to build, the newest versions cost up to \$500 million apiece. GEC was a proud investor during 2012 to 2018 in GustoMSC based in Scheidam, Netherlands (now part of NOV), which not only has designed approximately two thirds of WTIVs globally, but also provides proprietary, patented technology to these specialized vessels.

Seajacks “Scylla” – new generation WTIV



Source: Seajacks

Both Seajacks and GustoMSC are playing key roles in driving the Energy Transition forward by catalyzing offshore wind deployment. This value proposition was recognized by the ultimate buyers of those companies. NOV acquired GustoMSC in 2018. Seajacks was sold to Riverstone in 2009. Seajacks has continued to grow under multiple new owners: Riverstone sold Seajacks to Marubeni in 2012, and Marubeni exited to offshore windfarm construction company Eneti in August 2021.

When Seajacks was founded fifteen years ago, offshore wind was a nascent, local industry centered in Northwestern Europe. Offshore wind is now a global industry, that will continue to be a key component of the global energy mix for years to come.

Critically, offshore wind’s levelized cost of energy must continue to decline for the rapid growth of the industry to remain economic. To achieve this, constant innovation of offshore wind technologies and services will be required – GEC plans to continue investing around this important theme.



Contact GEC to learn more:

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¹ BloombergNEF, [Annual Offshore Wind Installations to Triple This Decade \(February 16, 2021\)](#)

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