

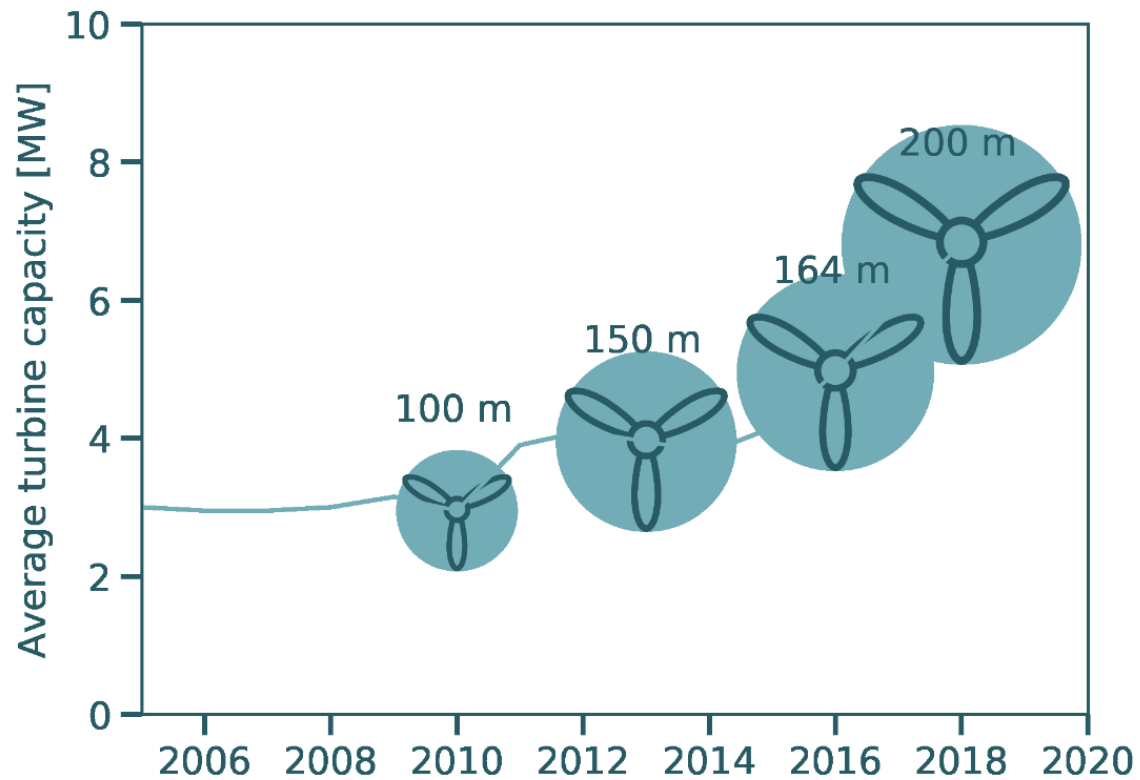
High Wind 2020 - Stavanger

NORWEGIAN OPPORTUNITIES IN OFFSHORE WIND – MARKET FORECASTS TOWARDS 2050

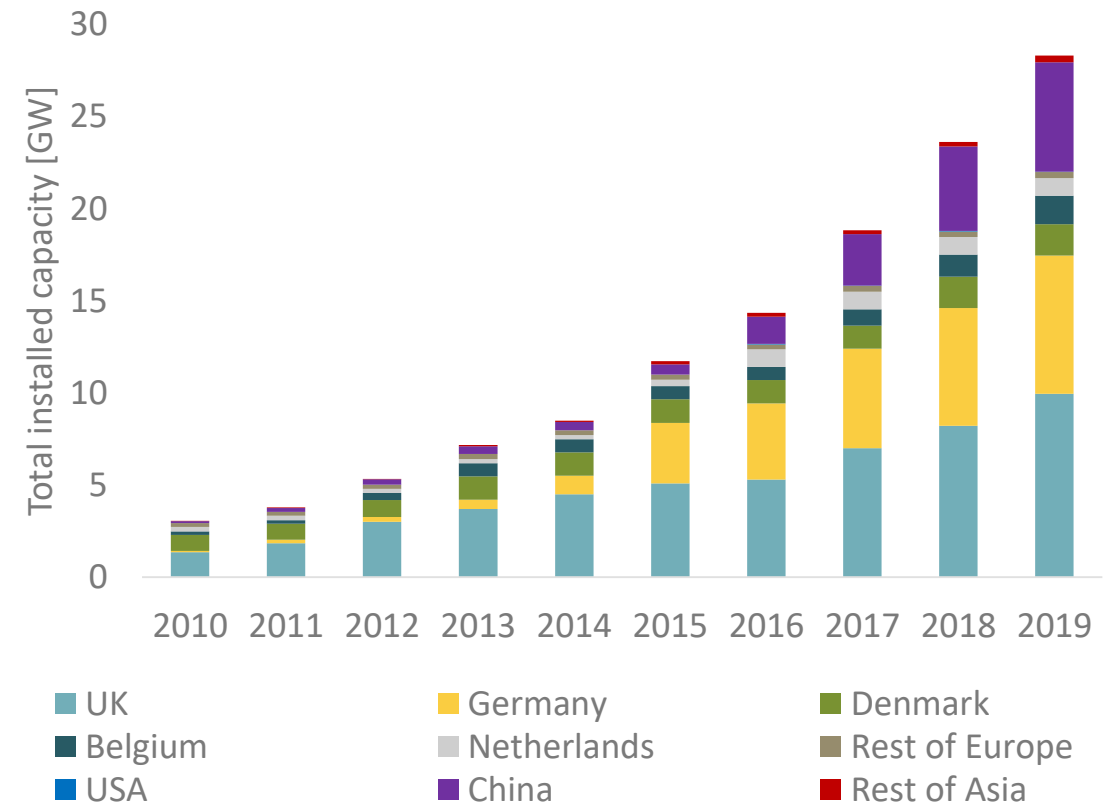
Marius Holm Rennesund, Partner, THEMA Consulting Group

Offshore wind has increased rapidly, particularly in Europe

Rapid technological progress...



...and clear political targets lead to investments in offshore wind



What determines Norwegian companies' turnover in offshore wind?

What determines the global growth in offshore wind volumes?



- Climate policy developments
 - Phase-out of fossil fuelled power generation
- Offshore winds competitiveness compared to other renewable technologies
- Economic growth
- Energy efficiency
- Changes in consumption patterns



What determines Norwegian companies market share?

- Adaptability - the Norwegian supplier industry's ability to adapt
 - Important prerequisite is that they have the right competence to meet the needs in offshore wind
- Economic and political barriers to entry
- Opportunities for first mover's advantage
- Advantageous with a home market

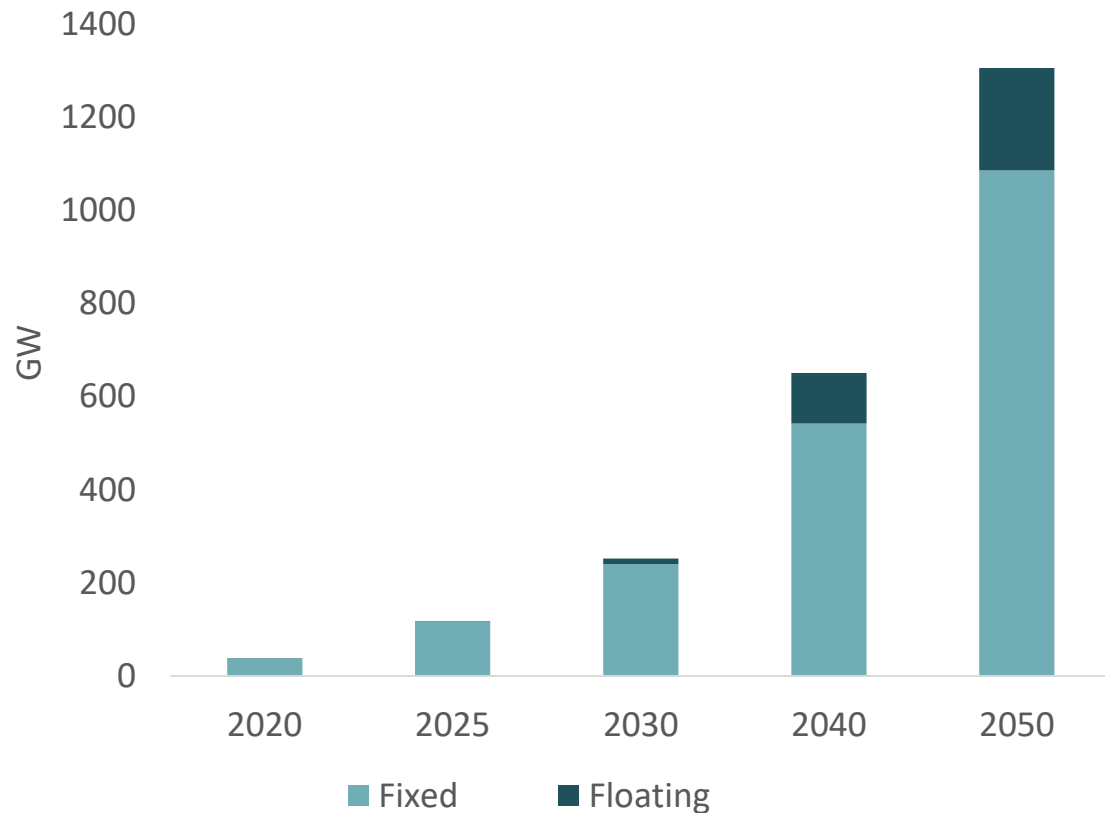


Total turnover for Norwegian companies

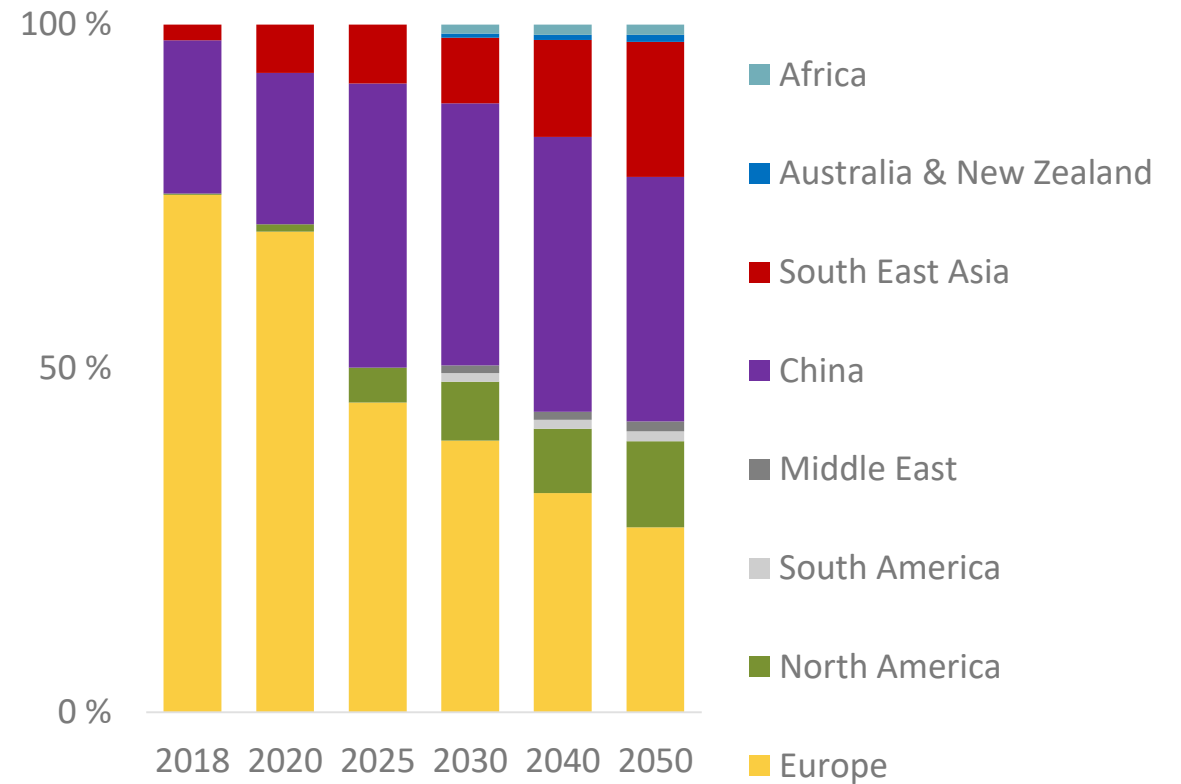
Significant volume growth in offshore wind is expected

Europe's share decreases as China and South East Asia scale up

Total floating and bottom-fixed offshore wind capacity



Global capacity distribution per region



Turnover in the offshore wind sector for Norwegian companies expected at 7 billion Euros in 2050 in the Base Case – varies between 3 and 10 bn EUR in the scenarios

Scenario description

Base case (P50)

- Southern North Sea II and Utsira North are being developed
- Sufficient interest and funding is achieved to establish an emerging supply chain for floating offshore wind
- Spending in the O&G industry continues to fall
- Spending in renewables technologies continue according to stated plans in the Norwegian Supply Chain

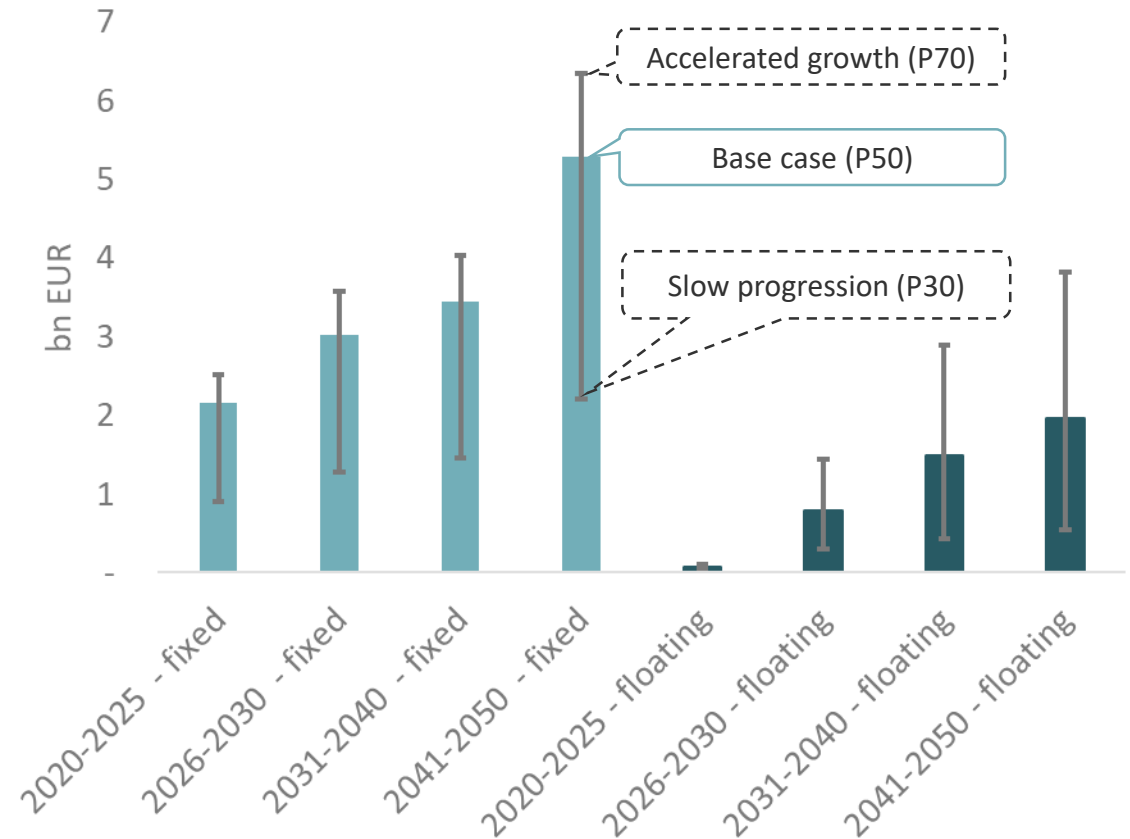
Accelerated growth (P70)

- Offshore wind deployment is happening quicker than anticipated in Norway
- Policies are put in place that accelerates supply chain development
- The O&G supply chain and maritime sectors have been able to transform skill sets and technology adapted to offshore wind
- Offshore wind farms are becoming part of a wider offshore grid allowing for interconnection and secondary routes to market

Slow progression (P30)

- Offshore wind deployment is going slower in the Nordics than anticipated due to low and delayed electrification of the transport and industrial sectors
- Activity in O&G persists, which results in less interest from investors and supply chain in the renewables business
- Unexpected adverse events have a long-term detrimental impact on investments in new technologies in the Norwegian Supply Chain

Average yearly turnover for Norwegian companies



In a nutshell: Strong market growth driven by climate ambitions presents a large opportunity for Norway to use its know-how to create value in the offshore wind market



- We are facing a transformation of the energy sector
 - European Green Deal, China's net zero emissions ambitions
 - Rapid increase in electricity demand and offshore wind capacity

1.



- Europe at the forefront of the offshore wind development, but China expected to grow significantly
- Norway needs to grasp the current window of opportunity

2.



- Turnover in the offshore wind sector for Norwegian companies expected at 7 billion Euros in 2050 in the Base case
 - Further upside in the "Accelerated growth scenario" as well as with higher growth in offshore wind capacity
 - Has the potential to be one of Norway's most important industries in the years to come

3.



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