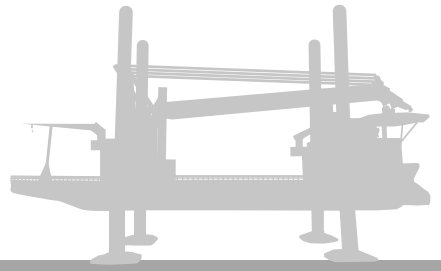


Fearnleys

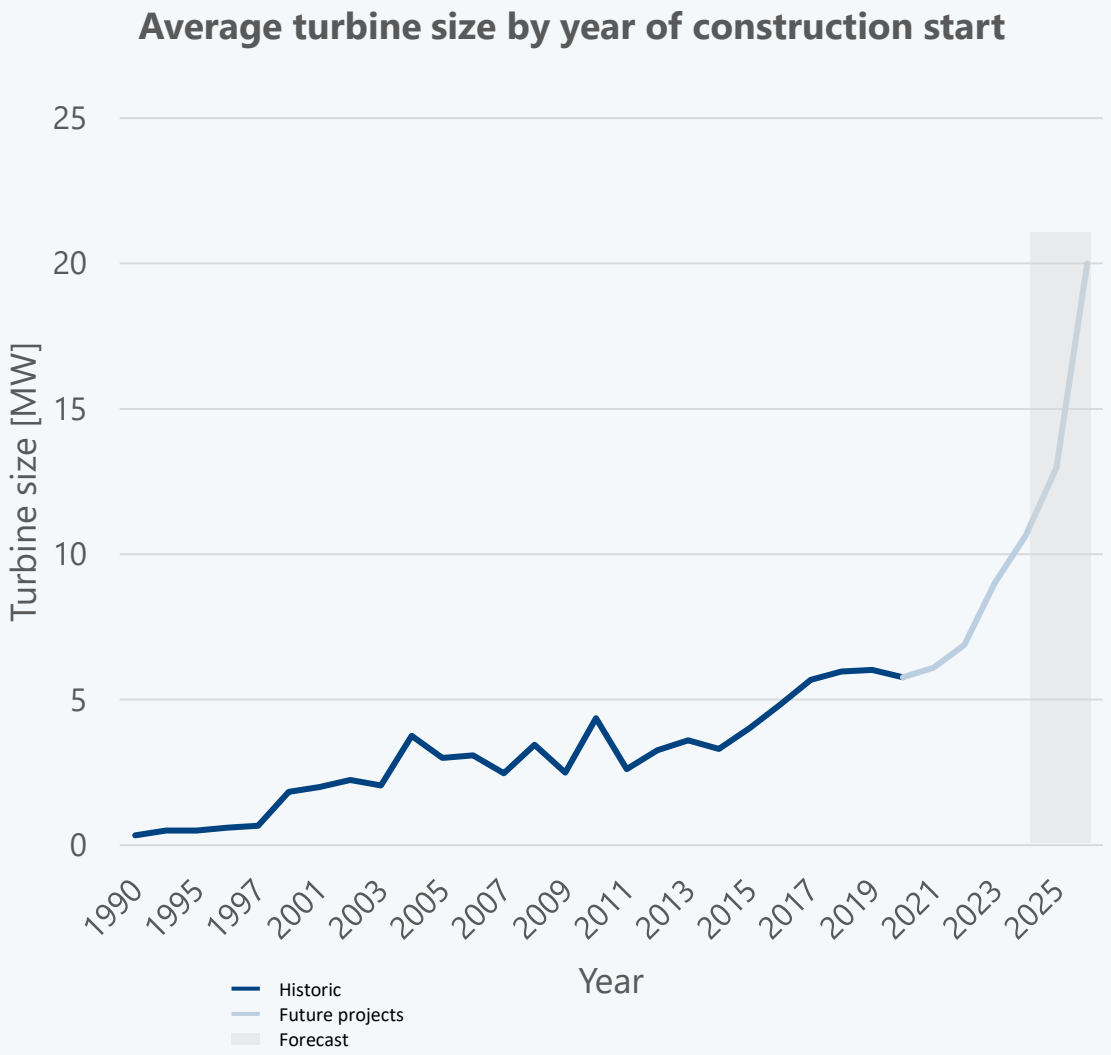
www.fearnleys.com | An Astrup Fearnley Company

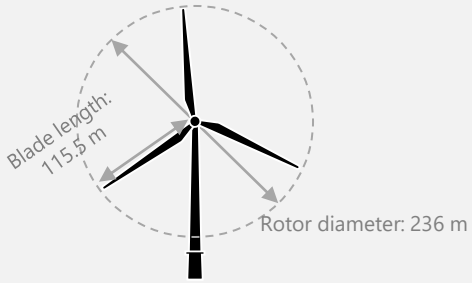
Fearnley Offshore Supply

Offshore wind construction and service

Ina Bjørkum Arneson and Jesper Skjong

Vestas launched their 15 MW offshore wind turbine this year, and sizes are expected to continue to increase



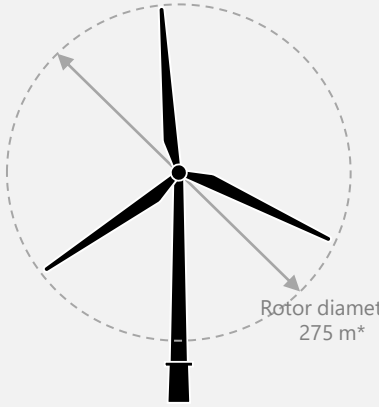


2024

V236-15.0 MW

Vestas

Single turbine can produce 80 GWh per year



2030?

20 MW turbine

Total weight (tower, nacelle, blades) > 3000 t*

Sources: Vestas, 4C Offshore

*Note: *estimates*

Larger turbines, foundations and deeper waters require adjustments in wind construction

Foundation installation

- Motion compensation
- Lift capacity:
  - Foundations with weights exceeding 3000t
- Lift radius:
  - Footprint of jackets

Turbine installation

- Lift height and radius:
  - Hub height reaching above 135 m
- Lift capacity:
  - Turbine components weight increasing with size
- Operating depth:
  - Projects are moving further from shore to deeper waters

Floating offshore wind

- Share of floating wind will increase, and LCOE will decrease
- Several different floater designs available
- Fully assembled tow-to-site has been a common installation choice for floating offshore wind

Images borrowed from shipowners

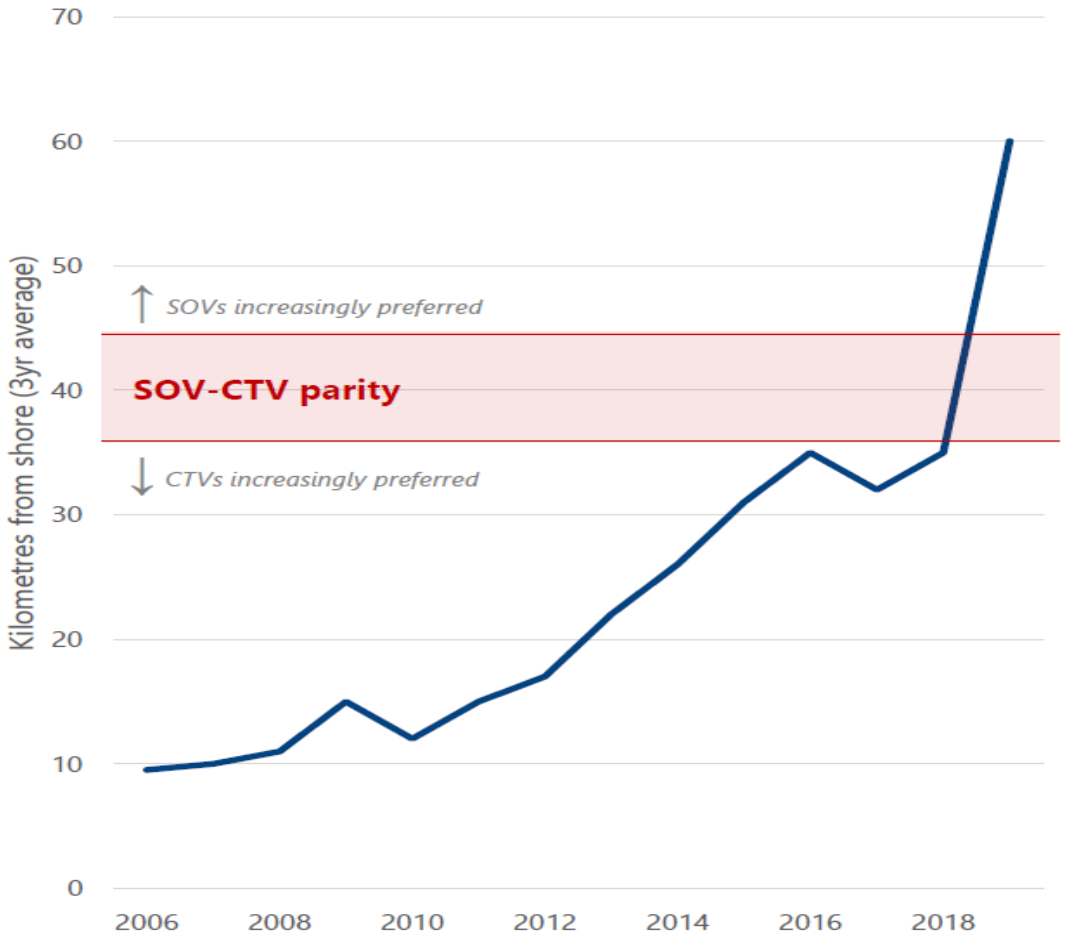
SOV demand vs CTV

There is growing demand for SOVs caused by a multitude of factors

SOVs preferred for newer wind farms

- SOVs are outperforming as distances are widened as a direct result of large scale OWF
- SOVs increases the accessibility window, which dramatically reduces O&M costs
  - CTVs are limited to <Hs 1.5m, while SOV vessels can work in harsh conditions, with criteria between Hs 2.5 and 3 meters, with 25 meters per second winds
  - Can Increase uptime from 60% to 80%
- Competitiveness increases with clustered OWF, which will only increase as the capacity installed expand
- Larger OWF will lead to more demand for technicians who can be present for longer durations

Trade-off between CTV and SOV



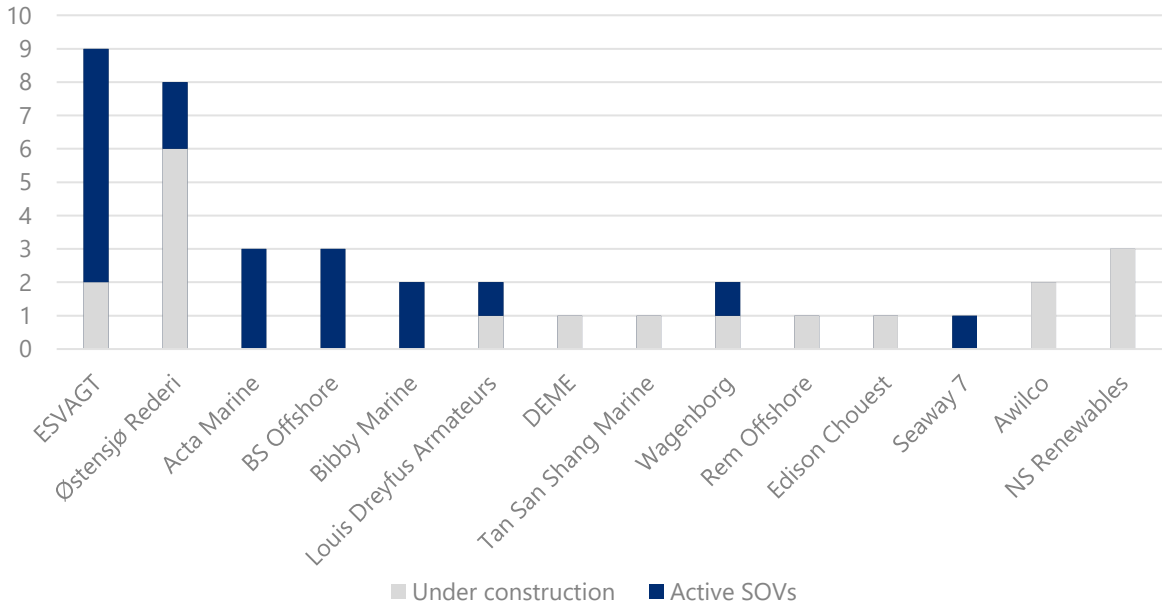
Sources:
Note:

SOV fleet development

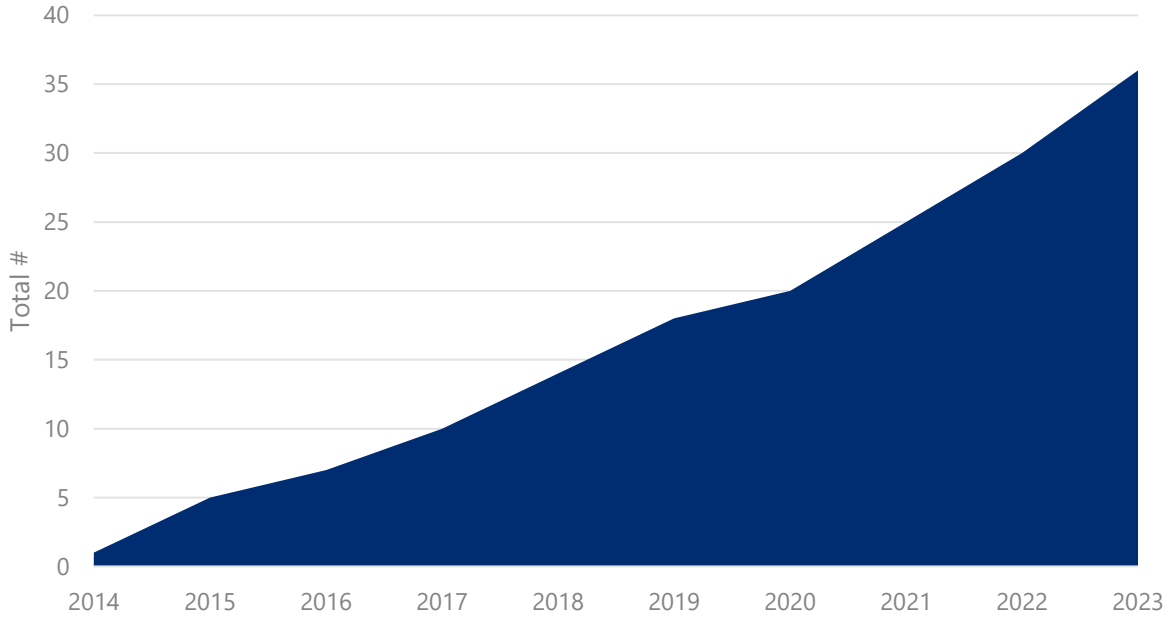
Looking forward demand for SOVs expected to increase significantly

Demand outlook

- There are currently 51 forecasted windfarms expected to be commissioned by 2030 that resides 40km or farther from shore
- There may be up to 32 wind farms that would need an SOV charter in the next decade
  - 17 in Europe
  - 9 in Asia
  - 6 in the US



Fleet development



- Mix of «traditional sov players» as well as recent debutants such as IWS
- Majority of the SOV newbuilds are intended for the European market, with the exception of ECO in the US and TSS Marine for Taiwan
- Large amount of smaller CTV owners that wants to take the leap towards the SOV market

Sources:
Note: