

# Technology factsheet: Competitiveness of clean energy technology – Wind Energy

December 2023

## Key technologies

Both offshore and onshore wind are highly established and competitive commercially, with fast-growing capacity, and increasing efforts to boost production, notably in the North Sea.

### tech 1

Technological Readiness  
Level (TRL) 5: Airborne  
wind energy

### tech 2

TRL 8: Floating wind

### tech 3

TRL 9: Offshore wind;  
Onshore wind

## Key value chain figures

- **EU turnover:** EUR 34 billion (2021), down from EUR 44 billion in 2020 – Germany, Denmark and Spain have the largest turnovers.
- **EU employment:** 240 000 to 300 000 (direct & indirect, 2020).



## Key facts

### Fact 1

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In 2022, EU added 15 GW of onshore and 1.2 GW of offshore capacity. The cumulative installations for onshore wind energy amounted to 188.9 GW, while offshore installations reached 16.2 GW. In the last decade, the EU has led in investment in public research and development (R&D) spending, followed by Japan and the US. EU R&D funding in wind energy comes predominantly from the corporate sector. Since 2015, the share of private R&D funding has ranged between 91% and 94% compared to public funding (6% and 9%).



### Fact 2

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EU players are at the forefront of R&I. EU companies hold a substantial 30% global market share among the top 10 Original Equipment Manufacturers (OEMs) in 2021, contributing to a positive trade balance.

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