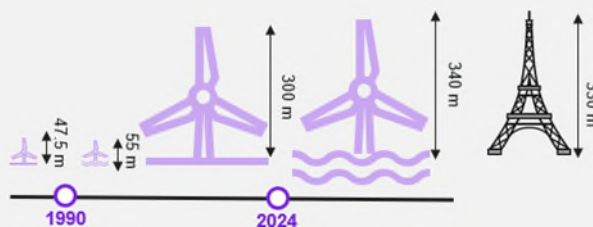


What is wind energy?

Turbines harness wind energy using rotor blades and an electricity generator to convert the kinetic energy of moving air into electrical energy.

Wind turbines have grown larger and taller to maximize energy capture over a range of wind speeds while lowering cost per unit of capacity. In about 35 years, size has six folded, with recent prototypes as big as the Eiffel Tower.

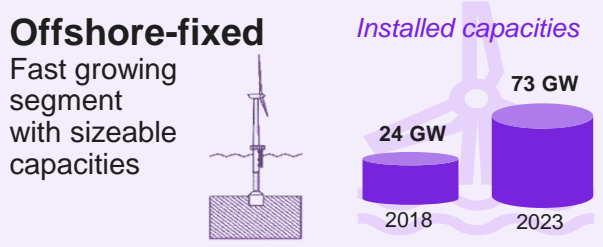
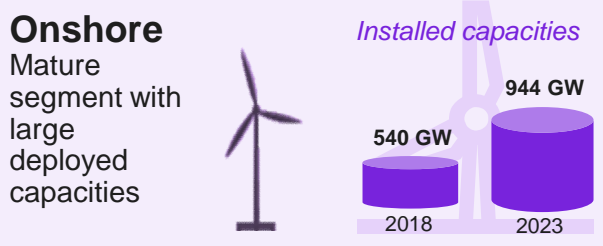
Evolution of onshore and offshore turbines



- Combination of policies have supported wind deployment, tenders and auctions remain central tools.
- PPAs are playing an increasingly important role globally.

Wind power has one of the lowest GHG emissions within renewables and low-carbon sources. Foundation and tower contribute significantly to the carbon footprint.

Market status



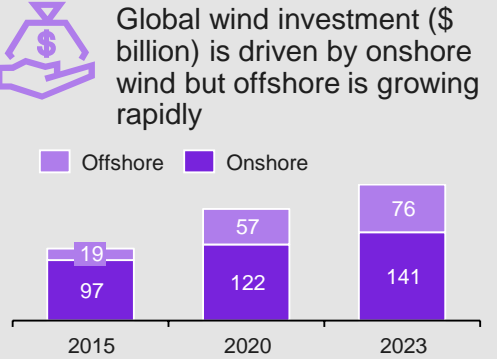
Wind technologies

- ### Onshore
- Land-based turbines with ground foundations
- Gravity base
 - Piles
 - Stone columns
 - Rigid inclusions
 - Hybrid
 - Composite foundations

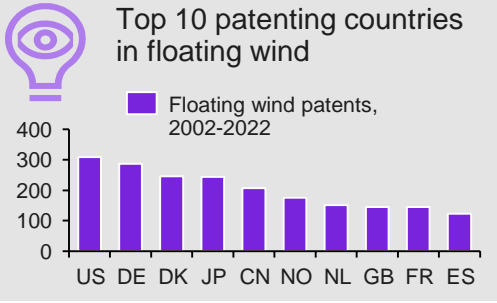
- ### Offshore – fixed
- Turbines located in water bodies (shallower waters) with fixed foundations
- Gravity base
 - Monopile
 - Suction bucket
 - Tripod
 - Jacket

- ### Offshore – floating
- Turbines located in water bodies (deeper waters) using floating foundation systems
- Barge
 - Semi submersible
 - Tension leg platform
 - Single point anchorage (SPAR) buoys

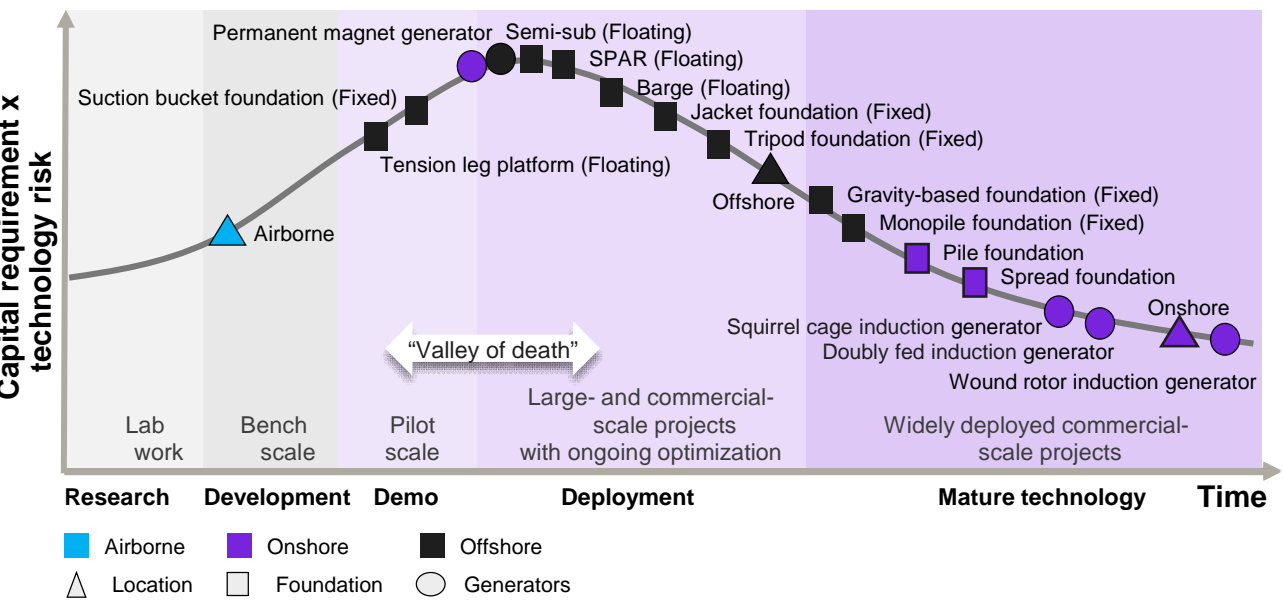
Investment



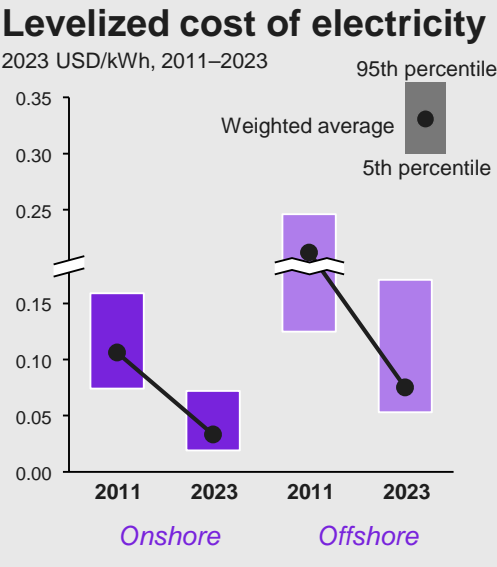
Innovation



Technology maturity curve



Economics



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