XROTOR: X-shaped Radical Offshore wind Turbine for Overall cost of energy Reduction

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101007135

X WIND ENERGY & CONTROL CENTRE

X-Rotor Concept

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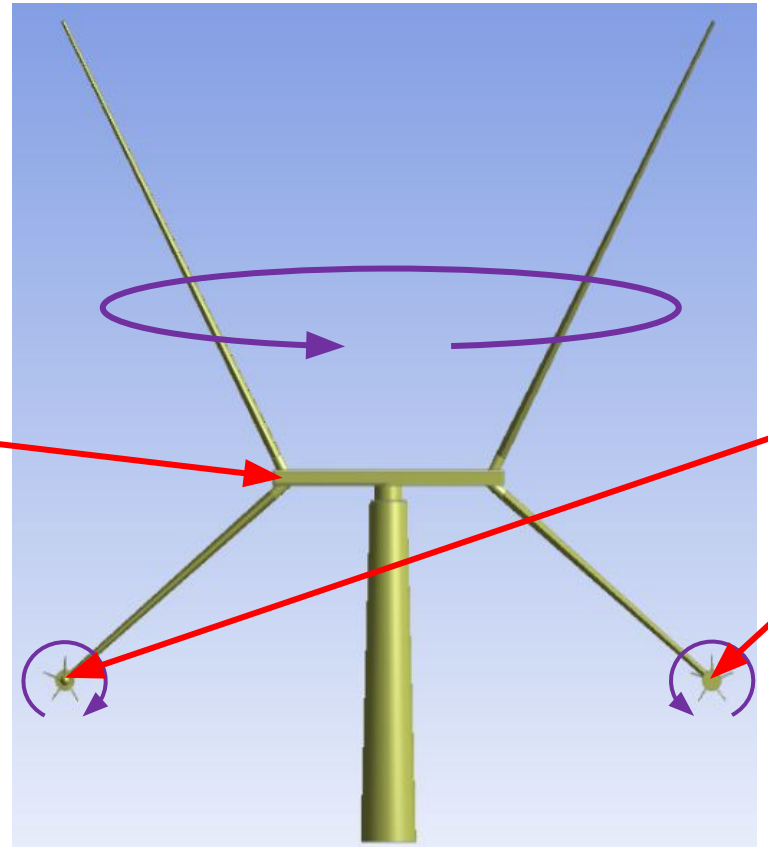


Primary rotor

Vertical axis

No power take off

Bearing only

Secondary rotors

Power take off

Generator only

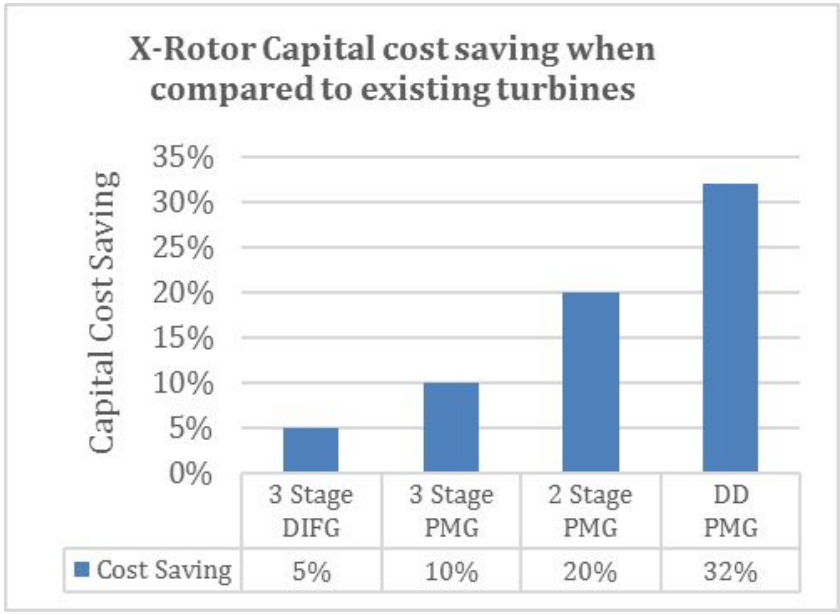
No gearbox

No multipole generator

CAPEX Savings

- The CAPEX for the X-rotor concept is less than that for a conventional wind turbine.

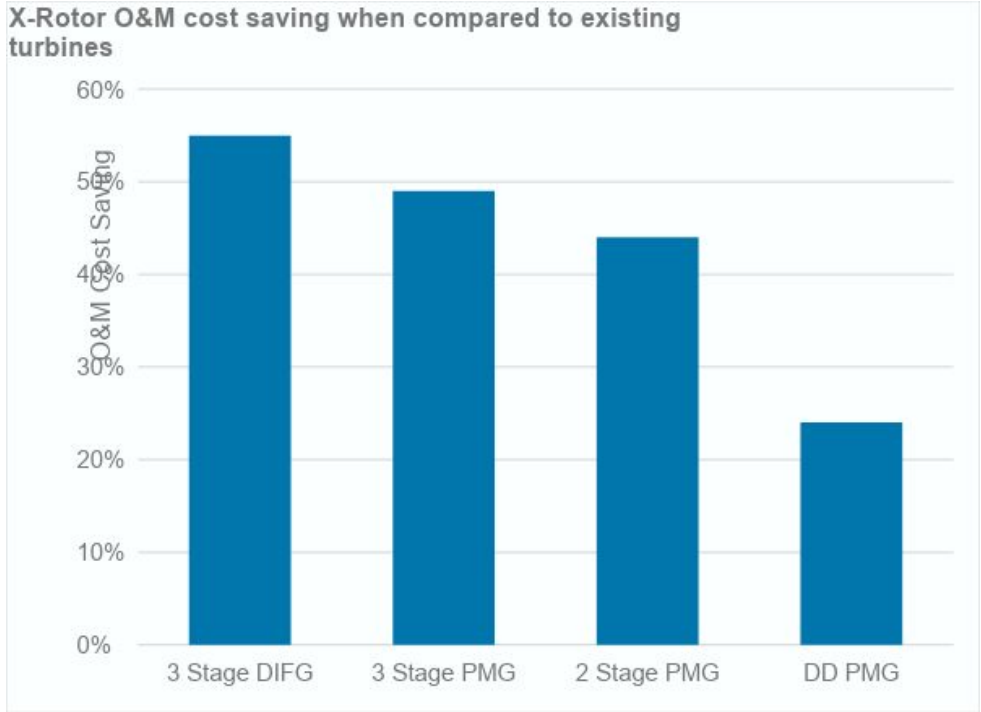
- Reduced power take off costs
  - Reduced generator costs
  - No gearbox.



OPEX Savings

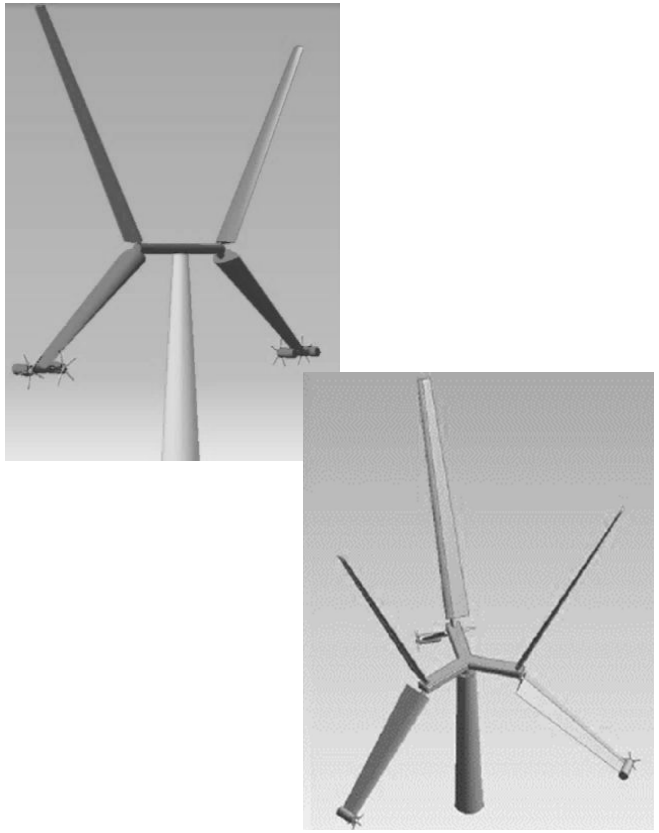
- O&M costs lower than for a conventional wind turbine.

- All components at low height and light
- No heavy lift vessels required for repairs
- Easy access to all components
- Power take-off highly reliable



X-Rotor Advantages

- Combining CAPEX and OPEX savings, cost of energy reduced by 20% to 25%
- Scalability
- Potential for floating:
  - Overall mass is less than a conventional HAWT
  - Centre of mass and thrust is lower
  - The requirements on floating platform and anchoring systems less
- Reduced radar cross-sections.



Objectives

- Progress concept to TRL 3-4
- Develop design tools and codes
- Confirm
  - CAPEX savings
  - OPEX savings
  - Cost of Energy reduction

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