Title: FloaTech: A Floating Foundation Technology for Offshore Renewable Energy Structures

Duration: April 2024 to March 2026

Deliverable

- Floating platform for hybrid offshore wind turbine and solar farm

Significant Achievements

- Developed two hybrid offshore renewable energy concepts by combining wind turbine and solar farm on the single floating platform, one using horizontal axis wind turbine and another using vertical axis turbines.
- Fabricated the physical scale models of both configurations for conducting the experiments.
- Carried out the free decay experiments on these scaled models to obtain the natural period and damping ratio of the floating platform.
- Conducted the wind tunnel testing to investigate how the scaled wind turbine model performs aerodynamically.
- Analysed the structural responses of the integrated floating platform under different wind and wave conditions using hydrodynamic pressure mapping.
- Performed the fully coupled dynamic analysis of the floating platform with hybrid offshore wind turbine and solar farm for combined wind and wave conditions.
- Demonstrated the floating platform with hybrid offshore wind turbine and solar farm at laboratory scale in a wave flume including the mooring system and rotation of the wind turbine blades.

Floating platform with hybrid offshore wind turbine and solar farm

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