عنوان مقاله:

Hydrodynamic Analysis of a Novel Floating Offshore Wind Turbine (FOWT) Platform in Regular Waves using OpenFOAM

محل انتشار:

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خلاصه مقاله:

Understanding the interaction between the aerodynamic loads on the blades and the hydrodynamic loads applied on the support platform is necessary for designing a floating offshore wind turbine (FOWT). In the present paper, hydrodynamic analysis is numerically conducted on a novel FOWT platform using OpenFOAM. To this accomplishment, the dynamic heave and pitch motions of the sandglass-type FOWT platform are investigated under regular waves compared to the conventional cylindrical form. Then the effects of platform mobility on the rotor motions and its time-averaged power generation are studied. Based on the main results, the pitch and heave motions of the modified platform are significantly lower than the conventional cylindrical form. However, the time-averaged power generated by conventional FOWT is about ۲۶% more than the novel form.

کلمات کلیدی:

Offshore wind turbine, Aero-Hydrodynamics, Regular waves, OpenFOAM.