

عنوان مقاله:

Evaluation of Turbulence on the Dynamics of Monopile Offshore Wind Turbine under the Wave and Wind Excitations

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خلاصه مقاله:

In recent years, the use of offshore wind turbines has been considered on the agenda of the countries which have a significant maritime boundary due to more speed and stability of wind at sea. The aim of this study is to investigate the effect of wind turbulence on the aero-hydrodynamic behavior of offshore wind turbines with a monopile platform. Since in the sea, the wind turbine structures are under water and structures interactions, the dynamic analysis has been conducted under combined wind and wave loadings. The offshore wind turbines have been investigated under two models of normal and severe wind turbulence, and the results of this study show that the amplitude of fluctuation of dynamic response is increased with increasing amount of wind turbulence, and this increase is not necessarily observed in the mean values of responses. Therefore, conducting the dynamic analysis is inevitable in order to observe the effect of wind turbulence on the structures response.

کلمات کلیدی:

Offshore wind turbine, Wind turbulence, Wind and wave excitations, Monopile

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