

AERODYNAMIC AND HYDRODYNAMIC OF A NEW SPAR FLOATING WIND TURBINE WITH HEAVE PLATES

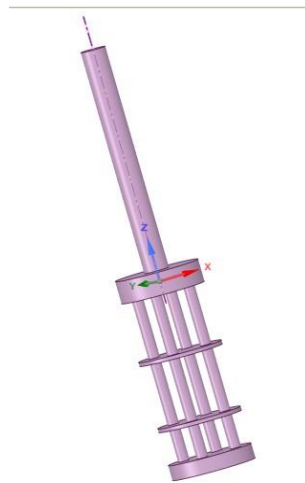
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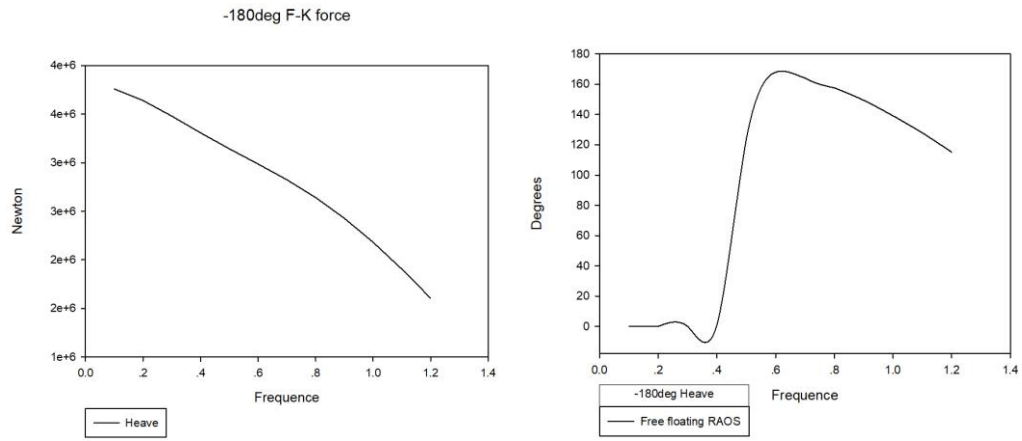
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This paper has described a new design of Truss spar wind turbine with heave plates. The design based on NREL 5-MW baseline wind turbine. This paper provides a description of wind turbine's properties and investigate effects of aerodynamic and hydrodynamic coupling motion response. Based on three-dimension potential flow theory, coupling dynamic response is calculated in the regular wave and wind loads. The new design RAO value is emphatically studied and compared with OC3-hywind spar turbine, and structure form is put forward for the study for offshore spar wind turbine. Here is the structure model diagram. It has two heave plates to improve it properties.



We analysis the response of structure. There are some data graphs what we found. One is the F-K force in -180 degree. Another is the free floating RAOS when frequency changed.



We can find that when the frequency between six and eight, the structure under F-K force, it has a max response amplitudes.