Motion compensated Piling Gripper

Publieke samenvatting / Public summary

Aanleiding

The installation of the foundation for an offshore Wind turbine Generator (WTG) is a substantial part of the total investment cost of an Offshore Wind Farm (OWF). In general, these WTG's are founded on monopile or jacket foundations. The main challenge in (mono-)pile installation is to install the pile within the required installation tolerances. The maximum angle of the monopile with respect to vertical is limited, as the turbine tower should be perfectly straight to have maximum performance. Due to these tight tolerances, it is at the moment inevitable to install the monopile from a Jack-Up Barge (JUB), as this type of vessel can create a fixed working platform. This way the installation of the monopile is not influenced by vessel motions and straight piling can be assured.

Doelstelling

Aim of this research is to prove the technical and economic feasibility of the concept by means of a concept Motion Compensated Piling Gripper (MCPG)design (both structural as drive&control) based on the boundary conditions of a fictive location in the North Sea.

Korte omschrijving

Since a Jack-Up Barge (JUB) typically has higher day-rates than a floating (e.g. J-class) vessel or barge, TWD developed an idea to allow straight piling of monopiles from a dynamically positioned (DP) or moored vessel: the Motion Compensated Piling Gripper. The fabrication costs will be estimated based on the structural concept design and used as input for the commercial feasibility study, where the

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costs and the working window of the system will be compared with conventional installation methods. The results will show the commercial potential as alternative for monopile installations from jack-up barges.

Resultaat

Besides the possibility to use a cheaper vessel, some additional benefits of the concept are: - Time savings due to avoiding jacking up - Independency of the soil strength at the installation location - Independency of the water depth at the installation location

De data in deze applicatie is afkomstig van de Rijksdienst voor Ondernemend Nederland (RVO) en wordt in samenwerking met de Topsector Energie ontsloten.
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