# Motion Compensated Pile Gripper (MCPG)

## Publieke samenvatting / Public summary

### Aanleiding

Currently the majority of monopile foundations is installed by Jack-Up Barges (JUBs), however most of the existing JUBs have insufficient crane and jacking capacity to efficiently install the XL-monopiles of future wind farms. Floating monopile installation vessels with higher crane capacities exist, however due to increasing tightness of verticality tolerances, the workability of these solutions is limited.

### Doelstelling

The goal of the project is to design and construct the Motion Compensated Pile Gripper (MCPG) prototype for a more cost-effective floating MP installation. This will be achieved by compensating the disturbing vessel motions and herewith significantly increase the workability for floating installations. The MCPG (i) allows the use of lower cost installation equipment, (ii) allows the use of equipment with significantly higher pay-load, (iii) reduces the required installation time for expensive installation equipment and (iv) avoids the need of building vessels with a very short payback time (as a lot of JUBs prove to be outdated 5 years after completion).

### Korte omschrijving

The project consortium consists of three parties: Temporary Works Design, Barge Master and GeoSea. TWD has extensive experience with the design of pile handling tools and motion compensated systems and will therefore be responsible for the structural and mechanical design of the gripper and upend tool. The development of the gripper's drive & control and safety /

**Projectinformatie / Project information**

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TEHE118010
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**Algemene informatie / General information**

**Penvoerder / Secretariat**
Temporary Works Design B.V.

**Publicaties en materialen / Publications and attachments**

- **14.08.2019**

  **Motion Compensated Pile Gripper (Product Flyer, TWD)**

- **28.11.2023**

  **Eindrapport TEHE118010**

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redundancy strategy will be Barge Master's responsibility. Barge Master has a proven track record with the development of a motion compensated platform (BM T700), a motion compensated knuckle boom crane (BM T40) and a motion compensated gangway (BM MCG). GeoSea will provide the essential operational input (installation, piling and dynamic positioning experience) into the design and will effectively build the tools and demonstrate the MCPG method on one of their future foundation installation projects. Furthermore, GeoSea will use the MCPG method on their new vessel, the Orion.

**Resultaat**

The project will result in the construction of the prototype to allow efficient floating installation of monopiles. An integrated tool for upending, lowering and piling will be realized, which effectively mitigate the risks and downsides related to floating installations. A floating DP vessel will be equipped with the verified and tested tool, realizing 39% reduction on the reference installation costs of foundations. A total cost reduction of 39% on the MP installation costs corresponds to LCOE reduction of €1.16/MWh, which is 1.38% reduction to the base case.

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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