

Hydraulic Pile Extraction – Scale Tests-1.2

Publieke samenvatting / Public summary

Aanleiding

Decommissioning offshore wind farms at the end of their operational life requires full or partial removal of foundation structures such as monopiles.

Removing entire piles can be safer and more economical than partial removal, because risky and expensive underwater cutting can be avoided and more steel can be sold for its scrap value. One method for full pile removal is hydraulic extraction. This method involves sealing the pile after removal of the top structure, and pressurizing (sea) water inside its void, thus forcing the pile to move upwards. Before applying this method offshore at full scale using expensive vessels and equipment, a better understanding of the pile-fluid-soil interaction in different soil types is needed. To accomplish this, an extensive hydraulic extraction testing campaign has taken place as part of a Joint Industry Project (HyPE-ST) in 2019. The HyPE-ST tests were concluded to be successful as a proof of concept (TRL 4; technology validated in the lab) and have provided useful insights on fundamental aspects in the process. However, there remain questions that require further investigation and the method/concept needs to be proven at a larger intermediate-scale.

Korte omschrijving

The HyPE-ST 1.2 attempts to make a contribution to the reduction of costs for the dismantling of offshore wind farms. It also helps to transform the finite life of an offshore wind farm into a circular lifecycle by enabling the recycling of very large volumes of structural steel. The objectives of HyPE-ST 1.2 are: (1) to enhance understanding of pile-soil interaction

Projectinformatie / Project information

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Algemene informatie / General information

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during hydraulic extraction; (2) to evaluate performance and to demonstrate a proof of concept of the method, onshore, at an intermediate scale in representative soil conditions; (3) to further develop and validate the analytical extraction model also used in the original HyPE-ST (TEWZ118015) for predicting the required breakout pressure; (4) to develop practical solutions for operational challenges (e.g. sealing of piles, overturning of piles).

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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