BM Feeder

Publieke samenvatting / Public summary

Aanleiding

Presently offshore wind turbine generators (WTG's) are installed using jack-up Wind Turbine Installation Vessels (WTIV's). The WTIVs collect WTG components at the marshalling-port, transport them to the installation-site offshore, and install the WTG. The problem is that in recent years WTGs have grown from small units to giant 15 MW turbines. These larger WTGs require much bigger and more expensive WTIVs to transport and install the components. It is inefficient to use a €350mln jack-up for transportation of components. The solution is to use WITVs only for the actual installation of the WTG components offshore, and dedicated transport barges or vessels for transportation (feedering method). To introduce 'feedering' to the offshore wind market two hurdles need to be taken. The first hurdle is technical: the safe hook-up and lift-off of the tower sections during the transfer from a floating transport vessel to the jacked-up WTIV. The second hurdle is market acceptance. Contractors and WTG fabricators are reluctant to change the current process when they can still charge the higher cost of the traditional transport and installation method to their clients.

Doelstelling

The project participants have many years of experience in providing and operating offshore Motion Compensation (MC) solutions. They have the capabilities to make MC feedering possible in a cost-efficient manner. Besides proposing a solution for the technical challenges, the BM Feeder project has an opportunity to address the market-acceptance issue by putting a system to work. DEME is willing to

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Algemene informatie / General information

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contribute to the construction, testing and, subject to successful testing, deployment of the equipment on a pilot-project in 2023. The objectives of the project are to develop, design, construct and test, MC equipment that enables safe and efficient transfer of WTG components from a floating vessel to a jacked-up WTIV. The equipment foreseen is a BM Feeder Heavy, a new and innovative design, a BM Feeder Standard, an innovation based on the existing BMT700 machine and a Tower Clamping System (TCS).

Korte omschrijving

With the FEED completed in 2021, design and construction work will be done in 2022. The systems will be ready for testing in 2023. Upon successful testing the feedering-method will be used for a pilot project which is an important step in achieving market acceptance. BM, DEME and TWD have partnered to meet these objectives. The main activities to take place within this project are: ? Detailed engineering of the structural, mechanical, and drive and control (D&C) systems of the BM Feeder Heavy, a MC unit that can carry two tower sections. ? Detailed engineering of the BM Feeder Standard, an innovation that uses the BM T700. This MC unit will carry one tower section. ? Detailed engineering of the Tower Clamping System to be placed on the MC units. ? Construction of the BM Feeder Heavy, the BM Feeder Standard and the Tower Clamping Systems. ? Outfitting of the equipment on a barge and testing of all systems using actual tower sections.

Resultaat

The project provides the development, construction and testing of tools and methods that: ? enable MC feedering of WTG towers to WTIVs by allowing safe transport, hook-up and hand-over offshore. ? are modular and can be used on a range of existing barges and transport vessels. By enabling feedering operations the project allows: ? Cost reduction of minimum 19% per WTG installation in The Netherlands (and Europe) through cost-efficient transport using transport-barges, or -vessels; allowing WTIVs to focus on installation work only. ?

A longer operational life for existing WTIVs because payload is not a limiting factor anymore. This has both a cost- and a CO2 reduction component, less newbuilding is required. ? Enabling smaller WTIVs to install WTGs, because they do not have to be sized for transport of components. ? Relieving the expected shortage of WTIVs, because WTIVs can be focused on installation, and existing WTIVs will have a longer useful life. This influences market dynamics and lowers costs. ? European (Dutch) WTIVs to work competitively within the boundaries of the Jones Act, which precludes non-US flagged vessels from transporting within US waters.

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