

Demonstration of the Wind Turbine Maintenance Crane

Publieke samenvatting / Public summary

Aanleiding

A continuous offshore challenge is to reduce the Levelized Cost of Energy (LCoE). Recent developments led to a reduction from € 14,50 per MWh (2014) to € 6,50 per MWh (now). But installation and maintenance require huge vessels and jack-up barges, which are still very costly and scarce. Current day rates run up to € 80,000 and are expected to swiftly increase if these are also required by oil and gas markets. Scarcity also leads to much longer down-times and lower energy-output, hindering the capture of the full potential of offshore wind. In addition, on- and offshore wind turbines are being developed towards 10 MW, with heights up to 200 m. Parks are built more remotely. Mammoet's current cranes reach their limits. So as to seize this opportunity, Mammoet develops a light weight Wind Turbine Maintenance (WTM) Crane, that is attached to the turbine tower, hoists itself to the top, and locks itself from which it can perform all kinds of maintenance tasks.

Doelstelling

The project aim is to demonstrate the effectiveness and efficiency of a fully functional WTM crane that can be installed, operated and removed with minimum use of time, and resources such as heavy lifting equipment (vessels/jack-ups or jack-up crane barges or cranes). The WTM crane will be attached to the top of a wind turbine tower, to the "bracket welding allowed zone" and erect itself by hoisting. Working height will therefore be only limited by the height of the tower. It will be able to replace internal

Projectinformatie / Project information

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Algemene informatie / General information

Penvoerder / Secretariat
Mammoet Holding B.V.

Publicaties en materialen / Publications and attachments

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parts of the turbine or to replace blades. The time for build-up, servicing (performing the maintenance tasks) and removal of the WTM crane will be limited to one day. Transportation will become much easier because of its limited size and weight.

Korte omschrijving

Mammoet executes the project as sole partner as it is both the developer and the investor/owner of the new WTM crane. The project has three phases. First the detailed design and workshop drawings will be developed. Secondly, the WTM crane components and materials will be procured and the WTM crane will be built. It will be demonstrated on an onshore wind turbine, because of available projects and to keep the project cost efficient. The third phase consists of communication and dissemination and project management.

Resultaat

The project results in a WTM crane that can be used as a showcase for the effectivity and efficiency of the new product. Although other 'climbing crane' concepts are under development, none of such initiatives are aimed at offshore and/or maintenance applications. On the longer term, the project will be the basis of Mammoet's entrance of the global offshore wind market and for further growth of the onshore, leading to increased turnover, employment, and renewable power generation. Within 5 years after project ending, Mammoet expects to have doubled its revenues for wind turbine maintenance activities. At the same time, Mammoet's clients will enjoy much lower costs (50%-75% cheaper than current practices) and more efficient maintenance services (3 to 7 times faster). Lastly, the project generates ample economic opportunities for the Netherlands: the WTM crane is a solely 'Dutch product', invented here, serviced here and also likely to be fabricated here, meaning that new employment will be created in both R&D/engineering as well as manufacturing.

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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