

Parameters impacting the competitiveness of mooring line hook-up methods with a pulling winch on a vessel

Background and Task

The impact on schedule and on cost has been assessed within WP2¹ for three hook-up strategies: pulling the mooring line using a winch onboard the platform, pulling the mooring line using a winch on a vessel, and pulling the mooring line at lower tension using a winch on a vessel and then tensioning the mooring system using an in-line tensioner. Principle Power built on this work to provide more details on the different parameters that can impact the competitiveness of these methods. The findings are presented below.



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Findings

- Depending on the execution plan, the platform winch can be mobilized on platform for a long time between the start of towing and the end of Inter-Array Cable (IAC) installation. A winch can be reused on several platforms, implying retrofitting. Logistics should be carefully planned to define the number of winches required and whether they are rented or purchased.
- Hook-up using a winch onboard the platform requires more deflector and turndown sheaves on the platform than with pulling from winch on vessel.
- Lifting means with sufficient capacity are required to commission or decommission a winch onboard a platform.
- When using a winch onboard the platform, there is no relative motion between the Platform Mooring Connector (PMC) and the winch, which provides more control on the tension during pulling and facilitates the connection.
- Pulling from a winch on a vessel allows to reduce the bollard pull required for tugs to position the platform during hook-up. This is further reduced when an in-line tensioner is used (line connection being performed at low tension).
- Taking advantage of using a winch on a vessel, it is assumed that no platform access is required during hook-up. The messenger line shall be retrieved without accessing the platform deck. No platform access gives the opportunity to perform the hook-up operation in a higher sea state, thus improves the workability.
- When using an in-line tensioner, the required tension and the available water depth drive the need to perform the vertical pulling from the vessel winch or the vessel crane.
- In any case, a winch onboard the platform is necessary for IAC pull-in, but the capacity required is lower than for hook-up.

Source

1. Deliverable 2.2 Simulation report for baseline concept, ReaLCoE, Rev1.0, 30.04.2023 (Confidential, only for members of the Consortium including the Commission Services).

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