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Developing the Next Generation 12+ MW Offshore Wind Turbine for Clean and Competitive Electricity

Parameters impacting the competitiveness of increased towing speed during offshore towing

The impact on schedule and cost when performing the offshore towing at a higher speed than the baseline value has been assessed within WP2[1]. Parameters that can impact the competitiveness of increasing the towing speed are presented below.

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Bollard pull capacity

Towing at a higher speed increases the resistance of the platform in the water. Higher tug pulling capacity may be required, which can reduce the number of suitable available vessels on the market and increase project costs.

Fuel consumption

The increased resistance of the platform in the water also increases the fuel consumption of the vessel. Since the drag force increases with the towing speed squared, and the relationship between speed and fuel consumption is also non-linear, towing the platform at a higher speed can turn out expensive with possibly a limited gain of speed.

Structural loads

At a higher towing speed, the platform primary structure can be exposed to Vortex Induced Vibrations (VIV) or Vortex Induced Motions (VIM). These vibrations are due to the interaction between tubular members or flatten bodies, and a fluid. These effects can have an impact on the tow performance and on the structure of the platform. Damage due to increased fatigue loads could also appear.

Marine traffic

The towing route may go across a high marine traffic area which requires more control of the towed platform. As such towing at higher speeds may not be applicable to all project cases.

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).**

ReaLCoE's vision is to unleash the full potential of offshore wind energy
€35/MWh LCoE Goal, +12MW WEC Capacity, ~32 mio € Total Budget, 42 month project duration

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