



leanwind

Logistic Efficiencies And Naval architecture for Wind Installations with Novel Developments

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List of Abbreviations

Acronym	Description
DP	Dynamic Positioning
DHL	Dynamic Hook Load
DAF	Dynamic Amplification Factor
SHL	Static Hook Load
DCR	Daily Charter Rate
WP	Work Package
O&M	Operations & Maintenance
SPIVs	Self-propelled installation vessels
WTIVs	Wind Turbine Installation Vessels
CoG	Center of Gravity
DNV GL	Det Norske Veritas - Germanischer Lloyd
DP	Dynamic Positioning
CAPEX	Capital Expenses
OPEX	Operational Expenses
MHWS	Mean High Water Springs
XL	Extra Large
XXL	Double Extra Large
SWL	<i>Safe Working Load.</i>
Tz	Zero-upcrossing period
Hs	Significant wave height
IMO	International Maritime Organization
SWATH	<i>Small Waterplane Area Twin Hull</i>
MPVs	Multi-purpose vessels
OWA	Offshore Wind Accelerator
SOV	Service Offshore Vessel
SPIV	Self-propelled installation vessel
WFSVs	Wind Farm Service Vessels
CTV	Crew Transfer Vessels
TP	Turbine transition piece
RMS	Root-Mean-Square
g	Local acceleration due to gravity near Earth's surface
WBV	Whole body vibration
FPP	Fixed-pitch propeller
CPP	Controllable-pitch propeller
IPS	Volvo Penta Inboard Performance System – propulsor
LCOE	Levelized cost of electricity
Cat1,Cat2	MCA vessel area categories by distance from a safe haven
PSV	Platform Supply Vessel
MCA	Maritime and Coastguard Agency (UK)
HSE	Health and Safety Executive
MoM	Measures of Merit
HSC	High Speed Craft
MSI	Motion Sickness Incidence
TRL	Technology Readiness Level

Executive Summary

Within the context of WP3 that focuses on the primary vessel types used for both windfarm installation and O&M with the objective of making efficiencies in terms of innovations to existing vessels and designing new vessels concepts tailored specifically to industry requirements, WP3 has taken the findings from D3.1 and D3.2 to further develop novel vessel concepts.

In conjunction with undertaking direct contact and stakeholders workshops which were used to collect ideas from developers, designers and owners/operators, a detailed review was undertaken of the vessel concepts identified in D3.1 and those currently being proposed in the market place.

A technical and economic evaluation has been undertaken in order to efficiently compare and rank a list of installation and O&M vessel concepts which have been identified by working closely with industry stakeholders.

The deliverable starts with a definition of the selection process, ultimate design goals which present the potential of cost and time reduction to the offshore wind sector. A selection matrix has been developed in which the concepts are assessed and ranked against the design goals and major operational phases they would go through in their working life. The results of the matrix were discussed with leading installation vessel owners and O&M vessel builders and 3 installation and 2 O&M vessel concepts have been chosen.

The mission profiles of the chosen concepts have been developed in order to incorporate findings from the Industry Challenges identified in D3.1 but also Design Requirements and Parameters from D3.2.

Ultimately this document will be used as a design basis and will be further developed once the basic design stage has commenced.