D7.5 Guidance on platform and mooring line selection, installation and marine operations

The increasing relevance of industrialization capabilities for floating wind turbine platforms goes in line with the progress in the development of technology and manufacturing readiness. A key part of LIFES50+ effort is the development of industrialized processes which will allow for significant cost reduction through serial production, standardization, and optimized handling procedures along the lifecycle of the system (WP5). Complementarily, methods to determine the costs (WP2) and risks (WP6) of floating offshore wind turbine systems were developed in order to evaluate and rate the results.

D7.5 provides a comprehensive and generalized overview of the achievements of LIFES50+ with respect to industrialization of the FOWT technology. In particular, the deliverable focusses on the following items:

Platform selection
A list of parameters, which are needed to set up a decision making process, is defined and embedded into an optimization procedure by classifying the parameters into constraints, design parameters and performance indicators. This way, a transparent and systematic view on the selection and optimization procedure is given for finding the optimal concept for a given site.

Station keeping
The mooring line design process is described, providing considerations during the design and listing relevant standards and load cases for catenary and taut mooring lines. Upscaling and risk considerations are also addressed.

Installation and marine operations
Topics of marine operations and installation processes are covered, which constitute a large factor for cost reduction for floating offshore wind turbine projects. Common procedures are presented and differences between different concepts, constraints, challenges and risks are highlighted. A special focus is put on equipment to be used as well as on assembly methodologies.

The upcoming deliverable 7.10 on O&M, logistics, manufacturing and decommissioning can be regarded as a supplement to this document on topics of industrialization.