DESIGN SERVICES FOR COLD ENVIRONMENT AkerArctic

OFFSHORE WIND FARMS

Offshore wind farms

The design of marine structures involves a trade-off of a variety of factors that are influenced by operational and environmental considerations. Ice air conditions. low ambient temperatures. remoteness, and shallow water will all influence the functionality of structures. In addition, the safe and economic maintenance of a structure must be considered.

Non-ice-classed vessels have a limited ability to perform their duties in a cold environment. Depending on the duration of the ice season, this may interrupt the construction of wind farms.

In addition, non-ice-classed vessels cannot operate during the ice season.

Ice-classed vessels are capable of performing their duties in ice conditions. Therefore, service operations can be carried out year-round, and the wind farm construction season can be extended, providing flexibility for construction and the possibility to reduce costs.

Aker Arctic offers services for cold environment offshore wind farms.



Special purpose vessels

- · Definition of ice conditions in the area
- Definition of ship design requirements
- Comparison and rating of different vessel solutions
- Design of low / high ice-classed service vessels to complete year-round duties
- Design of low / high ice-classed multifunctional vessels for various preparation/construction/installation work

Aker Arctic

- Definition of logistics scenarios for installation vessels
- Conversion and winterization design to convert existing vessels for operation in freezing environments
- Model testing and optimizing of vessel and their performance in Aker Arctic's ice tank
- Full scale trials for performance verification



Offshore wind tower foundations

- Definition of ice conditions in the area
- Concept screening and feasibility studies, including:
 - ice load definitions
 - risk identification
 - comparison and rating of different foundation concepts
- Design of foundations
- Testing and optimization of foundation concepts in Aker Arctic's ice tank





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