

Feeder Vessel Efficiency in Offshore Wind

Jan Flores, P.E.

Contact: jflores@netsco.us

Intro

Offshore wind turbine installations along the US East Coast encounter logistical hurdles. Due to the absence of U.S. flag Wind Turbine Installation Vessels (WTIV), the current installation process involves utilizing Feeder Vessels to move turbine components, which are then transferred to foreign-flag WTIVs.

Methods

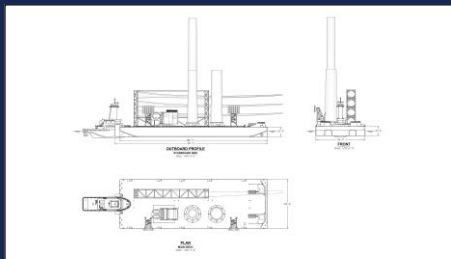
NETSCO has been exploring alternatives to current feeder vessels, assessing their designs and true capabilities to support more efficient offshore wind installation operations. Current feeder vessels consist of towed deck barges without a positioning system and have the capacity to transport a single turbine at a time.

These barges have limitations, including positioning, complex towing dynamics, and excess motion difficulties which reduces the uptime while offloading to Wind Turbine Installation Vessels (WTIVs).

Design Basis

NETSCO's concept introduces feeder vessels with dynamic positioning, powered by a battery and fuel system, to enhance transfer efficiency to the WTIV.

- Dynamic positioning eliminates the need for mooring, accelerating transfers.
- Anti-roll features reduce vessel roll and enhance operational safety.
- A specialized fendering system ensures secure WTIV connections, minimizing downtime.
- Battery systems allow precise maneuvering during offloading, while strategic fuel use during transit conserves resources.
- The design adheres to Jones Act regulations.



OFFSHORE
WINDPOWER



Feeder Barge Particulars

Length:	400 ft (122m)
Beam:	125 ~130 ft (38 ~ 40 m)
Depth:	25 ft (7.6 m)
Deadweight:	22,000 tons
Clear Deck:	50,700 ft ² 4,800 m ²

Results

The goal is to provide an effective alternative to Jones Act Feeder Ships for offshore wind installations, exceeding industry demands. These new vessels feature dynamic positioning, advanced anti-roll capabilities, a specialized fendering system, and an integrated battery and fuel power source for resource conservation and flexibility. They address current limitations to enhance safety, reliability, and eco-friendly practices in maritime operations.

Acknowledgements

NETSCO Naval Architects: David Hossenlopp P.E., Elvis Omofezis

OEMs: GE Verona

Netsco
Naval Architecture & Marine Engineering