

# Crane Vessels – – an alternative solution for Floating Wind?

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SUPPLY SERVICE

## OUR VISION

Actively taking part in solving  
the energy challenges of tomorrow

 **MAERSK**  
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# Moving from shore to deeper waters...

**Onshore Wind**



**Offshore Wind**  
Bottom-fixed

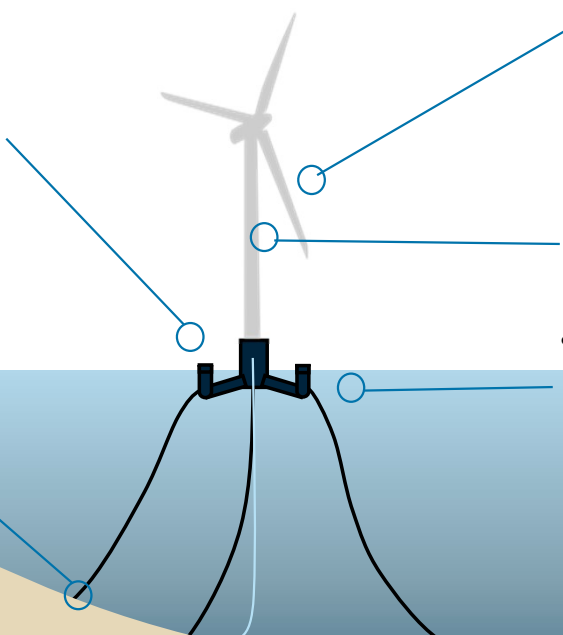


**Floating Wind**

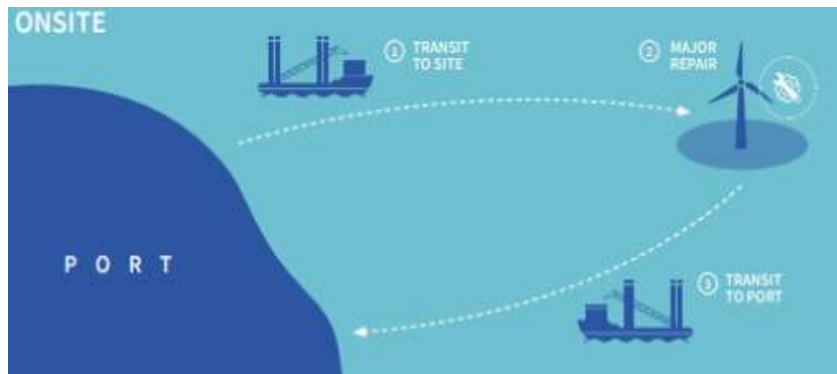


**Above it all looks the same but...**

# What challenges does floating wind brings on crane lifting capabilities...

- 
- The diagram illustrates a floating wind turbine platform on the water surface, connected to the seabed by several mooring lines. A crane vessel is positioned alongside the platform. Blue circles and lines highlight specific components and challenges: one circle on the mooring line at the seabed, one on the mooring line at the platform, one on the platform itself, one on the crane vessel, and one on the turbine tower.
- Foundations are **moored floating steel and/or concrete structures** (semi-sub, barge, spar or TLP)
  - **Mooring system with anchors/piles, Higher tensions in mooring lines**
  - **Lifting operations** from ship to floater (height, weights, dynamic loads, weather limits)
  - Lack of **availability of specialised floating crane vessel**, capable of doing offshore lifts at a high cost
  - Jack-up Crane Vessel are replaced by **floating crane barges or AHTS** for tow to and from port, due to deeper water

# Crane vessel has opportunity and challenges, selecting the best options for the full life cycle

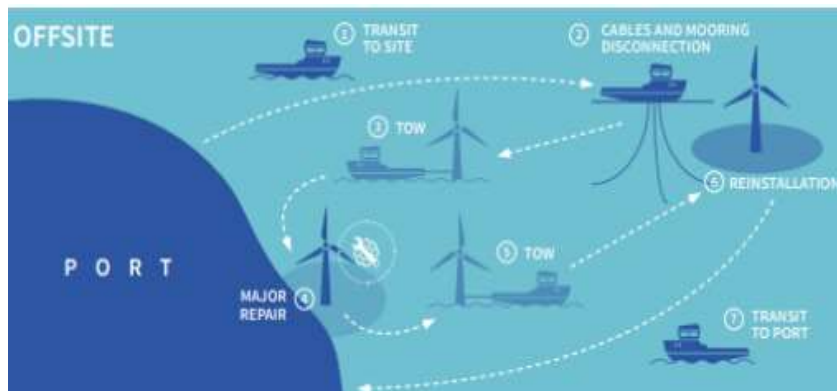


## Installation phase (CAPEX):

- Selection of floater Design. (spar, semi-sub, barge or TLP)
- Design interfaces with ML, anchors/piles, Cables.
- Infrastructure maturity at port of fabrication/assembly
- Location of wind farm (further from shore / Commercialisation)

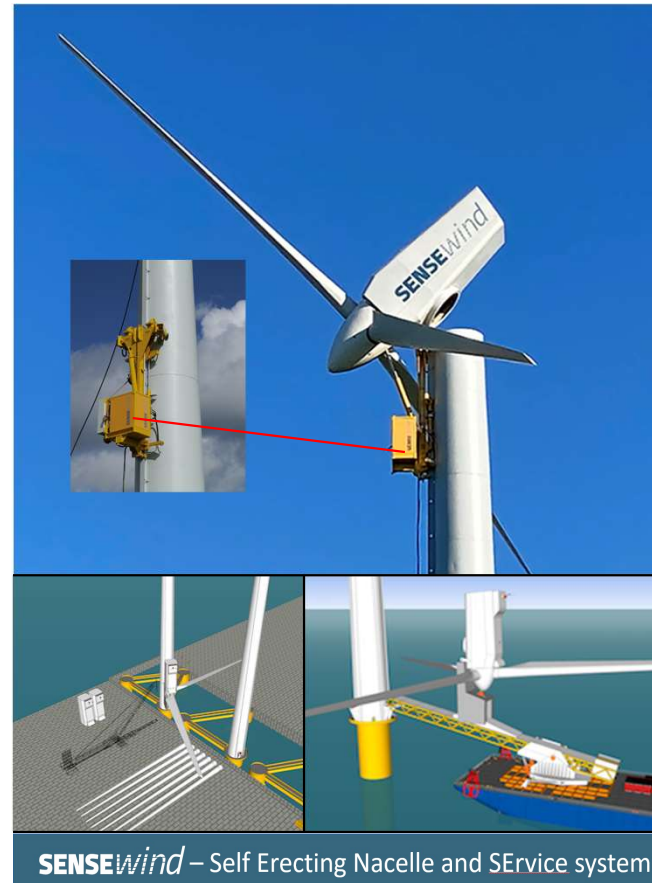
## Operational phase(OPEX):

- Impact on floater, moorings and cables when towed to port during major repair
- Restrictions in port logistics and draft restrictions when bringing floater into port
- Maintaining power production if floater is disconnected
- Limited Crane technology available to do major repair on site.




































































## Future technologies which has the potential to impact floating wind commercialisation



- Crawler crane technology for onshore might move to floating wind?
- New advanced crane vessels for offshore installation or maintenance?
- Offshore floating docks for maintenance of floaters?

# De-risking the commercialisation of floating wind by looking at full life-cycle for wind turbines

		Readiness	Complexity	Relevance	Cost	Availability	Risks
Installation CAPEX.	ATHS availability and relevance			  	\$	  	
	Craned Heavy lift vessels availability and relevance			 	\$ \$	 	
	Infrastructure maturity at port of fabrication/assembly			  	\$ \$		
	Selection of Floater Design. (spar, semi-sub, barge, TLP) engagements with WGT suppliers			  	\$ \$	 	
Maintenance OPEX.	ATHS availability and relevance			  	\$	  	
	Crane Heavy lift vessels availability and relevance			  	\$ \$ \$		
	Infrastructure maturity at port of fabrication/assembly			 	\$	  	
	Selection of Floater Design. (spar, semi-sub, barge, TLP) engagement with WGT suppliers.			  	\$ \$	 	

## OUR VIEW TODAY:

### Crane vessel vs. towing floaters to port

- Lack of floating wind farms to justify New Crane vessels
- Reduced heavy maintenance requirements and improved turbine technologies will reduce volumes
- An oversupply of existing AHTS will maintain the Tow to Port as favourable and cost optimised option








Thank You



# Maersk Supply Service at a glance

## INDUSTRIES

-  Oil and Gas
-  Wind
-  Ocean Cleaning
-  Decommissioning
-  Deep Sea Metals

## EXPERTISE

- Towing & Mooring
- Moorings Management
- Rig support
- Supply and cargo
- Subsea construction
- Decommissioning
- Well intervention
- Iceberg management
- Surveying and sampling

1967

established

1100

Offshore employees

220

Onshore employees

41

vessels

10

Global locations