MAGNORA
OFFSHORE WIND

DeepWind Concrete Substructures event - October 3rd 2023

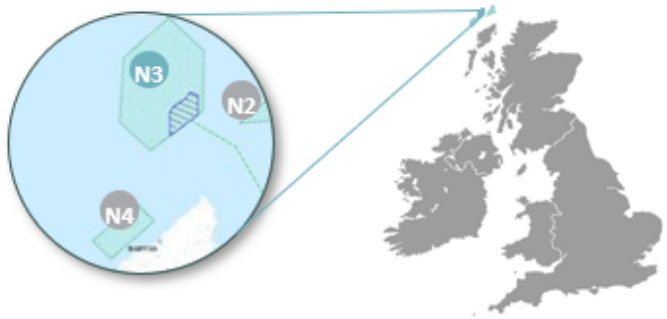
Introduction to Talisk Offshore Wind Project

MAGNORA OFFSHORE WIND

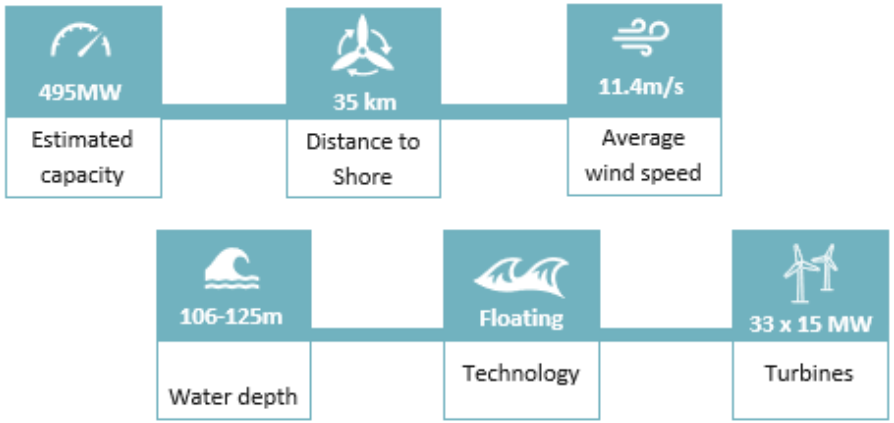
MOW in brief:

- Magnora Offshore Wind AS (MOW) is an offshore wind developer based in Norway, focused on floating offshore wind projects
- MOW is owned by Magnora ASA (80%) and TechnipFMC (20%) which enables it to combine Magnora ASA's renewable project development experience with TechnipFMC's technical experience in executing integrated large offshore, floating and subsea projects using industry leading technologies

Project Talisk Location

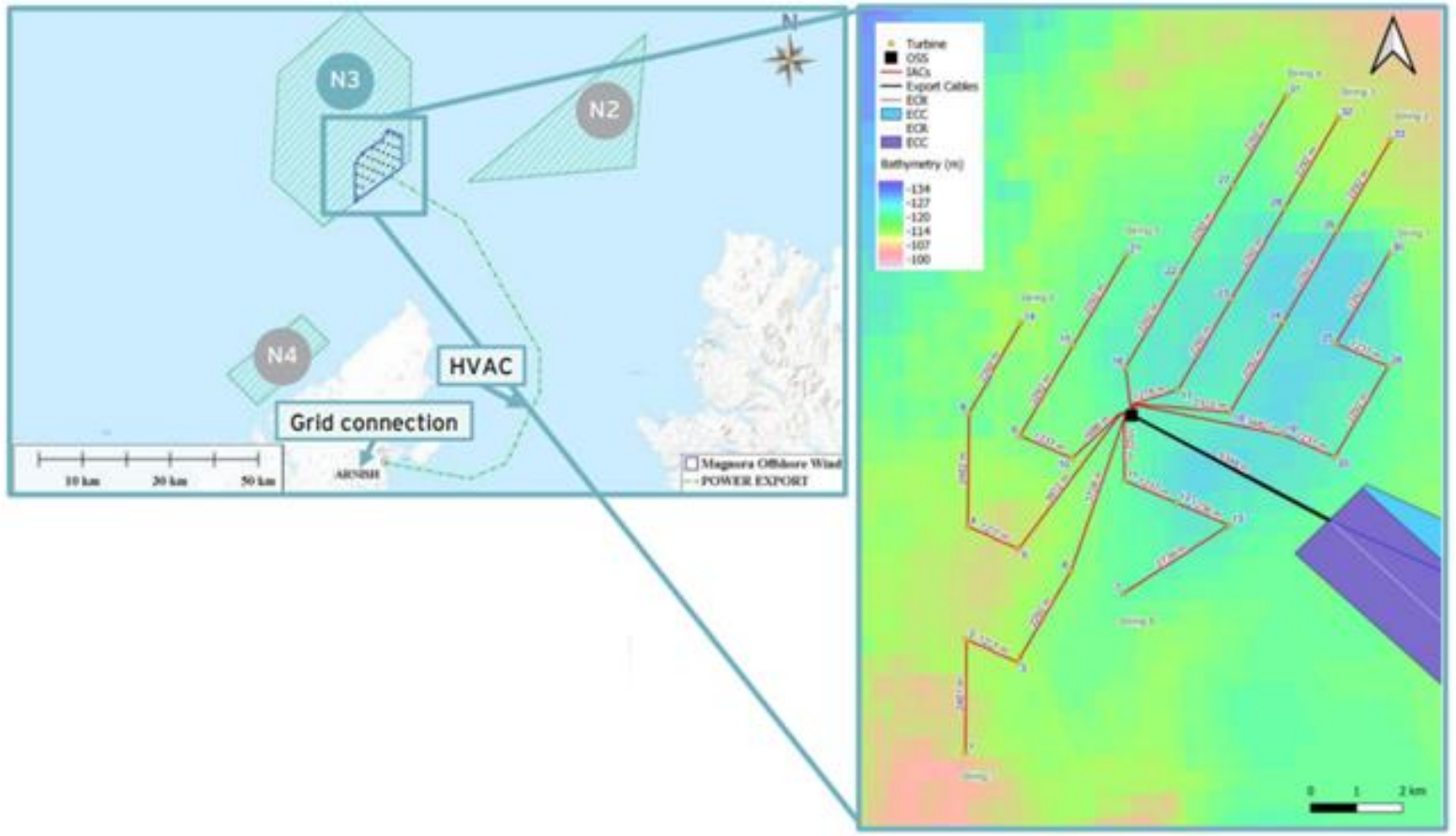


Key Project features



Talisk Development

Illustrative site and turbine layout



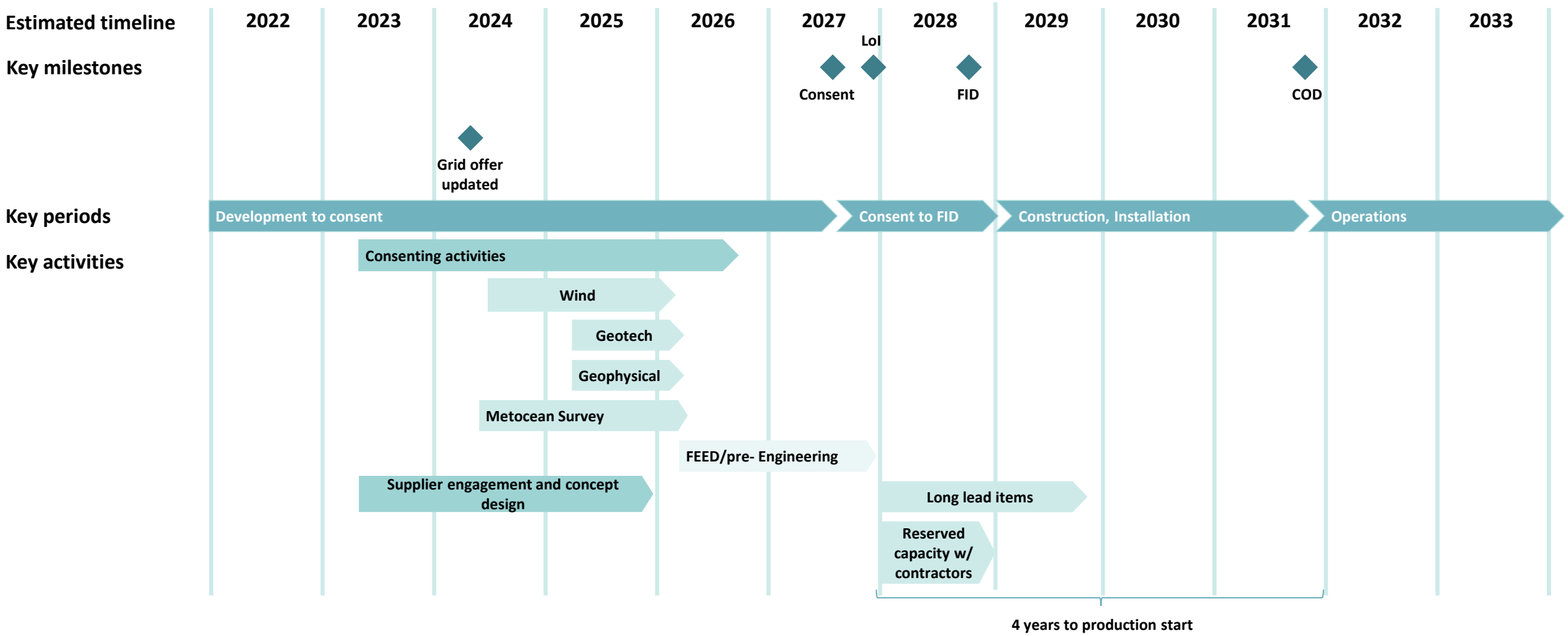
Strategy - Supply Chain

Turbine size: The project is designed for a 15MW turbine, larger turbines will be considered should they become available within the project timeline

Construction yard and floater concept: The project strategy is to secure an EPC contractor to deliver a concrete floater concept optimised for cost-efficient construction - could be in Kishorn Port.

Installation port: Turbine installation onto the floater could be completed in a Stornoway deep-water port using onshore heavy lifting equipment. Marshalling, commissioning and construction could also be coordinated here.

Talisk project timeline



Floating concrete structures

Concrete structures exhibit better durability (fatigue) and require fewer protective measures and less maintenance (e.g., surface coating) than steel structures in aggressive marine environments if quality is right.

What about cost? - Is complexity understood?

Troll B semisub platform North Sea

Heidrun tension leg platform - Norwegian Sea

Complex production and quality control for floating structures

Concrete floaters are large, bulky and heavy - require a large assembly and lay-down area

Labour-intensive and time-consuming construction activities

More complex than most other concrete manufacturing

- High-strength concrete
- High reinforcement ratios (rebars and pre-stressing cables)
- Lightweight aggregate
- High -strength aggregates
- Reduced size aggregates (reduced space between the rebars)
- High levels of heat associated with the hydration process
- Tightness requirements (pre-stressing cables)
- Corrosion protection of reinforcement bars (reduced concrete porosity)
- Quality control measures during production

Talisk floater – Way forward

Cost challenge

- Collaboration with other developers - large number of similar floaters
- Achieving an acceptable cost level through industrialisation and mass production
- Standardization to suit industrial manufacturing

Floater delivery – Tier 1 EPC

- Credible providers with proven track records and commitment to development
- Turnkey supplier to be selected that can commit to maturing of the design concept and to delivery
- Select technology & manufacturing port together with Tier 1
- Kishorn and Stornoway ports are being considered for foundation manufacture and turbine installation, respectively, due to their location

How can good intentions, early cost estimates and plans sustain the scrutiny of FEED and Detail Engineering?


MAGNORA
OFFSHORE WIND