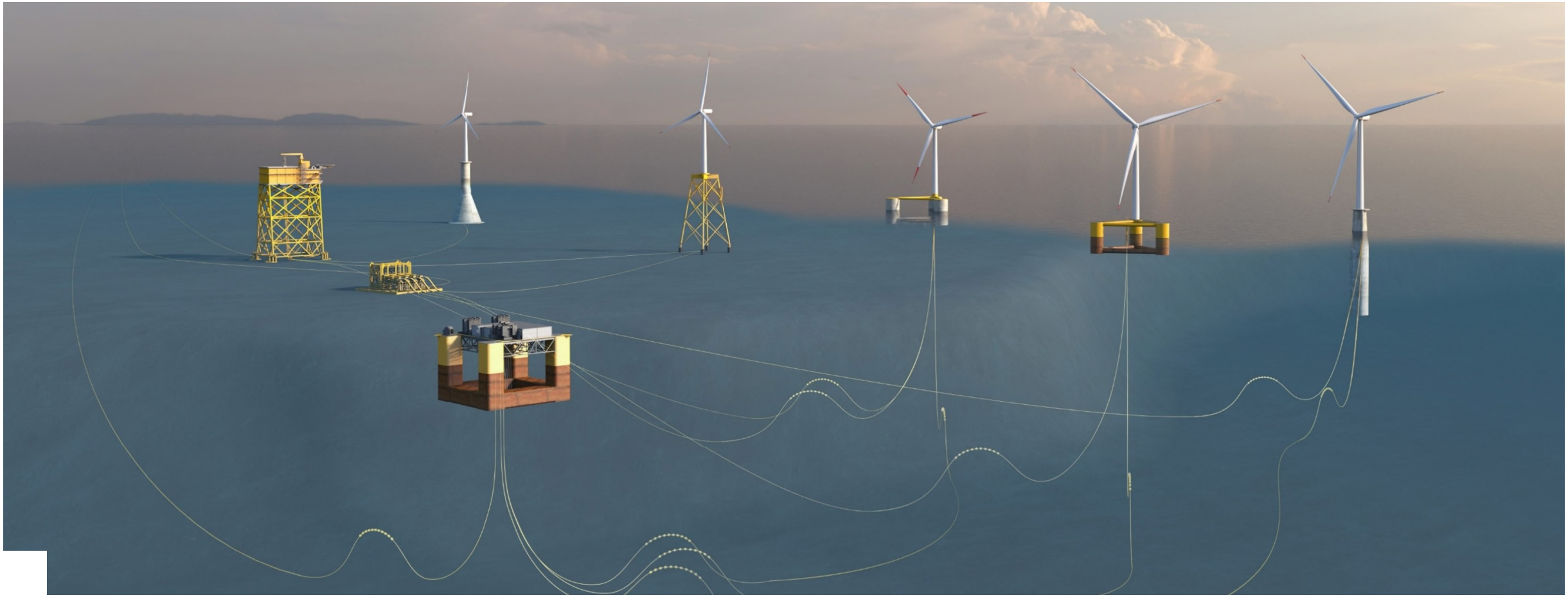
Aker Solutions

Aker Solutions

Concrete FOW Design

Kim Grimsrud & Neil Wilkinson

Unique expertise, capabilities and solutions to enable production and use of energy with low or zero emissions



Aker Solutions – examples from energy transition projects

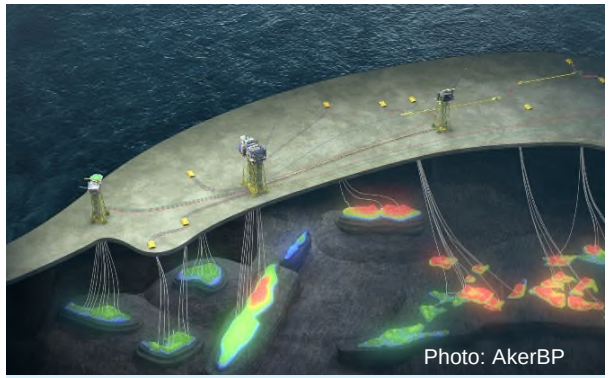


Photo: AkerBP

Yggdrasil
Large O&G development, with production designed for minimum CO2 emissions


Photo: Heidelberg Materials

Brevik CCS
Pioneering world's first full-scale carbon capture on cement plant


Photo: Hafslund Oslo Celsio

Oslo / Klemetsrud CCS
Carbon capture from waste recycling plant


Photo: Northern Lights

Northern Lights
Handling facility for captured CO2

Hydropower globally
The only Norwegian-based supplier of turbine systems


Photo: Equinor

Troll West
Electrification of existing offshore platform to enable reduced CO2 emissions


Photo: Equinor

Hywind Tampen
World's largest floating wind park

Sunrise
First HVDC converter platforms in the USA

Balfour Beatty and Aker Solutions JV

- Purpose to collaborate on UK offshore wind opportunities - to deliver end-to-end design and construction solutions for the concrete floating and gravity-based UK offshore wind industry
- The partnership will see the companies' complementary skills, resources and experience combined to offer a whole life solution.
- **Balfour Beatty** has an extensive track record of executing complex civil engineering works for complex infrastructure and energy projects across the UK, and
- **Aker Solutions** has a long history of delivering concrete structures for marine environments globally

Why Concrete?

Capacity

- Well suited for large-scale fabrication
- Low skilled workers trained on site
- Simpler facilities required - yard build-up with hired equipment

High Local Content potential

- Local supply chain (sand, gravel, rebar, formwork)
- Local labour
- Positive ripple effect on local community

Supply chain constraints for steel

- Constraints in yard capacities
- Concrete required as part of the mix to meet global targets for offshore wind

Reduced Carbon footprint

- Less carbon emissions for concrete foundations compared to alternatives
- Reinforcement from recycled steel
- Low emission cement used where possible

Hywind Tampen – Concrete Substructures & Marine Operations EPCI

Examples of Concrete Substructures for Offshore Wind Turbines

AkerSolutions

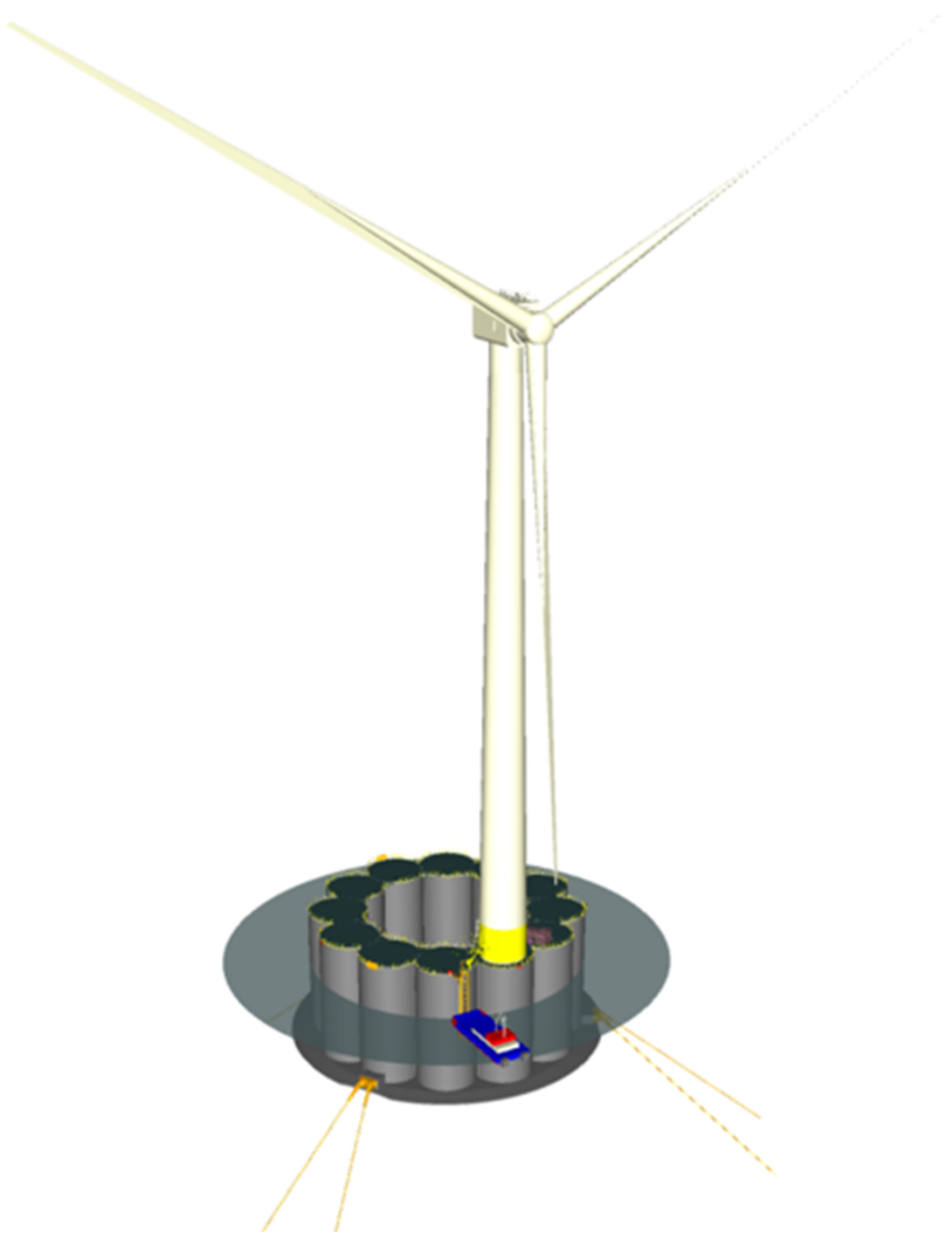
CONFloat™-Omega Concept

Designed for Improved Constructability

Simple geometry for improved constructability

Efficient Construction Schedule

Reduced Cost



CONFloat™-Omega | Efficient serial fabrication

Simple geometry enabling efficient fabrication

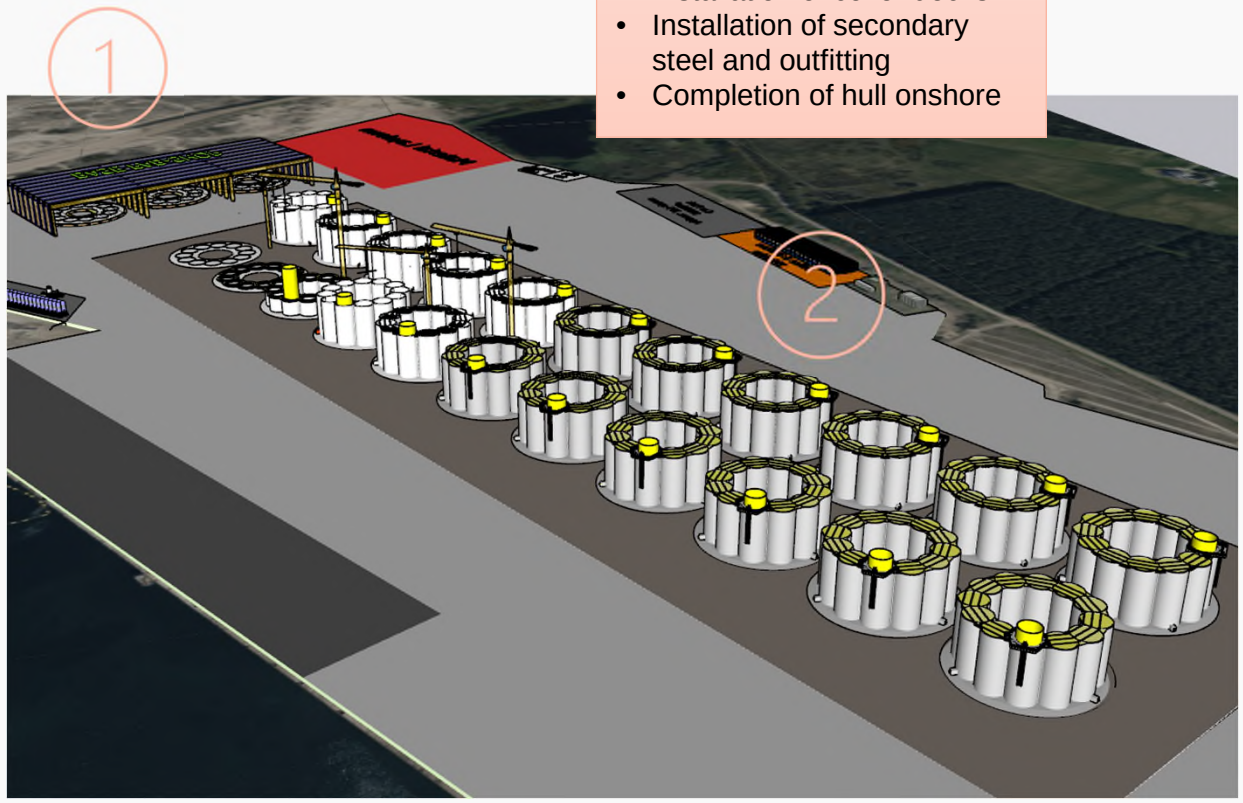
2 station fabrication → minimized internal transportation

Onshore construction enabling 360˚access around the floater

All phases optimized to provide an overall efficient schedule

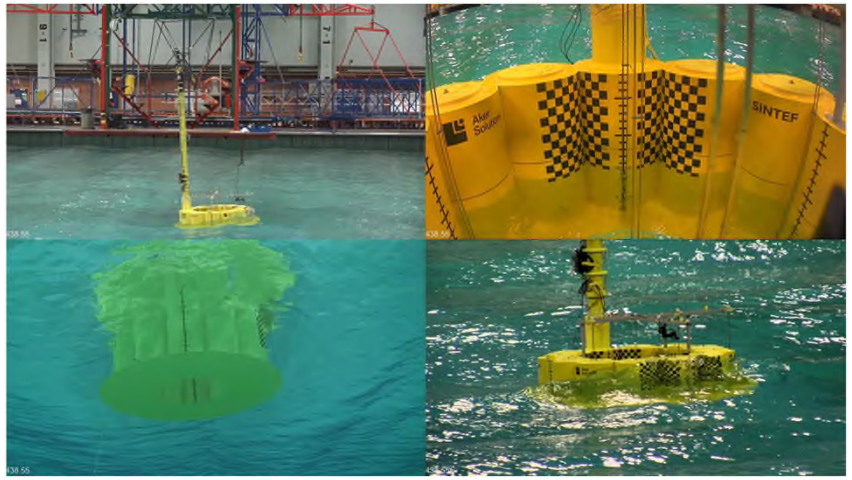
Station 1:
Base slab Fabrication

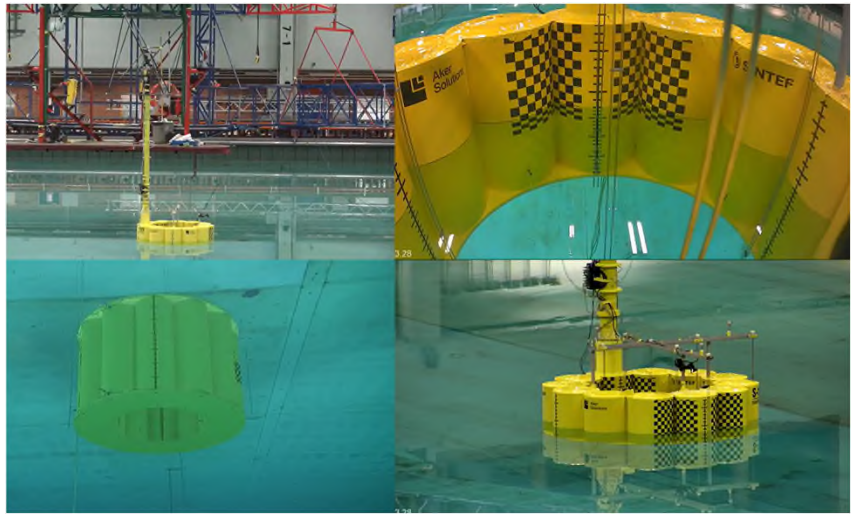
Station 2:
- Slipforming of concrete walls
- Installation of cover decks
- Installation of secondary steel and outfitting
- Completion of hull onshore



CONFloat™-Omega model tank test

- ✓ Designed for harsh environments
- ✓ Tank test conducted, considering both survival and operational conditions
- ✓ Confirmed very good global performance
- ✓ Developed to TRL 5





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