Floating wind - the next big thing

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Geir Olav Berg, Head of Engineering – Floating Wind
175 Years of Change

Hydropower turbines that gave Norway electricity

Ground-breaking offshore constructions
Our Vision

A leader in forging a sustainable future for the global energy industry and the world it serves
World Electricity Generation by Source

Source: DNV GL, Energy Transition Outlook 2018
Strong Drivers – Some Competing

**Key drivers speeding the transition**

- Consumer behaviours and public opinion changing

**Key factors slowing the transition**

- Cost of floating wind vs. other renewables
- Immature regional regulatory and fiscal regimes
- Lack of offshore understanding in wind industry
Floating Wind Makes Industrial Sense

For commercial wind farms with 10MW turbines, the most optimal will be floating wind energy.
Economy of Scale is Increasing with the Turbine Size

Floating wind pre-commercial projects performance exceeds expectations

- Capacity factor in range of 50-60%
- WTG size increase capacity factor
- Potential to increase availability

Drive LCoE towards 40-60 EUR/MWh

- Capacity x 4 (reduced units)
- Production x 5
- Unit cost 1,75
Global Potential for Offshore Floating Wind
Aker Solutions will be a leading provider of offshore wind energy solutions.

The floating wind system

Floater

Floating and Subsea Substation

Dynamic array cables

Export cable and landfall
Floater – Cost-Effective, Flexible Technology

- Semi submersible with shallow draft
- Quay side final assembly, commissioning and major maintenance
- Water depths: 40-1000m
- Inherently stable in transit
- Cost effective mooring system
- Connect/disconnect for maintenance
- Turbine agnostic
Floating Wind Projects

Kincardine
- 50 MW, Scotland, 25 km from Aberdeen
- Kincardine Offshore Windfarm Ltd (majority owner Cobra)
- Detailing / Operation
- Online September 2018

Leucate EFGL
- 24 MW, France, 18 km from Leucate
- Consortium of ENGIE, EDPR & Caisse de Depots
- Detailing
- Online by 2021

Wind Float Atlantic
- 24 MW, Portugal, 20 km from Viana do Castelo
- Windplus - Consortium of EDPR, Repsol & Principle Power Inc
- Detailing / Construction
- Online by 2019

Humboldt Bay
- 110-150MW, 25 miles from Eureka in Northern California
- Consortium of Redwood Coast Energy Authority, EDPR, Aker Solutions & Principle Power.
- Early Development
- Online by 2024

Photo: Principle Power
Kincardine Offshore Windfarm Ltd (majority owner Cobra)
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New Era of **Ocean Economy** Opportunities

- Floating and Subsea Power Stations
- Floating Wind Power
- Critical Infrastructure
- Power Hubs
- Offshore Aqua Culture
- Subsea Data Centers
- Landfall and power storage/balancing
- Data and Software
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