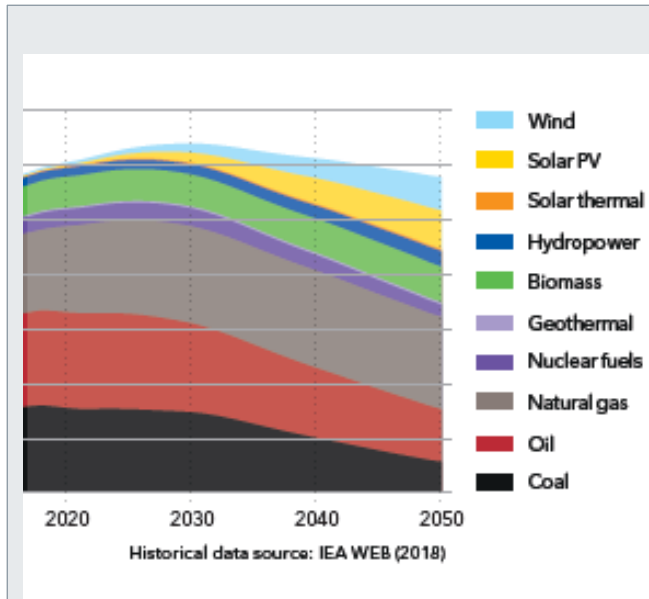


# Offshore Wind

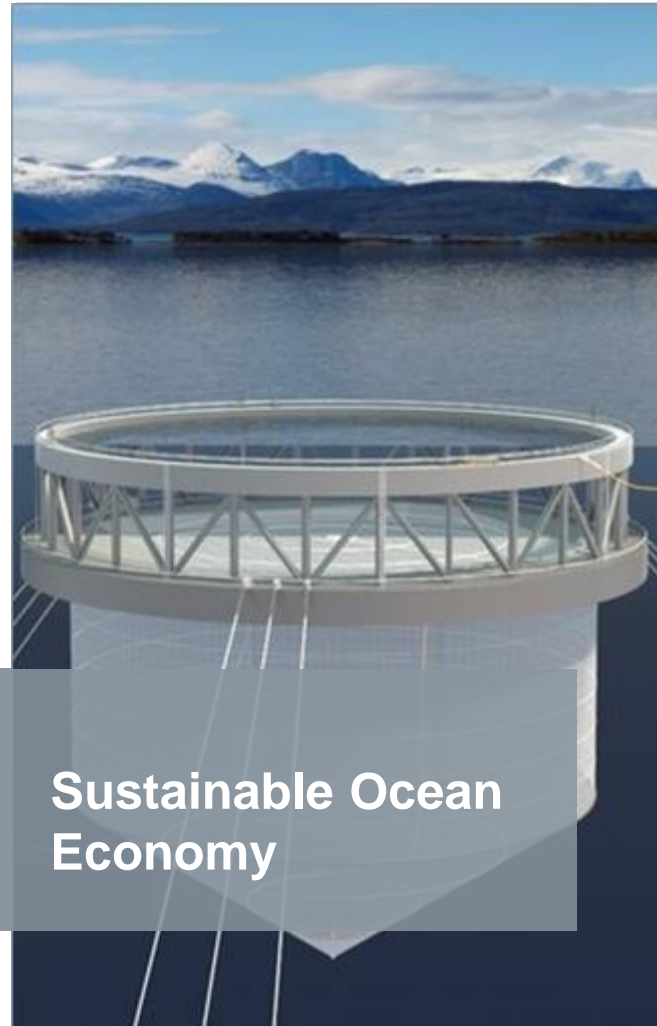
SEB morning meeting  
Oslo, November 11, 2019

Astrid Skarheim Onsum, Head of Offshore Wind

# Fast and Interconnected Change



**Energy transition &  
Lower Emission**



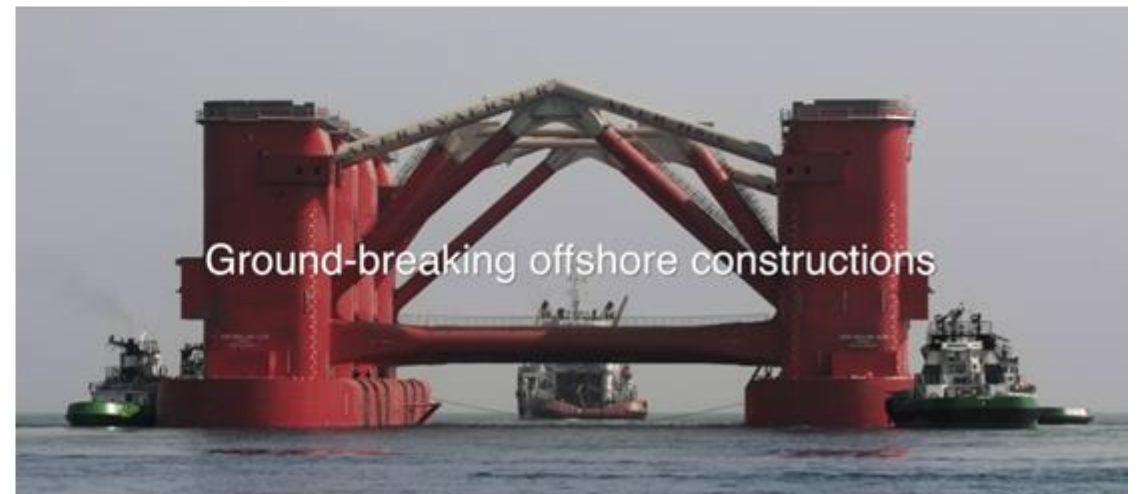
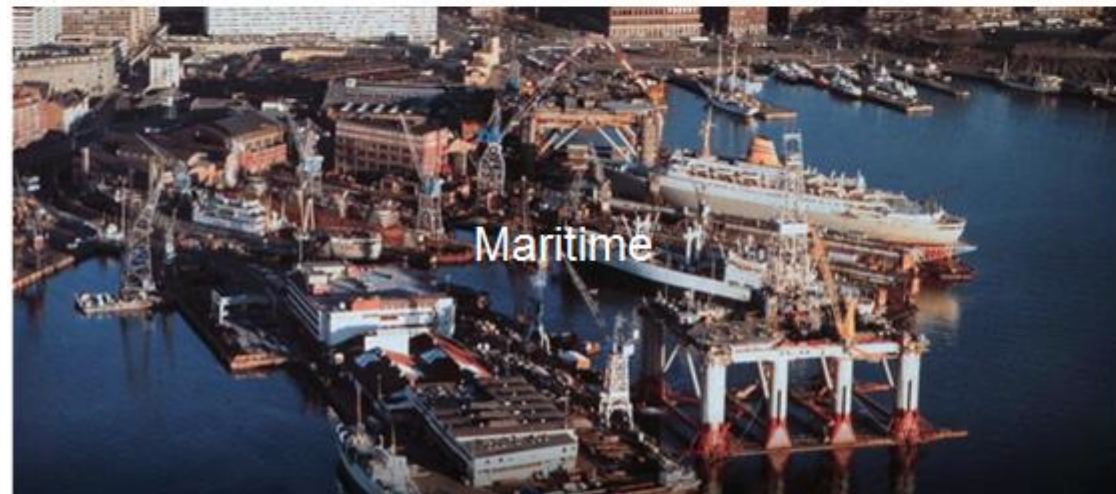
**Sustainable Ocean  
Economy**



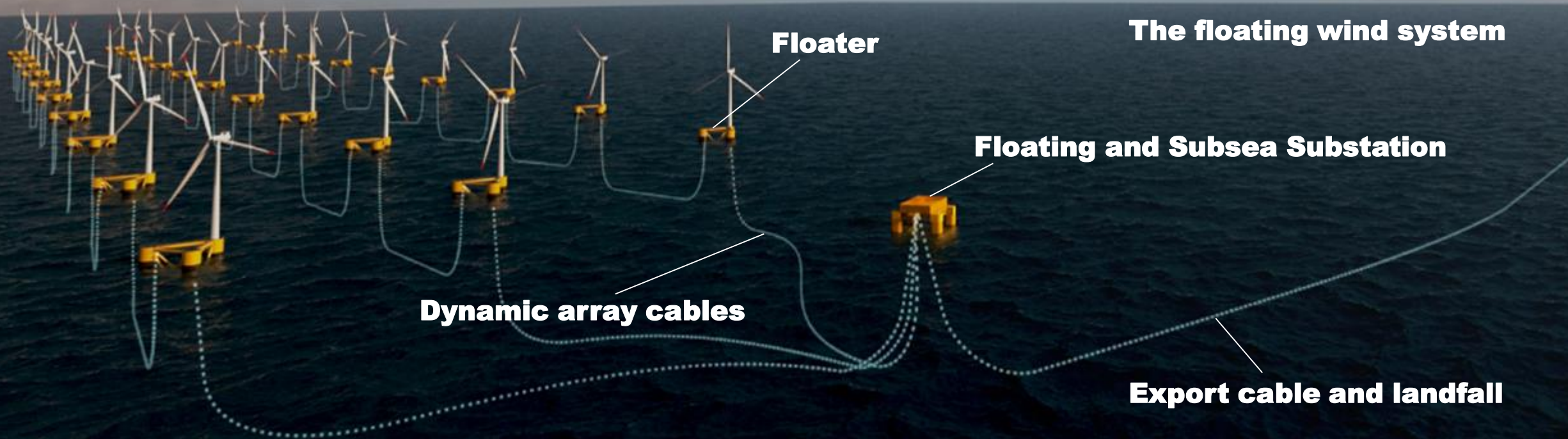
**Digitalization**



# 175 Years of Change



# Aker Solutions will lead the **industrialization** of floating wind



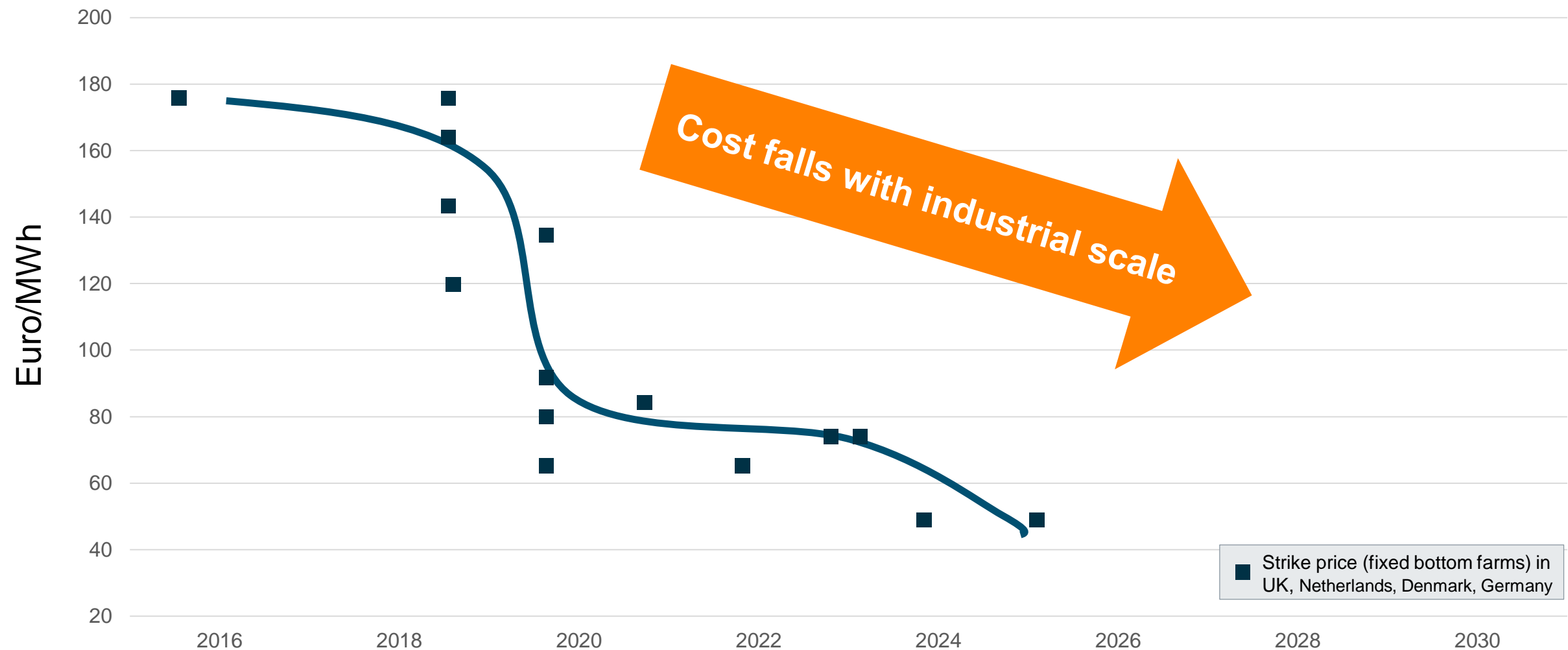


# Principle Power Inc

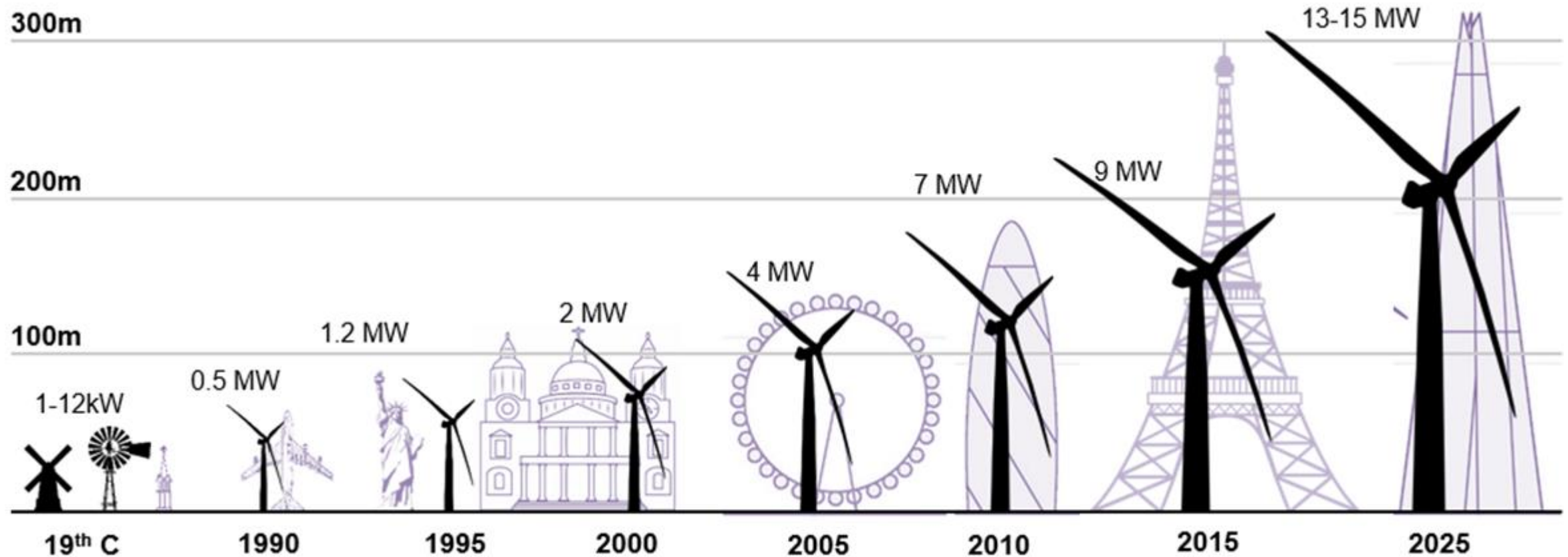


- Principle Power's WindFloat is a leading and proven floating offshore wind concept
- 2011 – 2016: WindFloat Pilot
  - 2 MW Portugal
- Aker Solutions ownership: 23%

# Falling Cost of Offshore Wind Projects



# Economy of Scale is Increasing the Turbine Size



Sources: Various; Bloomberg New Energy Finance

# Drivers for Deepwater Wind Power

- 80% of offshore wind resources found in water depths of >60 meters
- Deepwater Technology now available
- Not In My Back Yard (NIMBY)
- More Wind Energy Further From Shore



## Capacity factor by wind concept:

**Onshore  
Wind  
~30%**



**Offshore  
Bottom-Fixed  
~40%**



**Offshore  
Floating  
~50%**



# A **Global** Market

An aerial view of an offshore wind farm in the ocean. The water is a deep blue with white-capped waves. In the foreground, a large white wind turbine is prominent, showing its three blades and the complex tripod-like support structure. Several other similar turbines are visible in the distance, stretching across the horizon under a clear sky.

Americas

Europe

Asia

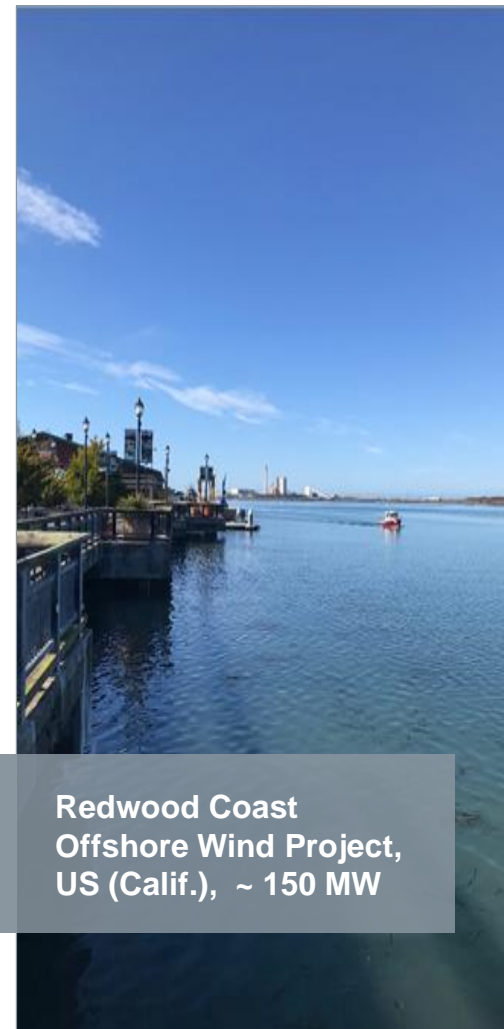
# This is Happening Now!



Kincardine,  
Scotland, 50 MW



Windfloat Atlantic,  
Portugal, 24 MW



Redwood Coast  
Offshore Wind Project,  
US (Calif.), ~ 150 MW



Consortium to develop  
wind farm,  
South Korea, ~ 500 MW



# Collaboration is Key to Success

## California: REDWOOD COAST OFFSHORE WIND PROJECT



Local Community – Fisheries – Port – Unions



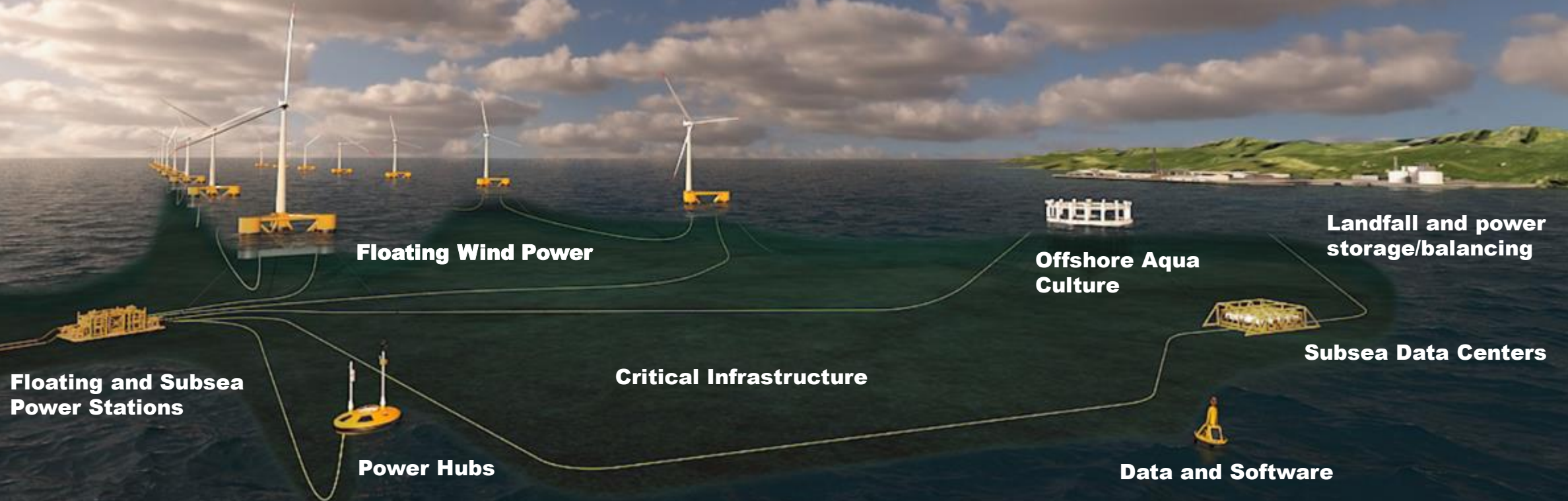
# Ulsan City, South Korea



Aker Solutions, EDP Renewables and WindPower Korea have formed a consortium with the ambition to develop an initial 500 megawatt (MW) floating wind farm off the coast of Ulsan Metropolitan City in South Korea

*The South Korean Government has called call for 13 gigawatt (GW) of offshore wind to be installed by 2030 and set a target of at least 30 percent renewable energy by 2040*

# New Era of **Ocean Economy** Opportunities



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