



The next wave: Offshore solar (or floating PV)

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One of three interdisciplinary initiatives



UiO:Energy



UiO:Life Science



UiO:Nordic



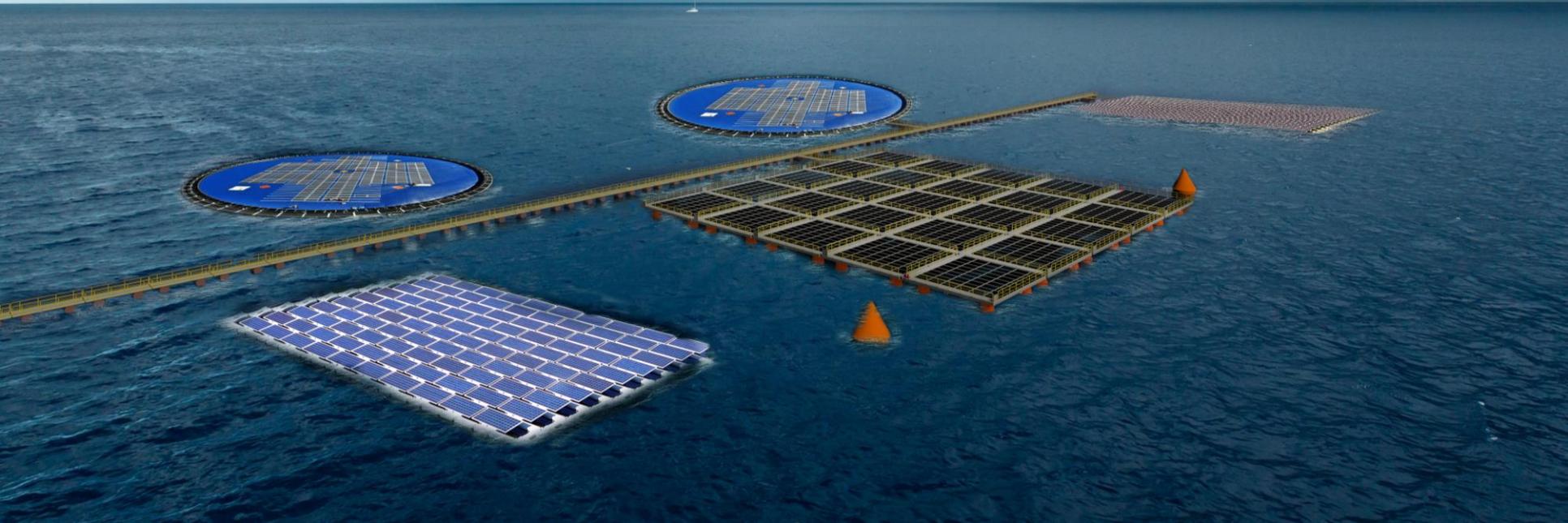
SOL ENERGI KLYNGEN



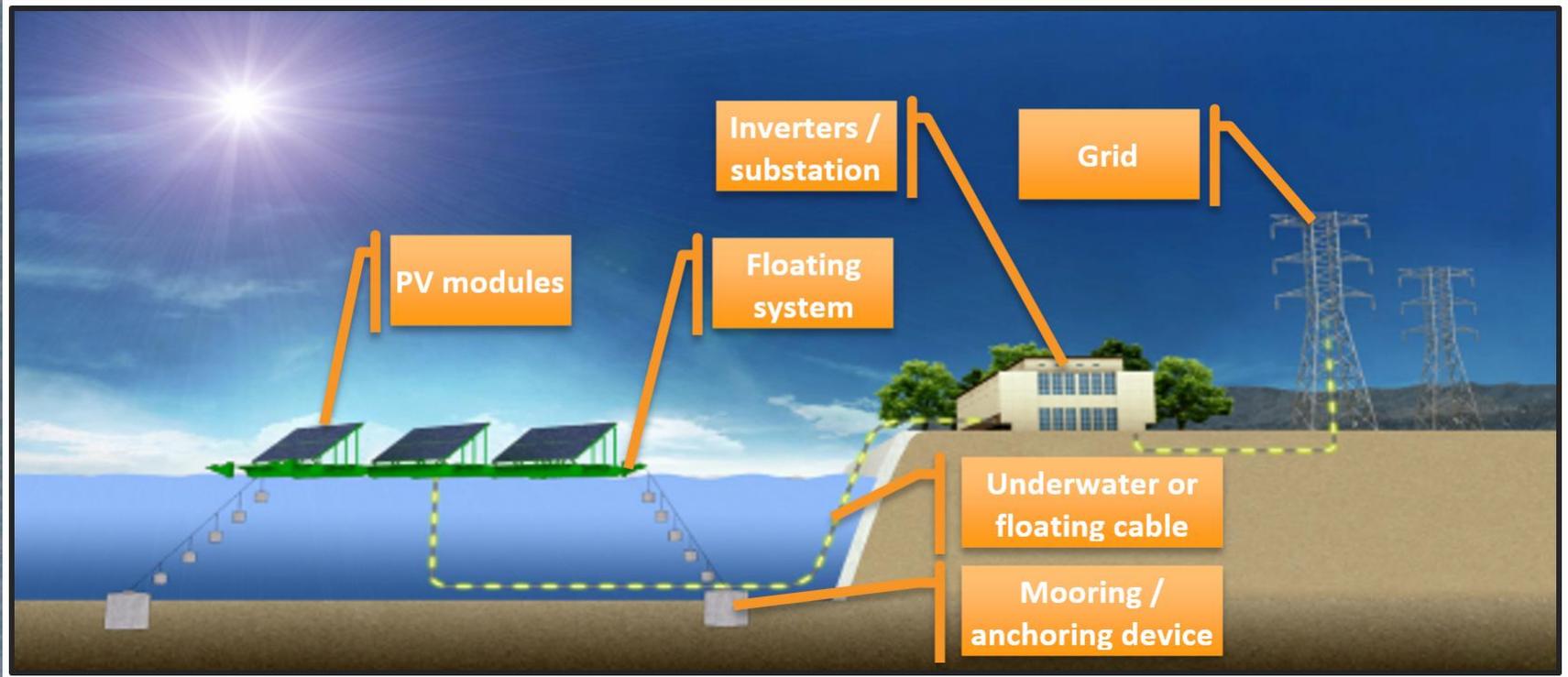
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95 private companies
**9 research institutes and
universities**
**Ambition to be a global
leader**

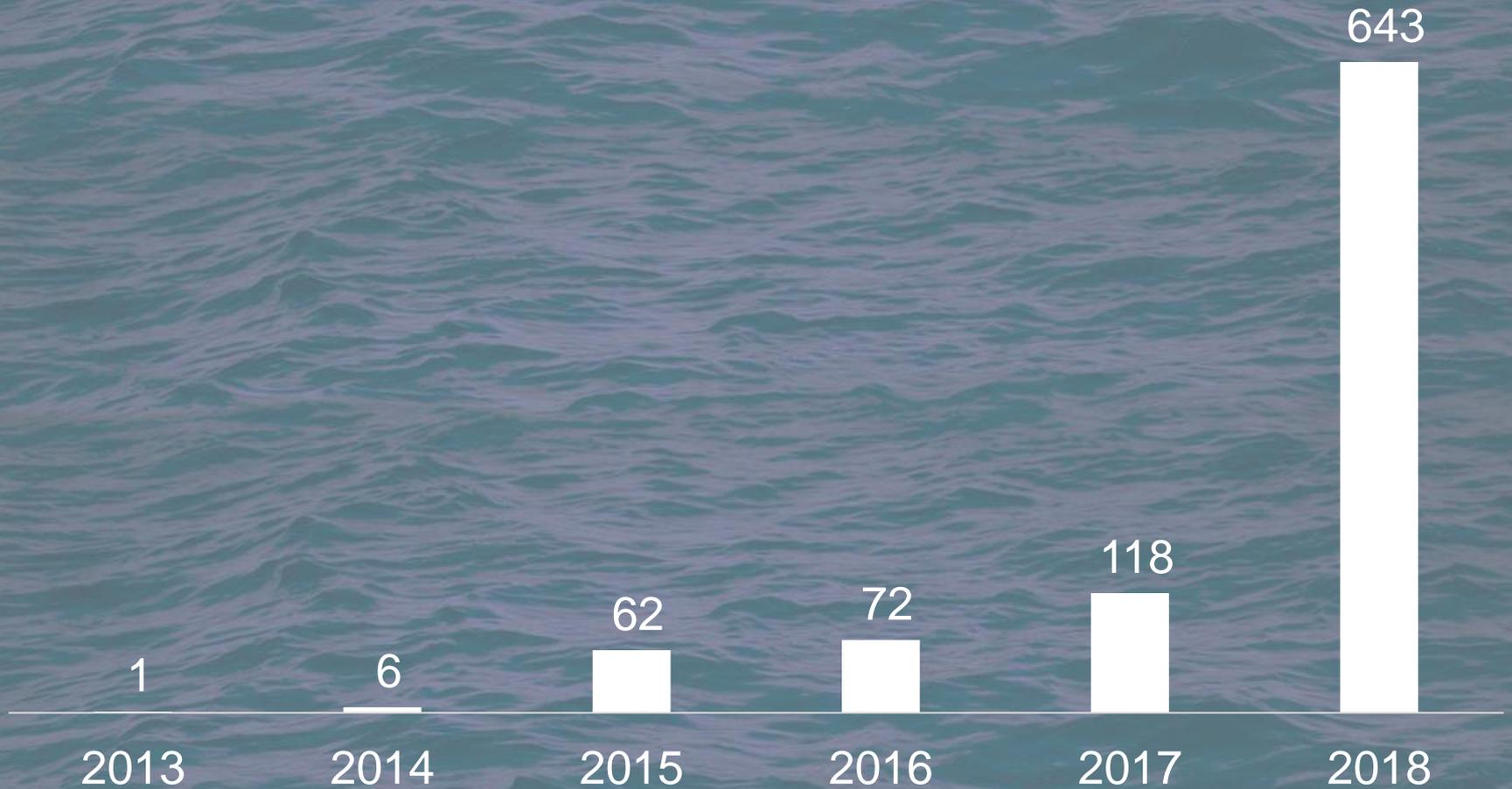


Concept - System

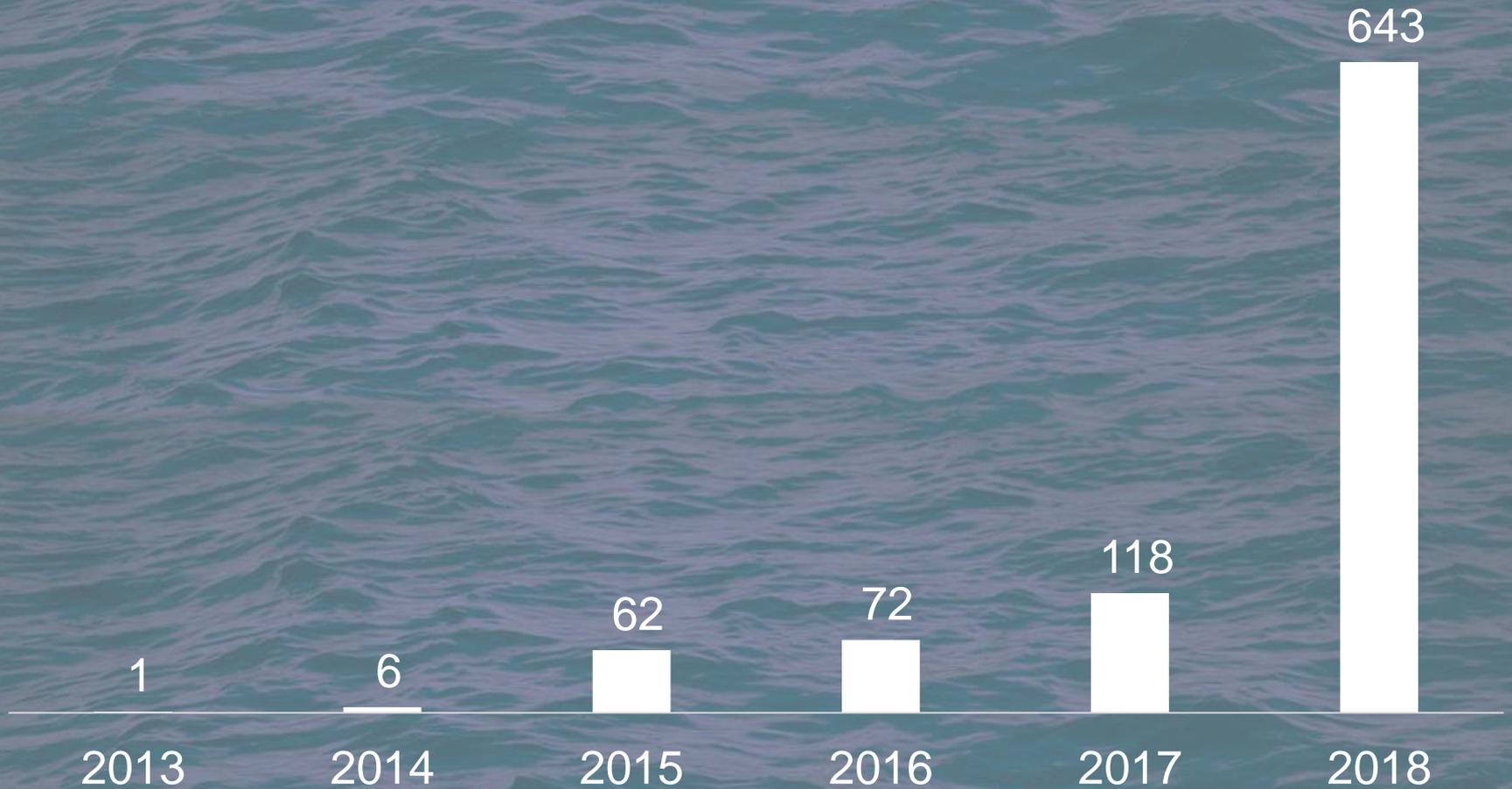


Credit: Multiconsult

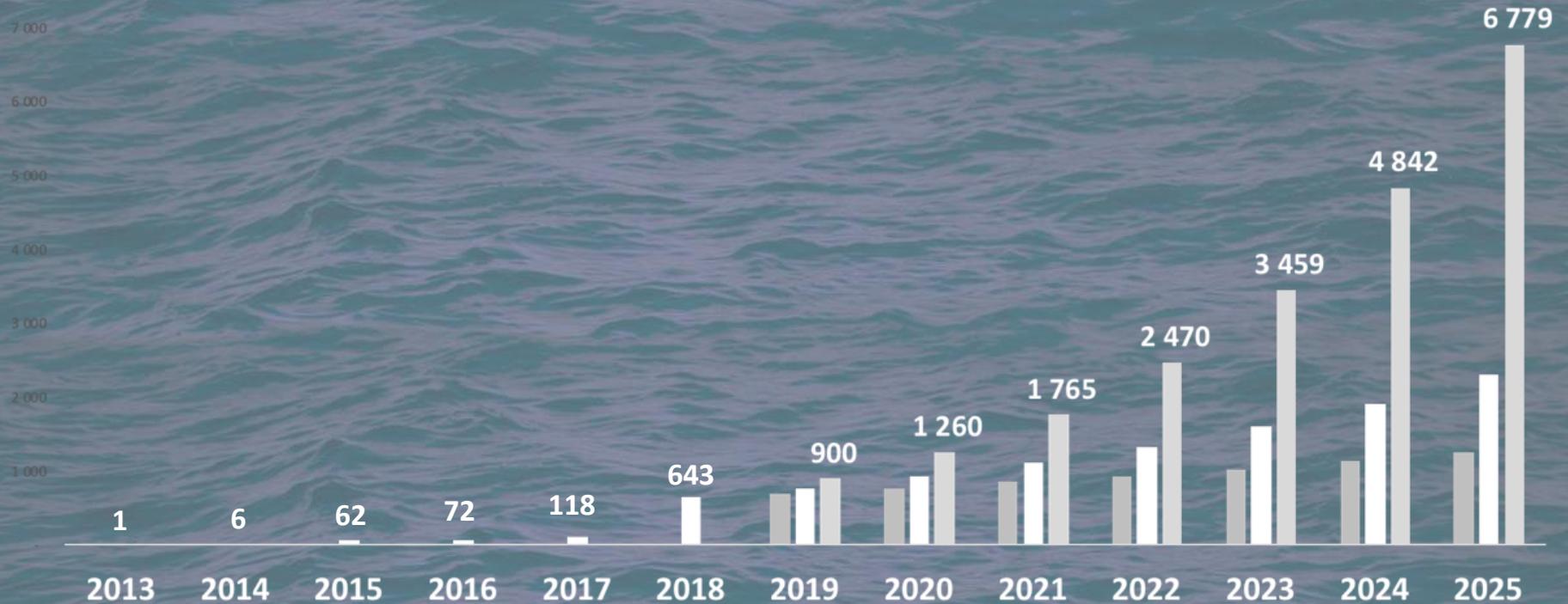
Annual installed capacity of floating solar (MW)



Annual installed capacity of floating solar (MW)



Annual estimated installed capacity of floating solar (MW)



Low: 10 %/yr , medium: 20%/yr High: 40%/yr
Global PV historical data: app. 30 %/yr

Main Advantages

1

- Saves land space / costs
- Reduced grid connection costs and major infrastructure investments

2

- Better performance due to the cooling effect of the water

3

- Limited evaporation of the water under the plant
- Reduction of algae growth



Main Advantages

1

- Saves land space / costs
- Reduced grid connection costs and major infrastructure investments

- In (and around) most major cities, space is a limited resource
- Most megacities are at or close to the coast
- Available water surfaces both inland and off-shore
- Short distance from production to consumption
- Off-grid option for fish farms etc.

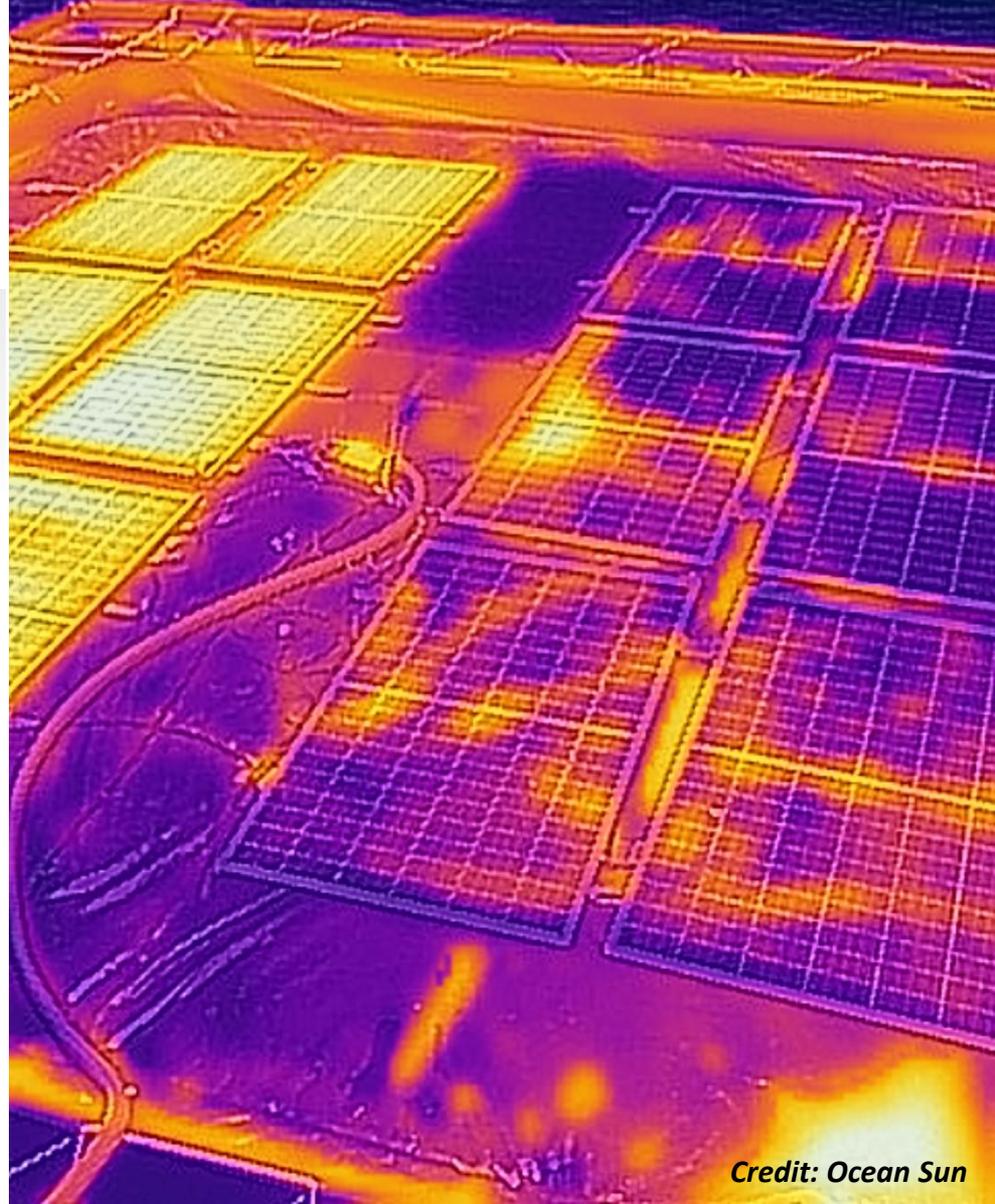


Main Advantages

2

- Better performance due to the cooling effect of the water

- The water transfers heat away from the solar modules
- Cooling gives >10% higher production
- Efficiency gain offsets additional costs of off-shore solar
- Could increase lifetime of modules?



Credit: Ocean Sun

Main Advantages

3

- Limited evaporation of the water under the plant
- Reduction of algae growth

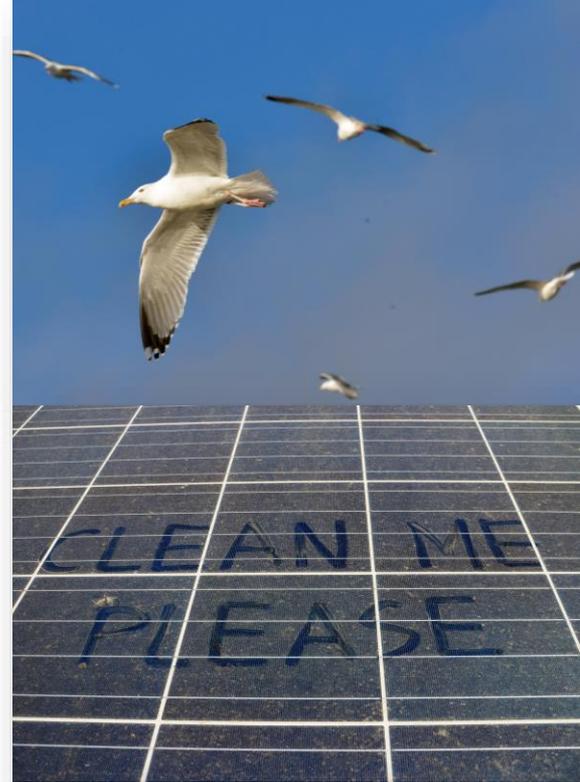
- Freshwater magazines and hydro dams
- Synergies with hydro power, shared grid connection
- Estimated potential on man-made reservoirs: 2 TW



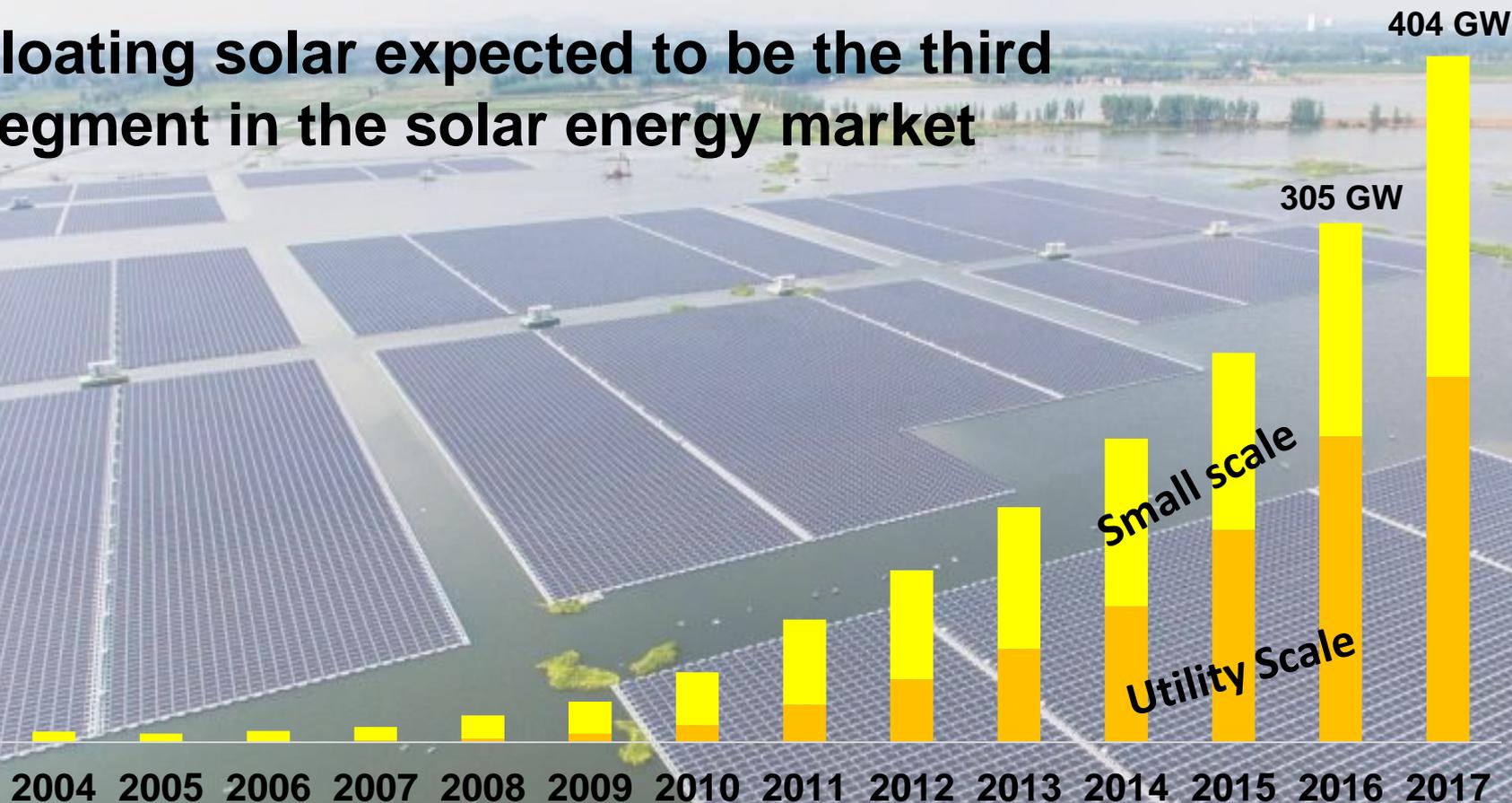
Credit: Statkraft

Challenges – some old and some new...

- Birds and bird droppings
- Airborne pollutants
- Salt water stains
- Fish...
- Aquatic life under solar modules?
- Supply capacity?



Floating solar expected to be the third segment in the solar energy market



Global PV solar energy installed accumulated

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An aerial photograph of a large-scale floating solar farm. The solar panels are arranged in a dense, rectangular grid on a floating platform. The platform is surrounded by orange buoys. A small white control building is visible on the right side of the platform. The water is a deep blue, and the sky is overcast with grey clouds.

Thank you for your attention!