

# WHY OFFSHORE WIND IN GREECE

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HWEA, President



## National Energy & Climate Plan (NECP)

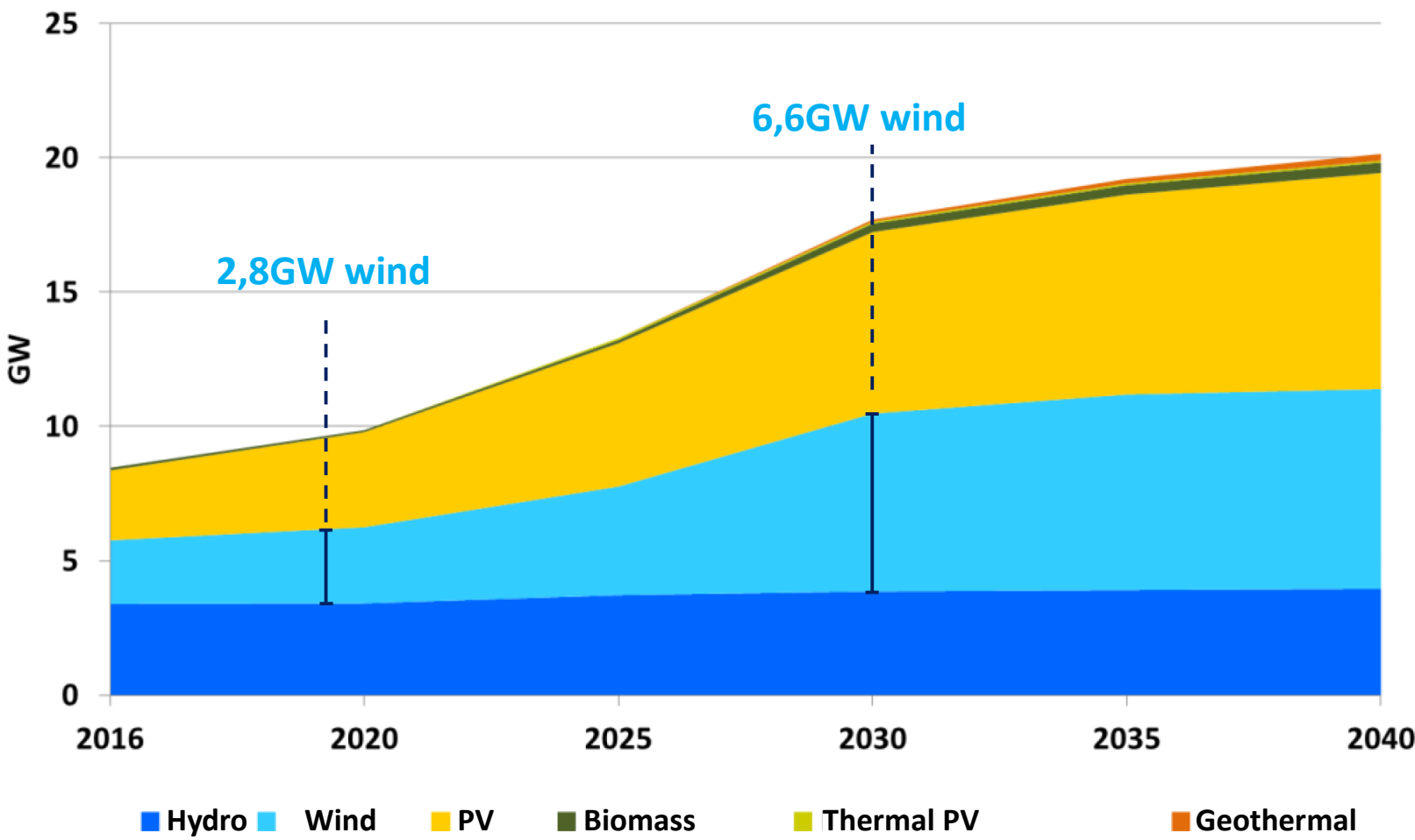
Energy parameter/index		Target 2030	Estimation 2030*
<b>GHGs decrease</b> <i>compared to 2005</i>	non-ETS sectors	16%	31%
	ETS sectors	43%	63%
<b>RES share</b>	in Gross Final Energy Consumption	<b>31%</b>	31%
	in Gross Final Electricity Consumption	<b>55%</b>	56%
	in Heat & Cooling	30%	32%
	in Transportation	14%	20%

\* with the application of additional policy measures provided in NECP





## Estimation for installed RES capacity for electricity



*Installing **7,8 GW** of new RES until **2030** is a challenge. Could offshore wind ensure the 2030 targets?*



# Current status & prospects of onshore wind



- Wind Energy Auctions have been undersubscribed
- Lack of mature onshore wind projects
- High wind onshore sites are gradually exhausted
- Eventually there will be a saturation in onshore wind...

Auction	Category	Tendered Capacity [MW]	Awarded Capacity [MW]	Deficit
July 2018	Wind (3MW<P≤50MW)	300	170,9	129,1
December 2018	Wind (3MW<P≤50MW)	229	159,7	69,4
April 2019 (upcoming)	Common (Wind>50MW & PV>20MW)	600	?	
		529	330,6	198,4

Only one wind project participates!

# NECP: Few but critical provisions for wind offshore



## NECP, pg. 135

*“The specific requirements for the development of a specific regulatory (licensing and support scheme) and spatial planning framework for offshore wind farms are also highlighted”*

## NECP, pg. 147

Αρίθμηση	Όνομα μέτρου πολιτικής	Στόχος	Επηρεαζόμενος τομέας	Εκτιμώμενες επιπτώσεις (1: Πολύ χαμηλές έως 5: Πολύ υψηλές)	Κατηγορία μέτρου	Κατάσταση εφαρμογής
M2.3	Αδειοδοτικό και χωροταξικό πλαίσιο για θαλάσσια αιολικά πάρκα	Αύξηση παραγωγής ηλεκτρικής ενέργειας από ΑΠΕ	Παραγωγή ηλεκτρικής ενέργειας	2	Κανονιστικό μέτρο	Σχεδιαζόμενο

Licensing & Spatial planning for wind offshore

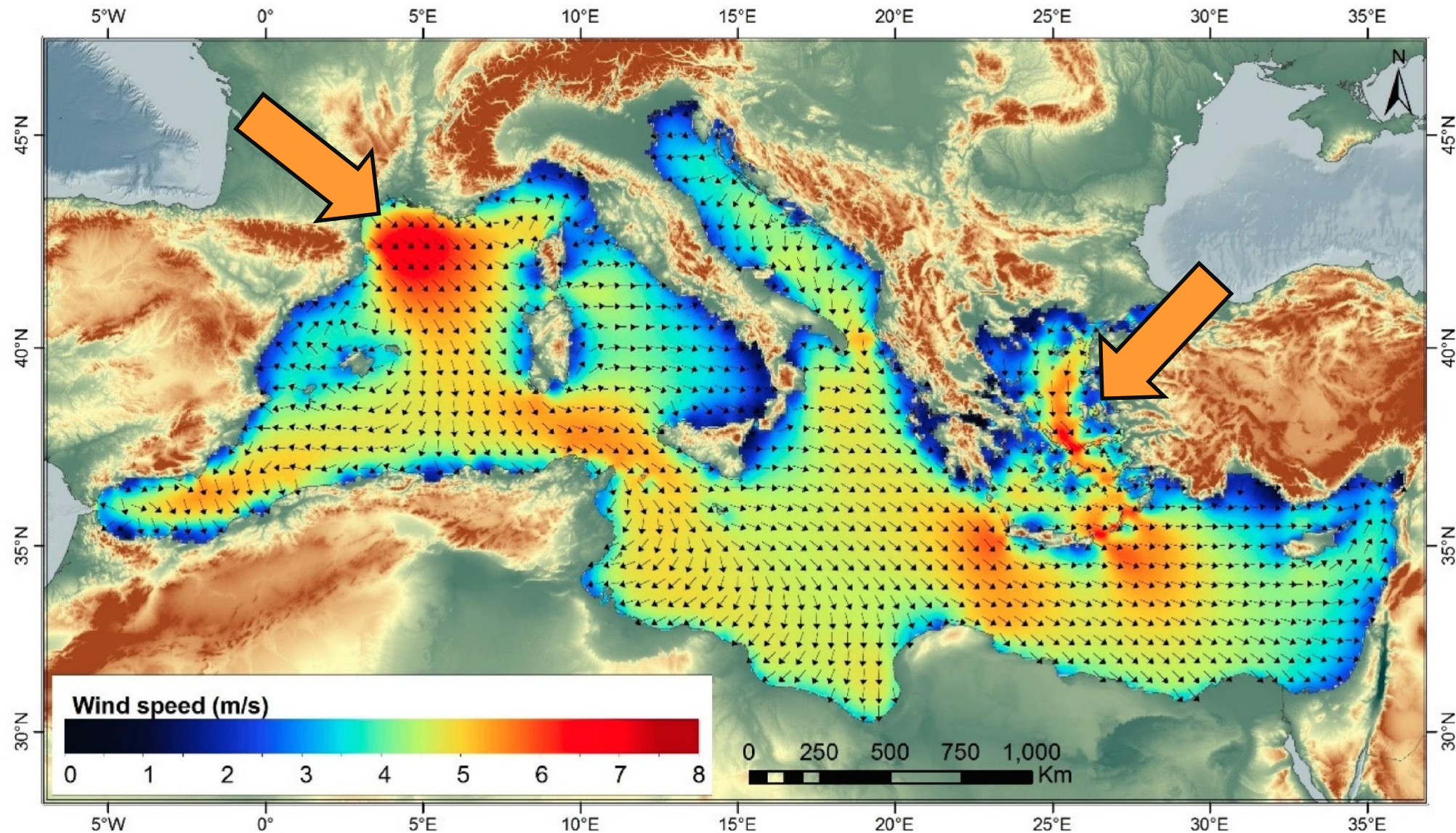


## NECP, pg. 279

*“It should be noted that **in order to achieve** the above-mentioned **new wind** and photovoltaic capacity...it is necessary to gradually examine ...new categories of projects (e.g. **offshore wind farms**)...In this context, **the respective regulatory framework for the operation of these projects should also be developed**”*



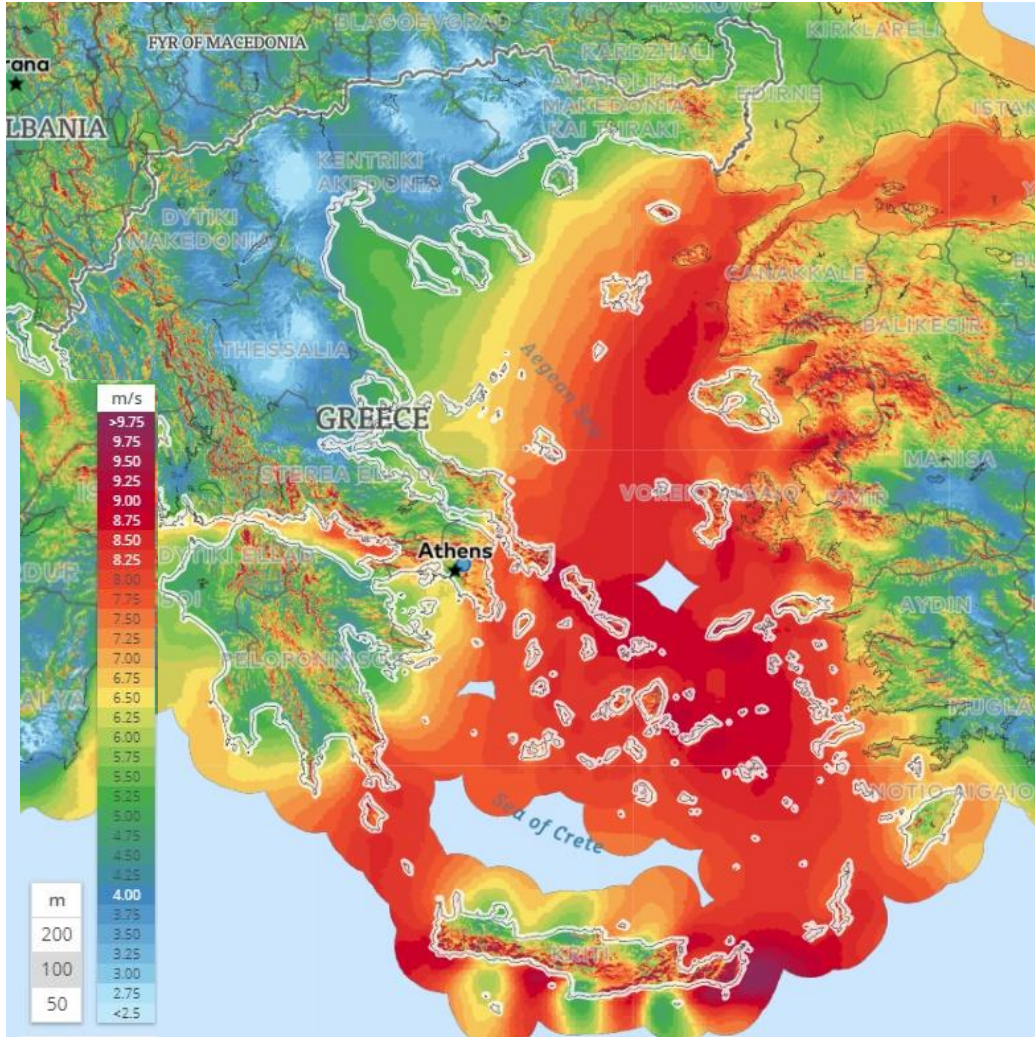
# The opportunity of the Greek seas



Source: Marine Renewable Energy in the Mediterranean Sea: Status and Perspectives, Soukissian et. al., energies, 2017



# The winds of the Aegean sea: Still an unexploitable source

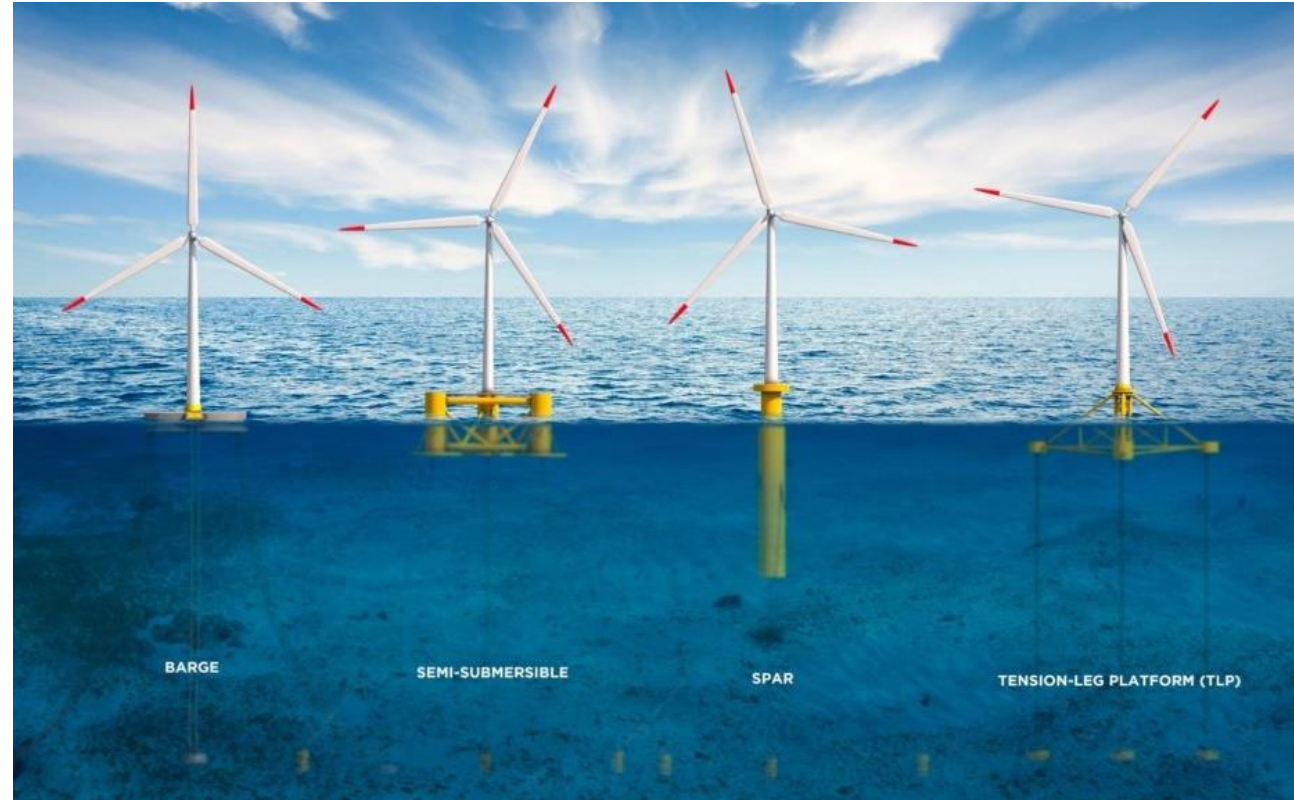


## Main challenges for Offshore wind in Greece

- Depth of waters
- Transmission Capacity
- Infrastructure (ports, shipyards)
- Licensing constraints
- Political - Geostrategic constraints
- Costs

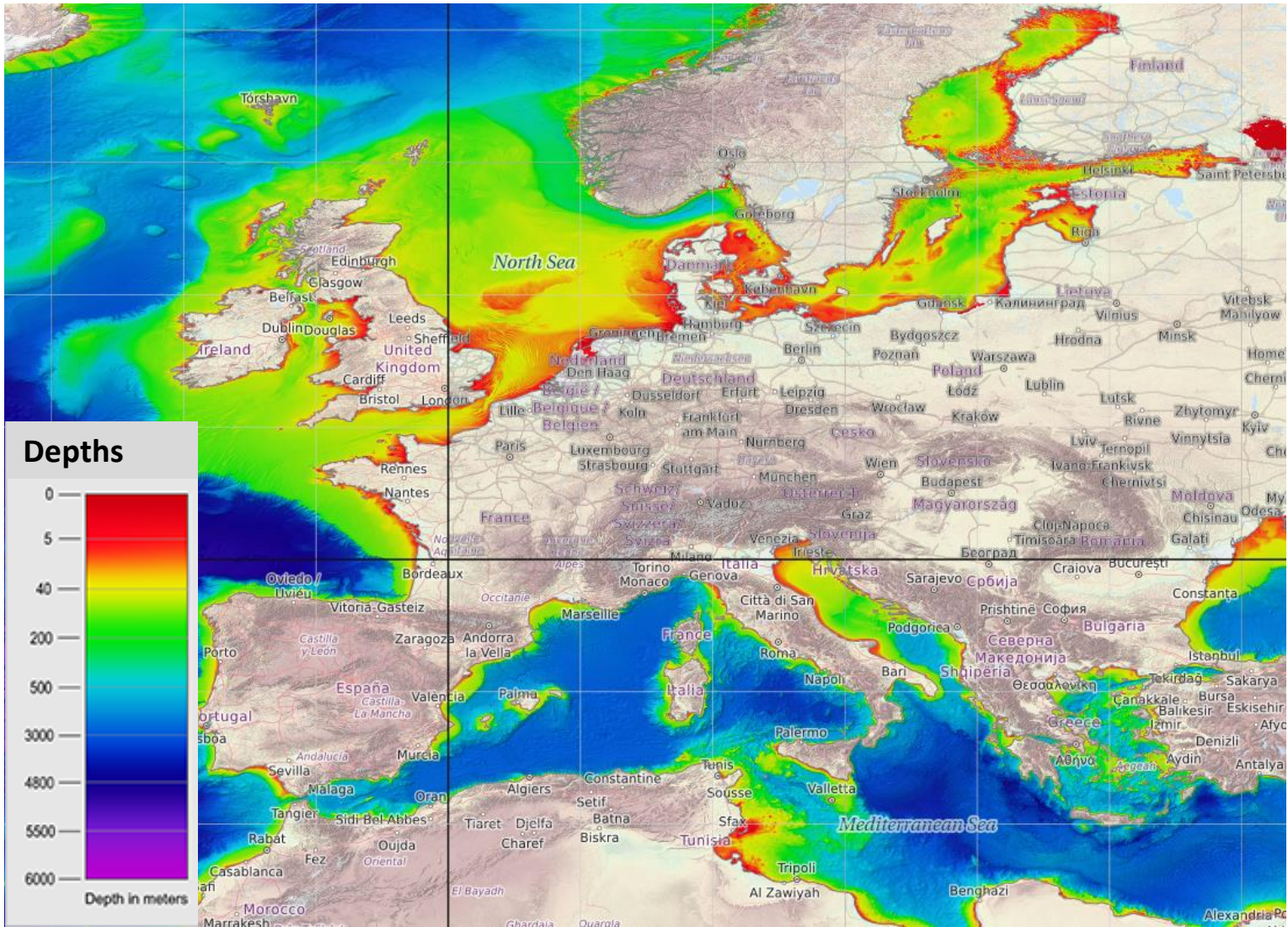


- **Rapid developments** in technology, costs, projects
- Exploitation of **domestic experience** & local industrial base (shipyards, cables etc.)
- Significant **domestic value** (WTGs less than 40% of CAPEX)
- **Opportunity** & need for Greece





# Global challenge for floating wind - Huge potential in deep waters



Country/ Region	Share of offshore wind resource in +60m depth	Potential for floating wind capacity
Europe	80%	4.000 GW
USA	60%	2.450 GW
Japan	80%	500 GW

Source: CarbonTrust

# Overview of floating wind today



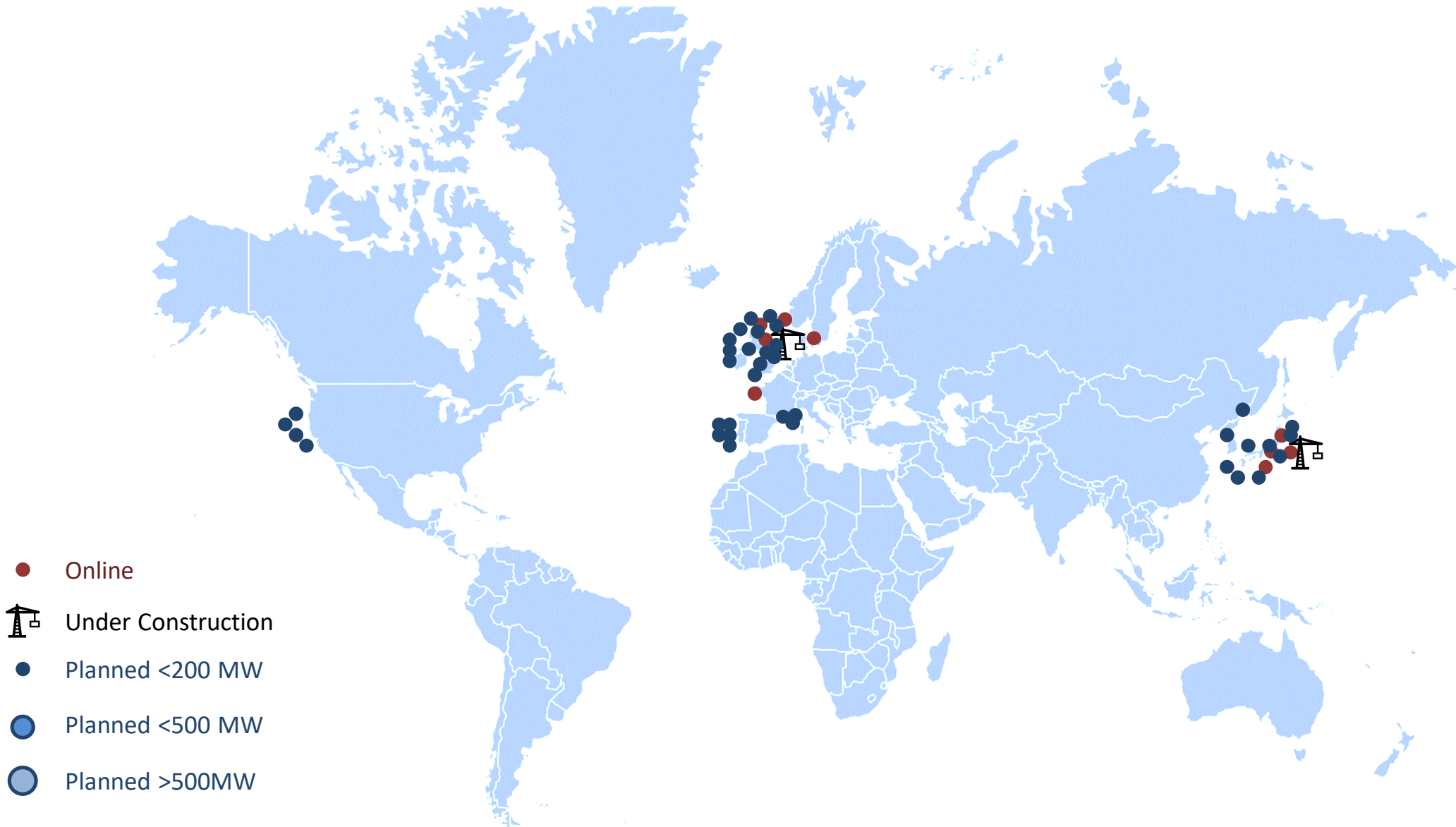


# Overview of floating wind today

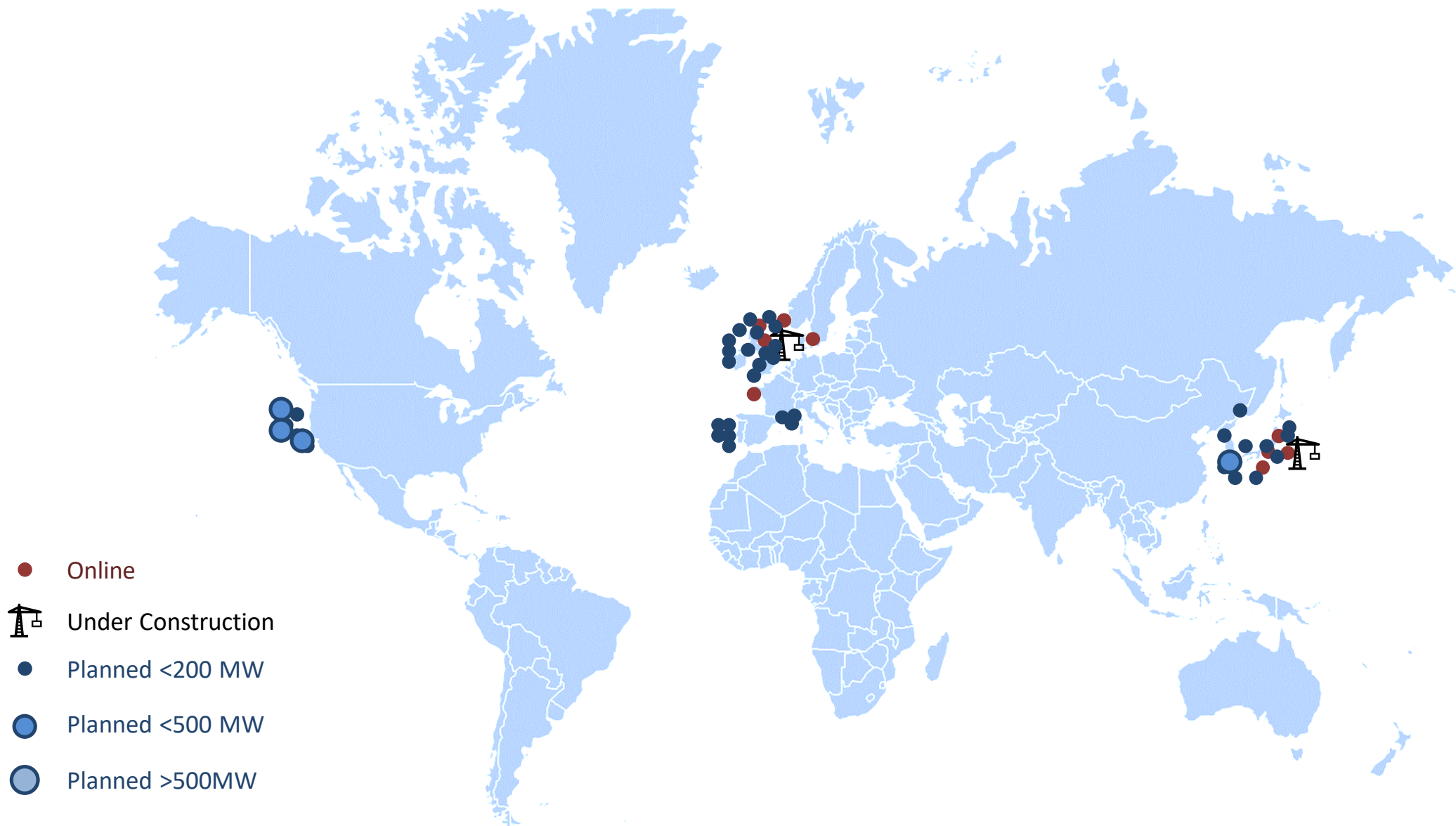




# Overview of floating wind today

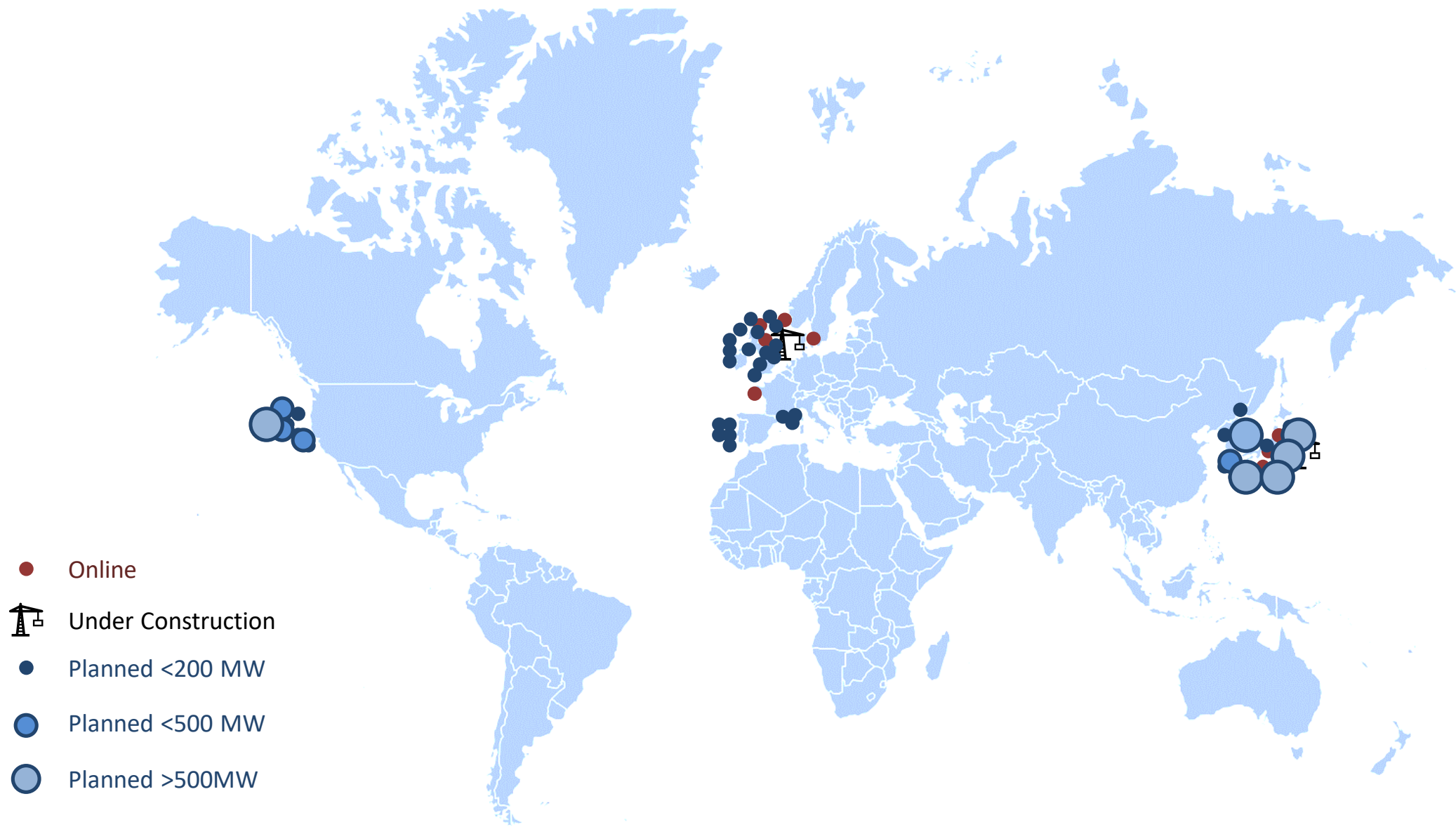


# Overview of floating wind today



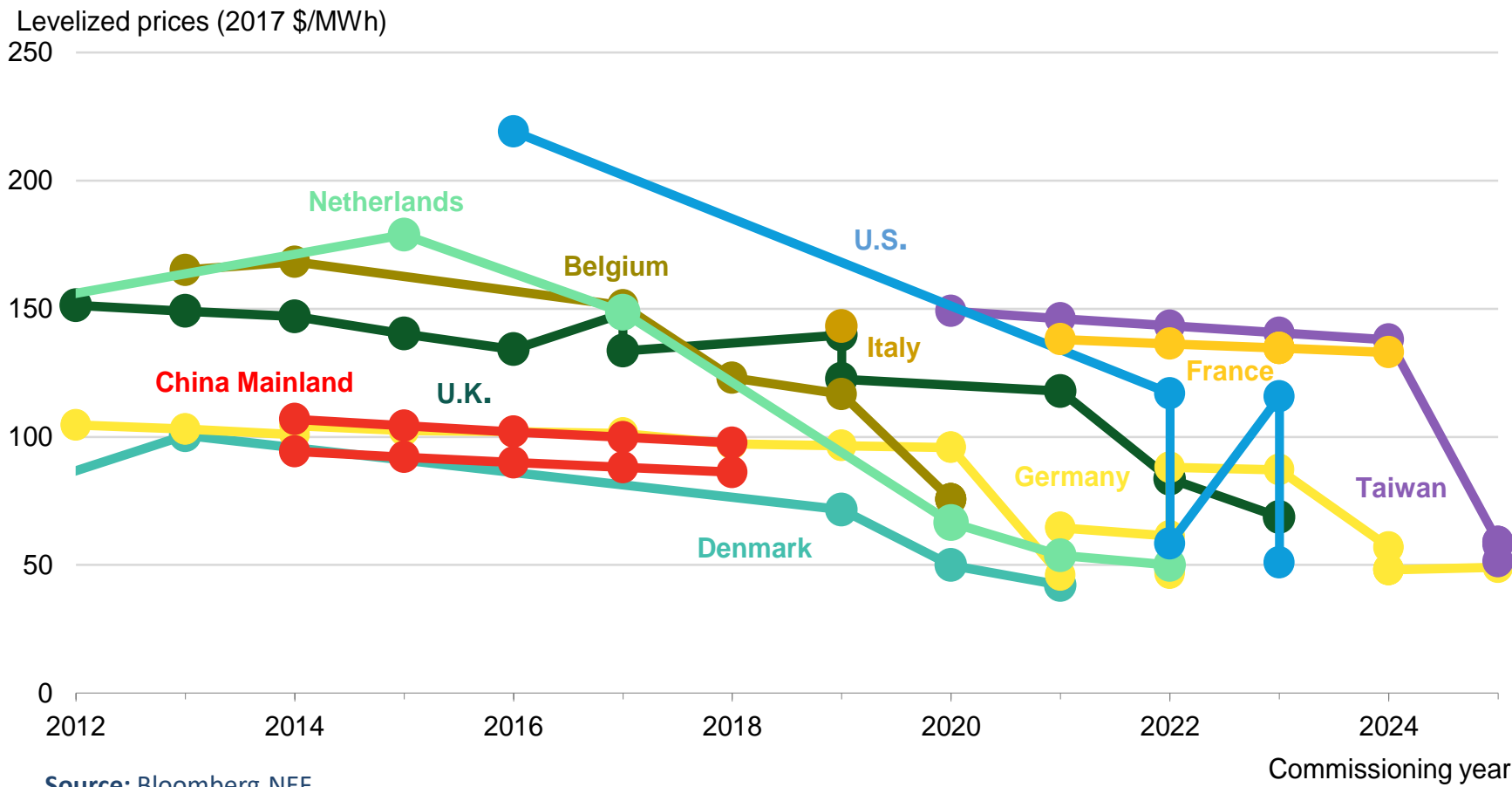
- Online
- ⚙ Under Construction
- Planned <200 MW
- Planned <500 MW
- Planned >500MW

# Overview of floating wind today





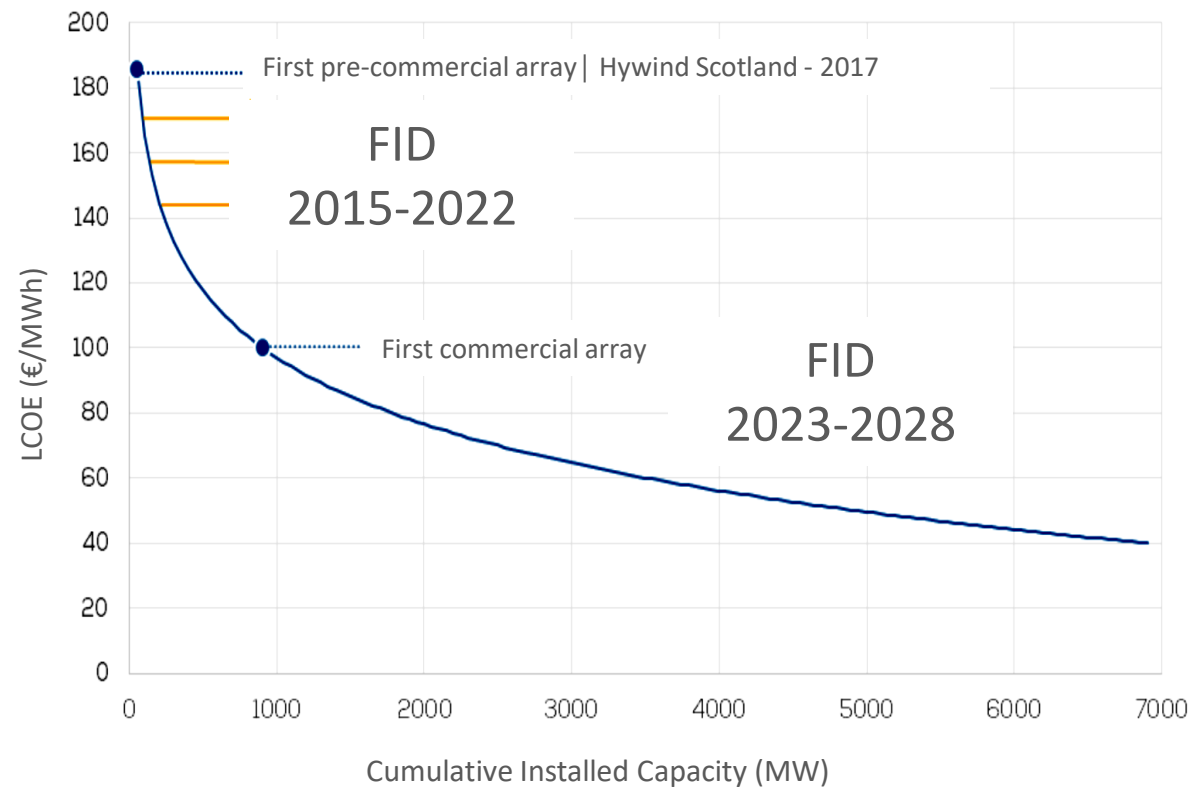
# Offshore wind LCOE



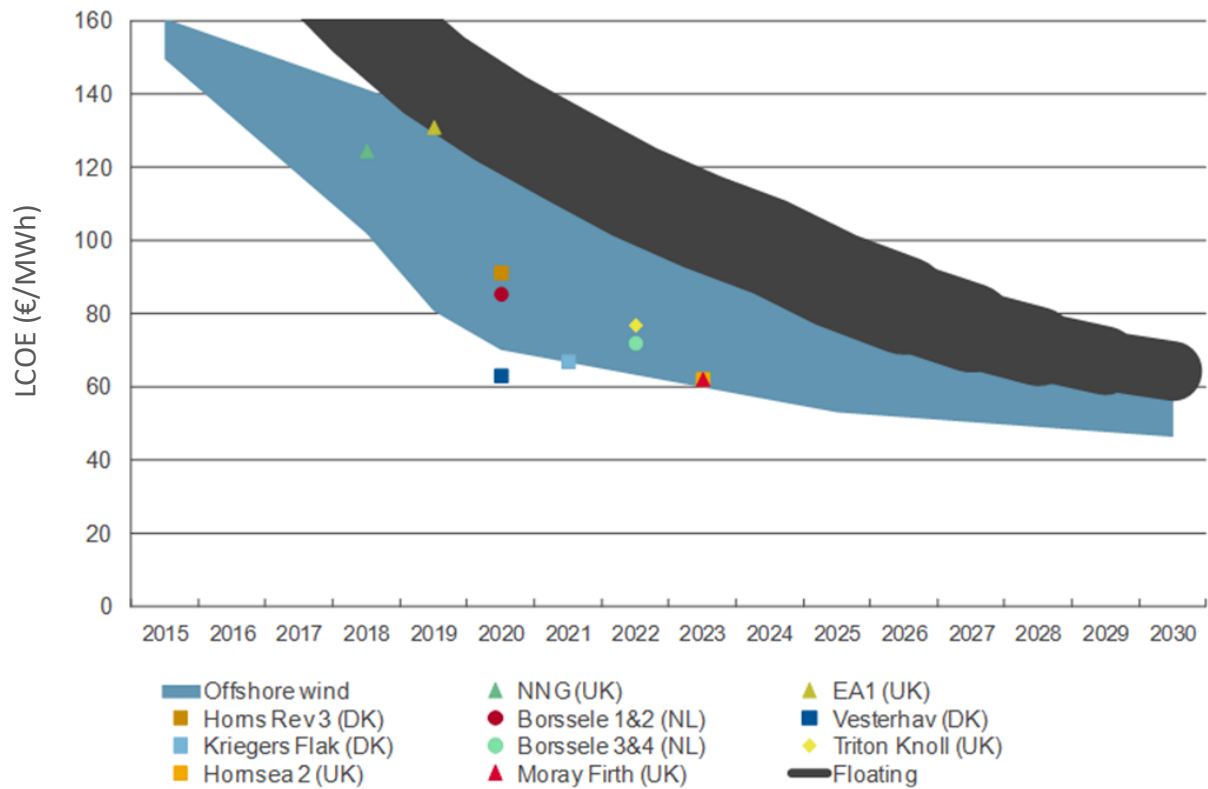
The cost reduction journey of bottom fixed offshore wind provides confidence for similar floating wind LCOE decrease



## LCOE decrease depending on capacity



## Floating wind reaching parity with bottom fixed



# Maybe Greece should wait some years to open the market?



## The answer to the question above is negative!

- ✓ Project development & licensing lead-times
- ✓ Adaptation of domestic infrastructure (grid, ports, yards etc.)
- ✓ Whiteboard future planning
- ✓ Advantage of today early stages
- ✓ Premature markets contain great chances

**The future is today...Greece must grab the opportunity!**







## QUESTION:

- *How much would offshore wind impact the Greek economy? real economic growth, jobs, social welfare*

## Case study in the UK

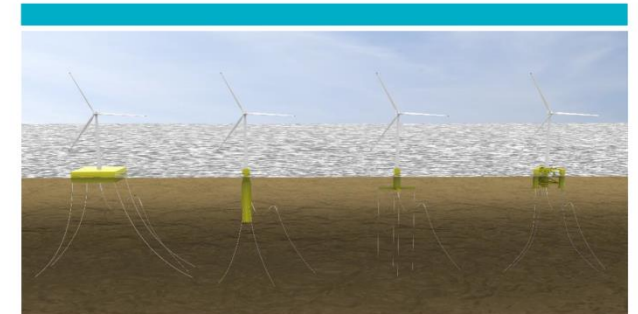
- ✓ 2031-2050: **1GW annual deployment** of floating wind in the UK and **2GW exports** in the growing global market
- ✓ **1 euro** of public support (by 2029) in supply chain, pre-commercial and early commercial stage will have **15 euros cumulative GVA** and **17.000 new jobs** by 2050

Alternatively

- ✓ **0 euro** of public support will have **7,9 euros** cumulative GVA and **3.600 new jobs** by 2050



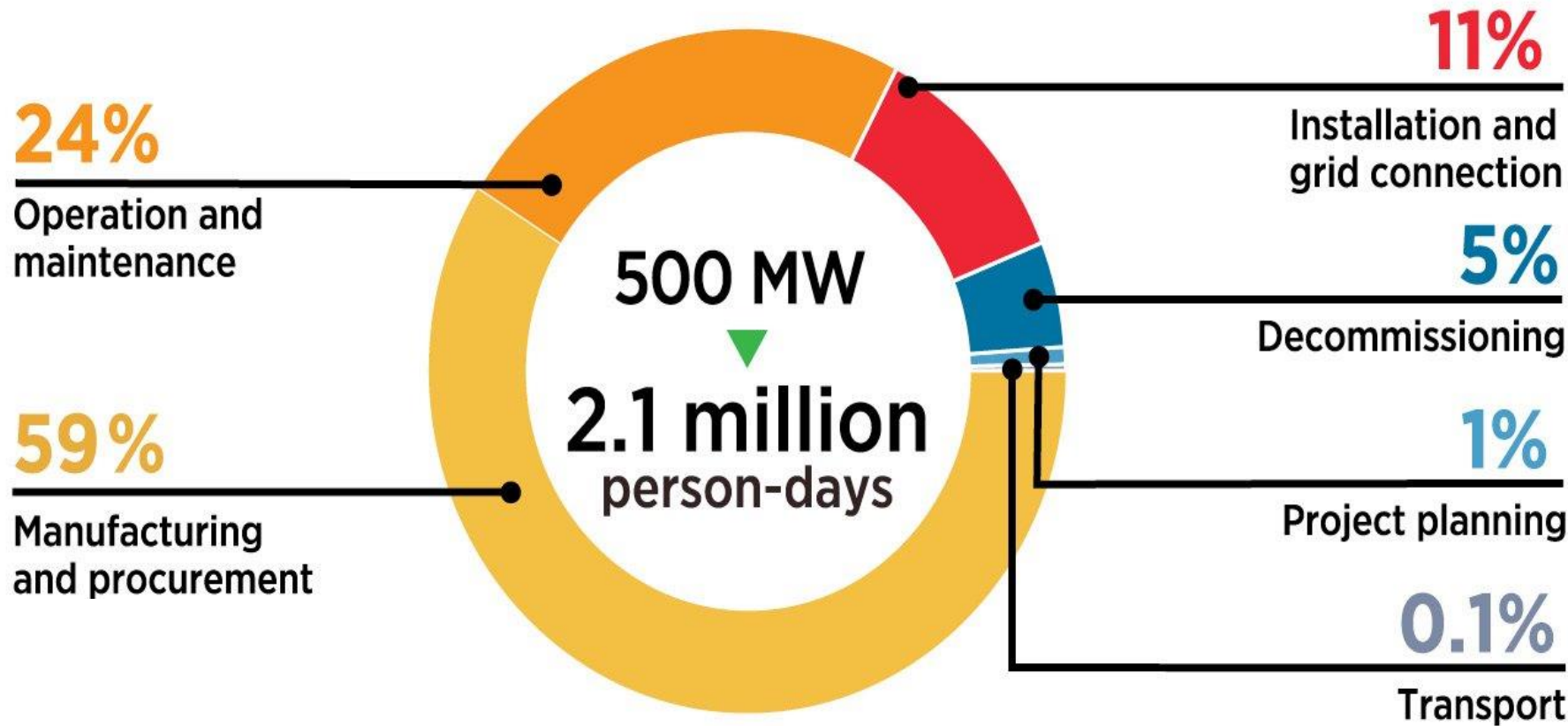
### MACROECONOMIC BENEFITS OF FLOATING OFFSHORE WIND IN THE UK



DATE // September 2018



500 MW of offshore wind generates 2.1 million person-days of employment



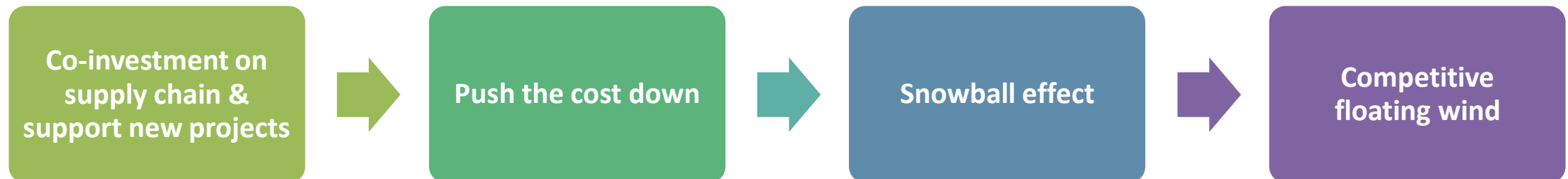
# Are banks willing to finance floating wind?



Existing offshore wind projects in the EU co-financed up to 40% by European Investment Bank. Floating is the new candidate.

*“Floating is a good example. If we could **create a demonstration effect** that led to more projects of this nature that created a supply chain around floating wind, we could **get the costs down** to something that is more economic, and we could then start and **have a snowball effect**... You open up huge potential. You also open up new export markets for Europe...**That’s the dream.**”*

*Andrew McDowell, Vice President European Investment Bank*

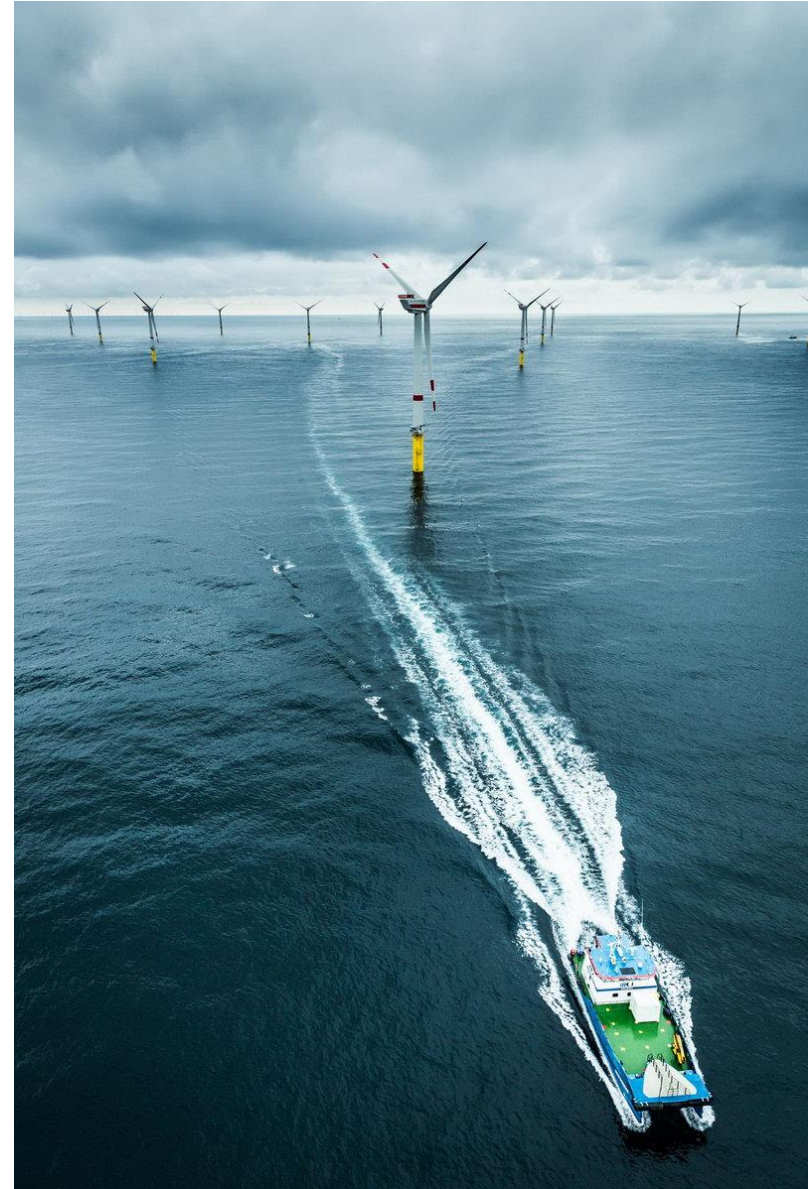






## Yes, but in a different way

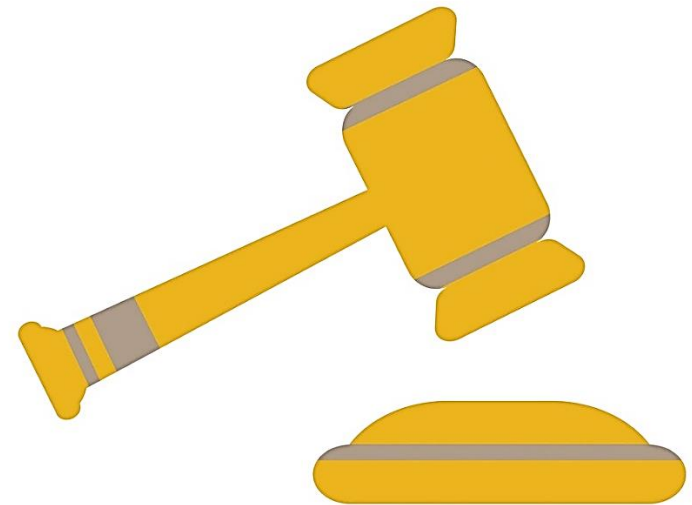
- Current framework should be modified
- Government's role should be the determination of a **marine spatial planning**, **not the licensing** of projects
- Simple and fast licensing approvals (floating is very environmental friendly)
- Remuneration scheme

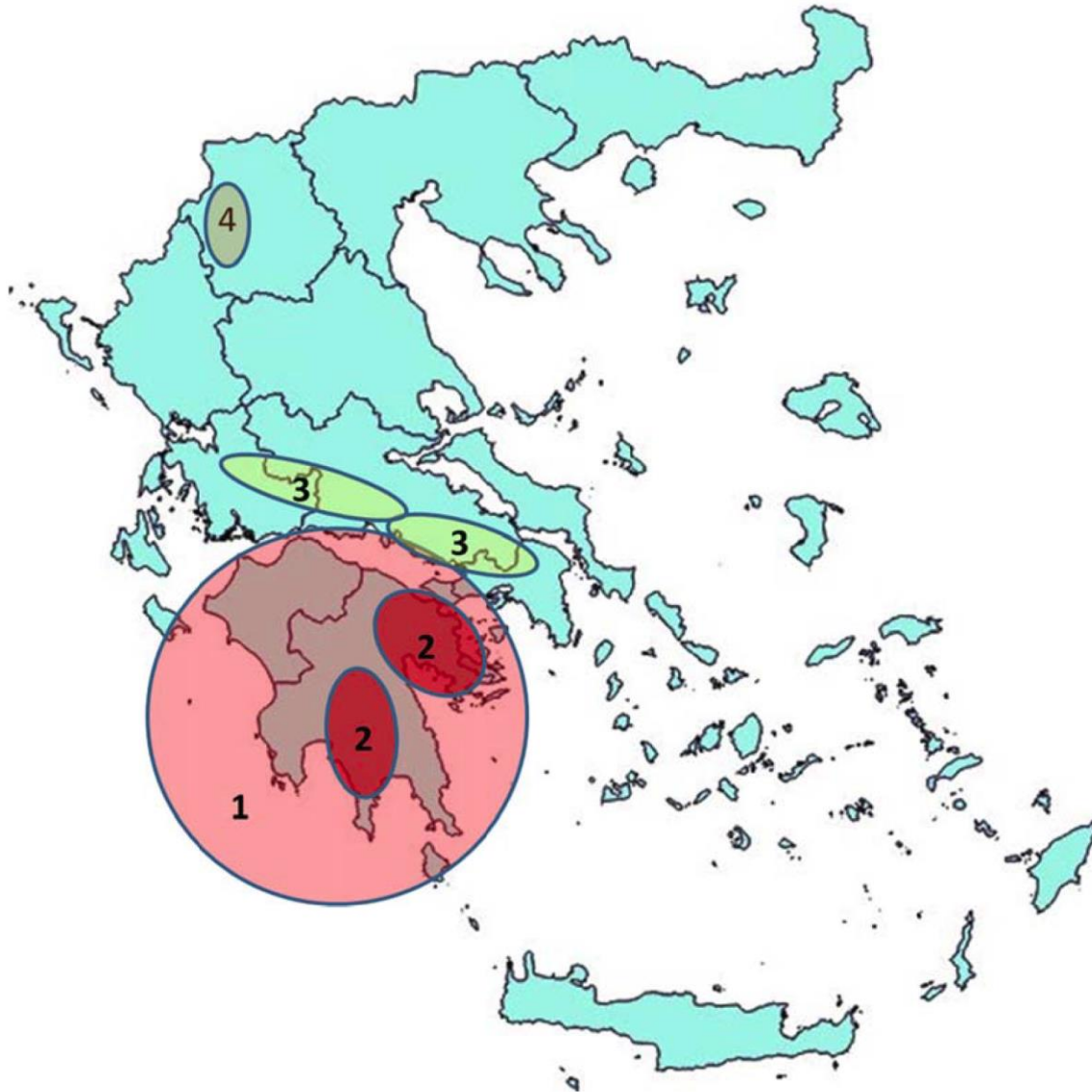




## Various alternative tools could become available

- Special auctions for **offshore wind**  
(pilot auctions for non mature projects could initiate the process since currently there are no mature projects)
- Auctions for offshore in **grid hubs** where the System Operator provides connection capacity
- **Common auctions** with onshore wind with special premium for offshore
- **Individual notification** process  
(2014/C 200/01 State aid guidelines provisions)
- **Unsolicited proposals** is also a useful tool





## Saturation of grids in certain areas

- Many grids already characterized as saturated
- Several areas close to electrical saturation

**...and**

- islands with limited capacity

***Potential introduction of offshore wind should be coordinated very closely with the expansion of the National Transmission Network!***



# Proposals for immediate actions to boost offshore wind in Greece



- ✓ Allow licensing of projects from today
- ✓ The revision of the Spatial plan for RES should incorporate the Greek seas
- ✓ Screening for exclusion zones (marine traffic, firing ranges, sensitive areas etc.)
- ✓ HTSO/ADMIE should consider the idea of building Transmission hubs in the sea for offshore exploitation
- ✓ Pilot Projects & a Pilot Auction will be a catalyst



# Last but not least: The geostrategic parameter



Territorial waters of 6 nautical miles



- Offshore wind gives the opportunity to exploit the **unexploited territorial waters**
- **Electrical interconnection** in the Aegean
- Development of **Exclusive Economic Zones (EEZ)** in all Greek Seas
- Greece **producer & exporter** of Green Energy
- Contribution to the European Strategy for **Energy Independence**
- Attraction of large **foreign investors/** investments
- **Geopolitical** empowerment and **sustainable** development

# Thank you!



*Photo: Poseidon Rising, Rachael Talibat*