

INFODAY HORIZON EUROPE

Offshore Wind R&D Capacities in SPAIN

Tomás Romagosa Cabezudo
Madrid, 25 October 2023

More than 320 members, AEE represents 100% of value chain and more than 95% of the wind sector activity

- Consultancy,
- Developers,
- Manufacturers,
- Engineering
- Logistics
- Services O&M
- Insurance
- Financial
- Legal
- Regional
- Others.



Our mission: To promote the growth of wind power by defending its interests, R&D, communications and training.

Our vision: Wind power is key for Spain's Energy independence, its economy development and environment's sustainability.



Spanish Strategy: Offshore Wind Energy Roadmap



- ✓ Roadmap approved **DEC21**
- ✓ Specific OW objectives: **1-3 GW** for **2030** (FOW).
- ✓ Coordination between **Transmission Grid Planning** and areas identified in the MSP.
- ✓ A **tender framework** is proposed (approach).
- ✓ Action lines for industry and R&D. European Funds to be applied for offshore wind experimental projects



Already approved:

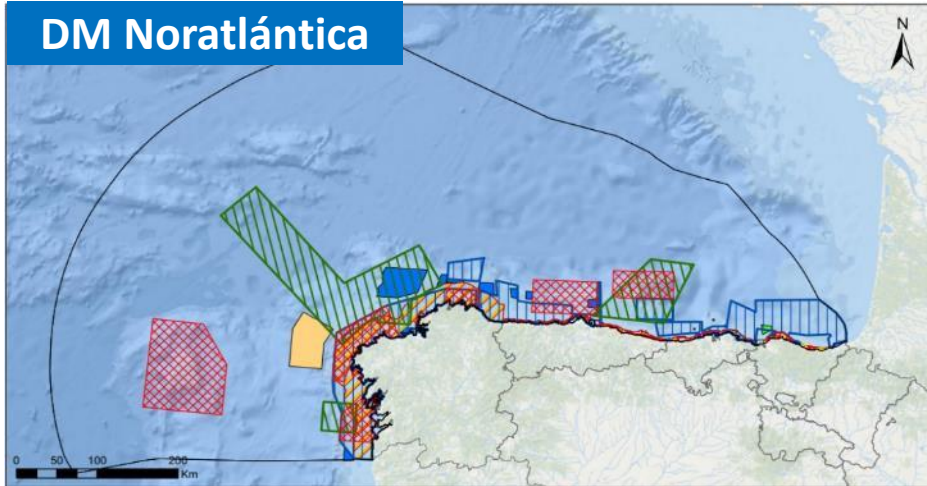
- Maritime Spatial Planning (MSP) – 28th FEB 23

Under development:

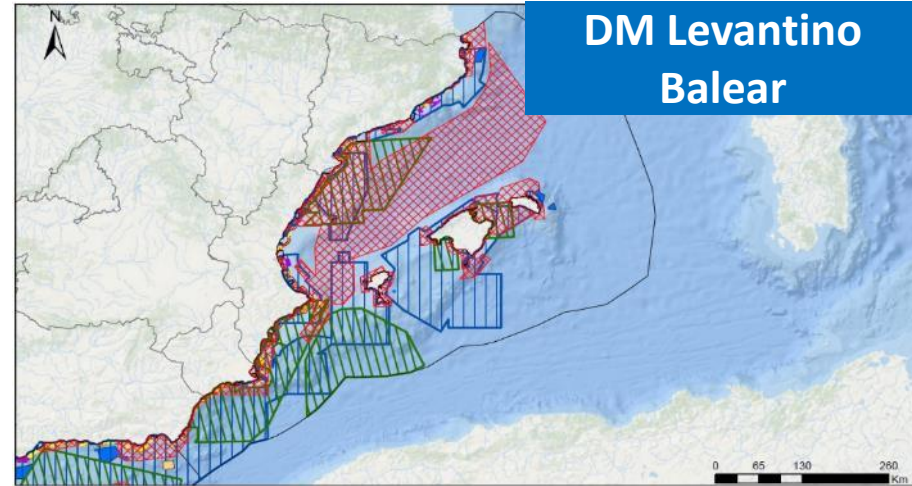
- Auctions - calendar & detailed design
- Long term targets - beyond 2030
- Regulatory package in depth - permitting, access & connection)

APPROVED MSP IN SPAIN

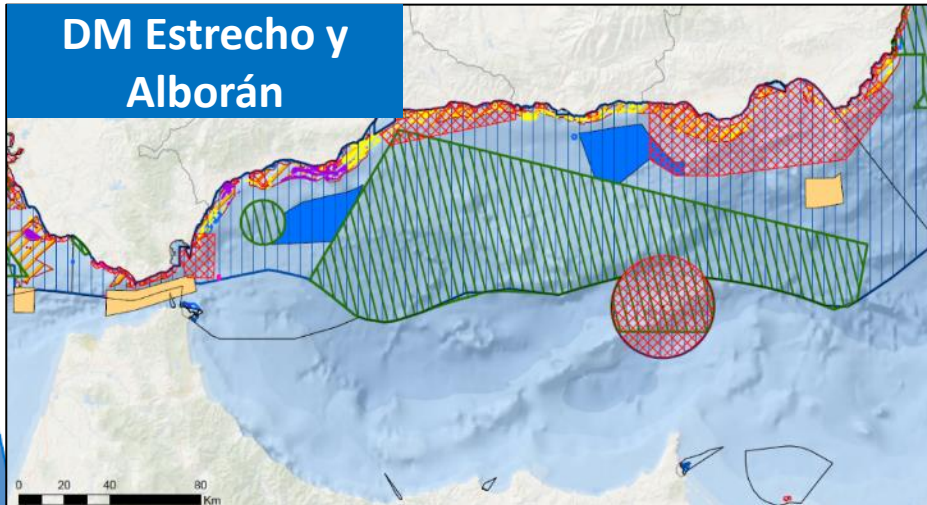
DM Noratlántica



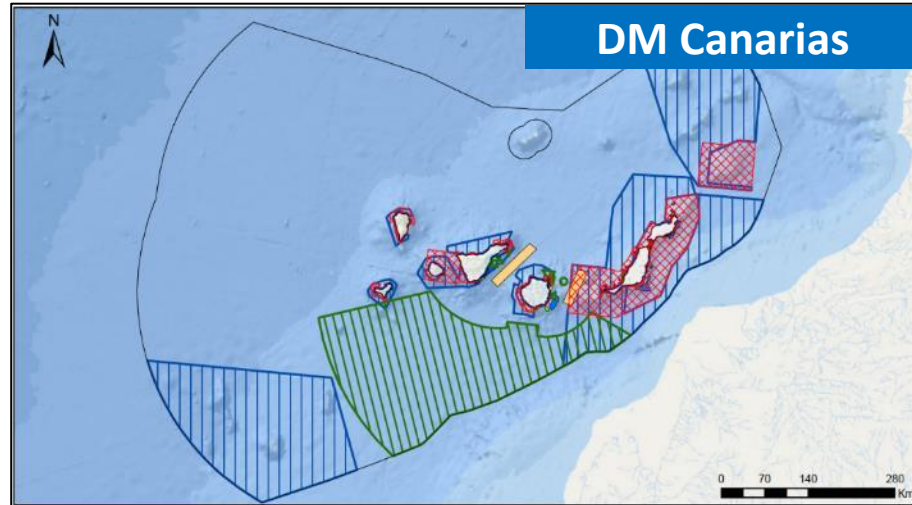
DM Levantino Balear



DM Estrecho y Alborán



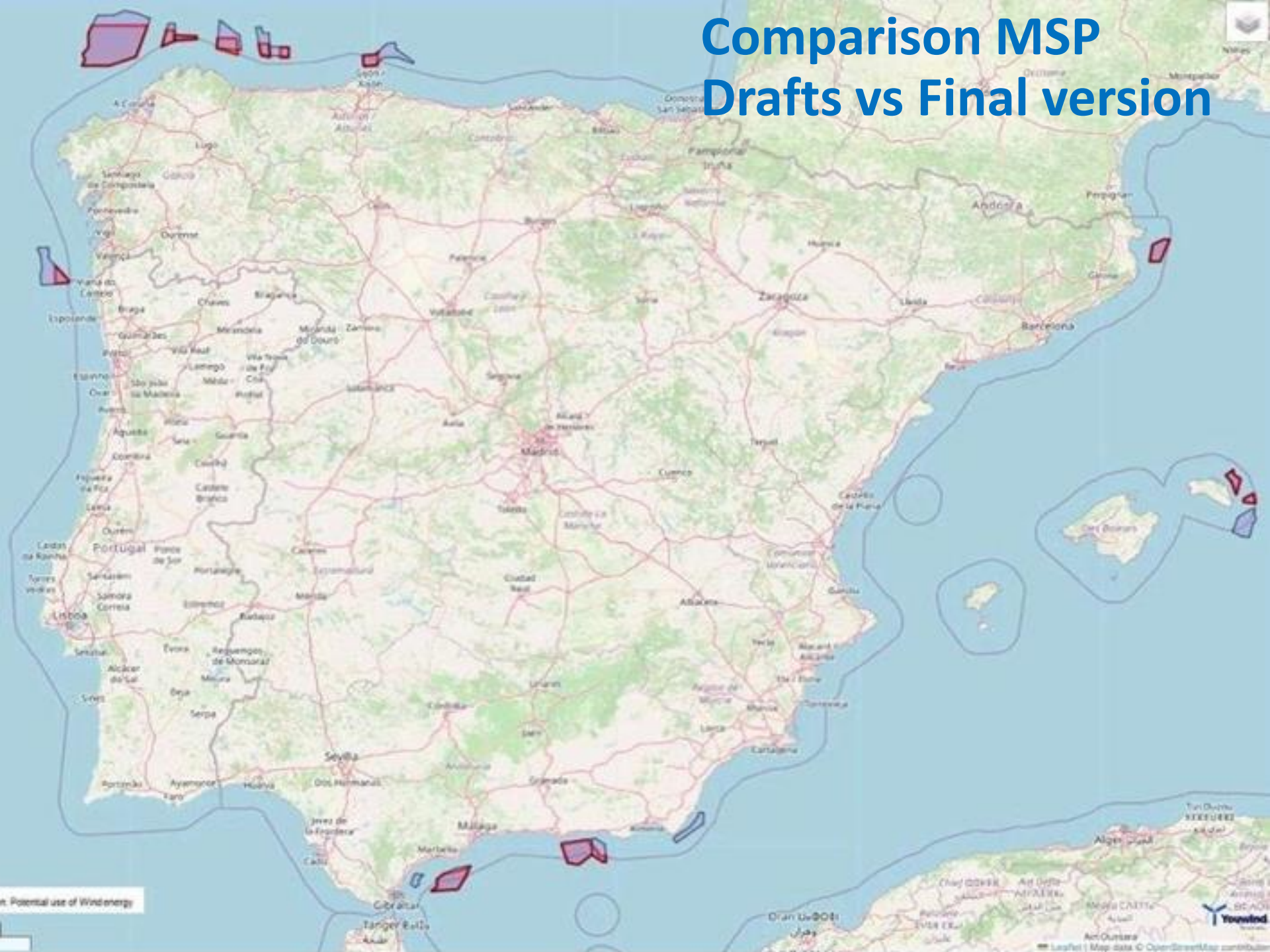
DM Canarias



MSPs approved on 28 FEB

- ❑ Total Surface for Offshore Wind = **5.000 km²**. 19 Polygons
- ❑ **38% reduction** over initial draft surface
- ❑ **0,5% occupation level** of spanish waters

Comparison MSP Drafts vs Final version



Potential use of Wind energy



APPROVED MSP IN SPAIN

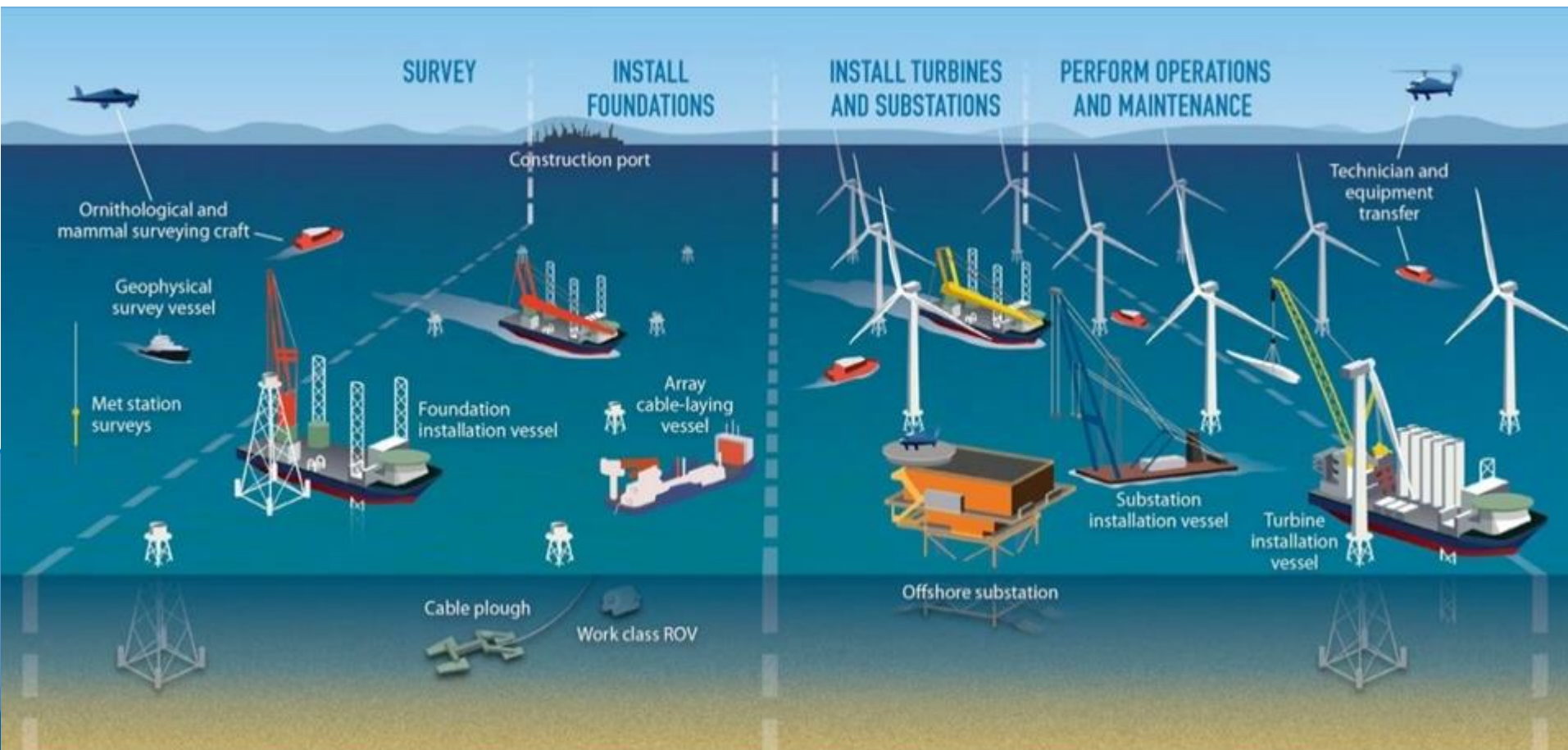
Eólica Marina	Área Total (km2)	Rango batimétrico P<100m		Rango batimétrico 100-200m		Rango batimétrico 200-500m		Rango batimétrico 500-1000m		Rango batimétrico P>1000m	
		Superficie (km)	Potencial Eólica Marina (MW) [3MW/km2]	Superficie (km)	Potencial Eólica Marina (MW) [3MW/km2]	Superficie (km)	Potencial Eólica Marina (MW) [3MW/km2]	Superficie (km)	Potencial Eólica Marina (MW) [3MW/km2]	Superficie (km)	Potencial Eólica Marina (MW) [3MW/km2]
Total España	5.510	88	265	1018	3055	1682	5047	2512	7537	209	626
Canarias	562	28	83	21	62	101	303	337	1011	76	227

DM	DM (km2)	ZAPER (km2)	ZAPER /DM (%)	Área 3GW Eólicos (km2)	Área 3GW/ ZAPER (%)	Área 3GW/ DM (%)
NOR	314.924	2.689	0,9%			
LEBA	232.961	475	0,2%			
ESAL	24.991	1.223	4,9%			
CAN	486.168	562	0,1%			
SUD	14.086	0	0,0%			
TOTAL	1.073.130	4.948	0,5%	1.000	20,2%	0,09%

Spanish Offshore Wind value chain

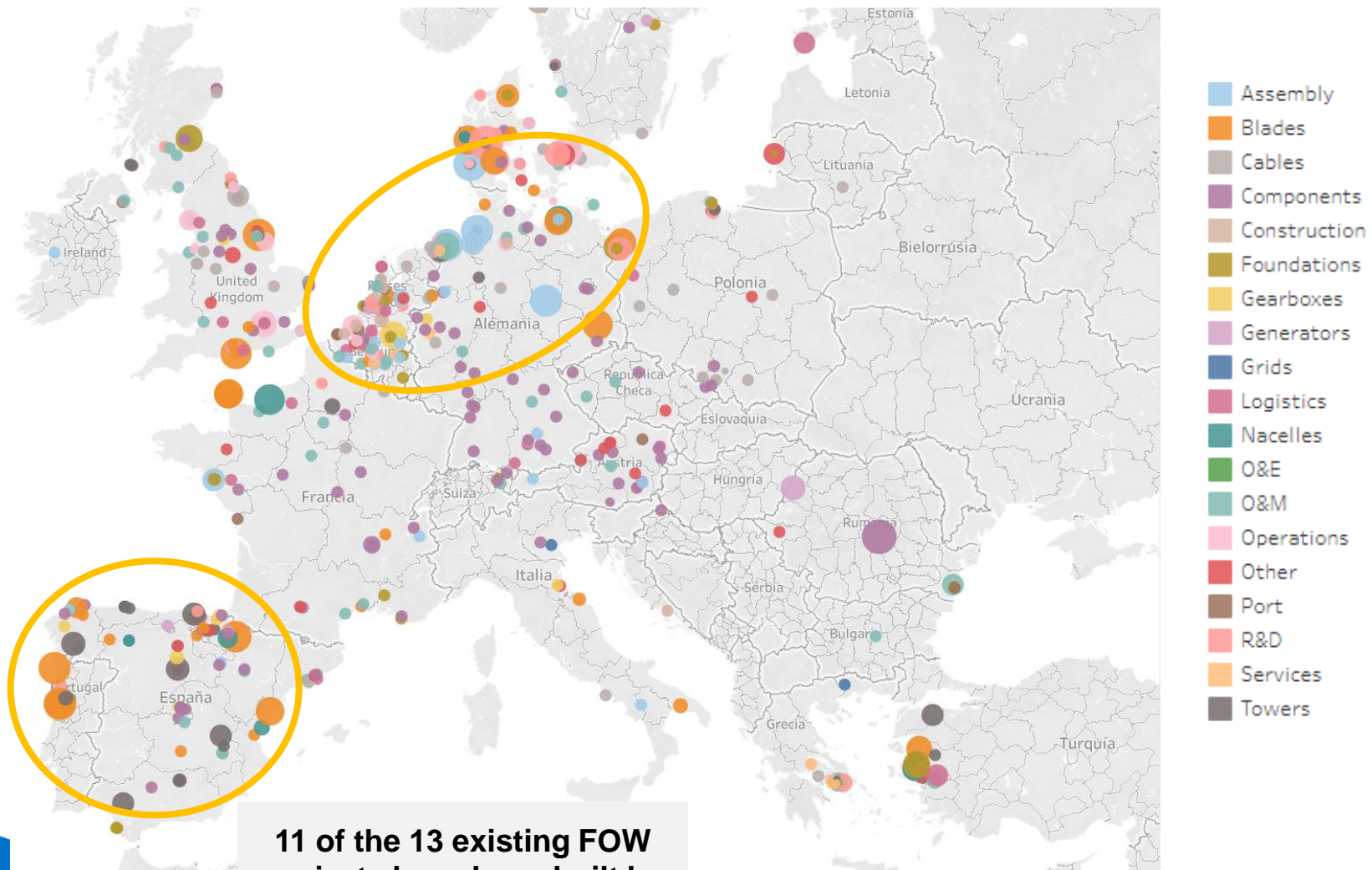


- ❑ WIND INDUSTRY
- ❑ PORTS
- ❑ SHIPYARDS



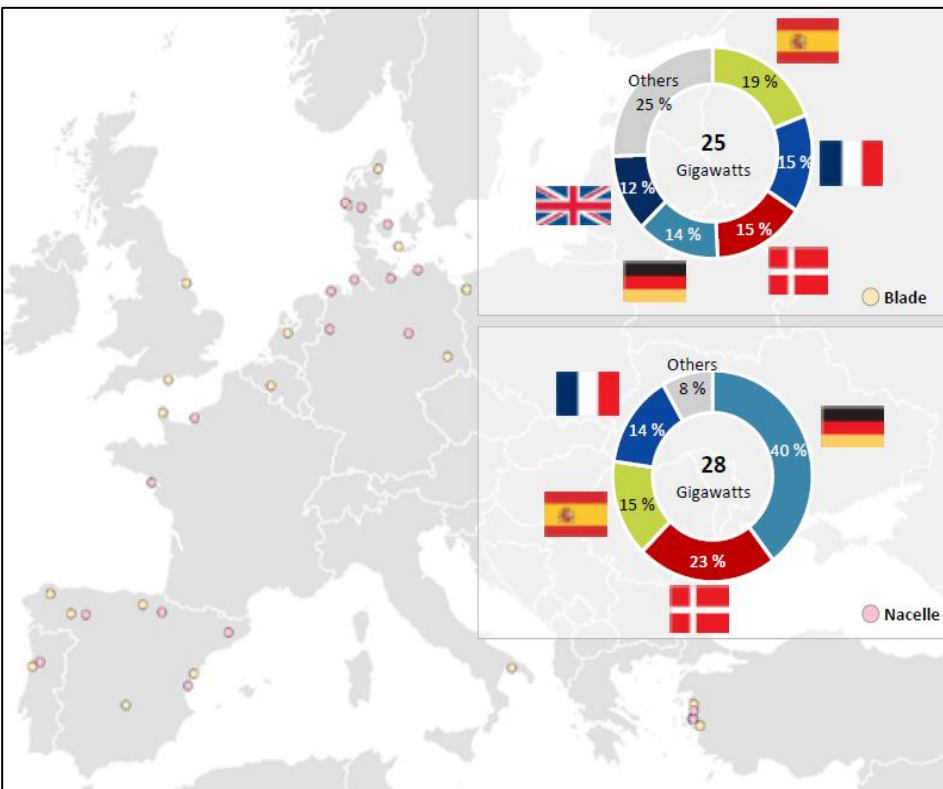
Spain – Offshore industry HUB

Wind Industry in Europe: Manufacturing Facilities

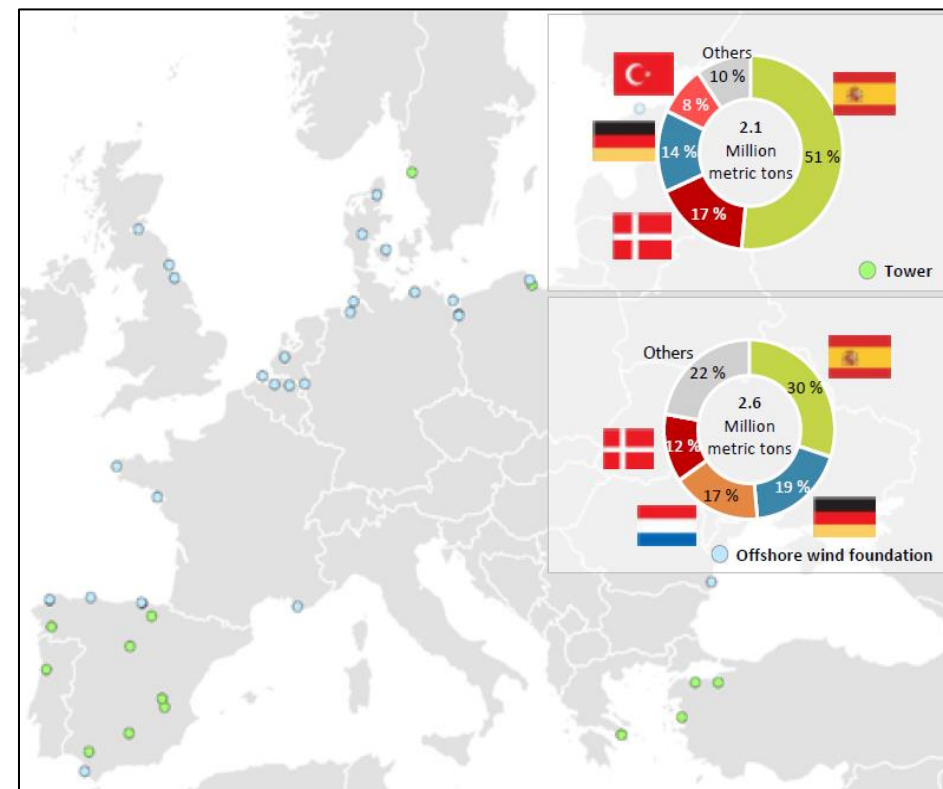


11 of the 13 existing FOW projects have been built by Spanish Companies

INDUSTRIAL CAPABILITIES. Supply Chain



Blades & Nacelles manufacturing Facilities in UE

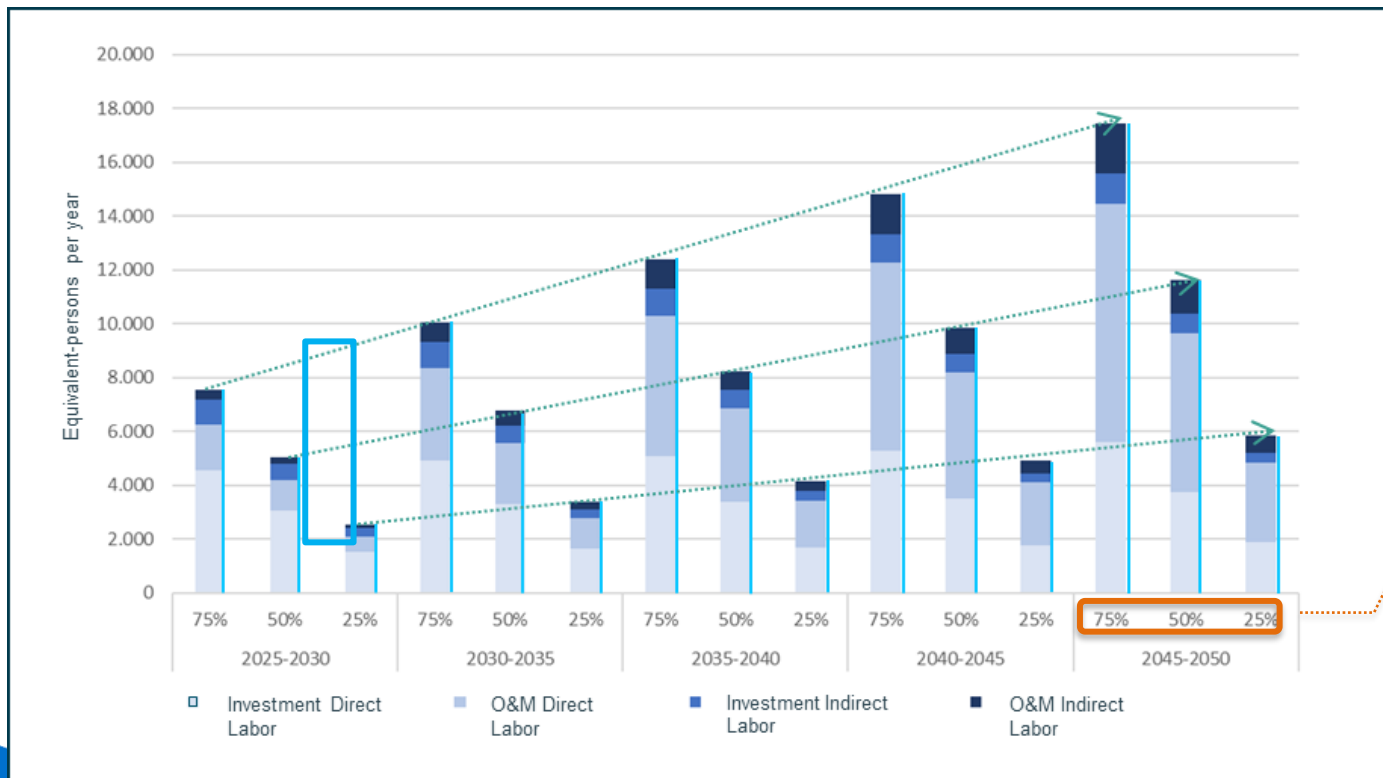


Towers & OW Foundations manufacturing Facilities in UE

11 of the 13 Floating Offshore Wind Projects have been built in Spanish companies.

SP OW Road Map achievement. Jobs creation

- By 2030 – 3GW of Offshore Wind in Spain could generate 7.500 additional permanent Jobs (direct + indirect).
- By 2050 – 17 GW – 18.000 permant jobs



Different scenarios - % local supply chain availability


Leadership in R&D. Testing Facilities

R&D / Testing Facilities. Essays Premises for Offshore Wind



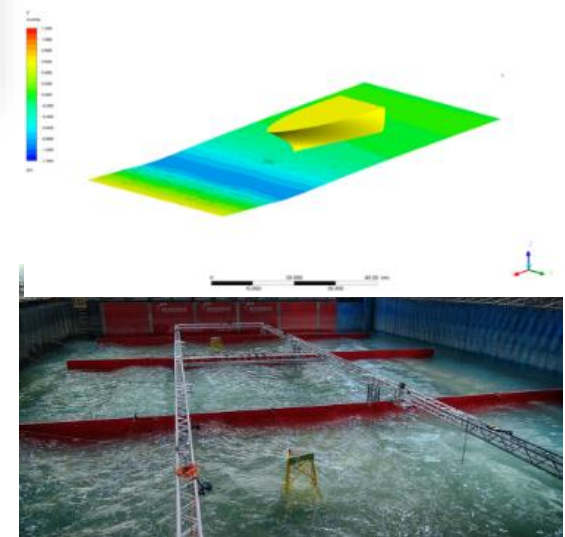
MARHIS-ICTS infrastructures offer a **unique combination of services for hydrodynamic simulation and testing.**

- Numerical laboratories.
- 3D basins for physical model testing.
- Big Tanks in Maritime Engineering.
- Integrated Coastal Infrastructures for Experimentation and Modelling (iCIEM)

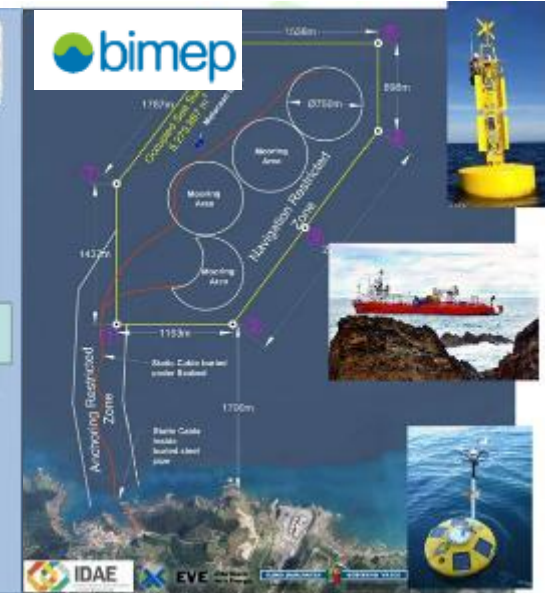
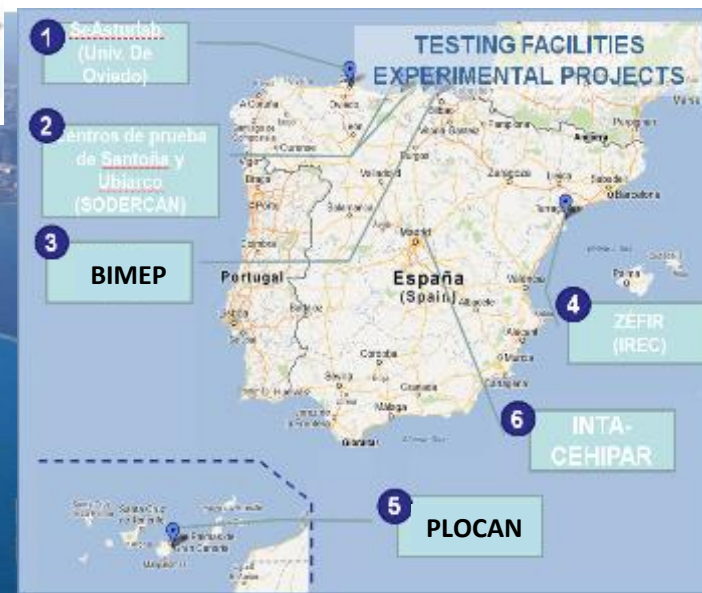


Maritime Aggregated Research
Hydraulic Infrastructures
<https://www.ictsmarhis.com/>

Distributed Infrastructure belongs to the select group of **Singular Scientific and Technical Infrastructures (ICTS)** of the Ministry of Science and Innovation, unique in the field of hydraulic engineering.



Leadership in R&D. Experimental Areas



PLOCAN (Canary islands):

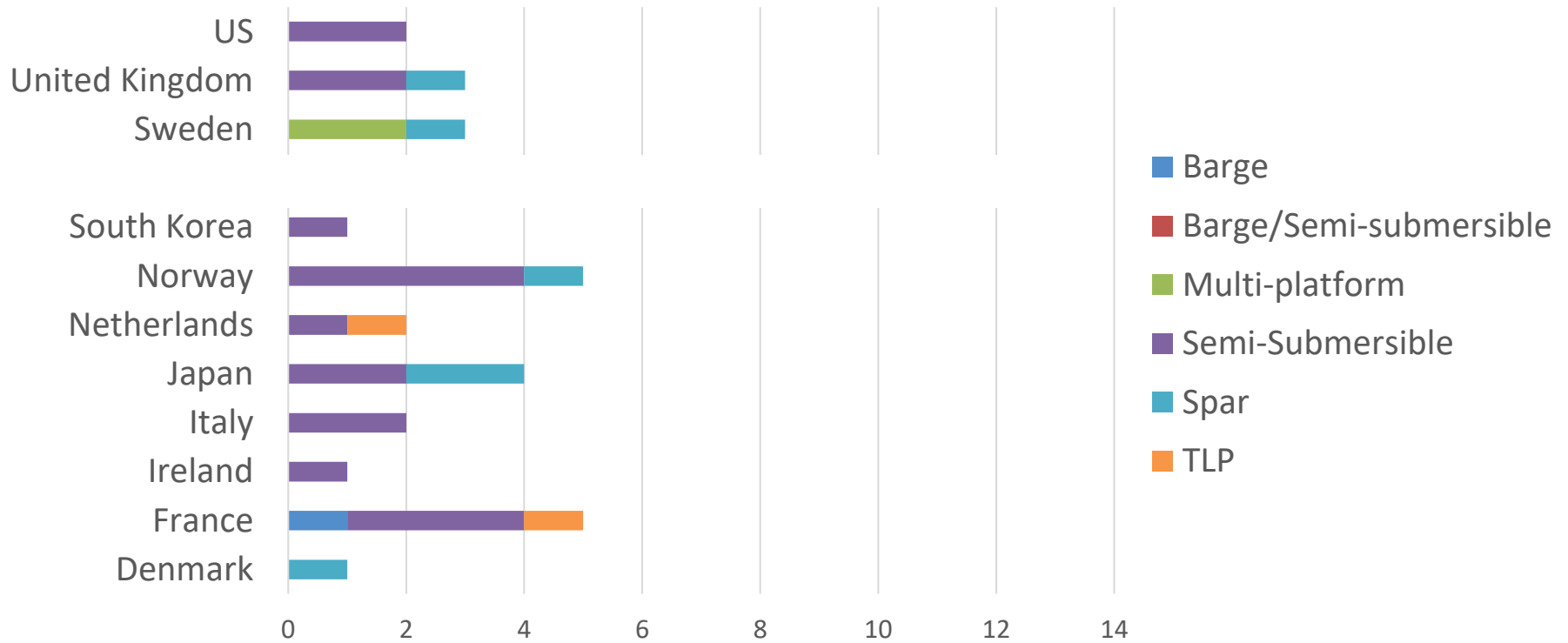
- ❑ 23 km² of testing area
- ❑ Max installed capacity: 15 MW
- ❑ High and médium voltaje equipment. Submarine cables and substation for 66kV and 13.2 kV
- ❑ Depths: 35-600m

BIMEP (Basque Country):

- ❑ Max. installed capacity: 20 MW
- ❑ Submarine cables and substation with 20 MW transformer 13.2/132 kV
- ❑ Depths: 50-100m

LEADERSHIP IN R&D. Prototypes

Floating solutions under development:



Fuente: WindEurope

50 FOW prototypes worldwide → 14 of them correspond to spanish patents

LEADERSHIP IN R&D. Prototypes

Spanish floating solutions under development:



NAUTILUS
NAUTILUS FS



WINDCRETE
UPC/COREWIND



SATH
SAITEC



TLPWIND
IBERDROLA



WHEEL
ESTEYCO



CROWNBUIY
SEAPLACE/BREZO ENERGY



W2POWER
ENEROCEAN



FIROVI
FIROVI



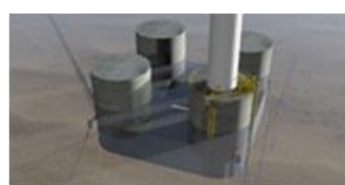
PIVOTBUOY
X1WIND



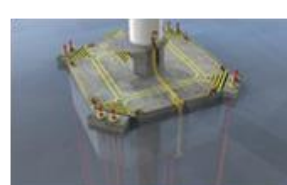
TRIWIND
BERIDI/ ROVER GROUP



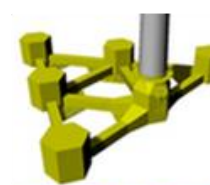
MENHIR
DRAGADOS, IH
CANTABRIA, FHECOR



S-BOS
ACCIONA/BLUENEWABLES



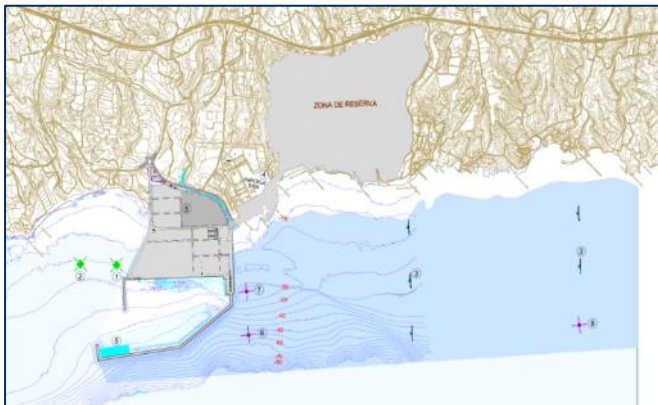
CT-BOS
ACCIONA/BLUENEWABLES



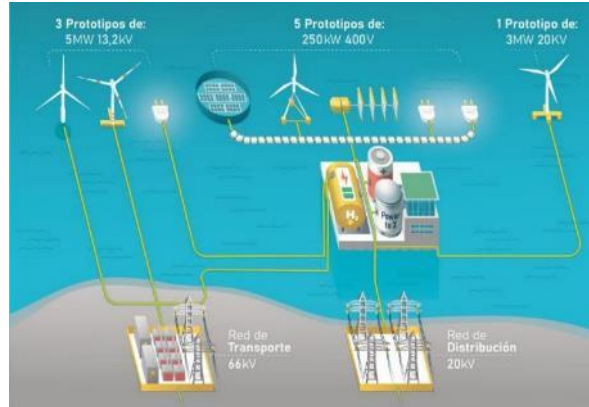
HIVE WIND
SENER/AMPER

LEADERSHIP IN R&D. Testing Facilities

NEW TESTING FACILITIES FOR OFFSHORE WIND UNDER DEVELOPMENT



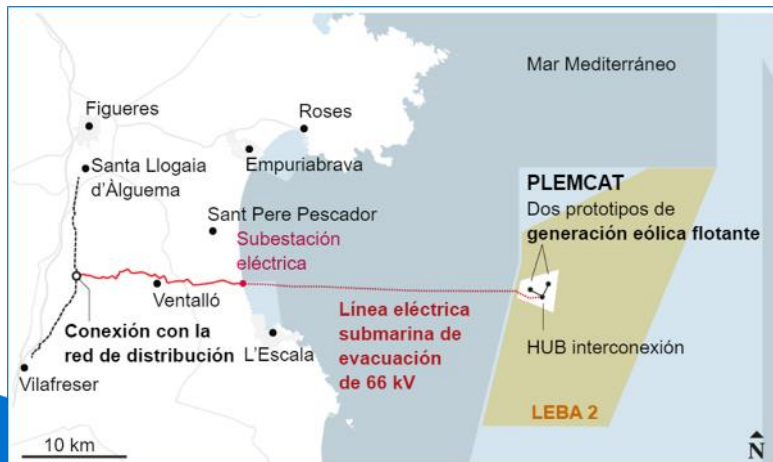
Granadilla Lab (Tenerife)



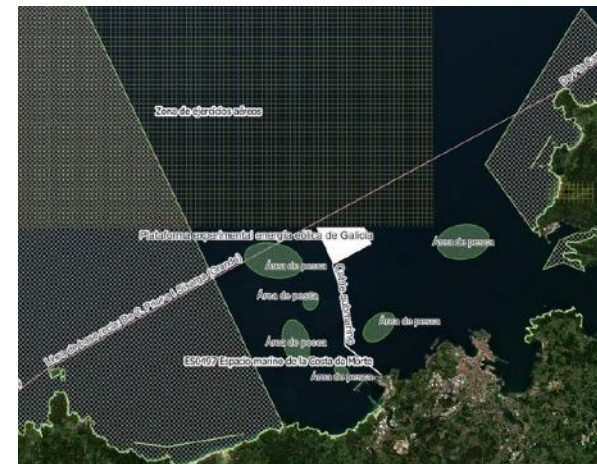
PLOCAN 2 (Gran Canaria)



BIMEP 2 (Basque Country)



PLEMCAT (Cataluña)



Punta Langosteira (Galicia)

Funding from EU Recovery Funds



Programa RENMARINAS DEMOS

Orden TED/1204/2022

por la que se establecen las bases reguladoras para el programa de concesión de ayudas a la inversión en proyectos piloto y plataformas de ensayo e infraestructuras portuarias para renovables marinas, en el marco del PRTR

First Call

Public consultation: 20.07.2022 - 19.08.2022

Call: 21.12.2022

Submission deadline: 31.01.2023 - 24.03.2023

SUBPROGRAMS

- Subprogram 1: Testing facilities for renewable marine energies. R&D Public Bodies.
- Subprogram 2: Other testing facilities for renewable marine energies
- Subprogram 3: Prototypes for technology demonstration
- Subprogram 4: Joint projects of Testing Facility + Prototype

TOTAL BUDGET: 240.000.000 euros

Subprogram 1: 90 M€

Subprogram 2: 60 M€

Subprogram 3: 45 M€

Subprogram 4: 45 M€



FINAL RESOLUTION (Oct 23)



Subprogram	Awarded Funds	Availabe Funds	Vacant Funds
Subprogram 1	55.127.500,00 €	90.000.000,00 €	34.872.500,00 €
Subprogram 2	23.642.315,50 €	60.000.000,00 €	36.357.684,50 €
Subprogram 3	63.558.428,64 €	45.000.000,00 €	18.558.428,64 €
Subprogram 4	19.654.903,00 €	45.000.000,00 €	25.345.097,00 €
TOTAL	161.983.147,14 €	240.000.000,00 €	78.016.852,86 €



C/ Orense 34. Edificio Norte. Planta 4
28020, Madrid

Tel. +34 917 451 276

aeolica@aeolica.org

www.aeolica.org

