



ROADMAP OFFSHORE WIND AND MARINE ENERGY IN SPAIN

FRAMEWORK FOR DEPLOYMENT

PLANNING AND COORDINATION

- ★ Definition and approval MSP.
- ★ Geographic viewers.
- ★ Coordination of the access and connection framework and management of electrical networks.

ADAPTATION OF THE ADMINISTRATIVE PROCEDURE PROCEDURAL BOOST OF INVESTMENT AND DEVELOPMENT

- ★ Adaptation of the administrative framework.
- ★ Boosting investment in offshore wind and marine energy.
- ★ Early development in the Canary Islands.

CROSS-CUTTING INSTRUMENTS

- ★ Guidance on environmental and biodiversity guidelines.
- ★ Creation of a "Technical Office" in Spain.



Maritime spatial planning

Grid connection and integration into the electricity system

Adaptation of the administrative framework

ENVIRONMENTAL AND SOCIAL SUSTAINABILITY

- ★ Biodiversity monitoring.
- ★ Integration of local economies and socioeconomic benefits.
- ★ Monitoring of sea conditions.



PROMOTE R&D&I

- ★ Development and reinforcement of testing platforms.
- ★ Technological development programs.
- ★ "Plug & play" framework for prototypes.
- ★ Improving knowledge of the marine environment.



Cross-sectoral collaboration

Administrative processing

Competition of Projects

Pre-commercial projects

Boosting R&D&I



COLLABORATION HUB, TRAINING AND INFORMATION CAMPAIGNS

- ★ Collaboration hub for the development of offshore renewable energy.
- ★ Creation of cross-sectoral WGs.
- ★ Capacity building, training and professional qualification.
- ★ Communication campaigns and public awareness.

ACCOMPANYING AND BOOSTING THE VALUE CHAIN

VALUE CHAIN, CONTRIBUTION TO JUST TRANSITION AND TO THE CIRCULAR ECONOMY

- ★ Accompanying the industry and national maritime value chain.
- ★ Circular Economy.
- ★ Contribution to Just Transition.

STRENGTHENING SPAIN'S POSITION IN THE INTERNATIONAL MARKET

- ★ Strengthening Spain's position in the international context.
- ★ Adaptation of port infrastructure for offshore renewable installations.

Predictable long-term framework

Contribution to sustainability

Environmental monitoring



7th Workshop ESSRI 2024
Sept. 25th to 27th, 2024, Madrid

‘Research & testing platforms and technology demonstrator projects in Spain on Offshore Wind and Marine Energy’

Juan Ramón Ayuso Ortiz
IDAE - Head of Wind & Marine Energy Dept.



**Plan de Recuperación,
Transformación
y Resiliencia**

#HRM

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GOBIERNO DE ESPAÑA

MINISTERIO PARA LA TRANSICIÓN ECOLÓGICA Y EL RETO DEMOGRÁFICO

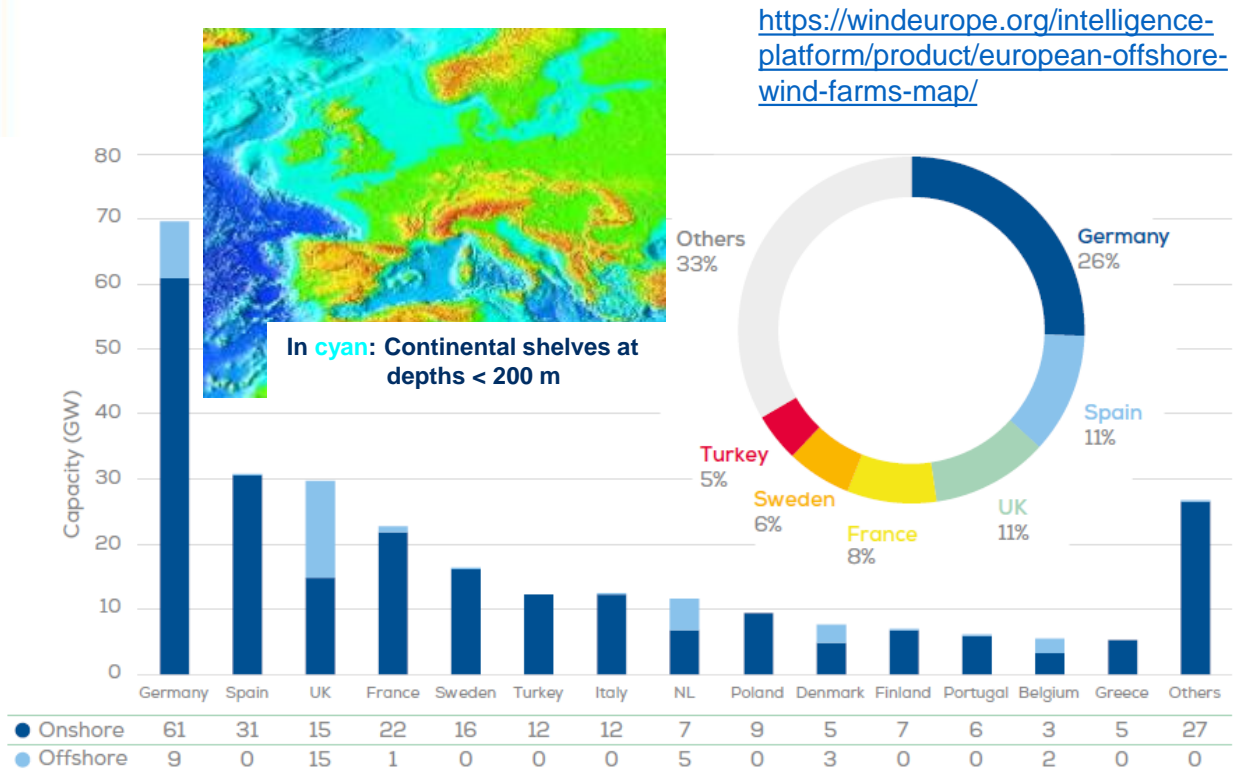




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Bottom-fixed and Floating Offshore Wind in Europe

Offshore wind deployment in Europe -and globally- has so far been mainly with bottom-fixed technology (shallow waters at depths < 60 m) on continental shelves.

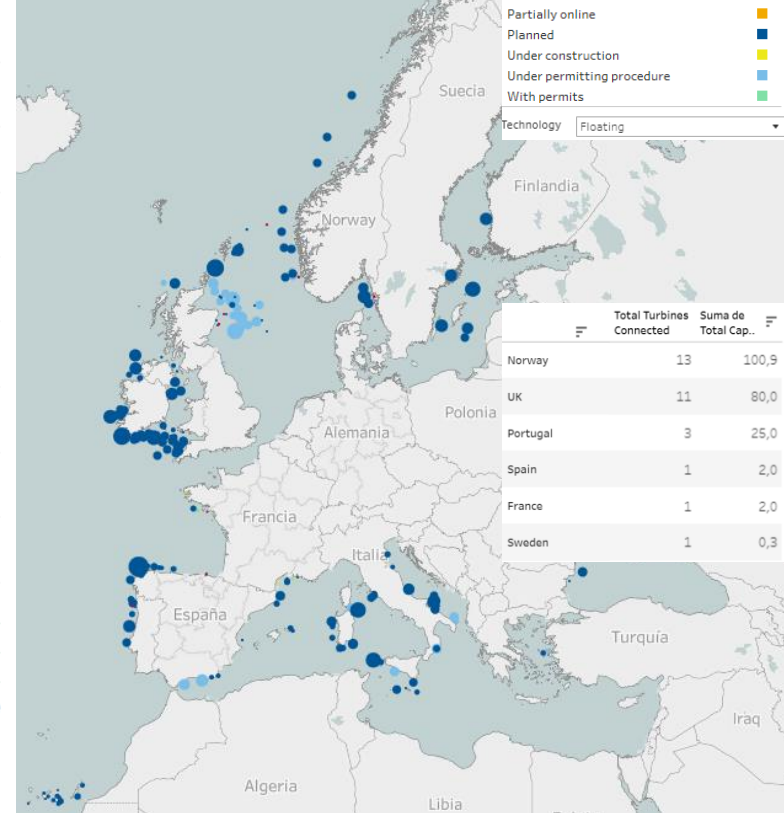


Total Wind power Capacity in Europe, by country, ending 2023 (GW)

Without a continental shelf suitable for bottom-fixed offshore wind technology, compared to other European countries, Spain has maintained its sectoral growth with Onshore Wind.

Status update: 17/04/2024

Source: WindEurope



Floating Offshore Wind Projects in Europe

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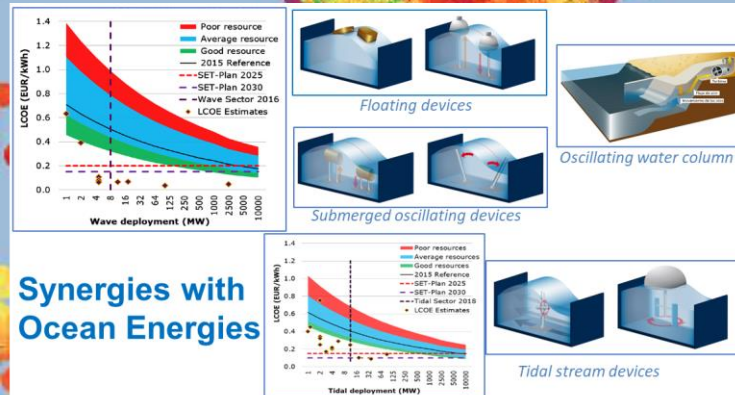
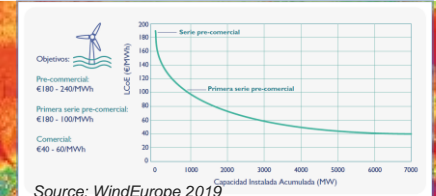
Why Offshore Wind development this decade in Spain?

TECHNOLOGICAL Reasons:
Floating Wind Technology multiplies
viable offshore sites



ENVIRONMENTAL Reasons:
New installation and assembly
techniques

ECONOMIC Reasons:
Reduction of LCOEs
Supporting a strategic industry



Source: Map obtained from the "Global Wind Atlas 3.0, a free, web-based application developed, owned and operated by the Technical University of Denmark (DTU). The Global Wind Atlas 3.0 is released in partnership with the World Bank Group, utilizing data provided by Vortex, using funding provided by the Energy Sector Management Assistance Program (ESMAP). For additional information: <https://globalwindatlas.info>

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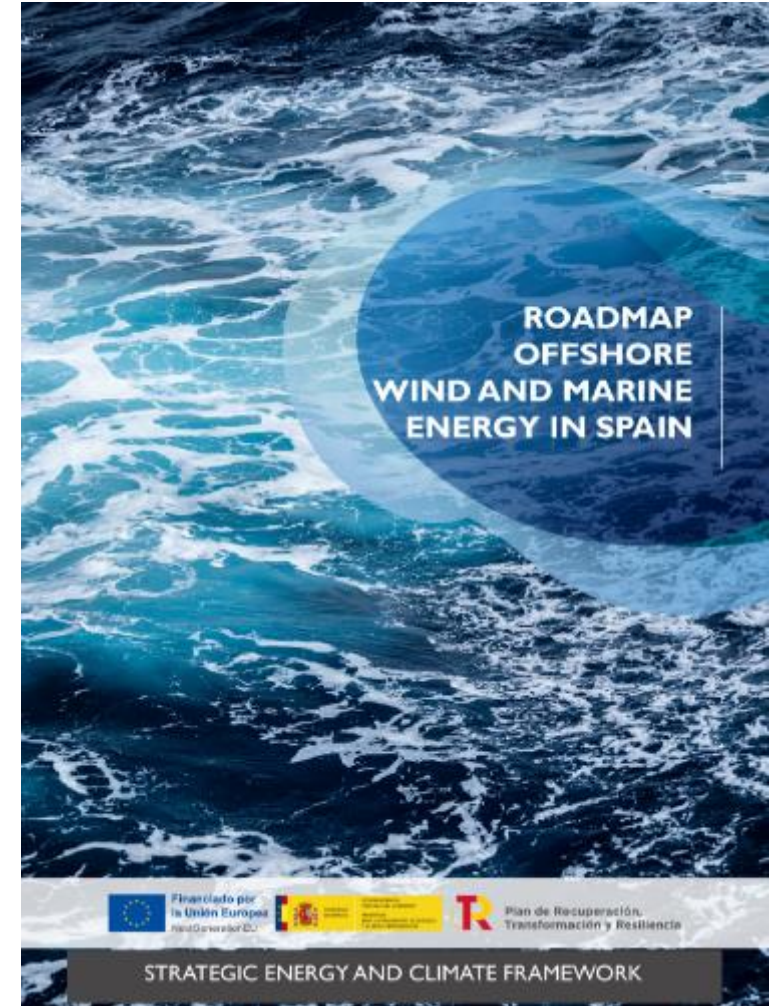
An Offshore Renewable Energy Roadmap in Spain to seize their opportunities

Technological development
(lower costs, floating technology)
makes offshore wind feasible
off the Spanish coast

Energy potential

Leadership potential in industrial
value chain and RDI:
geographical position,
shipbuilding, wind energy sector

Potential as a benchmark for
proper environmental integration
and with other uses and activities
in the marine environment



ORE Roadmap in Spain (HRM) available for download -Spanish and English versions- at the link:
<https://www.miteco.gob.es/es/ministerio/planes-estrategias/desarrollo-eolica-marina-energias/>

#HRM

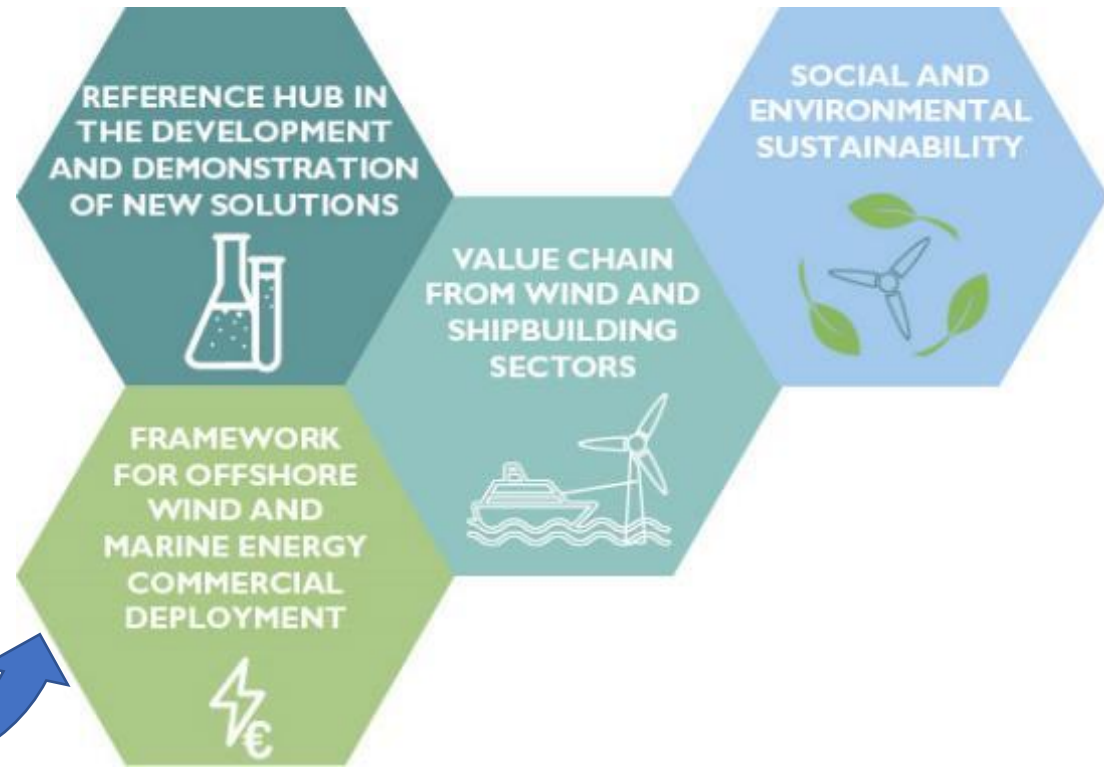
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ORE Roadmap in Spain (HRM) – Targets by 2030

ORE Roadmap sets out a four-fold qualitative objective:



	2030 Targets	References 2030
Offshore wind energy	1 – 3 GW	5 – 30 GW floating globally, ⁴² 7 GW floating at European level. ⁴³ 60 GW (fixed and floating) at European level. ⁴⁴
Marine energy	40 – 60 MW	10 GW at global level. ⁴⁵ 1 GW at European level. ⁴⁶

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Testing capabilities in Spain for Marine energy technologies

According to OES-IEA, Spain and France –both with 4 testing facilities– would be the EU-27 countries with the largest number of ‘open sea test sites’ for new marine energy technologies.



SPAIN

- Since its commissioning in July 2011, **Mutriku Wave Power Plant** reached a significant milestone by generating 3 GWh of energy by 2023, with 266 MWh produced within the year alone.
- **WavePiston** is advancing its technology at the PLOCAN test site. The installation of collectors began at the end of the year, aiming for completion in early 2024. Once fully installed, the collectors will supply water for electricity generation and desalination.
- Selected for Phase 3 of the EuropeWave Programme, **Carnegie Clean Energy**, through its wholly owned subsidiary CETO Wave Energy Ireland, is set to deploy a scaled CETO device at the BiMEP test site.
- **IDOM** has been awarded development rights in Phase 3 of the EuropeWave project. The deployment of the MARMOK-A-5 at the BiMEP test site is scheduled for 2025.
- **Arrecife Energy Systems** throughout 2023 conducted extensive studies, both in the lab and in open sea conditions as part of the EuropeWave program, to further investigate their Trimaran system's capabilities.
- From March to November, **Rotary Wave** tested its low power full scale WEC (20 kW) in La Marina de Valencia producing 30,000 kWh.

Source: ‘IEA-OES (2023), Annual Report: An Overview of Ocean Energy Activities in 2023.’

<https://www.ocean-energy-systems.org/publications/oes-annual-reports/document/oes-annual-report-2023/>



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Current Offshore Testing Platforms in Spain

Oceanic Platform of the Canary Islands - PLOCAN

Public entity: Canary I. Gov. (50%) & State Gov. (50%)

Infrastructure for scientific research with state-of-the-art cutting-edge oceanic technology, in the Canary Islands.

The facility consists of:

❑ **ESTOC (the European Station for Times-series in the Ocean):** Located 60 nautical miles north of Gran Canaria at 3,670 m depth. It generates long-term meteorological and oceanographic time-series in the Central Eastern Atlantic.

❑ **Test Site:** A 23 km² grid-connected test site for Offshore Renewable Energy technologies.

Capacity: **10 MW (2 cables x 5 MW each)**
+ 1 additional cable in progress

❑ **Oceanic Offshore Platform:** This facility rests on the seabed, at 30m depth and 1.5 km from the coast. Useful area of 2.500 m² on 7 levels, comprising multidisciplinary laboratories. Its maximum hosting capacity is for 40 people and has a 15 days/15 persons autonomy.

<https://www.plocan.eu>



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Current Offshore Testing Platforms in Spain

Biscay Marine Energy Platform - BIMEP

Public entity: EVE (75%) & IDAE (25%)

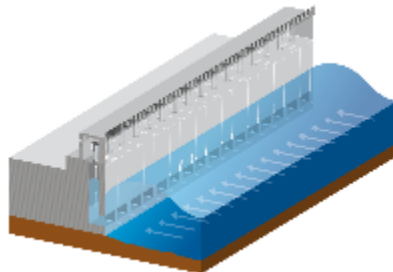
Infrastructure for the research, demonstration and operation of marine energy and offshore wind power generation devices in the Basque Country.

Two areas:

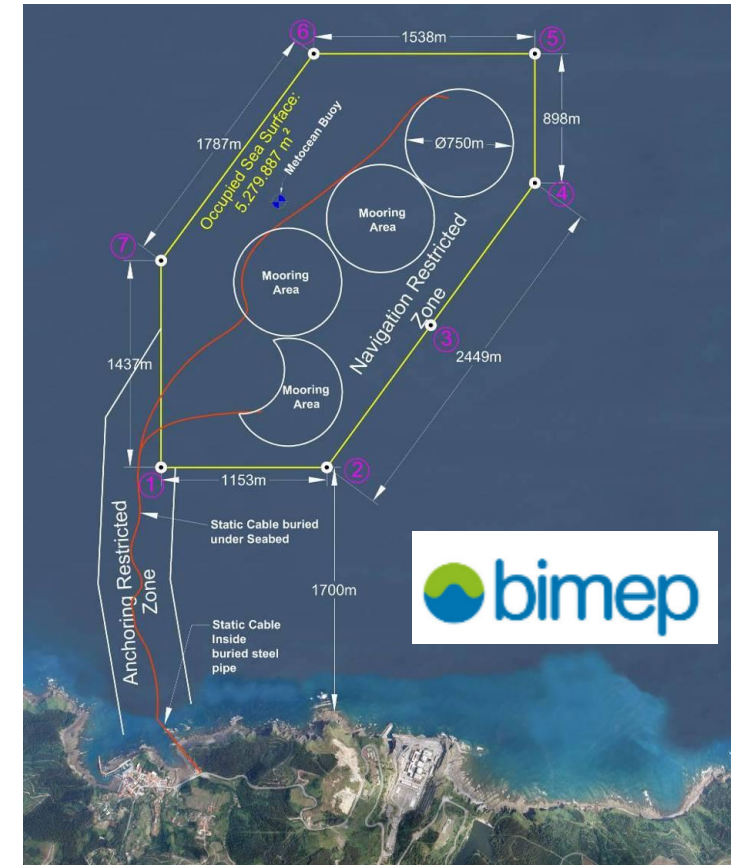
BIMEP Area: Grid-connected offshore test site for demonstration and validation of wave energy converters and floating wind platforms.

Capacity: **20 MW (4 cables x 5 MW each)**

Mutriku Area: Wave power generation and testing plant with Oscillating Water Column technology.



<https://bimep.com/>



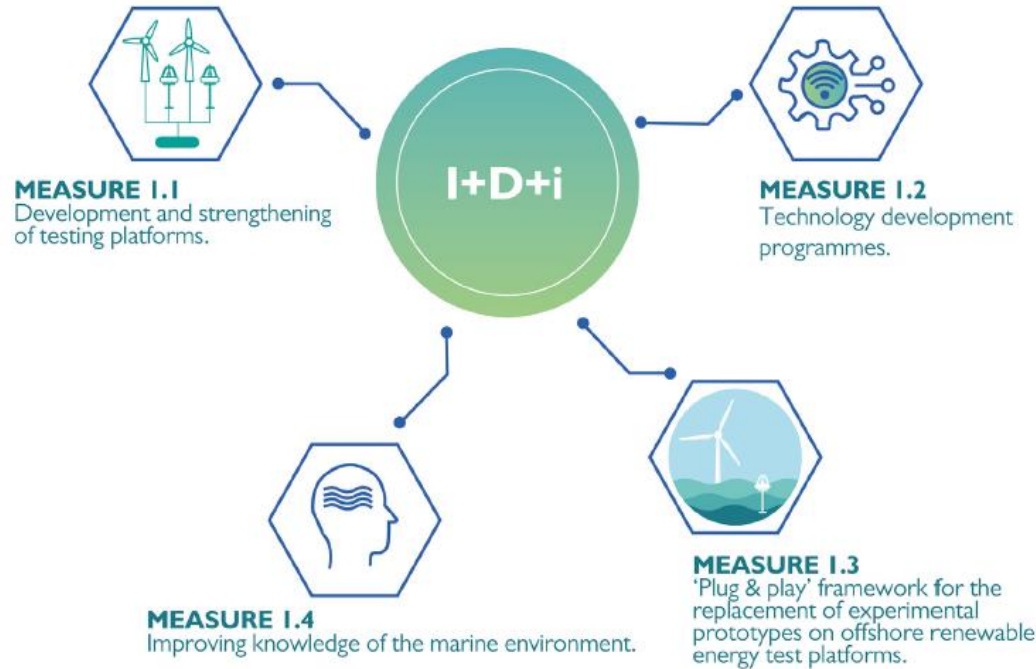
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HRM – Line of Action #1. RDI (I+D+i)



Make Spain a **European benchmark for testing new prototypes and solutions, establishing a flexible and agile 'plug & play' framework:**

- Strengthening current testing platforms.
- Development of an attractive processing framework for new platforms and for the replacement of prototypes.
- Supported by the RDI ecosystem and technology centres in Spain.



I. Spain as a benchmark for R&D&I in offshore renewable technologies

MEASURE I.1.	Development and strengthening of testing platforms.	✓
MEASURE I.2.	Technology development programmes.	✓
MEASURE I.3.	'Plug & play' framework for the replacement of experimental prototypes on offshore renewable energy test platforms.	
MEASURE I.4.	Improving knowledge of the marine environment.	✓



#RenMarinasDemos

€ 147m Grants in 2023
21 actions
€ 384m Investments

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Related to the progress of the beneficiary actions
of the RENMARINAS DEMOS Programme



Plan de Recuperación,
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PROGRAMA RENMARINAS DEMOS

INCENTIVOS A PROYECTOS PILOTO Y PLATAFORMAS DE ENSAYO E INFRAESTRUCTURAS PORTUARIAS PARA RENOVABLES MARINAS

En el marco del Plan de Recuperación, Transformación y Resiliencia

Financiado por la Unión Europea - NextGenerationEU

<https://www.idae.es/ayudas-y-financiacion/programa-renmarinas-demos>

<https://sede.idae.gob.es/lang/modulo/?idarticulo=146979&idboletin=2742&idseccion=16781>

RENMARINAS DEMOS

240 M€
para nuevos prototipos en el campo de las energías renovables marinas

⚡ Plataformas de ensayos ⚡ Demostradores tecnológicos ⚡ Proyectos mixtos (Plataformas + Demostradores)

Financiado por la Unión Europea NextGenerationEU

Ministerio de Transición Ecológica y Reto Demográfico IDAE Plan de Recuperación, Transformación y Resiliencia

D. Victor Marcos Morell
D. Carmen Mª Roa Tortosa
D. Juan Ramón Ayuso Ortiz



Instruments #5, 6 & 7 - PERTE ERHA



Final Resolution Published
25th October 2023

Target:

Investments in actions devoted to:

- Creation and reinforcement of testing platforms and infrastructures for offshore renewables, including port infrastructures.
- Renewable technology demonstrators.

In real operating conditions, within the port or maritime-terrestrial public domain.

Financiado por la Unión Europea NextGenerationEU

Ministerio de Transición Ecológica y Reto Demográfico IDAE Plan de Recuperación, Transformación y Resiliencia RENOVABLES MARINAS DEMOSTRADORES

RESOLUCIÓN DEFINITIVA

Resolución del Director General de Política Energética y Minas y Vicepresidente del Consejo de Administración del E.P.E Instituto para la Diversificación y Ahorro de la Energía (IDAE), M.P., por la que se conceden ayudas correspondientes a la "Primera convocatoria del programa para la concesión de ayudas a la inversión en proyectos piloto y plataformas de ensayo e infraestructuras portuarias para renovables marinas, en el marco del Plan de Recuperación, Transformación y Resiliencia Financiado por la Unión Europea-Next GenerationEU" (1ª Convocatoria - Programa RENMARINAS DEMOS)", publicada mediante la Resolución de 21 de diciembre de 2022, del IDAE, cuyas Bases Regulatorias fueron establecidas mediante la "Orden TED/1204/2022, de 2 de diciembre del Ministerio para la Transición Ecológica y el Reto Demográfico" (B.O.E. núm. 292, de 6 de diciembre de 2022).

Primera convocatoria publicada en la Base de Datos Nacional de Subvenciones (BDNS), con fecha de registro 23/12/2022 e identificadores: 666194 para el Subprograma 1, 666214 para los Subprogramas 2, 3 y 4.

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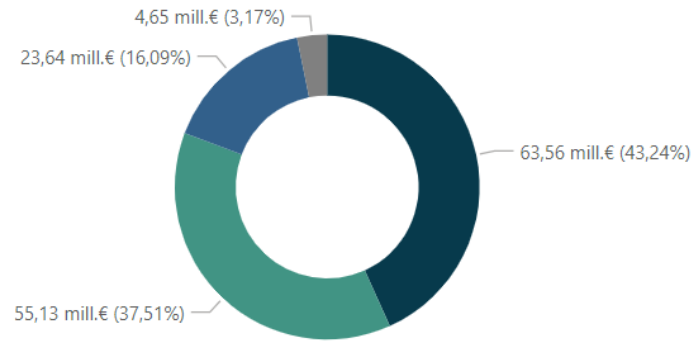
Programme RENMARINAS DEMOS – Results



Aid Distribution

Granted Aid	Actions
146,98 mill.€	21

Distribución de los fondos por tipo de proyecto

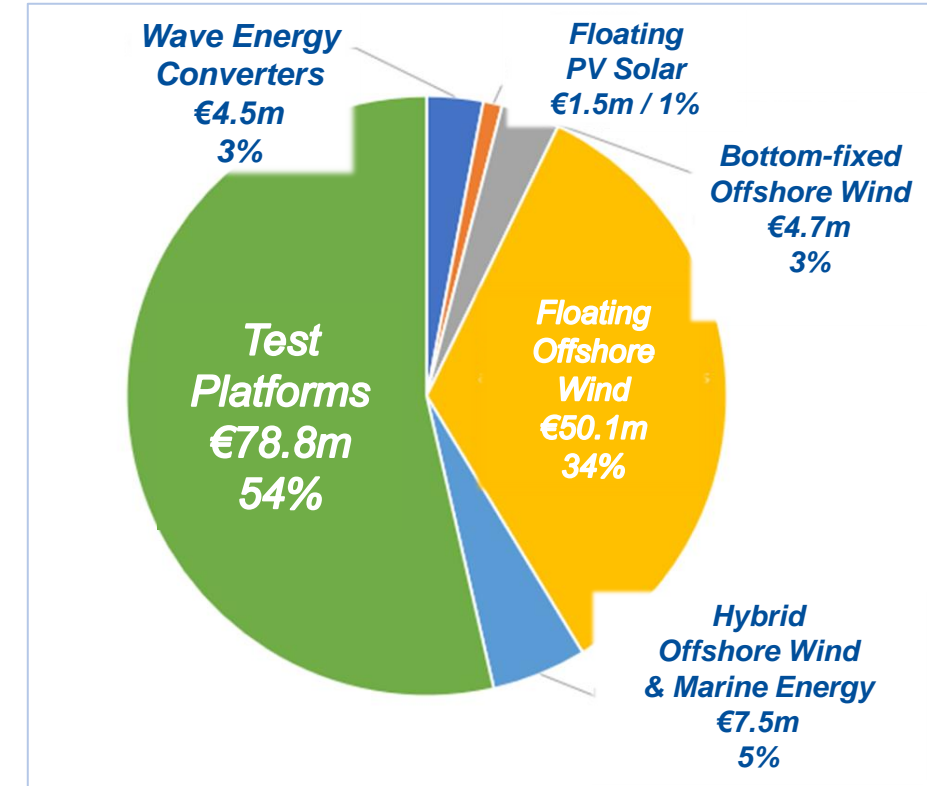


● Demostradores tecnológicos ● Plataformas de ensayo (OPIs) ● Plataformas de ensayo ● Proyectos conjuntos

23 applications

21 awarded actions:

- 4 actions on **Test Platforms for Marine Renewables by Research Organisations– SubP 1**
- 4 actions on **Other Test Platforms – SubP 2**
- 12 **Marine Renewable Technology Demos – SubP 3**
- 1 action **Platform + Demo – SubP 4**



Awarded Aid by Typology of action and marine technology

<https://www.idae.es/ayudas-idae-en-el-marco-prtr-grado-de-ejecucion>



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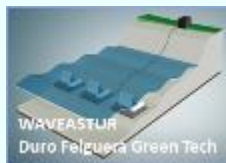
Final Resolution: Oct/2023

21 actions

€147m Grants

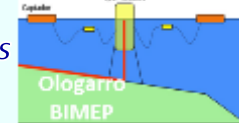
€384m Investments

55.7 MW in Demos



Principality of Asturias
€2,2m
1 action

Basque Country
€10,6m
5 actions



Galicia
€20,0m
1 action



Catalonia
€45,0m
2 actions



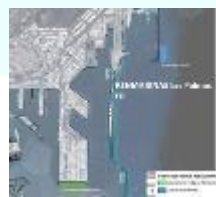
Valencian Region
€3,2m
3 actions



Canary Islands
€45,5m
7 actions



No definitive location
€20,5m
2 actions (demos)



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Project: PLEMCAT - Plataforma de I +D+i en Energías Marinas de Cataluña

File Nº: PR-RENMARDEM-2023-000005

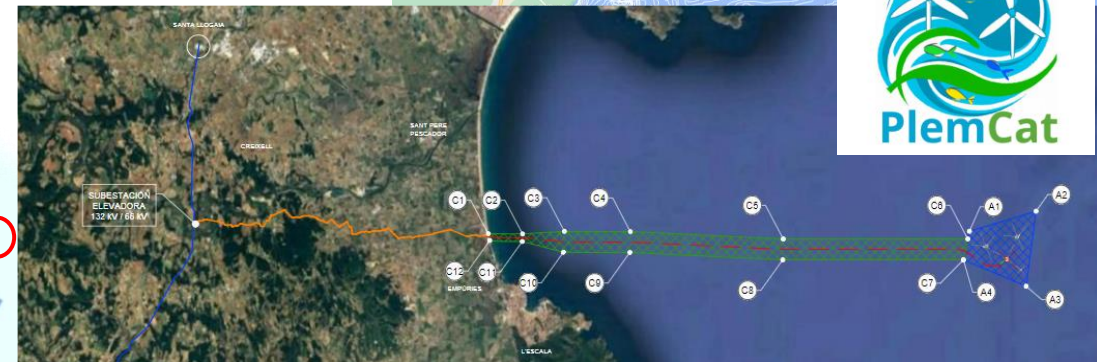
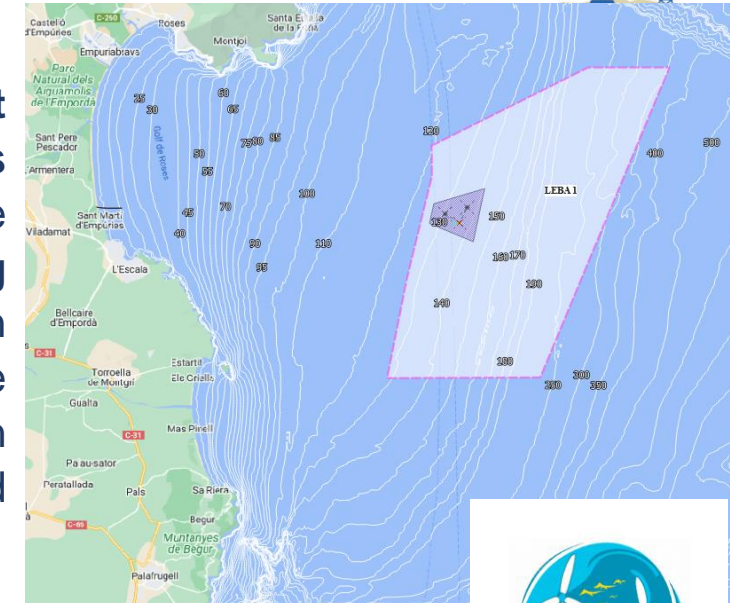
Aim: Development of a R&D&I platform for floating wind (at least 2 x 15 MW) and other offshore renewable technologies (1 x 0,25 MW), pioneer in the **Western Mediterranean**, to serve as an integral platform for testing and research in **real operating conditions** and to obtain valuable information on the interaction of this type of renewable generation facilities in this maritime region, thus feeding it into future offshore wind developments in the same region with greater guarantees of socio-economic and environmental sustainability.

Beneficiary: Fundació Institut de Recerca en Energia de Catalunya (IREC)

Location: DPMT Cataluña

Eligible Cost: €50.0m

Granted: €30.0m

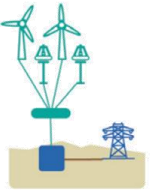




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Actions Awarded. Oct/2023

Reinforcement



SubP: 1 - Test Platforms for Marine Renewables by Research Organisations

Project: ElectroUP

File N°: PR-RENMARDEM-2023-000044

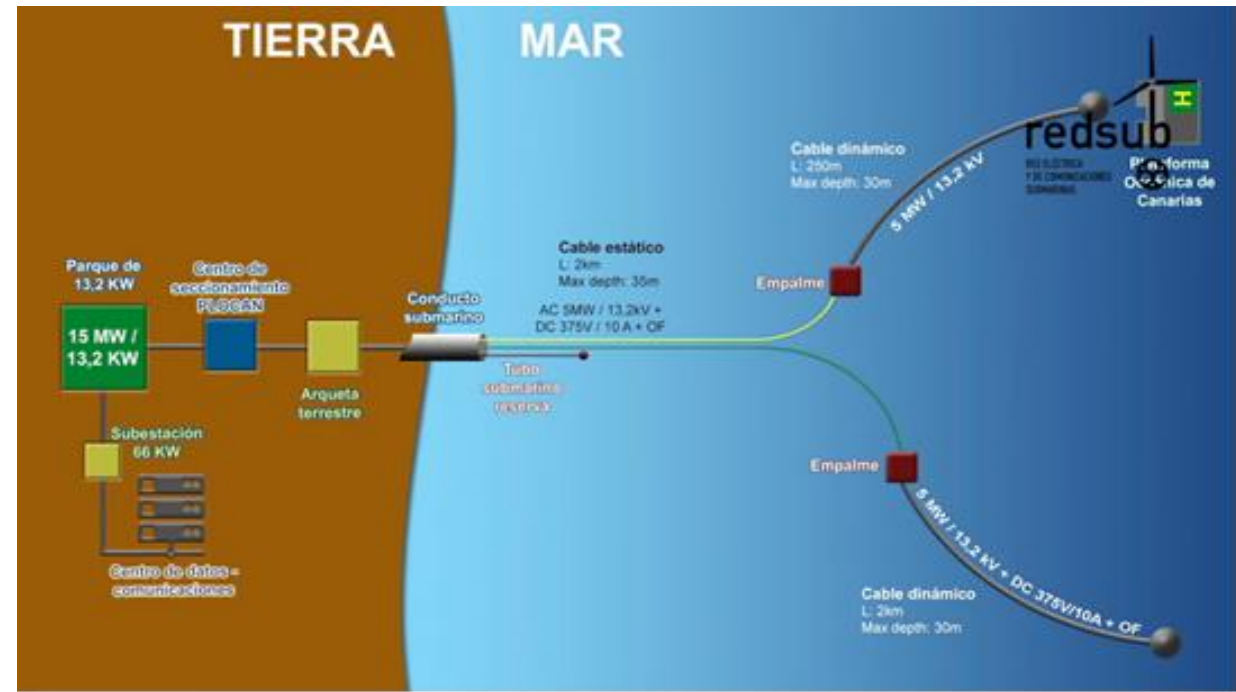
Aim: Increase the evacuation capacity for demonstration activities of R&D projects at the PLOCAN North test Platforms from 5 to 15 MW by means of a new submarine cable, switching and communications centre.

Beneficiary: PLOCAN - Plataforma
Oceanica de Canarias

Location: DPMT Canarias

Eligible Cost ≈ € 20.4m

Granted ≈ € 20.4m

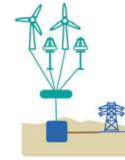


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Project: RENMARINAS Arinaga

File Nº : PR-RENMARDEM-2023-000071



Aim: Adaptation of infrastructures in the Port of Arinaga to convert it into a **pioneering test platform for applied marine energy research**, in particular **three test areas** for each of the **solar PV Floating** (2 x 0,5 MW), **Wave energy** (2 x 0,5 MW) and **Offshore Wind technologies** (at least 3 MW), and with the creation of a **Hydraulics Laboratory for off-shore platforms** on land.

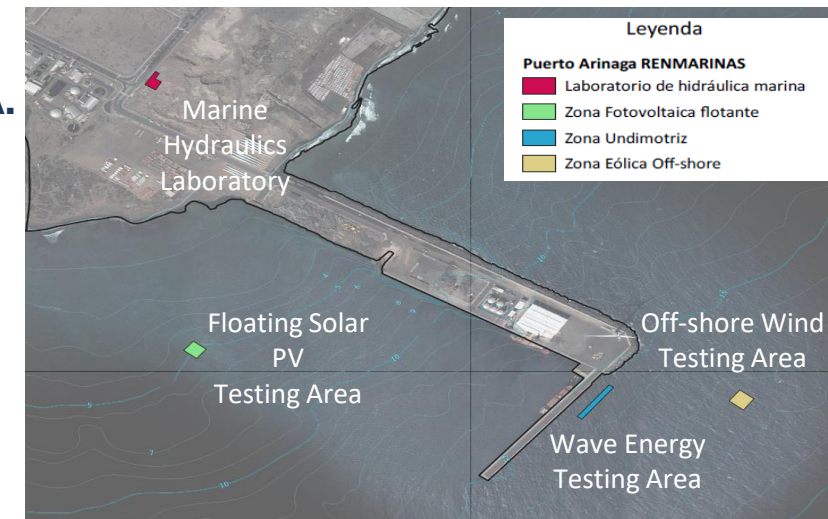


Beneficiary: ITC - Instituto Tecnológico de Canarias, S.A.

Location: Port of Arinaga- Canary Islands

Eligible Cost ≈ €3.3m

Granted ≈ €3.3m





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Actions Awarded. Oct/2023

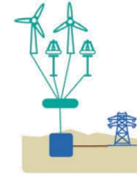
New - in Port Area



SubP: 1 - Test Platforms for Marine Renewables by Research Organisations

Project: RENMARINAS Las Palmas

File Nº: PR-RENMARDEM-2023-000076



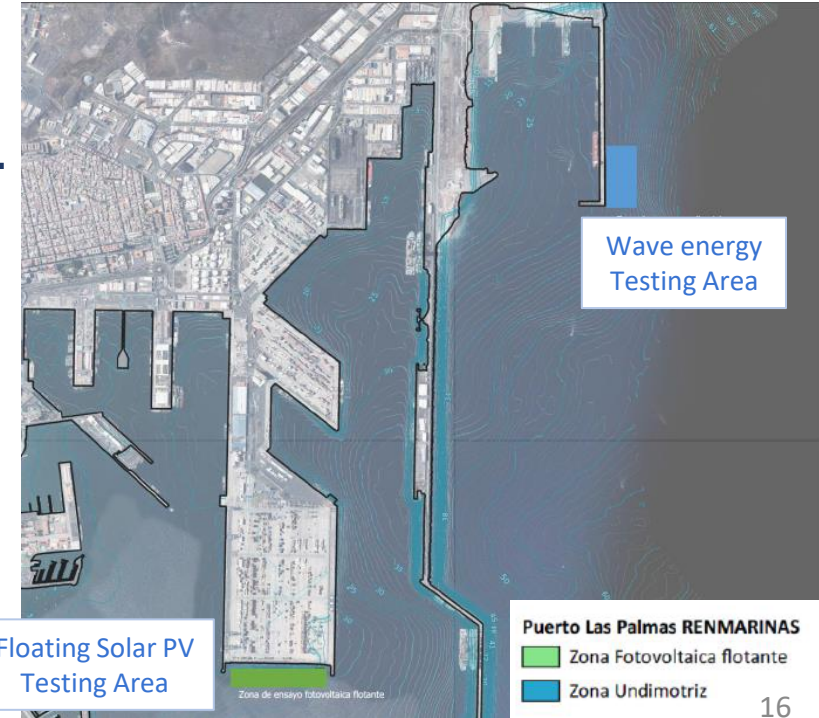
Aim: Creation in the port of La Luz and Las Palmas of an **infrastructure for the testing and demonstration of marine renewable energies** [solar PV Floating (2 x 0,5 MW) + Wave energy (2 x 0,5 MW)], with a **laboratory for the hydraulics of offshore platforms** and **test areas for offshore wind, wave and floating photovoltaic solar technologies.**

Beneficiary: ITC - Instituto Tecnológico de Canarias, S.A.

Location: Port of La Luz y Las Palmas – Canary Islands

Eligible Cost ≈ €1.5m

Granted ≈ €1.5m



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Actions Awarded. Oct/2023

Reinforcement



SubP: 2 – Other test platforms for marine renewables

Project: **OLAGARRO**

File Nº: PR-RENMARDEM-2023-000025

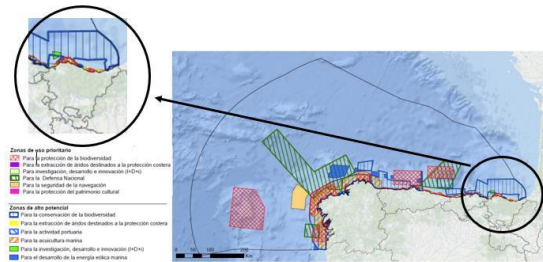
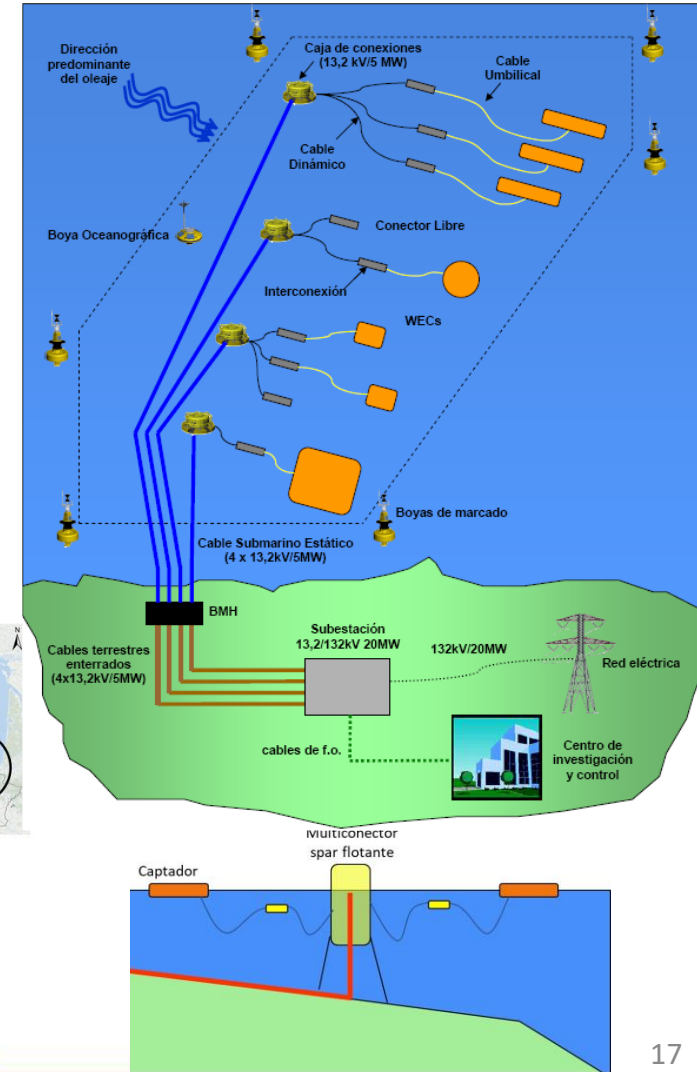
Aim: Improvement and reinforcement of the simultaneous testing capabilities of marine renewable demonstrators in BiMEP-Armintza by maximising the use of the infrastructure, increasing the simultaneous testing capacity from 4 to 6 umbilical connections.

Beneficiary: BiMEP – Biscay Marine Energy Platform, S.A.

Location: DPMT País Vasco – BIMEP

Eligible Cost ≈ €5.3m

Granted ≈ €2.6m



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Actions Awarded. Oct/2023

Reinforcement

SubP: 2 – Other test platforms for marine renewables



Project: PlugHarshLab

File Nº: PR-RENMARDEM-2023-000066

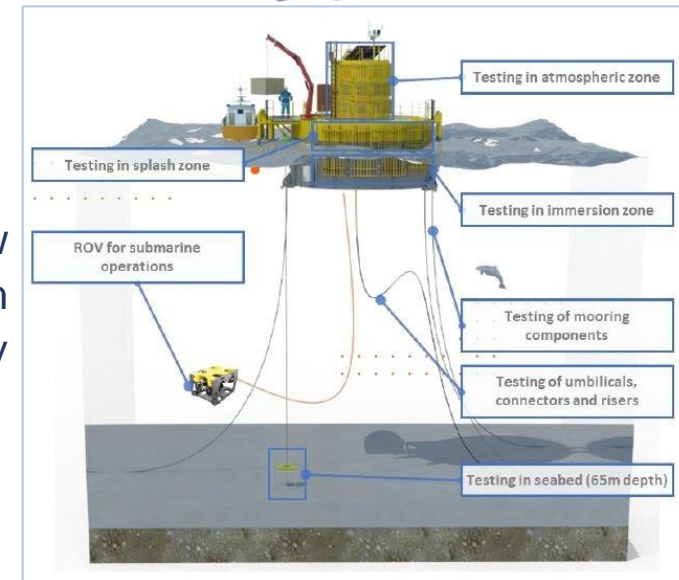
Aim: Installation of a **dynamic subsea power cable** to allow **connection of the HarshLab to BiMEP's** power infrastructure with **multi-connector functionality** to provide connection to third party prototypes.

Beneficiary: Fundación TECNALIA RESEARCH & INNOVATION

Location: DPMT País Vasco – BIMEP (Ongoing)

Eligible Cost ≈ €0.4m

Granted ≈ €0.2m



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Actions Awarded. Oct/2023

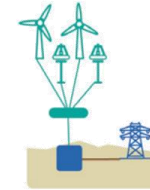
New Platform



SubP: 2 – Other test platforms for marine renewables

Project: Plataforma experimental de eólica marina de Galicia

File Nº: PR-RENMARDEM-2023-000075



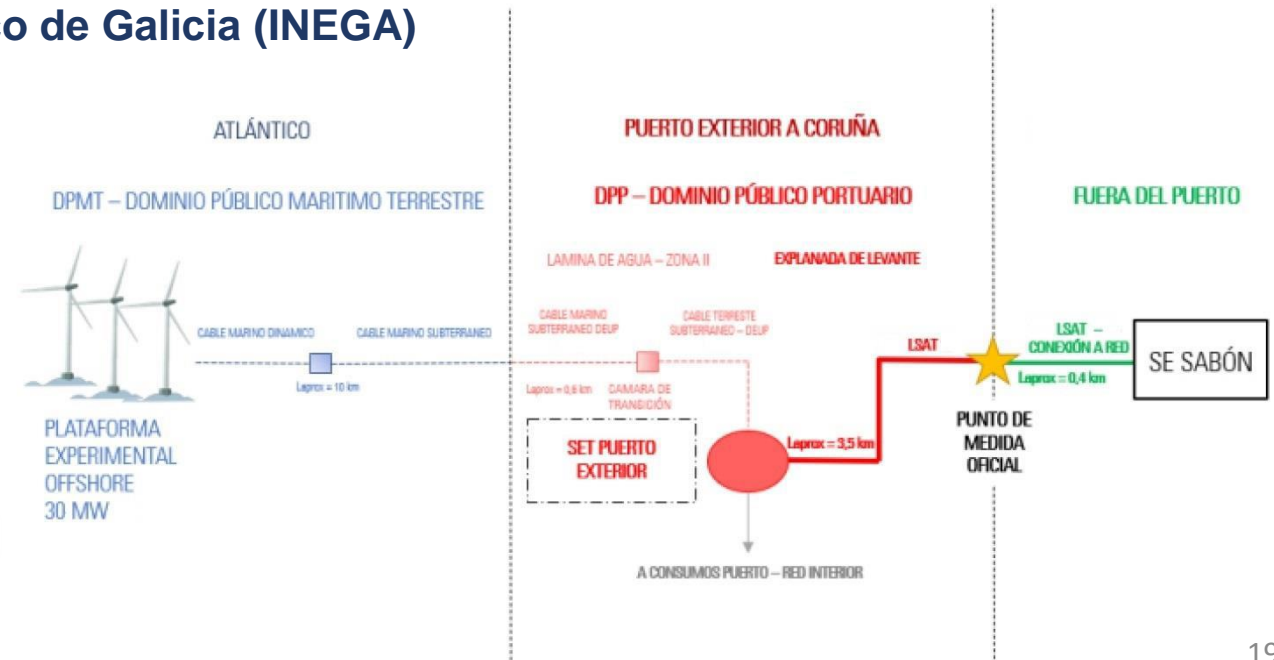
Aim: Platform for testing and demonstration of offshore wind turbines and floats off the coast of Arteixo (A Coruña), about 10 kilometers west of A Coruña and between 100 and 200 meters deep: 30 MW of evacuation capacity / Up to 3 positions.

Beneficiary: Instituto Enerxético de Galicia (INEGA)

Location: DPMT Galicia

Eligible Cost ≈ €48.5m

Granted: €20.0m



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Plan de Recuperación,
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Actions Awarded. Oct/2023

New Platform + Demo



SubP: 4 - Test Platforms + Marine Renewable Technology Demonstrators

Project: ENERPROFUNDA

File N°: PR-RENMARDEM-2023-000055

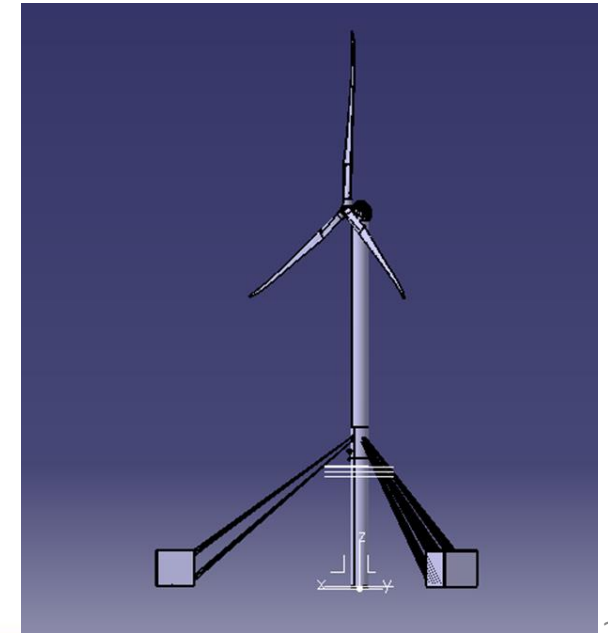
Aim: Development of a platform called "Mar de Canarias" experimental park, designed to test under real conditions new concepts in the most significant elements that make up offshore wind turbines. New foundations and fixed support structures for great depth will be tested on a 5 MW offshore wind demonstrator with fixed foundations.

Beneficiary: ENERMAR, S.A.

Location: DPMT Canarias (Ongoing)

Eligible Cost ≈ €7.8m

Granted ≈ €4.7m



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Plan de Recuperación,
Transformación y Resiliencia

Actions Awarded. Oct/2023

New - in Port Area

SubP: 2 – Other test platforms for marine renewables



Project: RENMARINAS – VALENCIAPORT

File Nº: PR-RENMARDEM-2023-000031

Aim: Creation of a marine renewable energy testing platform for the connection, testing and feeding into the Port of Valencia electricity grid of marine renewable generation technology demonstrators, in particular wave energy (1 x 0,270 MW) and floating photovoltaic solar energy (2 x 0,5 MW).

Beneficiary: Autoridad Portuaria de Valencia

Location: Port of Valencia –Valencian Region

Eligible Cost ≈ €1.6m

Granted ≈ €0.8m



- PT2. RENMARINAS – BLUENEABLES**
Demostrador de fotovoltaica flotante
 - Potencia instalada 2 x PVbos 0,5MW = 1 MW
 - Factor de capacidad 17%
 - Producción anual: 1507 MWh
 - Dimensiones de cubierta de placas: 74,2 m x 34,6 m
 - Diseño de sistema de flotador y cubierta para mares abiertos y condiciones meteorológicas extremas
 - Cubierta resistente y alejada del impacto de las olas
 - Sistema modular con estructura robusta y sin embargo ultra ligera
- PT3. RENMARINAS – ENERMARPORT**
Demostrador de undimotriz
 - Potencia instalada: 270 kW
 - Producción anual: 500 MWh
 - Dimensiones en el mar: 25 x 10 m
 - Dimensiones en tierra: 20 x 10 m
 - 3 brazos que salen del bastidor de acero sujeto al dique hasta cada uno de los flotadores, 2 cilindros hidráulicos en cada brazo, conducciones hidráulicas para el transporte del fluido hasta el contenedor de generación, caja de válvulas que, en función de la altura de la ola entrante, selecciona los pistones actuantes
 - 3 motores hidráulicos que mueven el eje de los generadores, 3 equipos de control de potencia en cada generador, equipos de automatización y control de todo el dispositivo
- PT4: RENMARINAS – VALENCIAPORT**
Plataforma de ensayo en el Puerto de Valencia
 - Conexión umbilical al demostrador de fotovoltaica flotante
 - Conexión umbilical al demostrador de undimotriz
 - Vertido a la red eléctrica del Puerto de Valencia en media tensión

Efecto tractor sobre la economía española e impacto positivo socio-económico:

- Generación de 90 empleos directos y 7 empleos indirectos
- Reducción en 361 t CO2eq durante el periodo piloto de 24 meses
- 100% del empleo directo generado por el proyecto en España
- 100% de origen de fabricación nacional / UE



#PlanDeRecuperación





Plan de Recuperación,
Transformación y Resiliencia

Actions Awarded. Oct/2023

Demo - in Port Area



SubP: 3 – Marine Renewable Technology Demonstrators

Project: PV-bos 1 MW

File Nº: PR-RENMARDEM-2023-000060

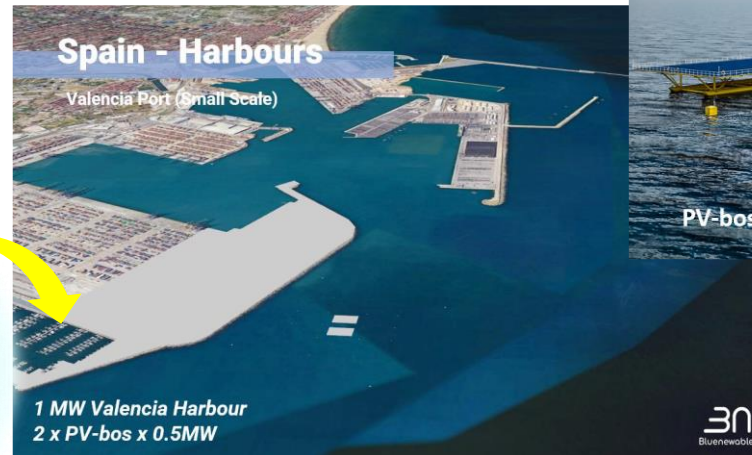
Aim: Installation of a floating photovoltaic solar generation technology demonstrator with **two independent platforms** of similar dimensions and a nominal power of **0.5 MW each**. It also seeks to **measure environmental impacts** as well as economic and technical variables during the demonstration phase.

Beneficiary: BlueNewables S.L.

Location: Port of Valencia- Valencia Region (Ongoing)

Eligible Cost: €2.5m

Granted: €1.5m



#PlanDeRecuperación





Plan de Recuperación,
Transformación y Resiliencia

Actions Awarded. Oct/2023

Demo - in Port Area



SubP: 3 – Marine Renewable Technology Demonstrators

Project: RENMARINAS VALENCIAPORT – ENERMARPORT

File N°: PR-RENMARDEM-2023-000061

Aim: Design, construction and installation of a **270 kW wave energy device** in the outer dock of the lighthouse area of the **Port of Valencia**.

Beneficiary: ENERGÍA MARINA PUERTO DE VALENCIA AIE

Location: Port of Valencia – Valencian Region (Ongoing)

Eligible Cost ≈ €1.5m

Granted ≈ €0.9m



#PlanDeRecuperación





Plan de Recuperación,
Transformación y Resiliencia

Actions Awarded. Oct/2023

Demo - in New Platform



SubP: 3 – Marine Renewable Technology Demonstrators

Project: HIVE LAB

File N°: PR-RENMARDEM-2023-000040

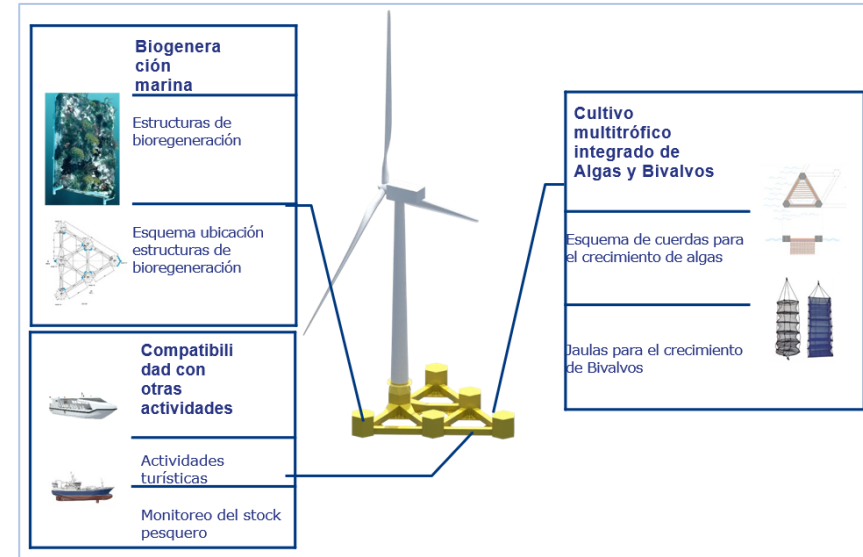
Aim: Manufacture, installation and commissioning of an 11 MW floating offshore wind demonstrator with HiveWind© semi-submersible technology at the Catalan Marine Energy R&D&I Platform, for the testing, demonstration and validation of this innovative device for renewable generation in the marine environment.

Beneficiary: HIVE WIND ENERGY, S.L.

Location: DPMT Cataluña (Ongoing)

Eligible Cost: €49.5m

Granted: €15.0m



#PlanDeRecuperación

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Plan de Recuperación,
Transformación y Resiliencia

Actions Awarded. Oct/2023

Demo - in Port Area



SubP: 3 – Marine Renewable Technology Demonstrators

Project: **PRIMAVERA DEMOS**

File Nº: **PR-RENMARDEM-2023-000037**

Aim: Detailed **engineering, manufacturing, installation, commissioning and test campaigns** of a full-scale **offshore wind technology demonstrator** of the W2Power floating multi-turbine technology with a power of **11 MW** consisting of two wind turbines located on inclined towers connected to the same triangular **semi-submersible floating** structure moored by a system that allows it to self-align with the wind direction.

Beneficiary: **PRIMAVERA Offshore Wind S.L.**

Location: **Port of Granadilla - Canary Islands (Ongoing)**

Eligible Cost ≈ €36.1m

Granted: €8.0m



#PlanDeRecuperación





Plan de Recuperación,
Transformación y Resiliencia

Actions Awarded. Oct/2023

Demo

SubP: 3 – Marine Renewable Technology Demonstrators



Project: **ALLENDE**

File N°: PR-RENMARDEM-2023-0000016

This file does not contribute to the achievement of milestone CID # 116 of C7.I1 PRTR

Aim: Implementation of a complete and functional **11 MW TRL7 floating offshore wind power technology demonstrator** in Spanish waters at depths of more than 100m. The design of the floating platform is the so-called CT-bos, of the TLP type, which provides an innovative, easily scalable and very stable solution.

Beneficiary: Acciona Generación Renovable, S. A.

Location: No definitive location

Eligible Cost: €49.5m

Granted: €10.0m



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Plan de Recuperación,
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Actions Awarded. Oct/2023

Demo

SubP: 3 – Marine Renewable Technology Demonstrators



Project: NEXTFLOAT-CAT

File N° : PR-RENMARDEM-2023-000059

Aim: Installation of a floating offshore wind technology demonstrator of at least 6 MW (X90 platform), with low weight floating "one platform", TLP-type anchoring system and leeward-facing two-bladed turbine.

Beneficiary: Exponential Renewables, S.L.

Location: No definitive location

Eligible Cost ≈ €26.4m

Granted: €10.5m



#PlanDeRecuperación





Plan de Recuperación,
Transformación y Resiliencia

Actions Awarded. Oct/2023

Demo - in Existing Platform



SubP: 3 – Marine Renewable Technology Demonstrators

Project: P-Demo

File N°: PR-RENMARDEM-2023-000046

Aim: Development of a demonstration prototype for hybridisation of offshore renewable technologies, combining a 4.3 MW offshore wind turbine with a 0.8 MW wave converter system, a 1 MW electrolyser, 48 MWh of energy storage in the form of hydrogen (H₂) and a 1.2 MW fuel cell (partially funded project).

Beneficiary: Floating Power Plant Canarias S.L.U.

Location: DPMT Canarias (Ongoing)

Eligible Cost: €25.0m

Granted: €7.5m



#PlanDeRecuperación





Plan de Recuperación,
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Actions Awarded. Oct/2023

Demo - in Existing Platform



SubP: 3 – Marine Renewable Technology Demonstrators

Project: FLOW2GRID

File N°: PR-RENMARDEM-2023-000038

This file does not contribute to the achievement of milestone CID # 116 of C7.I1 PRTR

Aim: Towing of the 2MW DemoSATH floating offshore wind turbine to the BIMEP test area off the coast of the Basque Country, including its subsequent installation and testing phase.

Beneficiary: Saitec, S.A.

Location: DPMT País Vasco – BIMEP (Ongoing)

Eligible Cost ≈ €7.6m

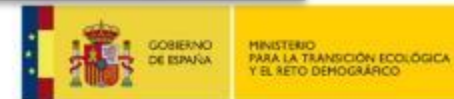
Granted: €3.0m



#PlanDeRecuperación



Saitec Offshore Technologies





Plan de Recuperación,
Transformación y Resiliencia

Actions Awarded. Oct/2023

Demo - in Existing Platform



SubP: 3 – Marine Renewable Technology Demonstrators

Project: AGUAMARINA

File N^o: PR-RENMARDEM-2023-000035

Aim: Installation of a **450-kW CETO** fully submerged point absorber type **wave energy converter (WEC)** demonstrator at the **BIMEP** site.

Beneficiary: Carnegie Technologies Spain, SL

Location: DPMT País Vasco – BIMEP (Ongoing)

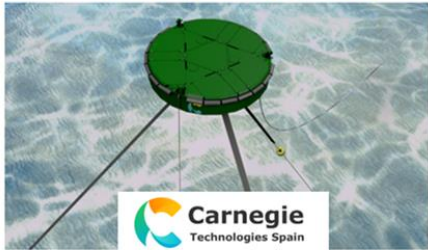

Eligible Cost ≈ €2.0m

Granted ≈ €1.2m



This file does not contribute to the achievement of milestone CID # 116 of C7.I1 PRTR

AGUAMARINA
Enhancing CETO Deployment at BiMEP, Basque Country, Spain

Carnegie Technologies Spain

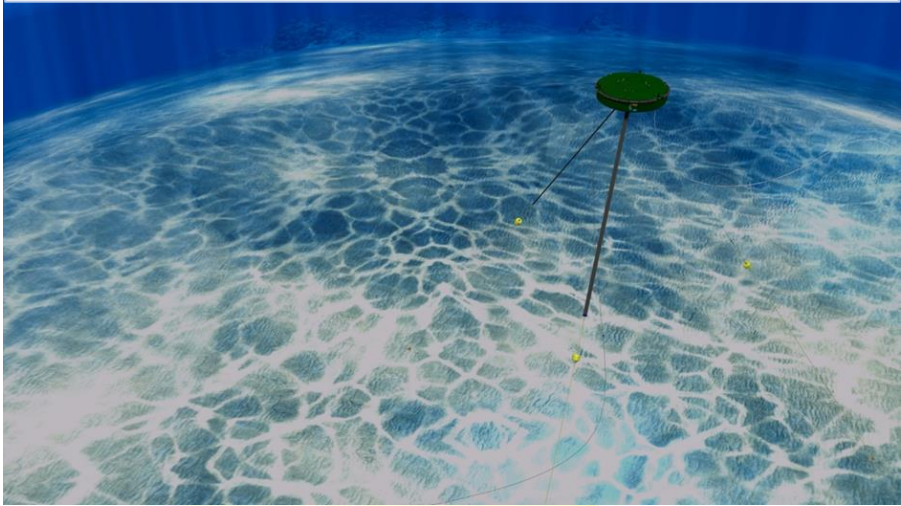
BiMEP Biscay Marine Energy Platform

IDAE Instituto para el Desarrollo y la Innovación Tecnológica

GOBIERNO DE ESPAÑA
REPUBLICA TECNICA DEL GOBIERNO
MINISTERIO PARA LA TRANSICIÓN ECOLÓGICA Y EL RETO DEMOGRÁFICO

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Plan de Recuperación,
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Actions Awarded. Oct/2023

Demo - in Port Area



SubP: 3 – Marine Renewable Technology Demonstrators

Project: WAVEASTUR

File N°: PR-RENMARDEM-2023-000057

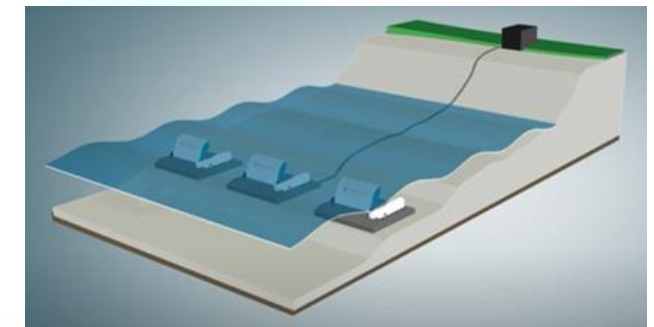
Aim: Installation of a 1,050-kW wave energy converter system (WEC) consisting of 3 prototypes with an individual power of 350 kW in the **Port of Avilés**.

Beneficiary: DURO FELGUERA GREEN TECH S.A.

Location: DP Port of Avilés- P. Asturias (envisaged)

Eligible Cost ≈ €5.6m

Granted ≈ €2.2m



#PlanDeRecuperación





Plan de Recuperación,
Transformación y Resiliencia

Actions Awarded. Oct/2023

Demo - in Port Area



SubP: 3 – Marine Renewable Technology Demonstrators

Project: **SOMOS VERDE, SOMOS BONITA**

File Nº: PR-RENMARDEM-2023-000064

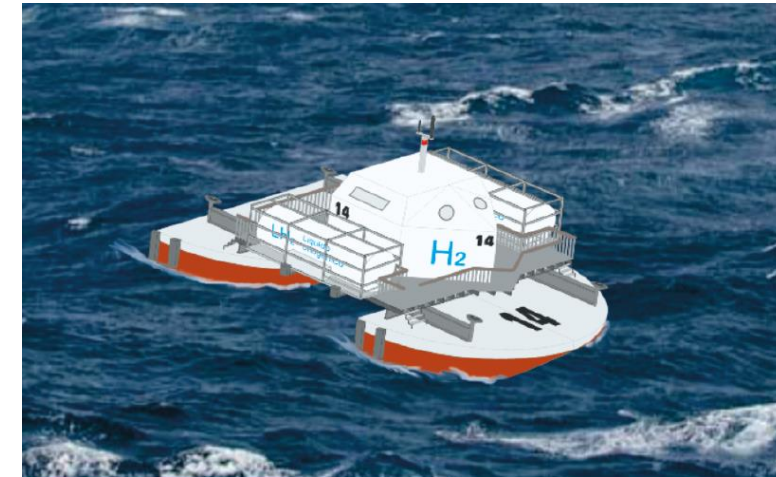
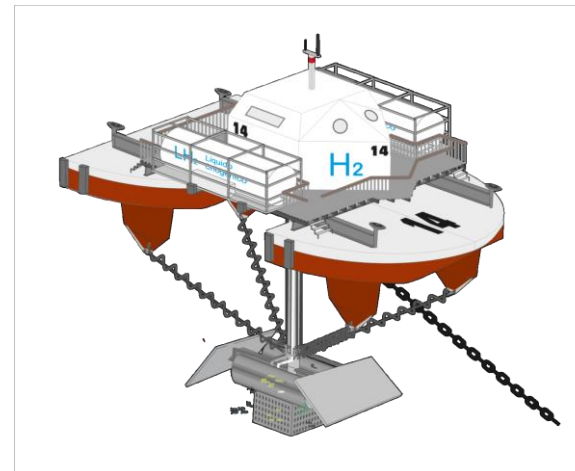
Aim: Installation of a **80-kW wave energy converter system**, capable of continuously absorbing any movement of the sea surface and transforming it into mechanical work.

Beneficiary: Asesoría y Consultoría Nuevas Energías, SLU

Location: DPMT Canarias (envisaged)

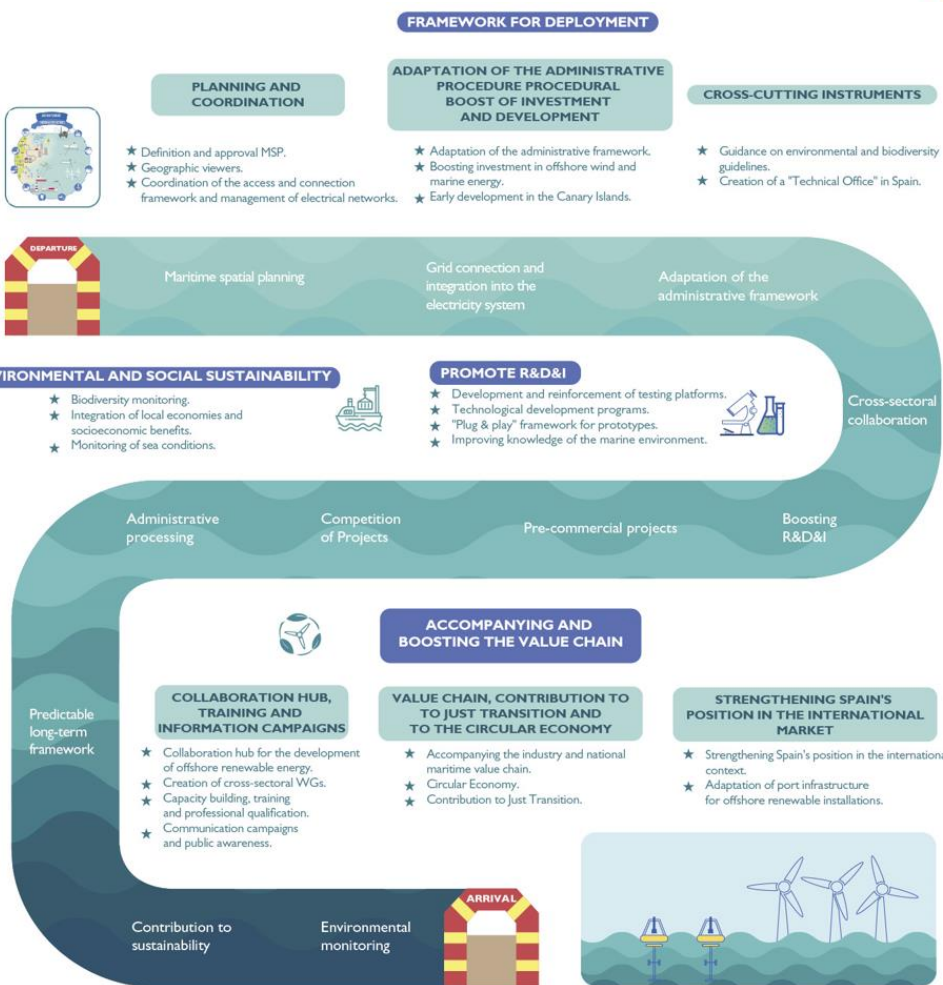
Eligible Cost ≈ €0.5m

Granted ≈ €0.2m



#PlanDeRecuperación





7th Workshop ESSRI 2024
Sept. 25th to 27th, 2024, Madrid

‘Research & testing platforms and technology demonstrator projects in Spain on Offshore Wind and Marine Energy’

Juan Ramón Ayuso Ortiz
 IDAE - Head of Wind & Marine Energy Dept.



Thank You !

#HRM

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