

Outlook for ocean energy technologies in Spain's new Roadmap to 2030

Juan Ramón Ayuso
Head of Wind & Marine Energy Dept.

Plan de Recuperación, Transformación y Resiliencia

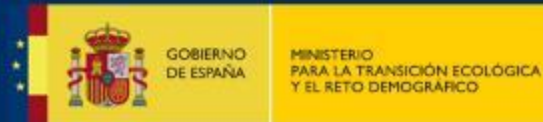


#HRM

#PlanDeRecuperación



Financiado por la Unión Europea
NextGenerationEU



22 March 2022

10 am UTC | 11 am CET

ETIP Ocean & APPA Renovables webinar: Ocean energy in Spain – Targets & funding opportunities





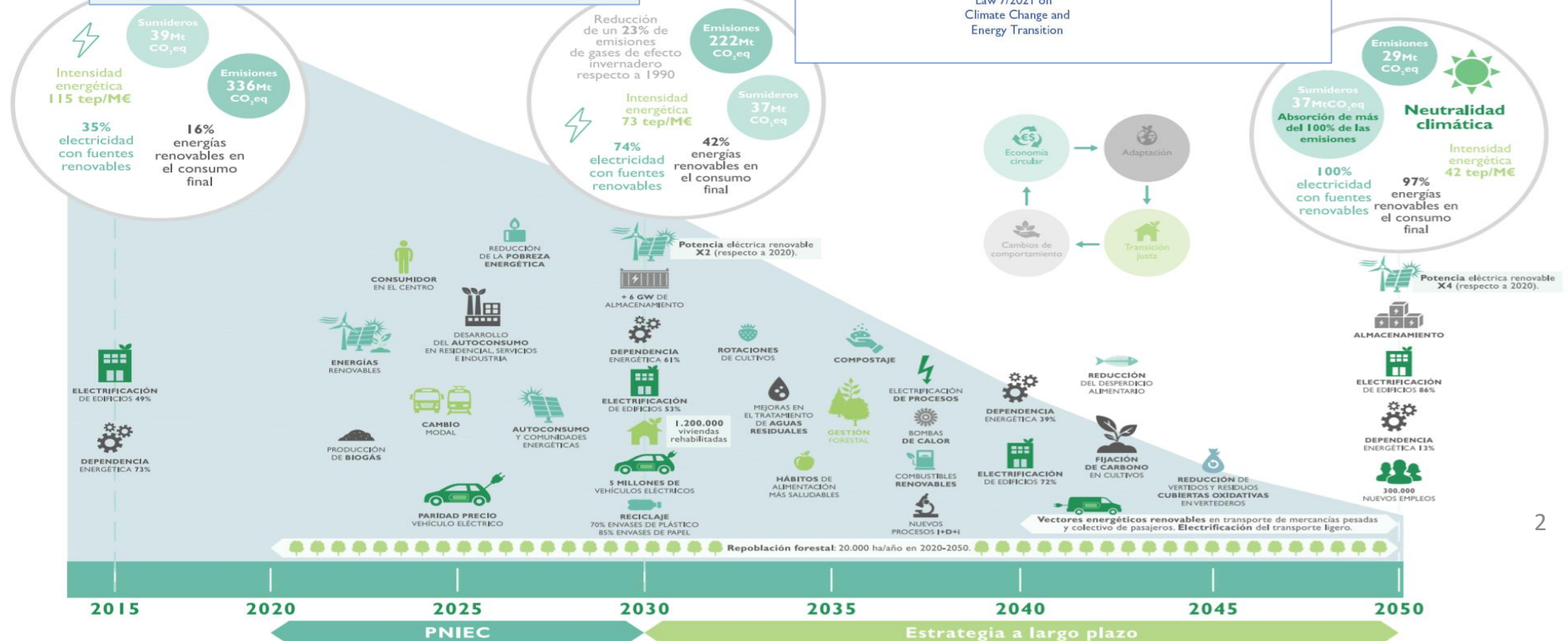
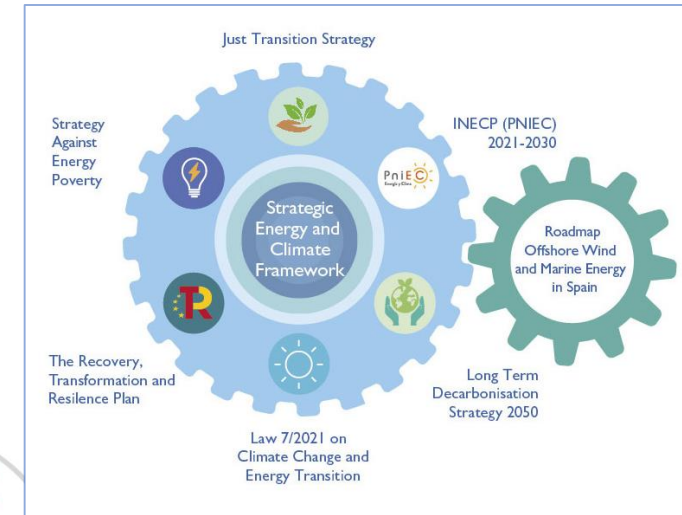
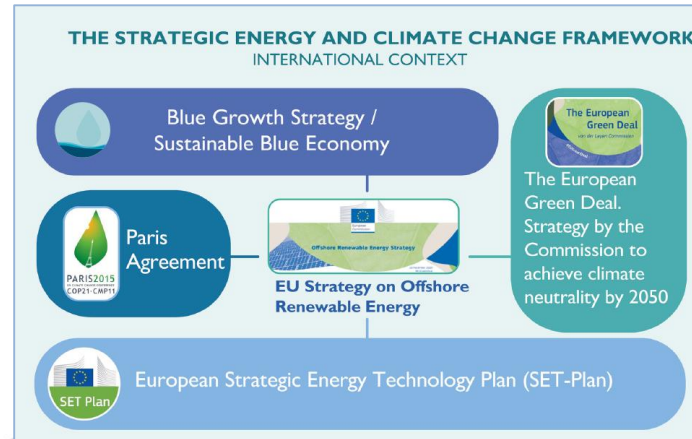
Plan de Recuperación, Transformación y Resiliencia

#HRM

#PlanDeRecuperación



Long Term Strategy in Spain. Net Zero Emissions by 2050





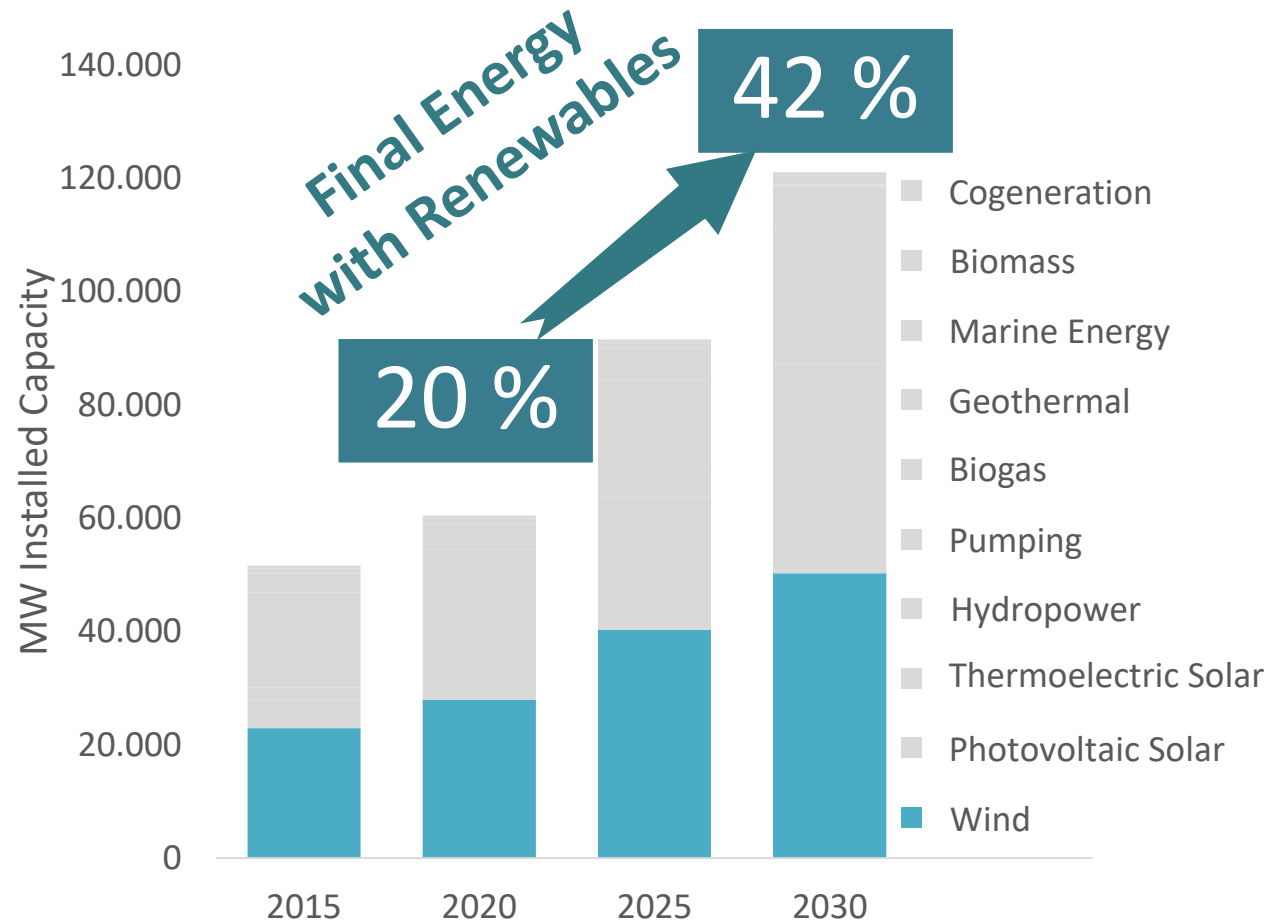
Plan de Recuperación,
Transformación y Resiliencia

#HRM

#PlanDeRecuperación



NIECP 2021-2030. Renewable Electricity 74% by 2030



Note: The breakdown of power generation will depend on the evolution of cost, deployability and performance of each technology (or combination of technologies).

Wind Energy:

- 50,33 GW by 2030 (Onshore + Offshore)
New 2,23 GW per year
- Repowering: 10-15 GW during the decade

Marine Energy:

50 MW by 2030

- 59 GW of new RES Capacity
- 6 GW of new Storage (3,5 GW pumped Hydro, 2,5 GW Batteries).
- No new fossil capacity needed.
- Coal phase-out by market mechanisms 2025-2029



Plan de Recuperación,
Transformación y Resiliencia

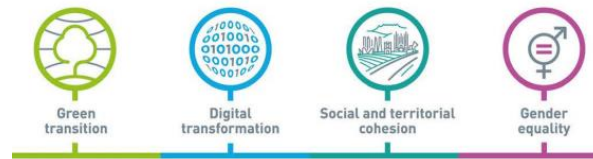
#HRM

#PlanDeRecuperación



EU & National Context: Recovery, Transf. and Resilience Plan

The Offshore Renewables Roadmap in Spain (HRM) is part of the Recovery, Transformation and Resilience Plan in its Component 7: Reform 4 and Investment 1.



4 PILLARS

10 LEVER POLICIES



30 COMPONENTS



212 MEASURES (11

Reform 4 (C7.R4) - Framework for innovation and technological development in renewable energy

This measure shall strengthen the framework for innovation and technological development of a number of renewable energy sources, and contribute to progress towards the goal of 100 % of renewable sources in energy demand. The renewable sources covered in this measure shall include offshore wind energy and biogas. The measure shall also facilitate R&D in renewable technologies.

The measure shall include the publication of a roadmap for offshore wind and other marine energy. The aim of this roadmap is to reduce administrative barriers for the development of

| Number | Measure | Milestone | Name | Timeline | | Description of each Milestone and Objective |
|--------|---------|-----------|---|----------|------|--|
| | | | | Quarter | Year | |
| I 12 | C7.R4 | Milestone | Offshore Wind and other Marine Energy Roadmap | T4 | 2021 | Publication of the Offshore Wind and other Marine Energy Roadmap. |
| I 13 | C7.R4 | Milestone | Entry into force of regulatory measures identified in the Roadmap for offshore wind and other marine energy | T2 | 2023 | Entry into force of key regulatory measures identified in the Offshore Wind and other Marine energy Roadmap to promote research and innovation and support the deployment of floating technologies. Key measures: <ul style="list-style-type: none">Final approval of maritime spatial planning,Improving coordination of network planning and marine strategy, and updating the regulatory framework |
| I 16 | C7.I1 | Milestone | New projects, technologies or installations of marine renewable energy infrastructure. | T3 | 2023 | At least six awarded breakthroughs promoting new projects, technologies or installations of marine renewable energy infrastructure. The six developments should contribute to the implementation of offshore renewable energy projects in Spain. The developments may include SMEs with offshore renewable energy activity which receive grants, loans or equity investments, take part in pre-commercial public procurement, as well as grants awarded directly to offshore renewable energy projects or to a prototype of a new production technology or an offshore renewable energy deployment. |



Plan de Recuperación,
Transformación y Resiliencia

#HRM

#PlanDeRecuperación



Testing capabilities in Spain for Marine energy technologies

According to OES-IEA, Spain would already be the EU country with the largest number of test centres for new marine energy technologies.

Source: 'IEA-OES (2021), Annual Report: An Overview of Ocean Energy Activities in 2020.'

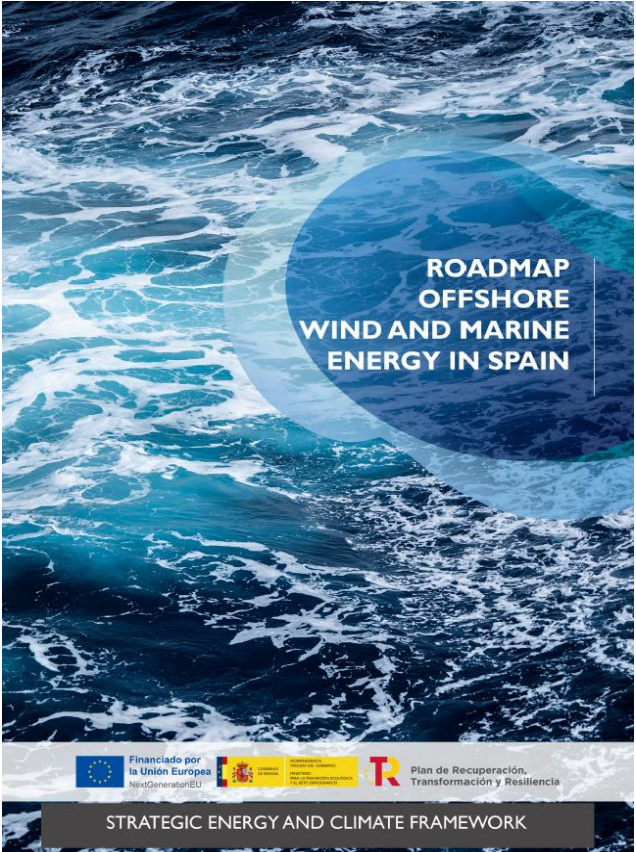
<https://www.ocean-energy-systems.org/documents/40962-oes-annual-report-2020.pdf/>





Plan de Recuperación,
Transformación y Resiliencia

HRM – Offshore Renewable Energy. Targets by 2030 in Spain.



HRM available for download at the link:
<https://www.miteco.gob.es/es/ministerio/planes-estrategias/desarrollo-eolica-marina-energias/>

The 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 |

#HRM
#PlanDeRecuperación





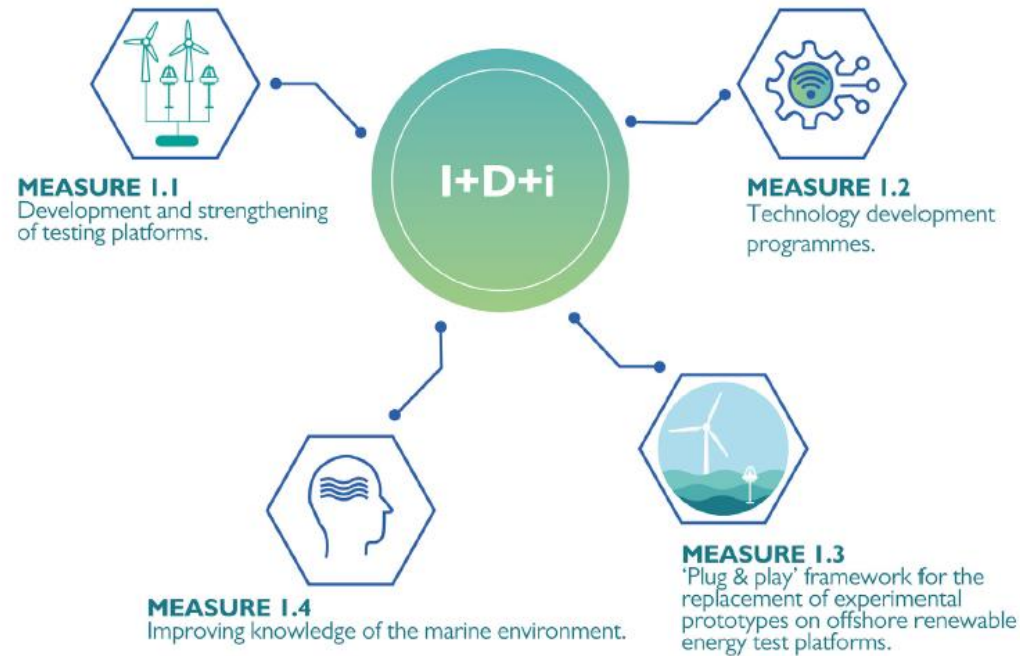
Plan de Recuperación,
Transformación y Resiliencia

#HRM

#PlanDeRecuperación





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. |

€200 m
already foreseen
in the



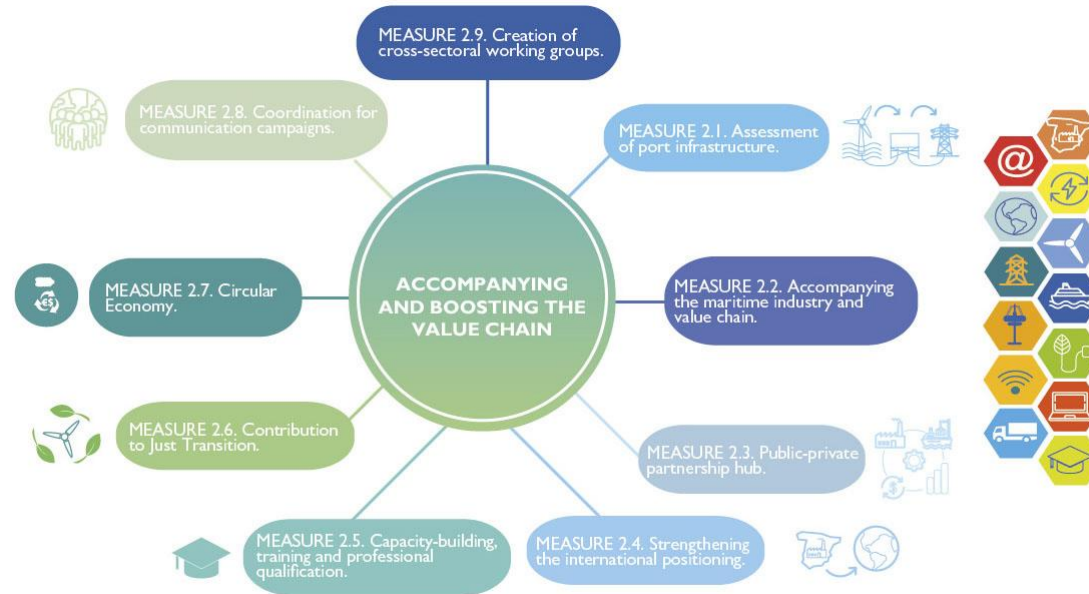


Plan de Recuperación,
Transformación y Resiliencia

#HRM
#PlanDeRecuperación



HRM – Line of Action #2. Accompanying and boosting the value chain



Backing and strengthening the value chain associated with the deployment of offshore renewable energies:

- Port infrastructures.
- Accompanying stakeholders and fostering collaborative hubs.
- Cross-cutting issues: JT, CE, Capacity building, Intersectoral Coordination, Communication.



Images: By courtesy of
Valenciaport and 'Autoridad
Portuaria de Vigo'.

2. Accompanying and boosting the value chain

| | |
|--------------|---|
| MEASURE 2.1. | Assessment of port infrastructure for the construction, assembly or export of components associated with offshore renewable installations. |
| MEASURE 2.2. | Monitoring and accompanying the national maritime industry and value chain for the development of offshore wind and marine energy projects. |
| MEASURE 2.3. | Public-private and private-private partnership <i>hub</i> for the development of offshore renewable energy. |
| MEASURE 2.4. | Strengthening Spain's position in the international context. |
| MEASURE 2.5. | Capacity-building, training and professional qualification in the offshore renewable energy sector. |
| MEASURE 2.6. | Contribution to Just Transition. |
| MEASURE 2.7. | Circular Economy: boosting eco-design and end-of-life value chain. |
| MEASURE 2.8. | Coordination with the sector for communication and public awareness campaigns. |
| MEASURE 2.9. | Creation of cross-sectoral working groups for the development of offshore renewable energy. |



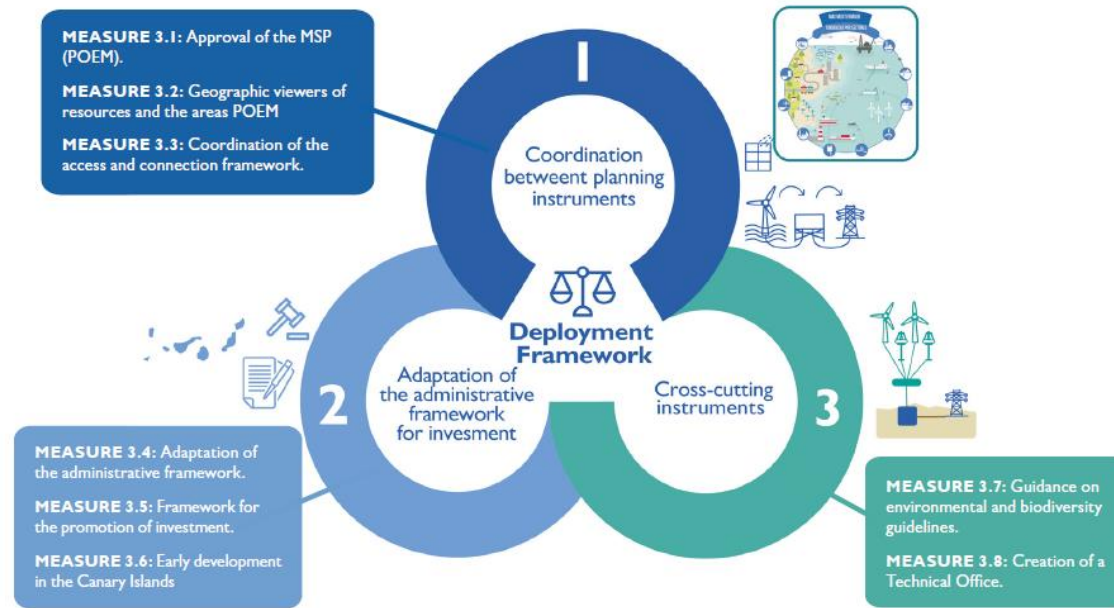
Plan de Recuperación,
Transformación y Resiliencia

#HRM

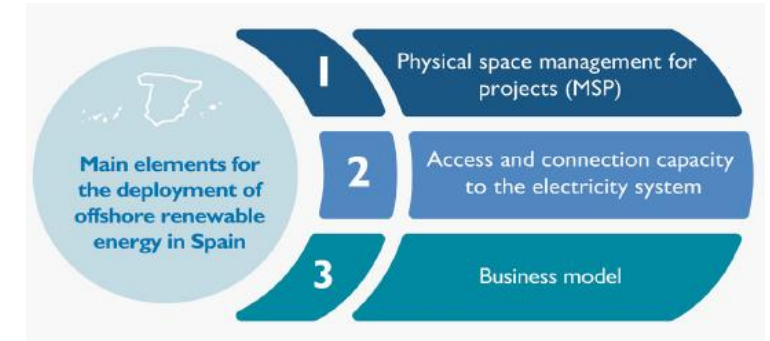
#PlanDeRecuperación







HRM - Line of Action #3. Deployment Framework



Updating the **regulatory framework** to ensure an orderly deployment of offshore renewables, provide certainty for developers and ensure consistency with the electricity system framework.



3. A clear and predictable framework for the deployment of offshore renewable power generation

| | |
|--|---|
| MEASURE 3.1.  | Definition and approval of zoning for the development of offshore wind farms in the MSP (POEM by its Spanish acronym). |
| MEASURE 3.2.  | Preparation and publication of geographic viewers with information on offshore wind resources and marine energy in Spain and the areas established in the MSP (POEM). |
| MEASURE 3.3.  | Coordination of the access and connection framework and new management models for electricity networks. |
| MEASURE 3.4.  | Adaptation of the administrative framework for the authorisation of offshore renewable installations. |
| MEASURE 3.5. | Framework for the promotion of investment in offshore wind and marine energy. |
| MEASURE 3.6. | Early development of offshore wind deployment in the Canary Islands. |
| MEASURE 3.7. | Guidance on environmental and biodiversity guidelines on the implementation of renewable energy in the marine environment |
| MEASURE 3.8. | Creation of a "Technical Office for the deployment of Offshore Renewable Energy" in Spain. |

 = measures to meet the milestone #113

Entry into force of the key regulatory measures identified in the map for Offshore wind and other marine energy, to promote research and innovation, and to support deployment of floating technologies. These key measures shall include: final approval of the Maritime Spatial Planning Plans, better coordination of the grid planning and the offshore strategy and updating of the regulatory framework.

HRM - Social and Environmental Sustainability Approach



Social and
environmental
sustainability



Maritime Spatial planning (POEM) and, specially, the administrative processing of projects (EIA) ensure adequate integration into the environment. In addition, HRM aims to find and take advantage of social and environmental synergies:

In new offshore renewable infrastructures:

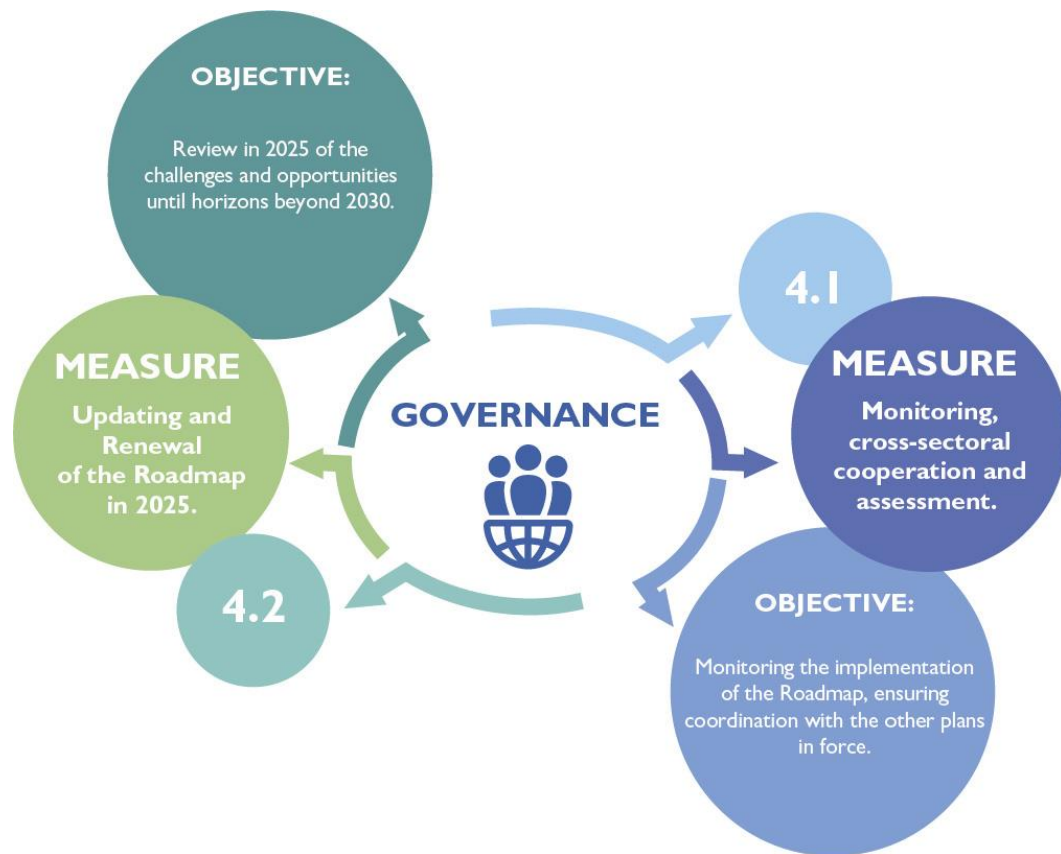
- Monitoring systems to **track climate and sea state** (early warning systems, marine weather forecasts, climate change tracking...)
- Inclusion of **biodiversity monitoring** and tracking elements (birdlife, marine biodiversity,...).
- Potential **additional digital services** derived from the deployment of sensors and telecommunication systems.

Opportunities for integration of local economies and generation of **socio-economic benefits in the environment**, strengthening collaborative actions with the fishing community.

“Spain can develop and demonstrate exportable knowledge and capabilities in the deployment of marine renewables with excellence in social and environmental sustainability.”

This objective of the HRM is transversally present in the measures of the action lines.

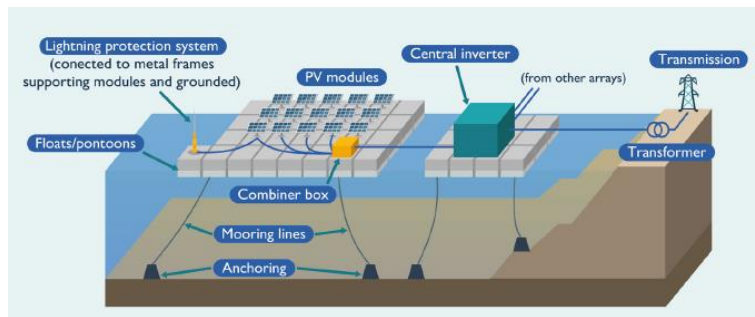
HRM - Line of Action #4. Governance



Implementation of the HRM, coordination with other plans, detection of good practices... **As a basis for continuous improvement in the energy transition.**

Assessment of the compatibility of deployment with the different uses and activities of the marine environment and its good state of conservation.

Review in 2025 of challenges and opportunities for offshore renewables, including floating solar PV, updating measures and targets beyond 2030.



| 4. Governance | |
|---------------|--|
| MEASURE 4.1 | Monitoring, cross-sectoral cooperation and assessment. |
| MEASURE 4.2 | Updating and Renewal of the Roadmap in 2025. |



Plan de Recuperación,
Transformación y Resiliencia

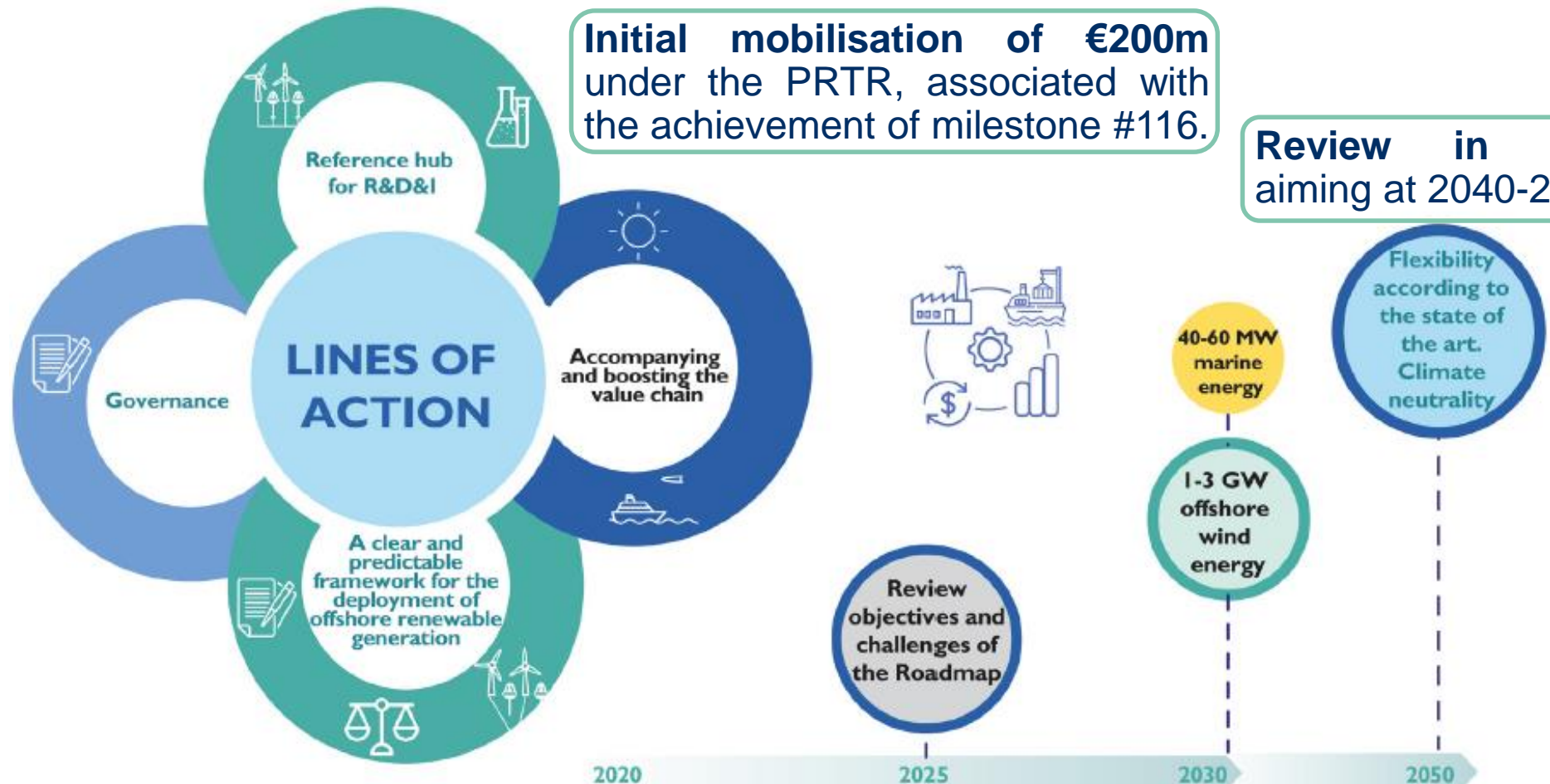
Summary HRM: Overview of action lines and objectives

23 measures in 4 blocks, aligned with the objectives of the Roadmap.

Accomplishment of PRTR milestone #112, setting up guidelines for the achievement of milestone #113, on the adequacy of the regulatory framework.

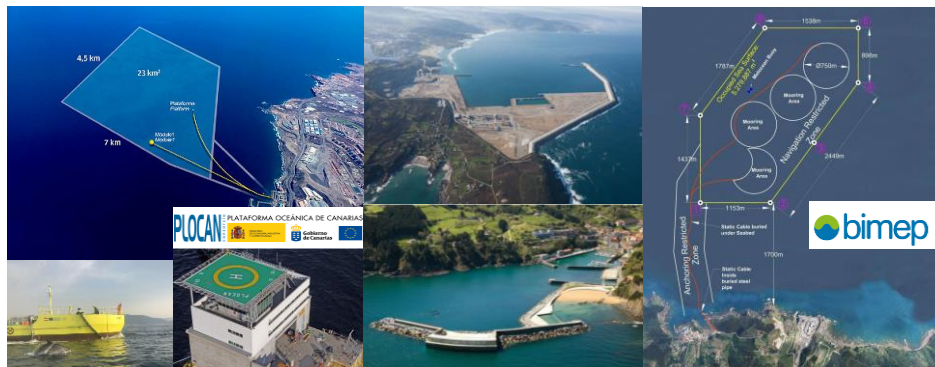
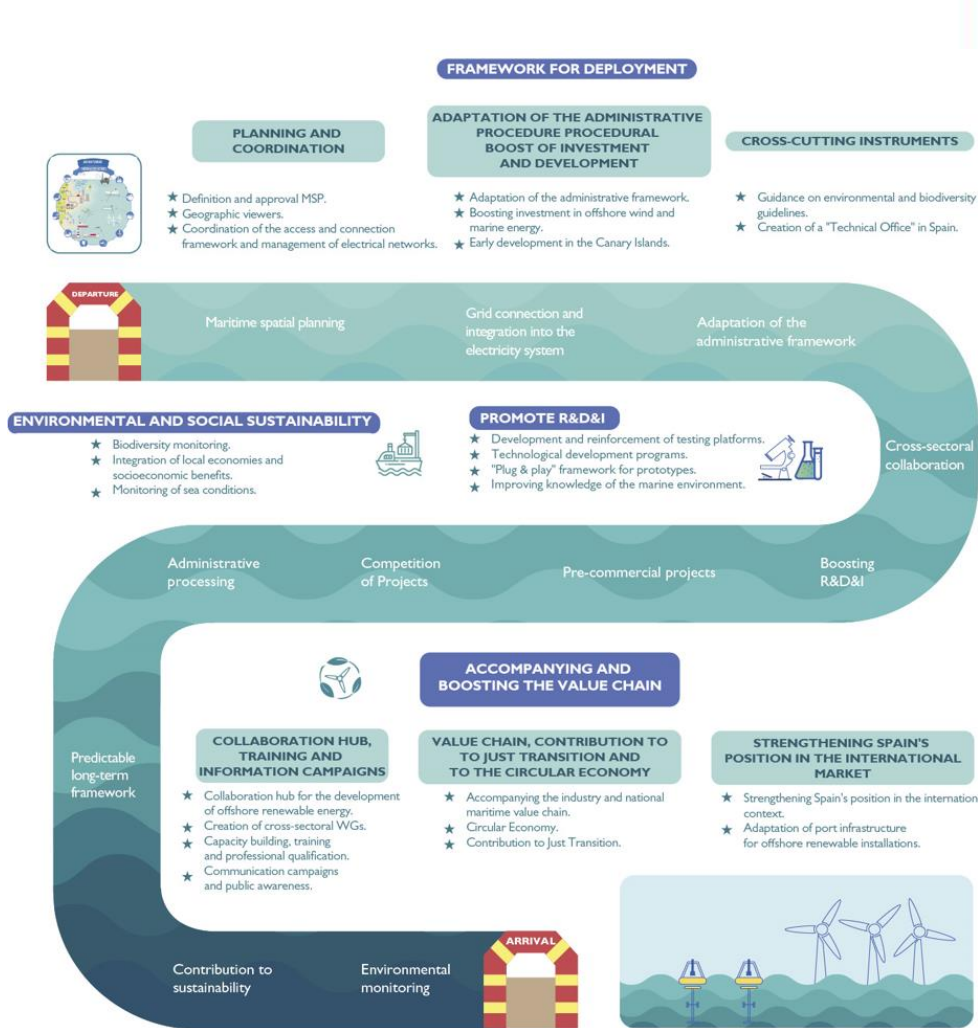
Initial mobilisation of €200m under the PRTR, associated with the achievement of milestone #116.

Review in 2025 aiming at 2040-2050.



#HRM

#PlanDeRecuperación



Outlook for ocean energy technologies in Spain's new Roadmap to 2030

Juan Ramón Ayuso
Head of Wind & Marine Energy Dept.

**THANK YOU
FOR YOUR ATTENTION!**

**Plan de Recuperación,
Transformación
y Resiliencia**

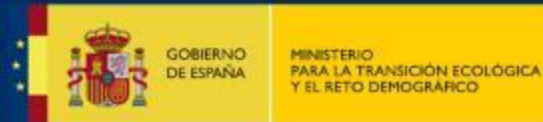


#HRM

#PlanDeRecuperación



Financiado por la Unión Europea
NextGenerationEU



22 March 2022
10 am UTC | 11 am CET

ETIP Ocean & APPA Renovables webinar: Ocean energy in Spain – Targets & funding opportunities

