

SPAIN proposal to join MI 2.0

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Section 1 – Clean Energy RD&D investments.

Clean energy investments are envisaged among the objectives of the policies on research, experimental development and innovation (R&D&I) included in the Spanish Strategy for Science, Technology and Innovation during the period 2021-2027. This constitutes the reference framework in the field of research and innovation and is being articulated in two National Plans for Scientific, Technical and Innovation Research corresponding to the periods 2021-2023 and 2024-2027, respectively.

The strategic lines identified in the Spanish Strategy for Science, Technology, and Innovation, within the specific area of Climate, Energy and Mobility, cover climate change and decarbonization, sustainable mobility and sustainable cities and ecosystems, encompassing each of them different action areas.

Regarding the Next Gen EU funds, Spain has established that around a 40% of investments will be devoted to Ecological Transition. Funds are being mobilised through different initiatives and instruments, such as the Strategic Projects for Economic Recovery and Transformation (PERTE), new public-private collaboration figures, or complementary plans, as a result of the coordination between regional and national administrations.

There are several PERTEs related to clean energy, assigned to different ministries, being the bulk of the aid lines and actions available between 2022 and 2023 and launched through competitive calls to finance the best projects:

- The **PERTE** on the development of an ecosystem for the manufacture of the **Electric and Connected Vehicle**, was the first one approved, in July 2021. It is an initiative of the **Ministry of Industry, Commerce and Tourism** and foresees a total investment of more than 24,000 million euros in the 2021-2023 period, with a contribution from the public sector of 4,300 million euros.
- The **PERTE** on **renewable energies, renewable hydrogen and storage (PERTE EHRA)** is an initiative of the **Ministry for the Ecological Transition and the Demographic Challenge** and was the fourth strategic project approved in 2021. The aim of this PERTE is to underpin the areas associated with the energy transition in which Spain is well positioned, such as renewable energies, power electronics, storage or renewable hydrogen, and to reinforce those areas with less presence.

The measures in Phase I of this PERTE seek to develop and consolidate Research and Development. Projects of applied research, experimental development, testbed, or new capabilities in the R&D ecosystem are included in this Phase.

Specifically, PERTE EHRA contemplates 25 measures actions linked to the development of technology, knowledge, industrial capabilities and business models, covering the entire chain, from knowledge development to commercial deployment. PERTE EHRA Components, considering transformative and facilitating measures, are Component 7 – Innovative Renewables, Component 8 – Storage, flexibility and new management models, Component 9 – Renewable Hydrogen, Component 10 – Just Transition and Component 17 – Complementary R&D&I plans.

The public sector will contribute more than 6,900 million and it is estimated that they will attract private investment of close to 9,500 million.

- The **Circular Economy PERTE** seeks to accelerate the transition towards a more efficient and sustainable production system in the use of raw materials. The planned investments include 492 million euros, and it is expected to mobilize resources of more than 1,200 million by 2026. It is an initiative of the **Ministry for the Ecological Transition and the Demographic Challenge** and was approved last March 2022.
- **Shipbuilding Industry PERTE** is focused on the transformation of its value chain through its diversification towards marine renewable energies and low-emission vessels, its digitalisation, the improvement of its environmental sustainability and the training of its employees. It is an initiative of the **Ministry of Industry, Commerce and Tourism**, approved last March 2022, and foresees a total investment of 1,46 billion euros with a public sector contribution of 310 million euros and a private investment of 1,15 billion euros.
- The **Aerospace PERTE** is an initiative of the **Ministry of Science and Innovation** and plans to mobilize around 4,533 million euros between 2021 and 2025, with a contribution from the public sector of around 2,193 million euros and private investment of around 2,340 million. This strategic project seeks to transform the Spanish aerospace industry in a key player to face the new challenges and opportunities associated with the major transformations planned for the sector. Close collaboration with Portugal is foreseen. It was approved last March 2022.

On the other hand, the Complementary Plans are a new instrument aimed at establishing collaborations with the regional administrations in R&D&I actions. The implementation of the first four programs of joint research (out of a total of 8), has been promoted by the **Ministry of Science and Innovation** and it is included in the Recovery, Transformation and Resilience Plan, with a total of 134 million euros. Among the approved plans one will tackle Energy and Renewable Hydrogen. This program will develop strategic actions based on Hydrogen to transform the current energy paradigm and minimize the emission of greenhouse gases and will be funded with a total of 89 million euros. Another program will tackle Marine Sciences with a line of action within the field of Blue Economy which will focus on the development of renewable marine energies (offshore wind power and ocean energy), decarbonisation of maritime transport and the greening of seaports. It will be funded with a total of 50 million euros.

There are also other R&D&I funding initiatives in clean energy, supported by the **Spanish Research Agency (AEI)** and the **Centre for the Development of Industrial Technology (CDTI)**. The AEI has funded with 296 million euros in 2021, calls for strategic R&D projects on the ecological and digital transition, while CDTI has funded during 2021, with 45 million euros, a **Mission call** on promoting safe, efficient and clean energy for the 21st century and schedules, for 2022 with 125 million euros, Mission calls to strengthen, among others, technological capacities for safe and sustainable energy autonomy (fusion, hydrogen and renewables).

Within the framework of R&D in energy storage, the Ministry for the Ecological Transition and the Demographic Challenge has launched one investment instrument as part of *Component 8: Electrical infrastructure, promotion of smart networks and deployment of energy storage* within the Recovery, Transformation and Resilience Plan, namely the “Aid for innovative energy storage R&D projects within the framework of the Recovery, Transformation and Resilience Plan”.

Section 2 - National Innovation Pathway

The main target is to reach full decarbonisation by 2050. For that purpose, the following policies and strategies in clean energy technologies have been developed, to comply with the European Union’s Innovation pathway in clean energy

- **Strategic Framework on Energy and Climate**

In February 2019, the Government of Spain adopted the Strategic Framework on Energy and Climate through which measures will be implemented to facilitate the change towards an economic, sustainable and competitive model that contributes to mitigating the effects of climate change. This Strategic Framework encompasses three pillars: the Climate Change and Energy Transition Law, the National Energy and Climate Plan (NECP) and the Just Transition Strategy (ETJ).

- **Climate Change and Energy Transition Law – Ley 7/2021, 20th May**

This law aims to ensure that Spain complies with the objectives of the Paris Agreement, adopted on December 12, 2015, signed by Spain on April 22, 2016, and published in the "Official State Gazette" on February 2, 2017; facilitating the decarbonisation of the Spanish economy, its transition to a circular model, so as to guarantee the rational and solidary use of resources; and promote adaptation to the impacts of climate change and the implementation of a sustainable development model that generates decent employment and contributes to the reduction of inequalities.

The Law establishes the following minimum national objectives for the year 2030:

- 23% reduction in greenhouse gas (GHG) emissions compared to 1990
- 42% renewables on the final use of energy.
- 39.5% improvement in energy efficiency.
- 74% renewable energy in electricity generation.

The Law establishes that before 2050 and, in any case, in the shortest possible time, Spain must achieve climate neutrality to comply with internationally assumed commitments.

- **National Energy and Climate Plan (NECP) (January 2020)**

The NECP, together with the Climate Change and Energy Transition Law, the Just Transition Strategy, and the National Climate Change Adaptation Plan, lay the foundations for the modernization of the Spanish economy, the creation of employment, the leadership of Spain in energy and clean technologies, the development of the rural environment, and the improvement of people's health. The NECP defines the objectives for the reduction of greenhouse gas emissions, the penetration of renewable energies and energy efficiency set out in the Law of Climate Change and Energy Transition, as well as other sectoral targets, along with the measures envisaged to achieve them.

- **Just Transition Strategy (February 2019)**

In December 2015 and as a result of COP21, it was established that the implementation of the Paris Agreement must consider the need for a just transition that climate policies will mean for employment. This Just Transition Strategy aims to start from the internationally approved framework and accompany the ecological transition in Spain, and thus achieve the best results in employment generation and justice and social and territorial cohesion in our country. The main objective is, in short, to maximise employment opportunities and minimise the impacts of the energy transition.

This Strategic Framework on Energy and Climate will be accompanied by other initiatives that will help achieve the decarbonization objectives,

- **Hydrogen Roadmap (October 2020)**

This Hydrogen Roadmap aims to identify the challenges and opportunities for the full development of renewable hydrogen in Spain, providing a series of measures aligned with the European Hydrogen Strategy and aimed at boosting investment action, taking advantage of the European consensus on the role that this energy vector should play in the context of green recovery. It includes measures to prepare the regulatory framework and goals for the next decade, which, among them is achieving an installed capacity of electrolyzers of at least 4 GW in 2030.

- **Long Term Decarbonization Strategy (November 2020)**

The Long-Term Strategy (LTS) shows a path toward decarbonisation that will guide investments in the coming years, underpinning the Government's commitment to changing the model towards an emission-free economy. The strategy proposes a path of reducing greenhouse gas emissions in 2050 by 90% compared to 1990, reaching climate neutrality by this year. Along with Spain's objective for national climate neutrality before 2050, LTS establishes other targets such as a 100% renewable power sector or a share of renewables of 97% of the total energy mix. It goes from 334 million tons of CO₂ equivalent in 2018 to a maximum of 29 MtCO₂ eq. in 2050.

- **Energy Storage Strategy (February 2021)**

This Strategy addresses the technical analysis of the different generation alternatives, the diagnosis of the current challenges of energy storage, the lines of action to advance in the fulfilment of the planned objectives and the opportunities that storage represents for the energy system and for the country. The document also quantifies the storage needs to contribute to the decarbonisation of the energy system. The Strategy envisages having a storage capacity of about 20 GW in 2030 and reaching 30 GW in 2050, considering both large-scale and distributed storage.

- **Roadmap for the development of offshore wind and marine energy in Spain (March 2022)**

The objective is to reinforce industrial capacities and the whole value chain of these energies, contributing to European industrial leadership in this field, increasing job opportunities, and generating a value chain throughout the life cycle with a circular economy perspective. The roadmap envisages targets for the development of offshore renewables in Spain by 2030, namely between 1 GW and 3 GW for offshore wind and between 40 MW and 60 MW for marine energy.

- **Roadmap for the promotion of the self-consumption (December 2021)**

The document determines the pathway to meet the challenges and opportunities that present the self-consumption and establishes measures to ensure its deployment in Spain. The roadmap foresees reaching 9.000 MW of self-consumption power installed in 2030 in Spain.

- **Biogas Roadmap (March 2022)**

The Biogas Roadmap focuses on biogas produced by anaerobic digestion and is limited to the treatment of organic matter from different types of waste or materials of agricultural origin. This plan tries to identify the challenges and opportunities for the progressive development of biogas in Spain, providing a series of measures aimed at its promotion, and taking advantage of the European consensus on the role that this energy vector must play in the context of the green deal.

The Ministry for the Ecological Transition and the Demographic Challenge leads the development of policies and strategies on clean energy innovation and reports the information on R&D&D clean energy innovation investments in Spain to the International Energy Agency. A coordination group between this Ministry, the Ministry of Science and Innovation and its two national agencies, the AEI and the CDTI and the Spanish Research Centre on Energy, Environment and Technology (CIEMAT) is already established to coordinate all the actions in RD&D in energy matters, as well as to fulfil the objectives of the National Innovation Pathway.

Section 3 – Strengthened Cooperation

Spain is interested in joining as Core member to the **Green Powered Future** and **Clean Hydrogen Missions**. Spain's focus on these Missions was, in principle, stated in the letter of intent sent to the MI Secretariat last March and has been confirmed by the Spanish Technological Platforms on Energy. These Platforms are public-private structures, led by the industry, in which all the agents of the Spanish Science-Technology-Innovation system interested in a technological field work jointly and in coordination to identify and prioritize technological needs, research and innovation in the medium or long term.

On June, a meeting was organized with them through the Alliance for Energy Research and Innovation (ALINNE) to make them aware of this initiative and ask them for expressions of interest in it. ALINNE, whose Secretariat is hosted by CIEMAT, is a structure managing the 12 Spanish Technological Platforms on Energy, being its mission the strategic analysis of R&D&I that facilitates an energy transition with high development value (national, regional, etc.) and therefore, acting as another mechanism for coordination and engagement with MI. From the analysis of the expressions of interest received, it has been concluded that Green Powered Future and Clean Hydrogen are of the highest interest for all platforms, followed by Net-Zero Industries, Urban Transitions, Integrated Biorefineries, and Carbon Dioxide Removal Missions.

On the other hand, a thorough analysis has been made of the Mission Statements for Green Powered Future and Clean Hydrogen Mission and Spain fulfils the commitments established in them, in accordance with the National Innovation Pathway described in Section 2.

Section 4 – Active Participation

A. Resourcing the MI Secretariat

Spain will acquire the commitment to contribute to the MI Secretariat hiring personnel based at one of their National Institutes belonging to the Ministry of Science and Innovation.

B. MI Governance

The Ministry of Science and Innovation will take the lead in MI and will cooperate with other Ministries and Institutions of the Government as is currently doing so. It is important to highlight the cooperation

with the Ministry for the Ecological Transition and the Demographic Challenge, responsible for energy policy in Spain.

Spain has already appointed a Senior Official, Dr. Teresa Riesgo Alcaide, Secretary General for Innovation

C. Minister

Name: Diana Morant Ripoll

Title: *(Hon, Minister ...)* Minister

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Ministry: Ministry of Science and Innovation

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**The MISec will follow-up to request a picture to be posted online.*

D. Senior Representative

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