



SHYNE, the largest consortium to promote renewable hydrogen in Spain, is born

- The **SHYNE** (Spanish Hydrogen Network) project is the **largest multisectoral consortium in Spain**, created to promote the decarbonization of the economy through **renewable hydrogen**.
- SHYNE will deploy **projects in ten autonomous communities** and have a **total investment of €3.23 billion euros** that will serve to develop more competitive technologies and evolve both the Spanish industry and its infrastructure towards decarbonization, generating **more than 13,000 jobs**.
- The presentation ceremony was attended by the **Secretary of State for Energy, Sara Aage-sen, and the Secretary General for Industry and SMEs, Raül Blanco**. It brought together representatives of the **33 entities that make up this ecosystem** at Campus Repsol, the headquarters of the multi-energy company.
- **Repsol leads the consortium, while six other companies, each a benchmark in their sector - Alsa, Bosch, Celsa, Enagas, Scania, and Talgo** - act as promoters of the initiative. The other 26 partners - associations, public and private companies, technology centers, and universities - will assume the role of project collaborators.
- Among the consortium's objectives is the ambition to reach an **installed capacity of 500 MW in 2025 and 2 GW in 2030**. This is half of the target set in the Hydrogen Roadmap published by the Spanish Government.
- In addition, **projects will be promoted throughout the value chain**, including installing renewable generation and **stimulating the different industrial uses of hydrogen** through a strong sectoral integration. It will also promote the use of hydrogen in all transportation segments, through the production of synthetic fuels and the creation of an infrastructure with at least 12 hydrogen filling stations by 2025.
- The consortium will be a national collaboration network that will support all projects and manage the knowledge and research of pioneering technologies, promoting competitiveness and the creation of quality employment. The commitment of the participating entities and the sum of their capabilities will **place Spain at the technological forefront, as one of the powers in the renewable hydrogen economy in Europe**.

The SHYNE (Spanish Hydrogen Network) project, the largest renewable hydrogen consortium in Spain, made up of 33 entities from different sectors, was presented today at Campus Repsol, the headquarters of the multi-energy company. It brings together 22 companies and 11 associations, technology centers, and universities under the leadership of Repsol with the aim of promoting renewable hydrogen projects in





all areas of the Spanish economy and, thus, stimulating rapid and effective decarbonization through this energy vector that is considered one of the keys to the energy transition.

SHYNE aspires to be a benchmark project in Europe, structuring new opportunities throughout the value chain, through collaboration between companies that pursue a common goal: decarbonizing their activity, and joining efforts and investments to achieve it. To this end, the project has six promoting partners, in addition to Repsol. All are leading companies in their sectors: Alsa, Bosch, Celsa, Enagas, Scania, and Talgo.

The projects grouped in SHYNE will involve an accumulated investment of €3.23 billion. This investment will enable the implementation of different initiatives for the production, distribution, and use of renewable hydrogen in the industrial sector, in transport, as well as other applications, and the development of pioneering technologies and acceleration if the deployment plans for this gas. The overall project is expected to generate more than 13,000 jobs.

The Secretary of State for Energy, Sara Aagesen, participated in the presentation ceremony, pointing out that "renewable hydrogen is a national project. It is the piece of the puzzle we were missing to move towards the decarbonization of the economy, achieve climate neutrality in 2050, and advance in the development of knowledge, 'made in Spain' technology, and the consolidation of the business fabric and industrial value chains". Aagesen also highlighted the important role of hydrogen in the Strategic Project for the Recovery and Economic Transformation of Renewable Energies, Renewable Hydrogen, and Storage (PERTE ERHA) and pointed out that the SHYNE initiative "is set within the Government's integrative country project", which "in line with the objectives of PERTE ERHA will promote the development of renewable hydrogen clusters" and that "it is a tractor project for the industrial and technological fabric, with a global approach that brings together large, medium, and small companies." For his part, the Secretary General of Industry and SMEs, Raül Blanco, closed the event by emphasizing that "Spain has a unique opportunity and all the capacity to lead the hydrogen industrial value chain in Europe. The SHYNE project is a great example of this. We celebrate the launch of this project and the participation of 22 companies and 11 associations, technology centers, and universities that demonstrate the unique industrial and technological capacity that Spain has."

11 associations, technology centers and universities are collaborating partners in the projects. These include the Spanish Hydrogen Association (AEH2), the National Center for Hydrogen and Fuel Cell Technology Experimentation (CNH2), the Spanish Society of Ceramics and Glass, the Spanish National Research Council (CSIC), the Automotive Technology Center of the Region of Galicia (CTAG), the Foundation for the Development of New Hydrogen Technologies in the Region of Aragon (FHa), the Energy Research Institute of the Region of Catalonia (IREC), TECNALIA, and Cidetec, as well as the universities of Castile-La Mancha and Alicante.

The consortium is made up of 22 companies from different sectors, such as Iberia and Balearia, leaders in air and maritime transport, respectively. The public company Navantia and PYMAR, a company that brings together small and medium-sized private shipyards in Spain. Steel companies such as Sidenor, AMES Group, and Tubacex. Calvera, which designs gas storage and distribution systems. Electricity production companies such as BBE. Engineering companies for electric mobility, such as EPowerlabs. Primafrío, specialized in refrigerated transport; the leading engineering company in marine solutions, Wartsila. The technology companies Zigor, which develops power electronics systems, and Magrana, specialized in innovative solutions for industry. Also, DYPAM, a spin-off of the University of Castile-La Mancha that is focused on designing and processing advanced materials. The synergies between these



entities through the SHYNE consortium will drive coordinated industrial developments throughout the hydrogen value chain.

A project for the country aligned with the Government's objectives

Spain is in a privileged position compared to other countries to capture the opportunities generated by the new renewable hydrogen economy thanks to the great availability of solar and wind resources, as well as the industry's own capacity to adapt to a new economy around the hydrogen value chain.

The SHYNE project aims to generate an ecosystem that connects the large regional hydrogen initiatives already underway, such as the Basque Region Hydrogen Corridor (BH2C), the Hydrogen Valley of the Region of Catalonia, and the Hydrogen Valley of the Region of Murcia. In addition, SHYNE will promote the creation of two new innovation hubs in the regions of Castile-La Mancha and Madrid. Their objective will be the advancement of competitive technologies that are under development, such as photoelectrocatalysis or solid oxide electrolysis (SOEC). These technologies will help the country to maintain technological sovereignty in this new energy vector.

A knowledge management center will also be created in Madrid to coordinate cross-cutting actions and position the participating technology centers and universities as centers of reference in Europe. In this way, an efficient network will be created that will capture the synergies between production poles, industrial centers, and other hydrogen consumers, ensuring the competitiveness of the renewable gas and avoiding the transfer of additional costs to end users.

The SHYNE project is perfectly aligned with the objectives outlined by both the European Union and the Spanish Government. The latter, in the Hydrogen Roadmap published in October 2020, has set the target of reaching 4 GW of capacity by 2030. For its part, the "Spain Can Plan" supports the creation of this type of consortia, especially those that are multisectoral and integrate the entire value chain and that promote public-private collaboration and collaboration with small and medium-sized companies, as well as with research centers to boost the hydrogen economy.

In turn, SHYNE is aligned with the Strategic Projects for the Recovery and Economic Transformation of Renewable Energies, Renewable Hydrogen and Storage (PERTE ERHA) of the Recovery, Transformation and Resilience Plan launched by the Ministry for Ecological Transition and the Demographic Challenge last December.

A strategic commitment to renewable hydrogen

Renewable hydrogen is one of the pillars of Repsol's strategy to achieve zero net emissions by 2050. The company presented its [renewable hydrogen strategy](#) last October, with which it aims to lead production in the Iberian Peninsula and play a leading role in Europe. To this end, it will use all available technologies and is developing, together with Enagás, a proprietary technology called photoelectrocatalysis that will be capable of producing hydrogen from water and sunlight.

Repsol's industrial complexes, which are currently undergoing a transformation process to become multi-energy hubs, are true nerve centers for renewable hydrogen initiatives and will play a key role in SHYNE. They will combine the production and use of this gas to transform it into products with a low, zero, or a



negative carbon footprint, such as sustainable fuels and materials for construction or healthcare, among others.

The synergies between the companies collaborating in SHYNE will support coordinated industrial developments throughout the hydrogen value chain, maximizing investment capacities. This premise will be key to achieving decarbonization in the most efficient manner and at the lowest cost, mainly in sectors where today electrification is not a solution, such as the steel sector in which Celsa develops its activity, or in transport segments such as aviation and maritime, railway, or heavy long-distance transport, with Iberia, Balearia, Talgo, and Alsa as benchmarks. Thus, the challenge of decarbonization becomes a great opportunity to generate wealth and technological and industrial development in Spain through this new renewable hydrogen economy.

Statements

- CEO of Repsol Josu Jon Imaz: "Spain has the opportunity to play a very relevant role in the European renewable hydrogen field. SHYNE will allow us to unite our competences and drive the capabilities we need from small and medium-sized companies to accelerate the decarbonization of the Spanish economy together."
- Chairman of the Alsa Grupo Jorge Cosmen: "For Alsa, it is a great satisfaction to be a promoting partner of the SHYNE project led by Repsol, as we firmly believe in the development and promotion of hydrogen as a key technology in the sustainable mobility of the future. Within this process of transition towards zero emission fleets that Alsa wants to lead, this month we plan to incorporate the first hydrogen-powered bus to one of our operations in a stable and permanent way. This is a first step in the common objective shared by society, administrations, and operators to move towards a more sustainable mobility, which contributes to a higher quality environment in our cities."
- Director of Strategy and New Businesses of the Bosch Group in Spain and Portugal Emma Nogueira: "This collaboration agreement between different actors is of special interest for both Bosch, as a company, and for Spain as a country with a great potential for the generation of renewable energy."
- CEO of CELSA Group Francesc Rubiralta: "At CELSA Group, the European leader in circular steel production, we have identified renewable hydrogen as a key element to achieve our strategic goal of being *net positive* by 2040. We are already a low-emissions company in our sector, but we are working to achieve zero net carbon emissions in our business. Being part of this project gives us an opportunity to do so and also to contribute to the development of the ecosystem necessary for Spain to become a European leader in the production and consumption of green hydrogen."
- CEO of Enagas Marcelino Oreja: "Companies must be the driving force for change that allows us to advance in the process of decarbonization of the economy and in a fair and inclusive energy transition. To really drive the deployment of renewable hydrogen at this early stage, collaboration between companies, institutions, and administrations is essential. In line with this, Enagas participates in more than 30 hydrogen projects throughout Spain, in collaboration with other partners".
- Director of Communication and Marketing of Scania Ibérica Sonie García: "This agreement is further proof of Scania's commitment to drive change towards sustainable transport from different technological fronts. Scania sees green hydrogen as an important player in medium- to long-term electrification. At Scania, we are convinced of the importance of working in strong partnerships and with other companies in order to slow down climate change."
- Chairman of Talgo Carlos Palacio: "For Talgo, being part of SHYNE means reinforcing our commitment to decarbonized mobility, based on hydrogen and with a technology and industrial capacity that we can lead and export around the world. The hydrogen technology applied to Talgo trains is





currently in the assembly phase in a test train, and we will carry out on-track tests starting in March of this year. I believe that, as a company, we are committed to putting our country at the forefront in the new world that renewable hydrogen offers us."

Companies that are part of SHYNE

Promoting partners

Repsol
Alsa
Bosch
Celsa
Enagás
Scania
Talgo

Collaborating partners

Asociación Española de Hidrógeno (AEH2)
Centro Nacional de Experimentación de Tecnologías de Hidrógeno y Pilas de Combustible (CNH2)
Sociedad Española de Cerámica y Vidrio
AMES Group
Balearia
BBE
Calvera
DYPAM
EPowerlabs
Iberia
Magrana
Navantia
Primafrío
PYMAR
Sidenor
Tubacex
Wartsila
Zigor

Centro Superior de Investigaciones Científicas (CSIC)
Centro Tecnológico de Automoción de Galicia (CTAG)
Fundación Hidrógeno Aragón
Fundación Instituto de Investigación de la Energía de Cataluña (IREC)
TECNALIA
Cidetec
Universidad de Castilla-La Mancha
Universidad de Alicante