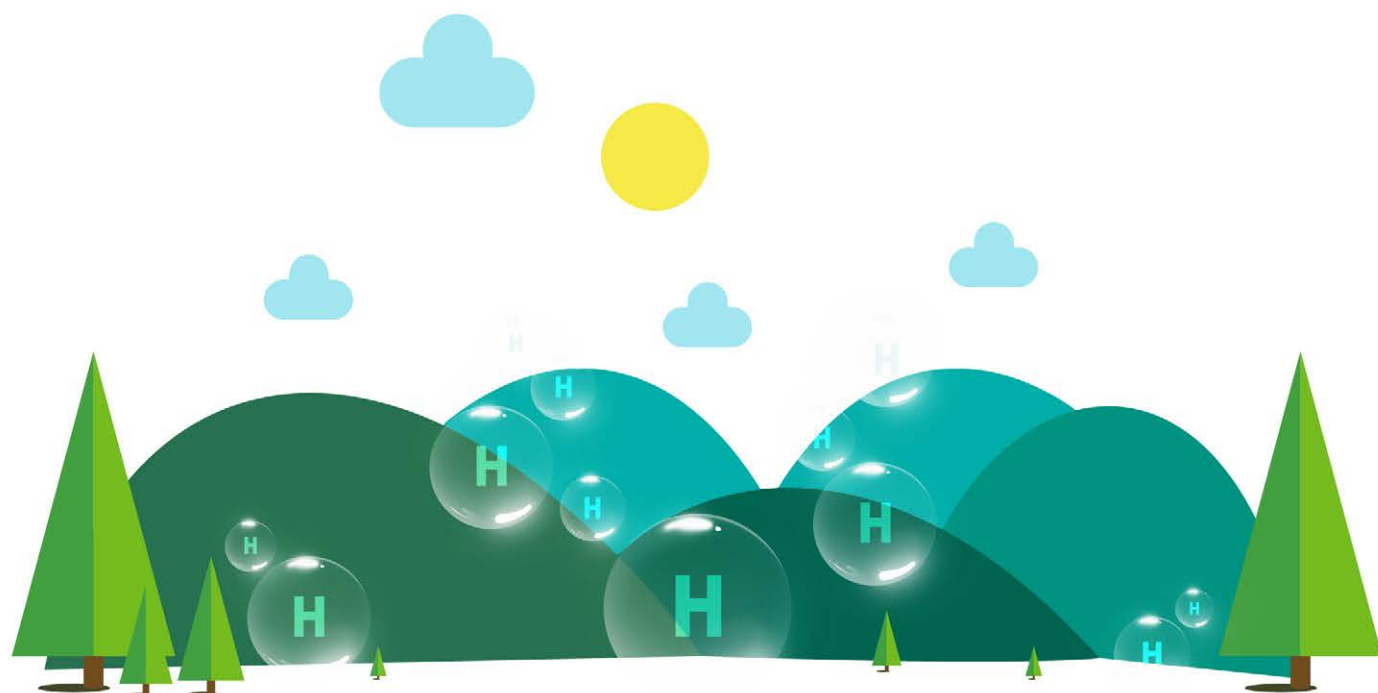


HYDROGEN VALLEY CATALONIA

#H2ValleyCAT



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WHY CREATE A HYDROGEN VALLEY?

The Vall de l'Hidrogen de Catalunya (Hydrogen Valley of Catalonia) is the country's response to the global challenge of the energy transition. The aim is to contribute to carbon neutrality, business competitiveness and the welfare of individuals by creating and consolidating an ecosystem based on the value chain of renewable hydrogen.

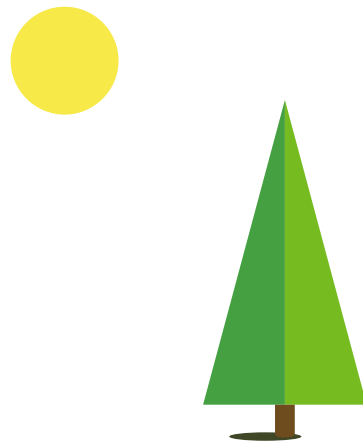
All international organisations are firmly committed to decarbonisation and the use of renewable energies; territories that are not will lose competitiveness and wealth. Aware of this, the Hydrogen Valley of Catalonia has for months been working on expanding one of the key vectors in the new energy era, namely renewable hydrogen, which will be used as a raw material and heat source in industries such as the chemical industry, for mobility, for residential purposes and for fuel.

In the specific case of the petrochemical complex of Tarragona, the survival of a hub that generates 10,500 direct and indirect jobs and a further 35,000 induced employment opportunities, and which is responsible for a quarter of the chemical production in Spain, is inextricably tied to decarbonisation and the implementation of renewable hydrogen.

THE OBJECTIVES

Creating strategic alliances, attracting investment and talent for the economy and society of renewable hydrogen and strengthening the portfolio of projects are some of the priorities of the Valley. Such initiatives with hydrogen as the central element are already present in ambits such as transport, the circular economy, infrastructure, research and training.

The Hydrogen Valley of Catalonia is also working to obtain Next Generation EU funding in the coming months so that the best projects can obtain the funds needed to develop. In fact, the Catalan Government has already put forward the Valley as one of its key initiatives for obtaining this funding. Particular value is perceived in its capacity to transform the current manufacturing model in Catalonia into one that is more prosperous, inclusive, resilient and sustainable and to increase its competitiveness and potential for developing the country.



STRUCTURE

More than 120 public and private organizations are involved in this collaborative and multi-stakeholder platform. It has the express support of the Catalan Government, which has identified it as one of its 27 driver projects for economic recovery, and its key players are Enagás and Repsol.

Under the coordination of the Universitat Rovira i Virgili, institutions such as the Port of Tarragona, the Chemical Business Association of Tarragona, the Provincial Government of Tarragona and various town and city councils also strengthen this initiative that has emerged in Southern Catalonia around one of the most important petrochemical hubs in southern Europe and on a strategic transport intersection for the future mobility of hydrogen. The initiative's importance can also be gauged by the fact that it has now become a national strategy with projects throughout the region and the participation, for example, of the Barcelona Metropolitan Area

Another crucial aspect of the Hydrogen Valley of Catalonia is the knowledge, science and technology alliance involving the URV, the Institute of Chemical Research of Catalonia (ICIQ), the Catalonia Institute for Energy Research (IREC) and the Eurecat Technology Centre, all of whom work together on research into hydrogen.

PROJECTS



The Hydrogen Valley of Catalonia is currently responsible for more than thirty projects. The following are some examples:

Green Crane by Enagás is working towards the mass production of renewable hydrogen for use in the chemical sector within the petrochemical complex of Tarragona in order to increase industrial capacity to supply a network of hydrogen stations and to inject hydrogen into the natural gas network.

In transport, Reus City Council will adapt its cleaning vehicles to be powered by hydrogen.

In the circular economy, SIRUSA will produce hydrogen on the basis of the energetic valorisation of urban waste.

EMATSA will reinstate the installation and demonstration of molten carbonate fuel cells in reformation and electrolysis mode for generating green hydrogen based on biogas for different uses in industry and mobility.

Hera Serveis Integrals d'Hidrogen will embark on a project consisting of the implementation of 15 installations that will make up a complete system for the renewable generation of green hydrogen.

AN EXTREMELY SOLID FOUNDATION

The Hydrogen Valley of Catalonia derives from the earlier work of the Green Hydrogen Platform Southern Catalonia, created in October 2020 with the founding aim of bringing together all stakeholders involved in hydrogen value chain and promoting the knowledge, production and implementation of this alternative energy source. At that time there were already over fifty stakeholders (including businesses, government entities, research institutes and private individuals) who under the coordination of the Universitat Rovira i Virgili participated in setting up the Platform.

The project emerged as a territorial response to the strategy launched by the European Commission in the summer of 2020 to reduce polluting emissions and achieve a carbon neutral Europe by 2050.

The region was identified as having a level of energy consumption and production, which in turn highlighted the need to create social, economic and environmentally sustainable value through the implementation of renewable hydrogen as a key vector in the energy transition, an issue that became evident in the studies carried out for the seminars on the climate emergency and energy transition that were held at the Universitat Rovira i Virgili in October 2019.

Since then, the Hydrogen Valley of Catalonia has taken over from the Platform as a consolidated national strategic initiative. It comprises 60 companies in addition to various organisations, public administrations, associations, clusters, chambers of commerce and knowledge and research centres.



HYDROGEN, THE ENERGY VECTOR

Hydrogen is a versatile and non-polluting energy vector. Hydrogen can be used to generate electrical, mechanical and thermal energy, with high yields and zero CO₂ emissions because its only by-product is water.

Hydrogen, which is highly abundant on Earth, is mostly found in water or in organic material, with very little being present in the air. Currently it is consumed in industrial processes, above all in the chemical sector and in refineries, and it is obtained from fossil fuels. This is known as grey hydrogen. The current situation makes it essential to strengthen the production of renewable hydrogen, which is obtained from water and the action of electricity produced from renewable sources.

A process known as electrolysis separates the oxygen from the hydrogen, which can be stored and distributed for subsequent use. The fact that it can be stored is key for taking advantage, for example, of excess wind or solar energy, which can only be generated in the right meteorological conditions and when there is no more demand. In addition to being used in batteries to generate electricity, when it is used as a fuel source for combustion (it has high energy density which makes it ideal for generating heat in processes that require it) it always results in energy and water. Therefore, it does not generate CO₂ at any point in its cycle. It is completely clean.

Consequently, hydrogen has to be the energy source for a clean industrial sector (chemistry, pharmaceuticals, metallurgy, construction, etcetera) and for clean transport, in particular heavy transport, by air, sea or land. In this ambit, the advantage is that storing hydrogen and converting it into electricity through fuel cells gives vehicles greater autonomy than current petrol and diesel cars.

Little by little, as its cost starts to fall, all helped by commitments at all levels of government, by increased taxation of polluting energies and by increased demand for hydrogen, it will start to penetrate all areas of the economy and even the home. The fact is that the principal characteristics of hydrogen, namely its sustainability, its potential for storage, its versatility and its transportability, all make it the fuel of the future.



MEMBERS OF THE HYDROGEN VALLEY OF CATALONIA



COMPANIES

Acciona Energía, ACAS, Obras e Infraestructuras, Air Liquide Ibérica de Gases, Alestis Consulting, Àlter Group Renovables, ANATRAC, Aplicacions de la Catàlisi (APLICAT), Arcamo Controls, Barcelona Centre Logístic Catalunya (BCL), BASF, Bergé Gefco, BonÀrea, Carbonell Figueras, Carburos Metálicos, CEPESA, COMSA Renovables, Concom, Construccions Metálicas Cerezuela, CTRL4 Enviro, Dow Chemical Ibérica, Ebre Qualitat, Ecológica, Ibérica y Mediterrania, Econotermia, Enagás, Endesa, EVARM Innovacion, Evobus Ibérica, Fluor Plant Engineering, FRAMATOME, FuelCell Energy, Gabinet Gaudí, Green Inception, Grup Balfegó, Grup Carles Gestió i Projectes, Grup Navec Servicios Industriales, H2&Biogas Technology, H2X, HERA, HIFE, Iberdrola, INDOX Energy Systems, IQOXE, Messer Ibérica Gases, Naturgy, Newton Ingenieros, Productora Elèctrica Urgellenca, Rayo Bioenergía, REPSOL, Ros Roca Grup, Schwartz-Hautmont Construcciones Metálicas, SENER, SOMFETS, Statkraft Development Spain, SUN Photovoltaic Systems, SunSystems, Technip Iberia, Técnicas Reunidas, Empresa Plana, Toyota, Tradebe, Veolia Serveis, Vilaseca Consultors, Vopak Terquimsa and Water Global Access.

ASSOCIATIONS AND CLUSTERS

AGRUCAES (Associació de Gasolineres de Catalunya), Associació Clúster de Materials Avançats de Catalunya, AEQT, Associació Eòlica de Catalunya (EolicCAT), Clúster Bionergia de Catalunya, Clúster de la Indústria de l'Automoció de Catalunya (CIAC), Col·legi d'Enginyers Industrials de Catalunya (Tarragona region), Col·legi d'Enginyers Tècnics Industrials de Tarragona, Federació d'Autotransport de Tarragona, Grup d'Interès per la Sostenibilitat Urbana (GIxSU), Junts per Catalunya Camp de Tarragona, Chambers of Commerce of Valls, Reus, Tarragona and Tortosa.

PUBLIC ADMINISTRATIONS AND COMPANIES

Councils of Amposta, Ascó, Calafell, Cambrils, Falset, Flix, Móra d'Ebre, Reus, Riba-roja d'Ebre, Salou, Tarragona, Tortosa, Valls, Vandellòs i l'Hospitalet de l'Infant, Vila-seca and el Vendrell; Agència de Residus de Catalunya, Autoritat Portuària de Tarragona, Autoritat Portuària de Barcelona, Consell Comarcal de la Conca de Barberà, Consell Comarcal de la Ribera d'Ebre, Consell Comarcal del Baix Camp, Consell Comarcal del Baix Penedès, Consell Comarcal del Montsià, Consell Comarcal del Priorat, Consorci de Polítiques Ambientals de les Terres de l'Ebre, Diputació de Tarragona, EMATSA, Direcció General de Transports i Mobilitat (Gencat), Serveis Territorials d'Educació del Camp de Tarragona (Gencat), Mancomunitat d'Incineració de Residus Urbans (SIRUSA), Organisme Autònom de Desenvolupament de la Conca de Barberà, Reus Mobilitat i Serveis, Reus Transport Públic, SECOMSA.

RESEARCH AND KNOWLEDGE CENTRES

Fundació Formació i Treball, Fundació Eurecat, Fundació I2cat, Institut Català d'Investigació Química (ICIQ), Institut de Recerca en Energia de Catalunya (IREC), Fundació REGO (CESDA), Institut de Recerca i Tecnologia Agroalimentàries (IRTA) and Universitat Rovira i Virgili.



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