

GREEN HYSLAND

GREEN HYSLAND – DEPLOYMENT OF A H₂ ECOSYSTEM ON THE ISLAND OF MALLORCA



Project ID	101007201
PRR 2024	Pillar 6 – H ₂ valleys
Call topic	FCH-03-2-2020: Decarbonising islands using renewable energies and hydrogen – H ₂ islands
Project total costs	EUR 23 717 171.38
Clean H ₂ JU max. contribution	EUR 9 999 999.50
Project period	1.1.2021–31.12.2025
Coordinator	Enagás Renewable SL, Spain
Beneficiaries	Acciona Generación Renovable SA, Agência Regional da Energia e Ambiente da Região Autónoma da Madeira, Ajuntament de Lloseta, Asociación Chilena de Hidrógeno, Asociación Española del Hidrógeno, Asociación Ibérica de Gas Natural, Hidrógeno y Gas Renovable para la Movilidad, Association Marocaine pour l'Hydrogène et le Développement Durable, Autoridad Portuaria de Baleares, Baleària Eurolíneas Marítimas SA, Calvera Hydrogen SA, Centro Nacional de Experimentación de Tecnologías de Hidrógeno y Pilas de Combustible Consorcio, Commissariat à l'énergie atomique et aux énergies alternatives, Consultoria Tecnica Naval Valenciana SL, Diktyo Aeforikon Nison Toy Aigaiouae, Empresa Municipal de Transports Urbans de Palma de Mallorca SA, Enagás SA, Energy BV, Energy Co-operatives Ireland Ltd, European Marine Energy Centre Ltd, Fédération européenne des agences et des régions pour l'énergie et l'environnement, Fundación para el Desarrollo de las Nuevas Tecnologías del Hidrógeno en Aragón, Gemeente Ameland, HyCologne GmbH, HyEnergy Consultancy Limited, HyEnergy TransStore BV, Instituto Balear de la Energía, Power to Green Hydrogen Mallorca SL, Redexis Gas Servicios SL, Redexis Infraestructuras SL, Redexis SA, Stichting New Energy Coalition, Universidad de La Laguna, Universitat de les Illes Balears, University of Galway

<https://greenhysland.eu/>

PROJECT AND GENERAL OBJECTIVES

Green Hysland is developing all the infrastructure the island of Mallorca (Spain) needs to produce and consume at least 330 t of green hydrogen from newly built photovoltaic plants per year. Green hydrogen will have multiple applications on the island: a fuel supply for a fleet of fuel cell buses and other vehicles, the generation of heat and power for commercial and public buildings, a new hydrogen refuelling station (HRS) and injection into the island's gas pipeline network. The project includes the development of a roadmap to 2050 in Mallorca and activities to replicate the experiments on other islands and at other locations, including Madeira (Portugal), Tenerife (Spain), the Aran Islands (Ireland), Greek islands, Ameland (Netherlands), Chiloé Island (Chile) and Morocco. The tools developed within the project are expected to be useful for other territories, especially isolated ones, interested in replicating the project model.

NON-QUANTITATIVE OBJECTIVES

Green Hysland has been diligent in its dissemination efforts, employing various channels to reach a wide array of stakeholders. The project has organised a conference and 10 workshops to facilitate direct engagement and knowledge sharing. In addition, Green Hysland has issued 25 press releases and produced 82 non-scientific and non-peer-reviewed publications, making its work accessible to a broader audience.

In the digital sphere, the project has leveraged social media platforms extensively, with 752 posts to date, alongside the establishment of a dedicated website. Furthermore, Green Hysland has conducted communication campaigns using radio and TV. Involvement in conferences, workshops and other events, totalling 87 participations, has facilitated direct interaction and networking opportunities.

In collaboration with other EU projects, the project has engaged in 11 joint activities to amplify its reach and impact. Dissemination efforts have been tailored to engage specific audiences, with a focus on the scientific community, industry stakeholders, civil society, policy-makers, media representatives, investors, customers and other interested parties. This targeted approach has yielded significant traction, ensuring the project's objectives and outcomes are effectively communicated to and understood by diverse stakeholders.

PROGRESS AND MAIN ACHIEVEMENTS

- The green H₂ production plant located on Cemex land in Lloseta has been built, and site assembly testing has been carried out.
- The engineering tasks associated with the HRS have been finalised but some issues arose with the construction, which is therefore delayed.

- The H₂ pipeline and H₂ injection point for the island's natural gas network operated by Redexis are under construction.
- The 100 kWe fuel cell that will supply electricity to the maritime station of Ports de Balears is progressing and a procurement has been launched.
- The 50 kWe combined heat and power (CHP) system to be located in the Iberostar Bahía de Palma (four-star) hotel, which will cover part of the hotel's energy demand, is progressing.
- The five hydrogen buses for the Empresa Municipal de Transports de Palma (EMT) city bus fleet have been delivered and are on-site.
- The search for car rental companies willing to incorporate H₂ vehicles into their fleets is ongoing.

In addition, important progress has been made in terms of data collection, background research and scenario production in the former and the further development of the H₂ Territories Platform. Finally, great efforts were made to disseminate information about the project through online webinars and workshops organised by the project.

FUTURE STEPS AND PLANS

- The project aims to resolve the current situation with the HRS. The work associated with the engineering of the HRS has been finalised; however, it has been identified that all the design engineering was undertaken with the EMT yard in mind, which is not available at this time owing to space limitations, so construction is delayed. Solutions are being considered and the expectation is that a solution will be found in the coming months.
- Owing to Lloseta Council's formal announcement of its intention to leave the consortium, no associated activity has been executed in relation to the CHP application in the municipal building, and other municipalities are currently being analysed. The expectation is that a solution will be found in the coming months. In addition, the consortium expects to resolve the electrolyser issues and complete the site and factory acceptance tests for the two tube trailers in the coming months.
- The work of Sebastián Barceló Vidal as General Manager of Power to Green Hydrogen Mallorca will continue during 2024, focusing on centralising all aspects related to the exploitation of the H₂ production plant and the relationship with the H₂ consumers.
- An amendment will be launched in the coming months. In it, the consortium intends to include modifications of the overall costs and due dates of deliverables and milestones, make clear OK Mobility's final decision to enter the project, make official the exit of Lloseta Council from the project consortium and explain the situation with the EMT yard and the HRS.



PROJECT TARGETS

Target source	Parameter	Unit	Target	Achieved to date by the project	Target achieved?
MAWP (2018–2020)	Commitment of public authorities	M€	-	6.25	
	Commercial fuel-cell-based CHP system in a hotel	kWe	50	N/A	
	Fostering replication of hydrogen valley elsewhere	Replication studies on EU islands (Madeira (Portugal), Tenerife (Spain), the Aran Islands (Ireland), Greek islands and Ameland (Netherlands))	Studies on five EU islands and updated version of the Hydrogen Territories Platform	Replication tool development (from BIG-HIT) and replication studies ongoing	
	Long-term roadmap for a local and regional H ₂ -based economy on the island of Mallorca towards 2050	Studies	Roadmap drafted and endorsed	Studies ongoing	
Project's own objectives	H ₂ fuel cell for electricity supply for critical infrastructure at Ports de Balears	kWe	100	Call for tenders for the fuel cell launched	
	Electrolyser	MW	7.5 MW or + 300 t H ₂ production per year	2.5 MW	
	Injection of H ₂ into the local gas distribution grid	t H ₂ /year	190	Permits granted, H ₂ pipeline and injection point under construction	
	10 light-duty vehicles	number	10	Discussions with potential end users ongoing	
	FC H ₂ buses in Palma	number	5	5	✓

