GREEN HYSLAND

Development of the Hydrogen Roadmap for the Balearic Islands by 2050

Webinar: Advancing Hydrogen valleys

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Hydrogen Roadmap for the Balearic Islands towards 2050

Public-private collaboration to develop green H_2 ecosystem and roadmap in Mallorca

- **Good Practice** identified within the framework of the **UNLOCK** project by the Consell de Mallorca and its regional group of stakeholders.
- **Collaboration between the public and the private sector**, addressing the island's energy challenges and contributing to its transformation into a more sustainable, competitive and smarter region.
- IBE is part of the group of stakeholders for the UNLOCK project and part of the Policy Responsible Authority (Balearic Government) for the Just Transition Fund.

Hydrogen Roadmap for the Balearic Islands towards 2050

Public-private collaboration to develop green H_2 ecosystem and roadmap in Mallorca

- Broad public-private partnership involving:
  - **Companies**: Acciona, Enagás, Redexis, Cemex, Balearia, etc.
  - **Public entities**: University of the Balearic Islands, Government of the Balearic Islands, Palma City Council, Ports of the Balearics, etc.
- Mobilized €50 million in public and private investments.
- Combines private technology expertise and public regulatory support.

Hydrogen Roadmap for the Balearic Islands towards 2050

- 33 entities from Spain, and other EU countries, aim to build an electrolysis plant that will produce **300 tons of green H_2** annually. Its aims are:
  - To establish **Southern Europe's first H_2 hub**, contributing to decarbonizing island economies.
  - **Scalability and Replicability**: Showcasing the strategic PPP model for other European regions.
  - Anticipates replication in Madeira, Tenerife, Aran, Greek Islands, Ameland, Chile, and Morocco.

Hydrogen Roadmap for the Balearic Islands towards 2050

Objective:

- To develop a hydrogen roadmap towards 2050 with a long-term vision for the development of a widespread **hydrogen economy** in the Balearic Islands.

Key Goals:

- Provide a **realistic and practical** roadmap.
- Determine and prioritize the **most efficient** H_2 applications.
- Predict H_2 **demand growth** over time.
- Provide an evidence-based analysis on the island's H_2 **production potential** helping to plan **infrastructure** needs and locations.
- Describe necessary **steps** for goal achievement.
- Inform **stakeholders** through demand projections and technology forecasts, support **political decisions** and facilitate and reduce future investment risks.

Hydrogen Roadmap for the Balearic Islands towards 2050

Methodology:

- The roadmap is based on **techno-economic studies** conducted by the Green Hysland project teams, including UIB and specialized H_2 project companies and consultancies.

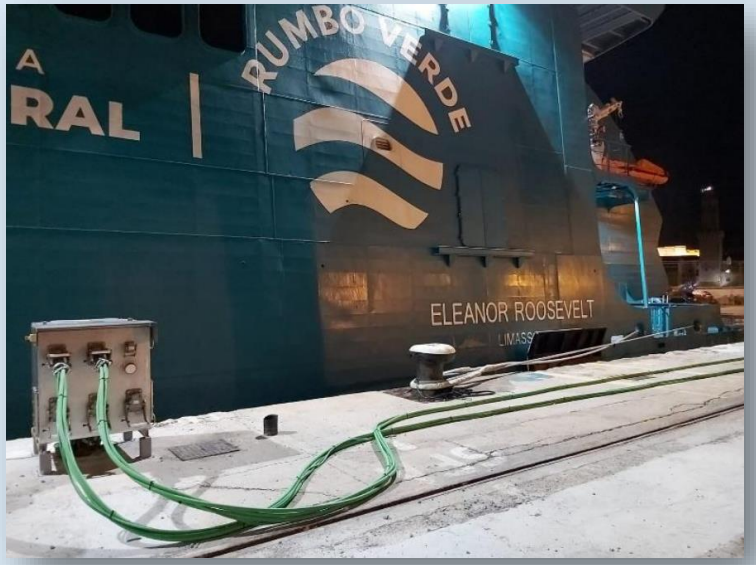
- Analyses potential H_2 **applications** and their potential **growth** over time to help plan infrastructure needs and provide a robust analysis for predicting future H_2 demand.

- Incorporates results from public and stakeholder consultations:
  - **Public Consultations**: To ensure public acceptance through citizen participation in decision-making for energy transition plans and the H_2 roadmap.
  - **Stakeholder Consultations**: To ensure support from the local business community, meetings with regional business, hotel associations and the Chamber of Commerce will be organized.

Hydrogen Roadmap for the Balearic Islands towards 2050

Techno-economic studies:

- **Study of the photovoltaic energy and green hydrogen production potential in Mallorca.**
- **Study for scaling-up of FC-based energy applications**: Industry, road-based transport, District Heating and Cooling, residential heating, smaller scale commercial applications.
- **Decarbonisation study of the sea-ferry stations at the ports of Mallorca, Ibiza and Menorca:** integration of PV energy and Fuel Cell systems in sea ferry terminals.
- **Techno-economic study for the implementation of the use of LNG/H_2 blends in existing vessels/ferries.**
- **Study on the development of cold ironing at the Port of Palma.**



Hydrogen Roadmap for the Balearic Islands towards 2050

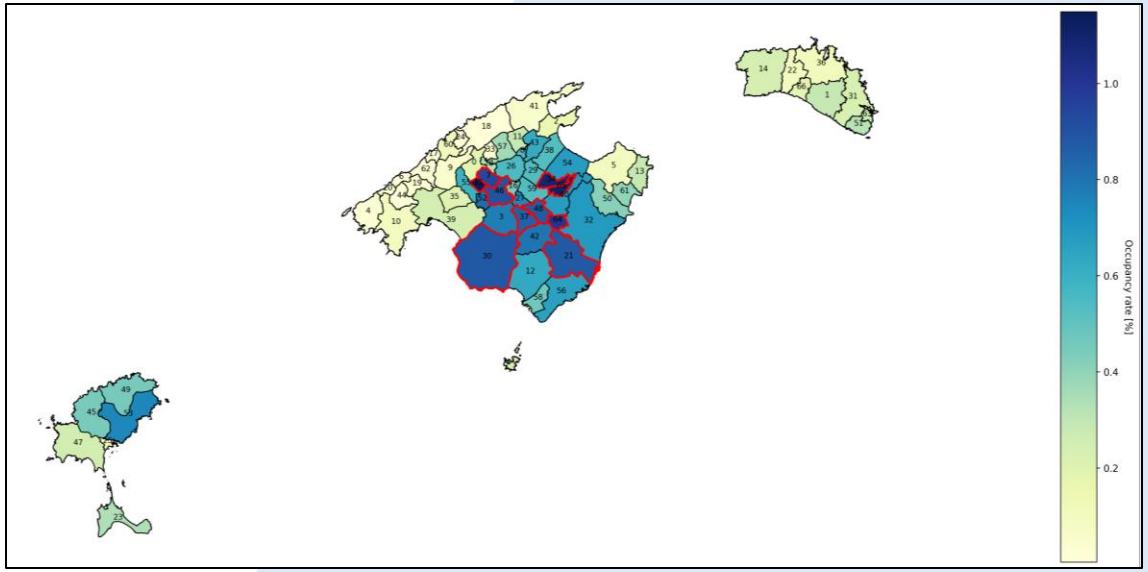
Applications covered in roadmap

- **Land transport**
  - Public and private bus fleets
  - Heavy and medium-duty freight transport
  - High-operational-capacity fleets
  - Rental vehicle fleets
  - Taxis
- **Maritime transport**
  - LNG-H_2 blending in existing vessels
  - Green ammonia for maritime transport
  - Green methanol for maritime transport
  - Cold ironing
- **Gas grid blending**
- **Use in buildings**
  - District Heating and Cooling
  - Hotels
  - Maritime stations
- **Hydrogen for energy storage**

Hydrogen Roadmap for the Balearic Islands towards 2050

Drafting and research for the roadmap

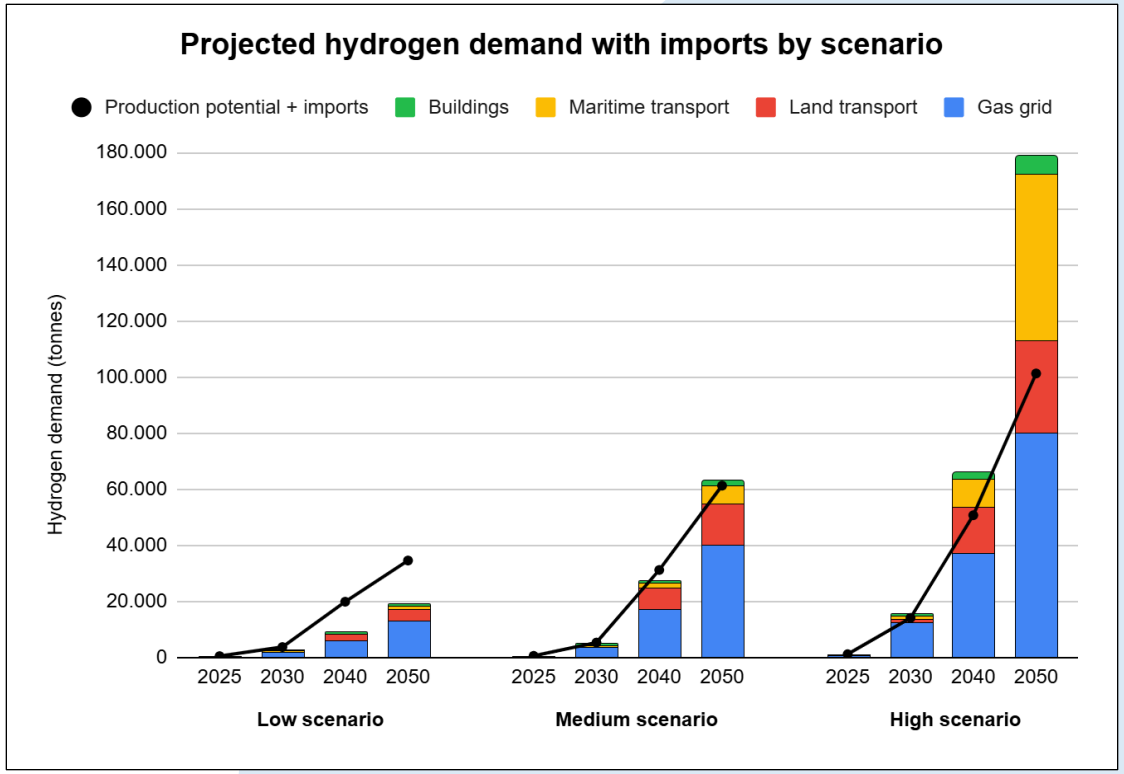
- In-depth **analysis** and **assessment** of project techno-economic studies:
  - Potential hydrogen **applications** in the Balearic Islands
  - Projections for hydrogen **production potential** in the Balearic Islands using solar surpluses in the electricity grid (UIB).
  - Linear projection of photovoltaic installation according to the achievement of established objectives.



Hydrogen Roadmap for the Balearic Islands towards 2050

Drafting and research for the roadmap

- **Demand projections** for each sector for 2025, 2030, 2040 and 2050, considering **3 scenarios:** low, medium and high.
- Production and demand projections analysis considering **hydrogen imports.**



Hydrogen Roadmap for the Balearic Islands towards 2050

Drafting and research for the roadmap

- **Electrolyser capacity requirements** through 2050 based on projected production potential and forecasted demand.
- **Water consumption** analysis based on production projections.
- **Strengths, Weaknesses, Opportunities, and Threats** Analysis of Hydrogen Development in the Balearic Islands.

Hydrogen Roadmap for the Balearic Islands towards 2050

Public consultations

- **Survey**: A questionnaire has been published on the Government of the Balearic Islands online citizen participation portal. This initiative aims to gather opinions, concerns, suggestions, and additional comments, ensuring an inclusive and accessible process for all participants.
- **Roadmap summary report** and **presentation** for a non-specialized audience.
  - Provide an overview of the project's roadmap in an accessible manner
  - Introduction to hydrogen applications
  - Potential benefits and challenges
  - Visual aids and infographics

Hydrogen Roadmap for the Balearic Islands towards 2050

Stakeholder consultations

- **Technical workshops** involving all relevant companies from the Balearic Islands.
- Objectives:
  - Gather **insights and suggestions** from stakeholders regarding the roadmap for hydrogen technology integration.
  - Understand stakeholder opinions on the roadmap.
  - Collect suggestions for improvement and implementation.
  - Assess **perceptions and readiness** for hydrogen adoption in the Balearic Islands.
- Outcome: Comprehensive feedback to refine and enhance the hydrogen technology integration strategy.

Thank you for your attention and participation!

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