



Deployment of a H₂ ecosystem on the Island of Mallorca

Power to Green Hydrogen Mallorca



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Renewable Gases Department at Enagás*

April 26th 2022

Enagás: A midstream company with 50 years of experience

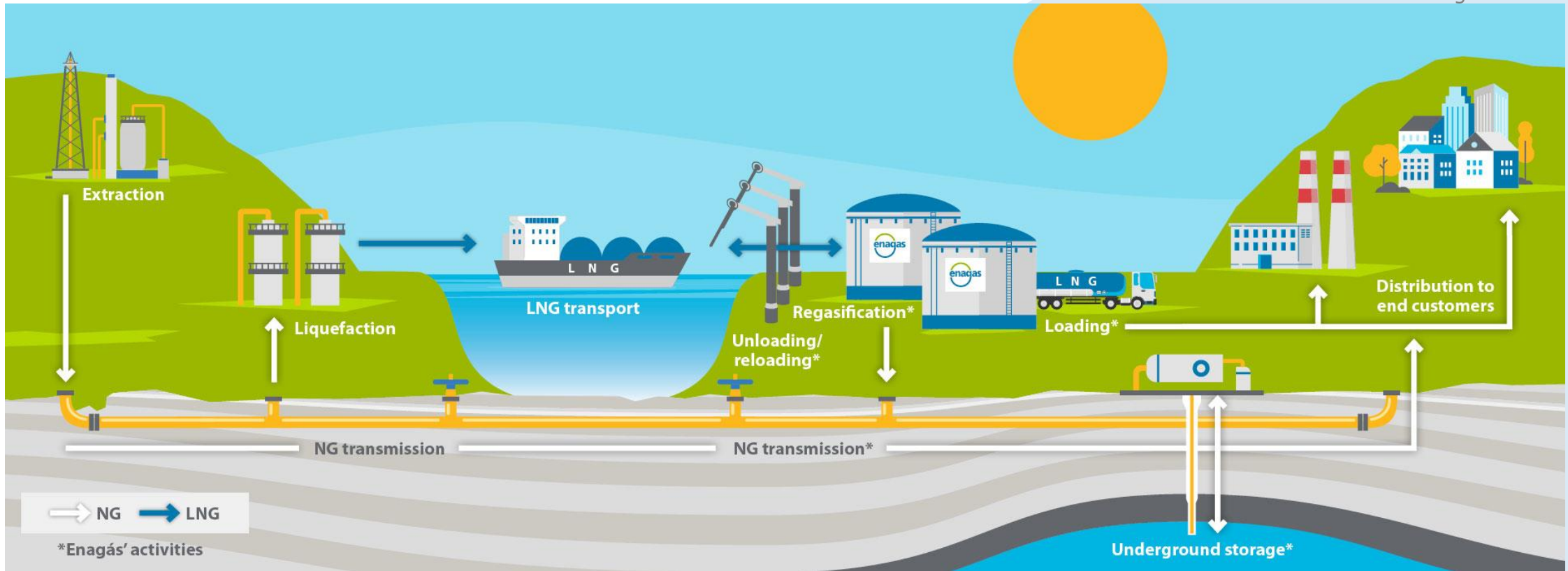
Leader in energy infrastructures

European Union accredited **independent TSO**

Top natural gas transmission company in Spain

Technical Manager of Spain's Gas System

Committed to decarbonisation: natural gas and renewable gases



Where are we at an international level

Enagás

Present in 8 countries



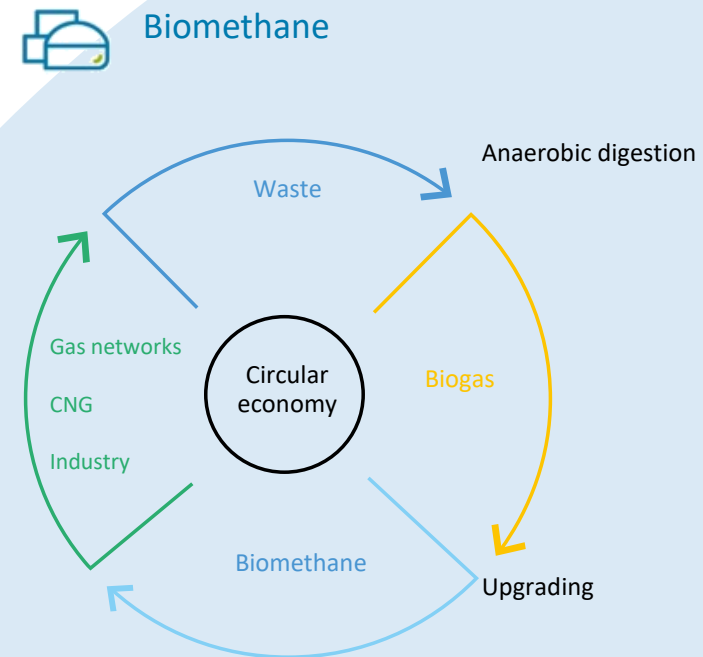
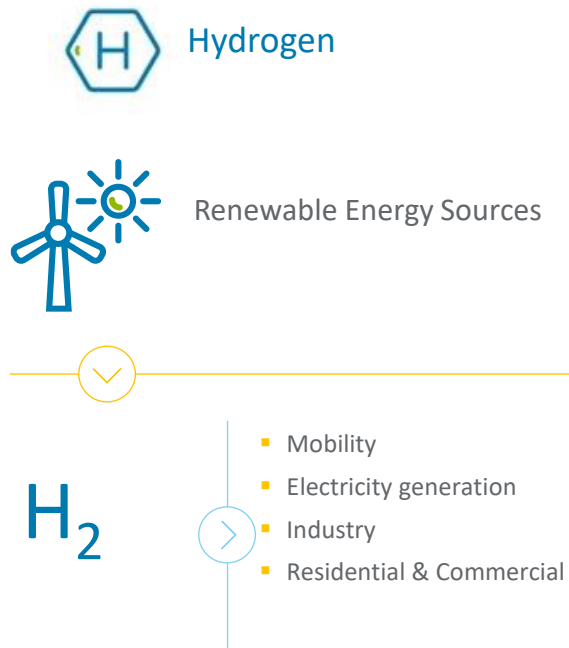
What we do

-  **Underground storage**
-  **LNG**
-  **Transmission**

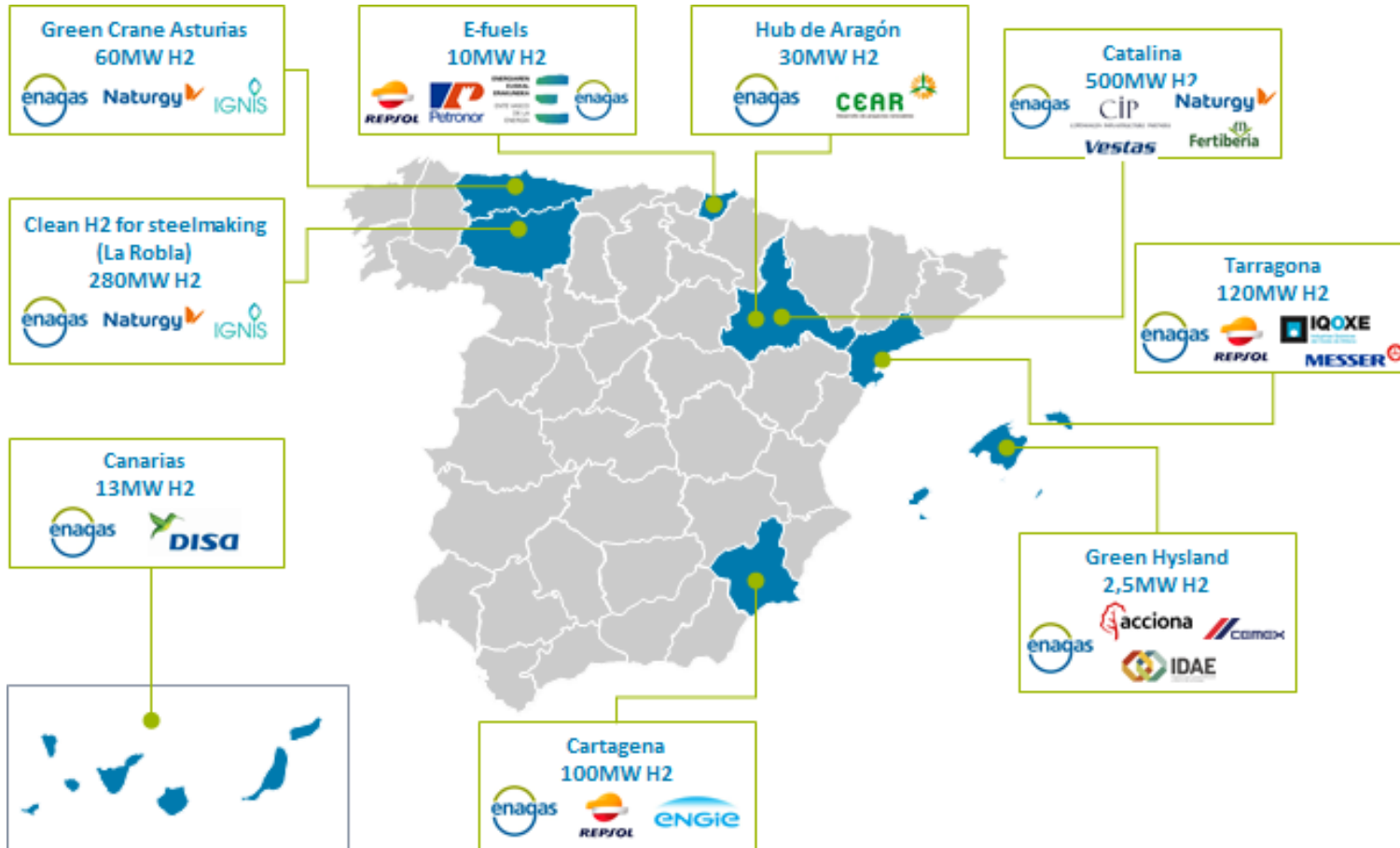
Renewable gases for the energy transition

Enabling decarbonisation of hard-to-electrify sectors
 Making use of existing gas infrastructure is paramount for an affordable transition

enagas renewable



Project portfolio Hydrogen. Main projects



Covering all uses and sectors covered by the Renewable Hydrogen Route:

- Grey hydrogen substitution
- Mobility
- Thermal uses in sectors difficult to electrify
- Renewable energy management

Participation in **main associations** (National and European level) and direct collaboration with competent bodies and city councils.

Co-chair of the round table "clean hydrogen transmission and distribution" (EU Clean Hydrogen Alliance).

Hub Baleares: "Power to Green Hydrogen Mallorca" - Context



Al acuerdo firmado a finales de 2018 por Enagás, Acciona y Cemex, para el desarrollo de una planta de generación de hidrógeno verde, se ha unido también Redexis

El Govern de las Islas Baleares, **Francina Armengol** y el concejler de Treball, Comerç i Indústria, **Iago Nequeruela**, junto con Enagás, Acciona, Cemex y Redexis presentaron el martes 7 de mayo el proyecto 'Power to Green Hydrogen Mallorca'. La iniciativa cuenta con la implicación directa del Instituto para la Diversificación y el Ahorro Energético (IDAE).



Grupo de asistentes a la presentación pública del proyecto en Mallorca.

This initiative is part of an agreement between the Ministry of Industry, Trade and Tourism and the Balearic Government with Enagás, Acciona, CEMEX and Redexis to **reindustrialise** Lloseta (Mallorca).

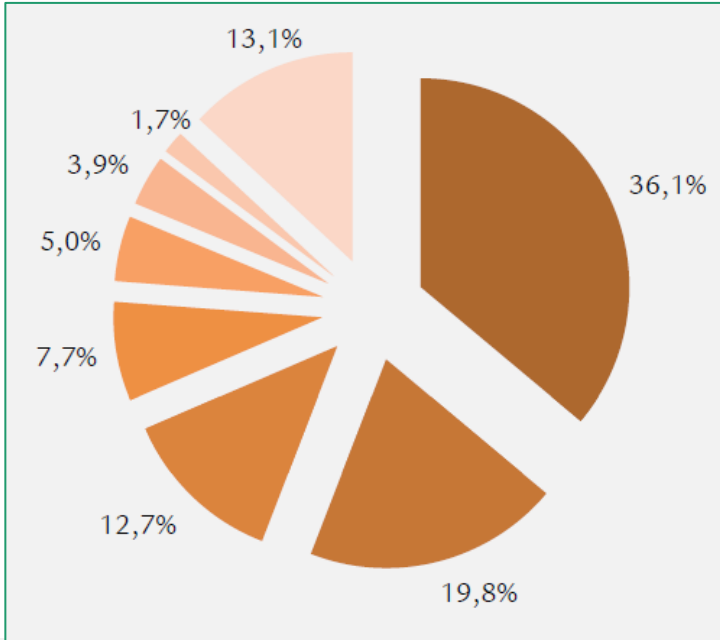
The project includes the development of a **green hydrogen** production plant from renewable photovoltaic energy. Green hydrogen will have **multiple applications** on the island, including the **fuel supply** to a fleet of **fuel cell buses** and **fuel cell vehicles**, the generation of **heat and power** for commercial and public buildings, the supply of **auxiliary power for ferries** and **port operations** and the creation of a **HRS**.

The project includes **green hydrogen injection** into the island's gas pipeline network, through a **Guarantee of Origin System**, to decarbonise the gas supply.

On 24/05/2019 the Balearic Government approved the declaration of the Power to Green Hydrogen Mallorca Project as a **Strategic Industrial Project**.

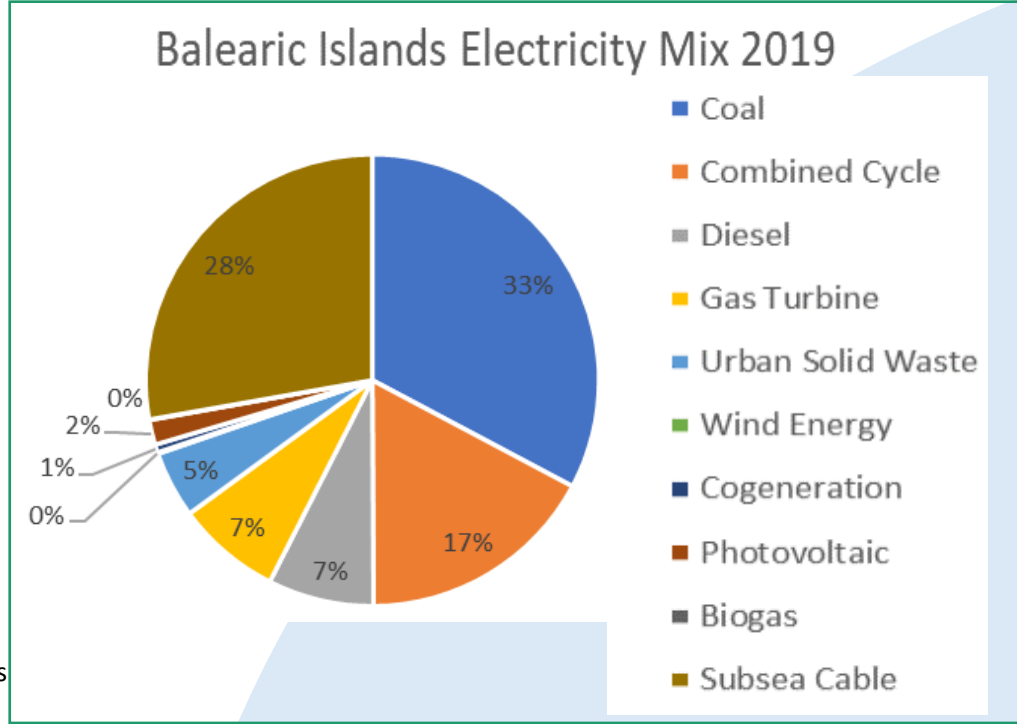
Hub Balears: "Power to Green Hydrogen Mallorca" - Context

11,947,382 tourists visited Mallorca in 2018

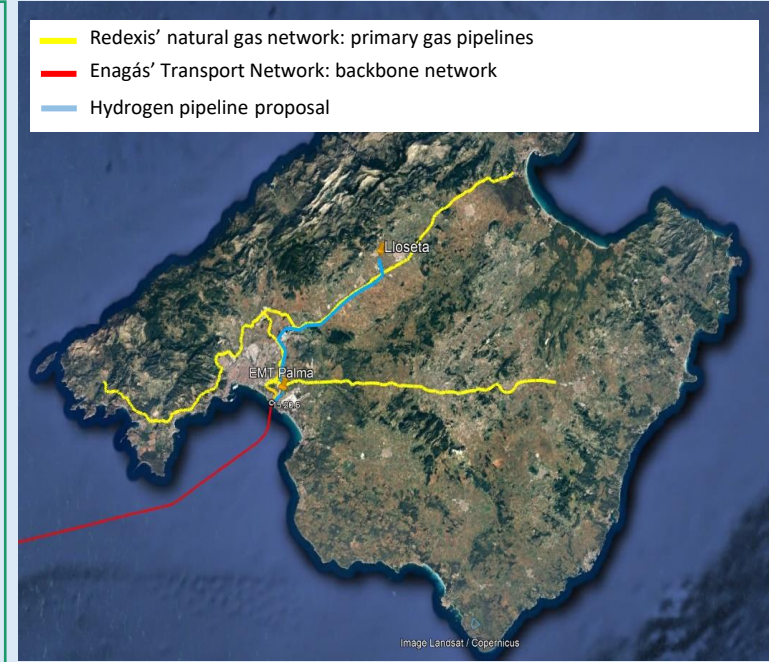


- Germany
- UK
- Spain
- Nordic countries
- Benelux
- France
- Italy
- Others

Source: "El turismo a les Illes Balears. Anuari 2018". AEITB.



Source: REE Annual Report 2018.

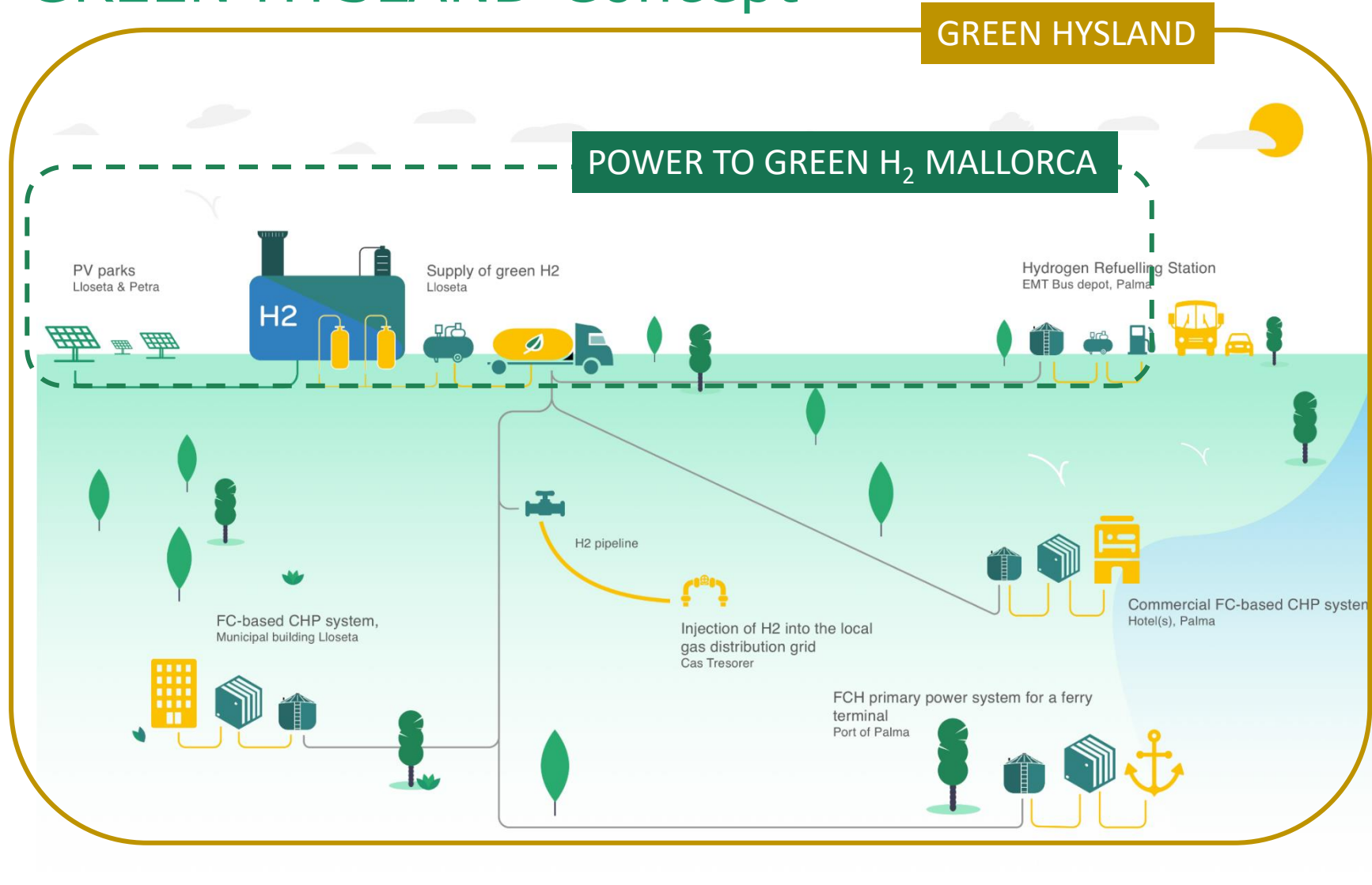


Source: Enagás

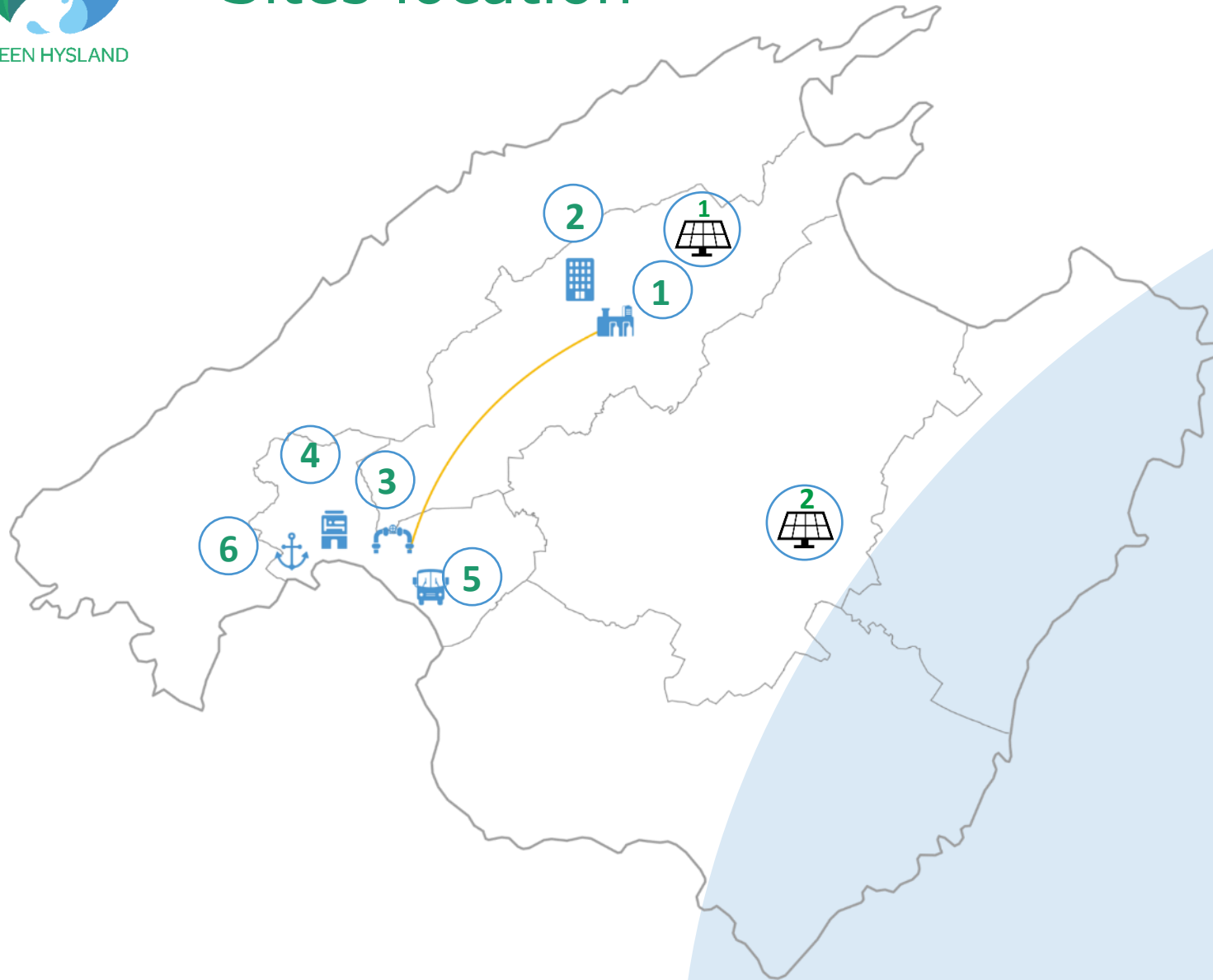











Development of a "H₂ ecosystem" which can be replicated across other islands and remote territories in the UE and beyond

GREEN HYSLAND Concept



Sites location



-  PV plant in Lloseta
-  PV plant in Petra
-  Green hydrogen production plant at Lloseta
-  Fuel cell in a public building in Lloseta
-  H₂/GN blending station at Cas Tresorer & injection point to NG grid
-  Fuel cell at hotel in Palma
-  HRS at EMT de Mallorca
-  Fuel Cell at the maritime station in Palma Port
-  Hydrogen pipeline



GREEN HYSLAND

PV and Green H₂ production Plant



PV plant in Lloseta

Peak power: 8.56 MWp
Land owned by CEMEX, provided to the Project
Start of operation: March 2022



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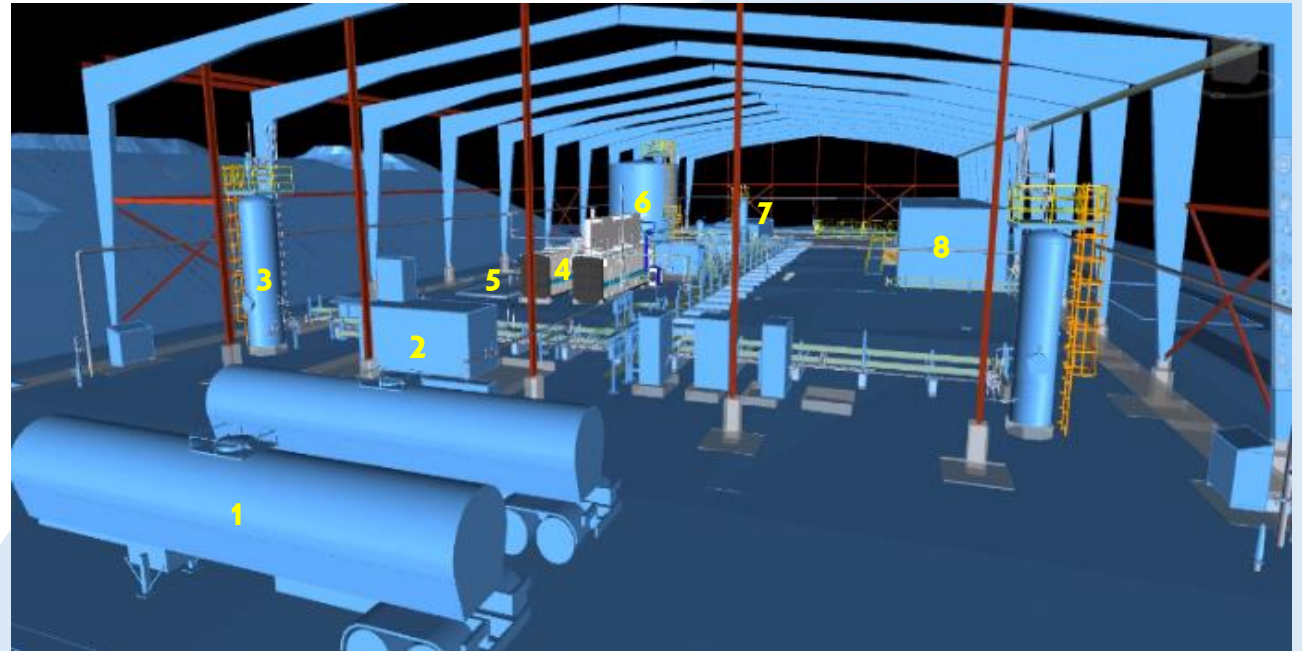
PV Plant in Petra

Peak power : 5.85 MWp
Land obtained from the Balearic Government
Start of operation: March 2022



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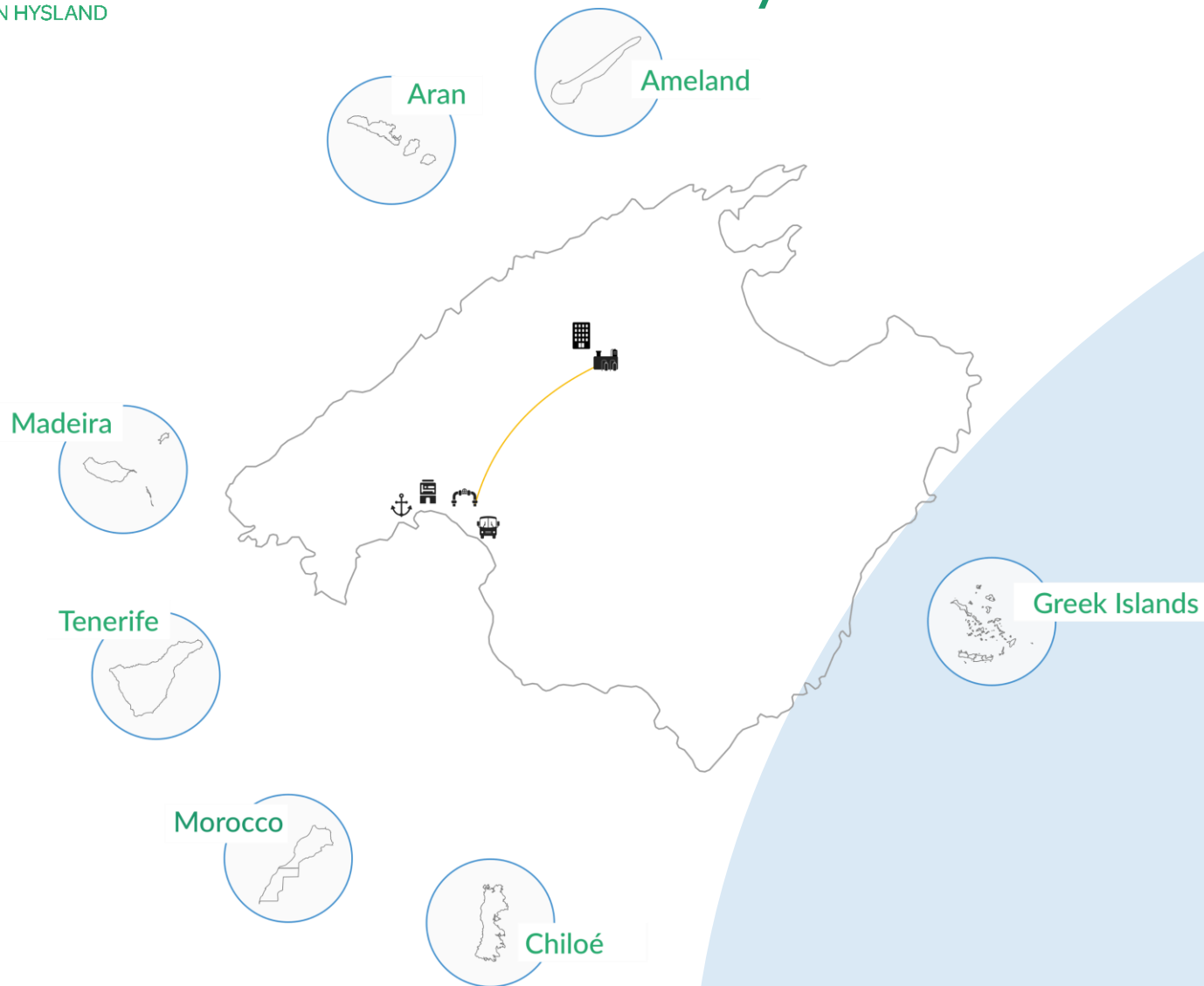
Green H₂ production Plant



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- | | | |
|---------------------------------|------------------|--|
| 1. H ₂ Tube trailers | 4. Electrolyser | 7. Electrical building |
| 2. Compressors | 5. Rainwater pit | 8. Administration and control building |
| 3. H ₂ Buffer-vessel | 6. Water storage | |

Replication of H₂ ecosystems to other EU island territories and beyond



Observers:

- Orkney Islands Council
- Valencia Port Foundation
- Scottish H₂ & Fuel Cell Association
- Aran Islands Energy
- Port of Melilla
- Corsica Chamber of Commerce
- RINA Services
- Wärtsilä
- CEMEX

Key figures



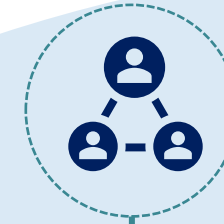
Development of a **sustainable large-scale island-based H₂ hub** in Mallorca



15 MW
PV energy



Avoided carbon footprint:
more than **21,000 tpy**



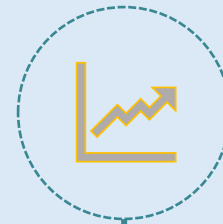
New **direct and indirect employment ecosystem** associated to **hydrogen**



Development **a long-term roadmap** to lay the path for a local & regional based economy towards 2050



Scalability and Replicability



Estimated **investment**
50 M€



10 M€ Funding from the Clean Hydrogen JU
≈ 2.5 M€ Funding from IDAE for PV plants



GREEN HYSLAND

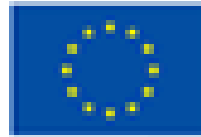
Partners



- H₂ infrastructure developers
- Studies for H₂ uses in maritime sector
- H₂ RoadMap towards 2050
- Creation and Analysis of Impact and Development of Business Models
- Scaling Up & Replication
- Communication & Dissemination
- Replication experiences



Supported by:



19 Letters of Support

9 Observers

Thank you and follow us on:



<https://greenhysland.eu>



[Green Hysland EU Coalition for H2 deployment in Islands](#)



<https://youtu.be/-u7RLspVuw4>



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