
THE FAST TRACK TO THE HYDROGEN ECONOMY
EUROPEAN HYDROGEN ENERGY CONFERENCE
EHEC 2024
EUROPEAN HYDROGEN ENERGY CONFERENCE
AeH2
SPANISH HYDROGEN ASSOCIATION

THE FAST TRACK TO THE HYDROGEN ECONOMY

EUROPEAN HYDROGEN ENERGY CONFERENCE

EHEC 2024 EUROPEAN HYDROGEN ENERGY CONFERENCE | AeH2 SPANISH HYDROGEN ASSOCIATION

H2 corridors: H2Med and H2 Spanish Backbone Network

Natalia Latorre Arranz
Enagás' Energy Transition General Manager

enagas

Table of Contents

enagas

THE FAST TRACK TO THE HYDROGEN ECONOMY

EUROPEAN HYDROGEN ENERGY CONFERENCE

EHEC 2024 EUROPEAN HYDROGEN ENERGY CONFERENCE | AeH2 SPANISH HYDROGEN ASSOCIATION

Europe paves the way in H_2

Green Deal

Roadmap to a **climate-neutral EU by 2050**.

Fit for 55

Package of measures to **reduce emissions by at least 55%** by 2030.

Europe continues to move forward on H_2 regulatory frameworks

Decarbonisation goals in the EU

Carbon neutrality by 2050

REPowerEU

European plan to **reduce dependence on Russia** and accelerate the energy transition.

The focus of H_2 demand is on sectors that are difficult to decarbonise, such as industry and heavy transport

Hydrogen as an energy carrier

2030 target: 20Mt of hydrogen consumption in Europe

THE FAST TRACK TO THE HYDROGEN ECONOMY

EUROPEAN HYDROGEN ENERGY CONFERENCE

EHEC 2024 EUROPEAN HYDROGEN ENERGY CONFERENCE | AeH2 SPANISH HYDROGEN ASSOCIATION

2023, a great year for hydrogen

19 JANUARY
Enagás **First Hydrogen Day**

24 JANUARY
Launch of the **Guarantees of Origin** platform for renewable gases

28 JUNE
National Integrated Energy and Climate Plan (PNIEC) Update

14 SEPTEMBER
Launch of the Call For Interest Process

18 OCTOBER
Presentation of H2Med in Berlin

28 NOVEMBER:
European PCI List: inclusion of H2Med and the Spanish H_2 infrastructure 2030

Agreement Directive on H_2 and Decarbonised Gas

8 DECEMBER
Agreement on the European Regulation on H_2 and Decarbonised Gas

J F M A M J J A S O N D

Spanish Presidency of the Council of the EU

27 DECEMBER
Royal Decree-Law 8/2023 of 27 December:
Enagás, provisional hydrogen transmission network operator

enagas

2023, a big year for hydrogen

Enagás, as a TSO, designated provisional hydrogen transmission network operator, according to Royal Decree-Law 8/2023 of 27 December.

In line with the model followed in other European countries

Submit a non-binding **proposal for the development of the hydrogen backbone infrastructure** with a 10-year horizon to the Directorate-General for Energy Policy and Mines (DGPEyM) within four months (29 April)

Act as **representatives in the creation of the European Network of Network Operators for Hydrogen** (ENNOH)

It may exercise the **functions of hydrogen backbone development in the field of** European **Projects of Common Interest** (PCI), on an interim basis, through legal entities separated horizontally

This provisional regime will apply until the definitive designation of the Hydrogen Network Operators in accordance with the conditions established in the applicable European regulations.

enagas

Table of Contents

H2Med: The Project

- H2Med is made up of two interconnections, CelZa between Portugal and Spain, and BarMar, an offshore pipeline between Spain and France
- It is promoted by the TSOs of the countries: REN, Enagás, Teréga, GRTgaz and OGE.
- Project to transport up to 2 Mt/a of green hydrogen produced in the Iberian peninsula.

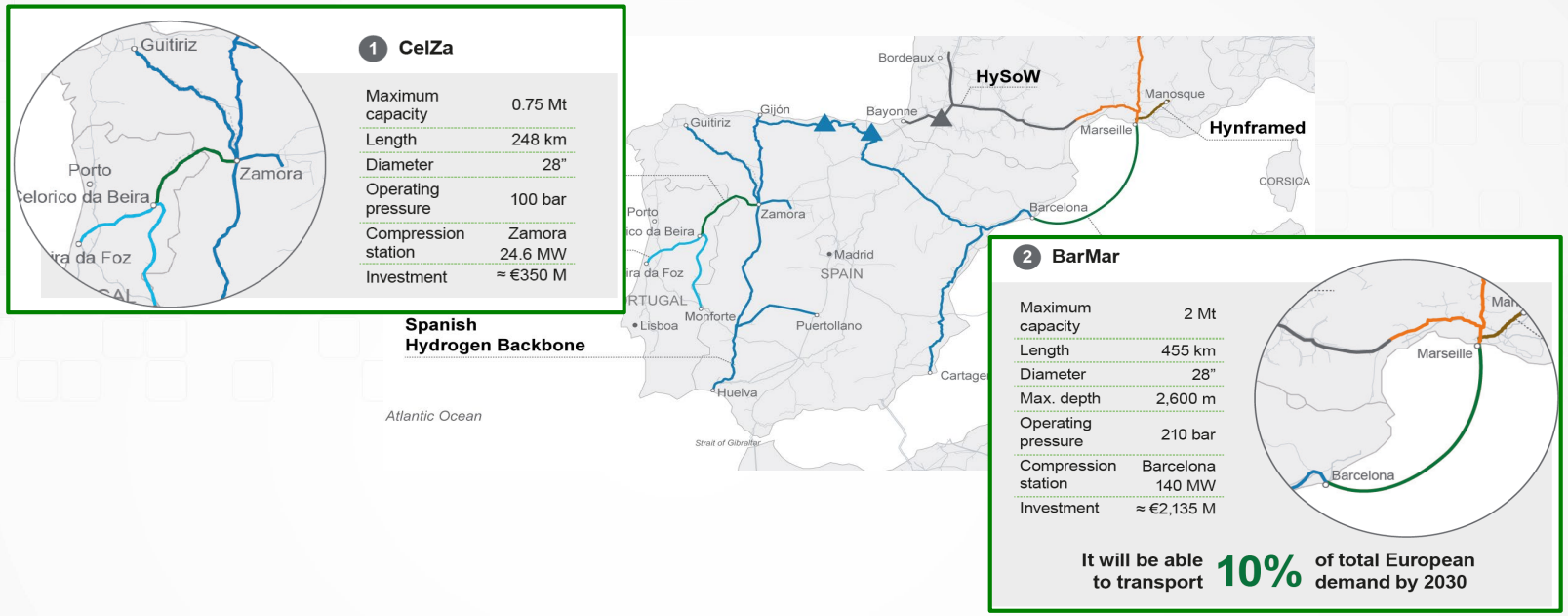


Table of Contents

THE FAST TRACK TO THE HYDROGEN ECONOMY

EUROPEAN HYDROGEN ENERGY CONFERENCE

EHEC 2024 EUROPEAN HYDROGEN ENERGY CONFERENCE | AeH2 SPANISH HYDROGEN ASSOCIATION

Horizon 2030

Definition of Call for Interest[1] scenarios

Maximum potential Scenario

(Total production and consumption figures recorded in the process)

≈ 7.9 Mt/y
production

≈ 74.3 GW
electrolysis

≈ 1.4 Mt/y
domestic consumption

Call For Interest Scenario

(From Maximum potential scenario, selection of projects with greater maturity[2] including exports and discounting self-consumption)

≈ 2.5 Mt/y
production

≈ 23.3 GW
electrolysis

≈ 1 Mt/y
domestic consumption

Basic Scenario

(Considering the Call for Interest scenario as a starting point, only projects with production focusing mainly on domestic consumption are considered.)

≈ 1.6 Mt/y
production

≈ 13.4 GW
electrolysis

≈ 1 Mt/y
domestic consumption

Scenario aligned with the PNIEC 2023 update

1 The figures presented do not include imports from Portugal.

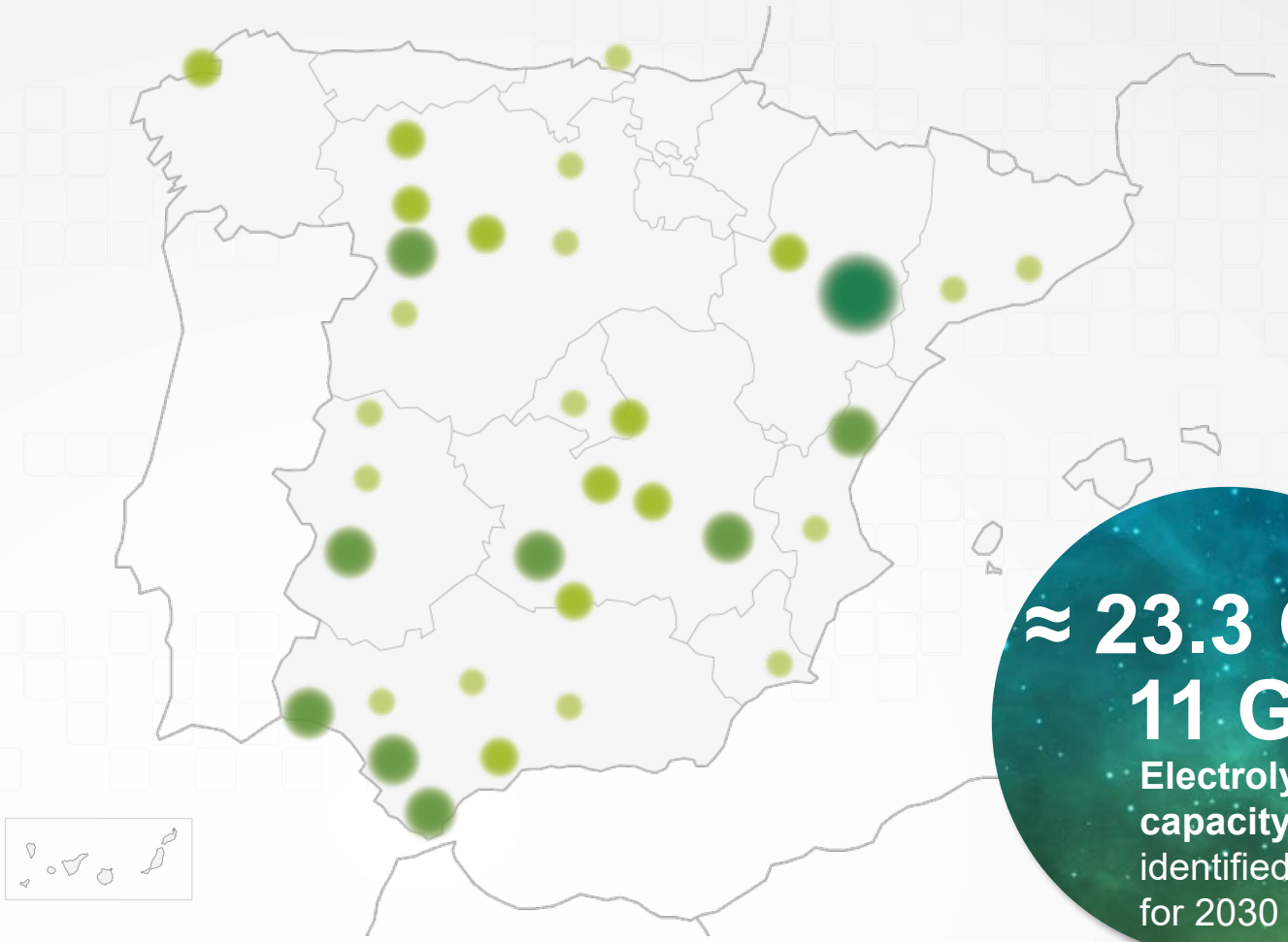
2 Mature projects are considered to be those which, according to the information provided, meet one or more of the following requirements: they have a contract of hydrogen sales, are in the construction or development phase or are in the pipeline with established development companies.

Horizon 2030. Renewable H_2 production

Call For Interest scenario

≈ 2.5 Mt/y
in 2030
Identified renewable H_2 production

- Enables both **domestic consumption** and **export by H2Med** and carriers
- **Spain's** potential to **become Europe's leading hydrogen hub**



≈ 23.3 GW
11 GW
Electrolysis capacity identified for 2030

enagas

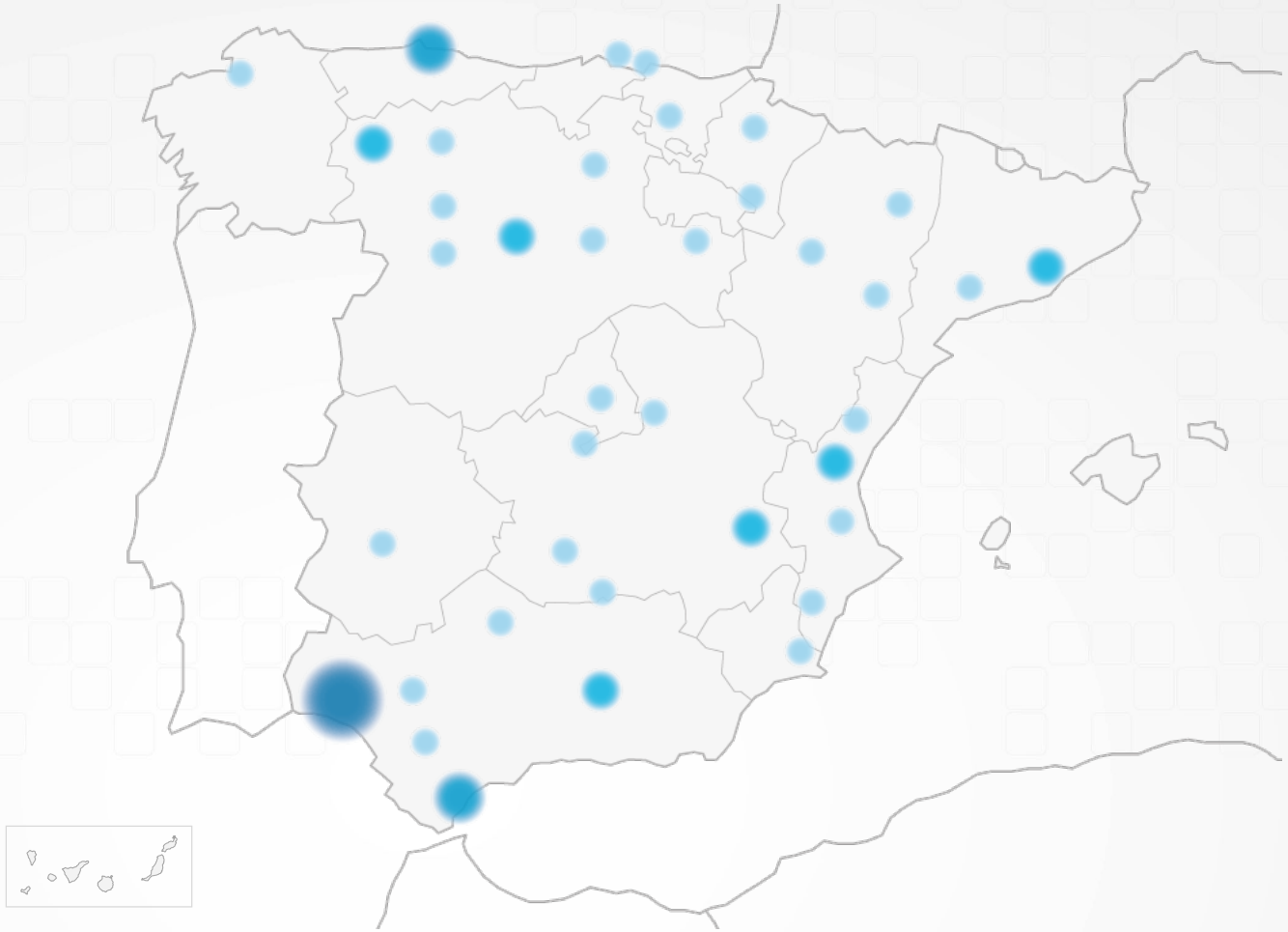
Horizon 2030. Renewable H_2 consumption

Call For Interest scenario

≈ 1 Mt/y
in 2030

Identified consumption of renewable H_2

- In line with **the** Enagás' **First Hydrogen Day** statement
- Exceeds 600 Kt/y of current grey H_2 consumption, indicating **new uses of green hydrogen**



enagas

EUROPEAN HYDROGEN ENERGY CONFERENCE

EHEC 2024 EUROPEAN HYDROGEN ENERGY CONFERENCE | AeH2 SPANISH HYDROGEN ASSOCIATION

Horizon 2030

Call For Interest scenario

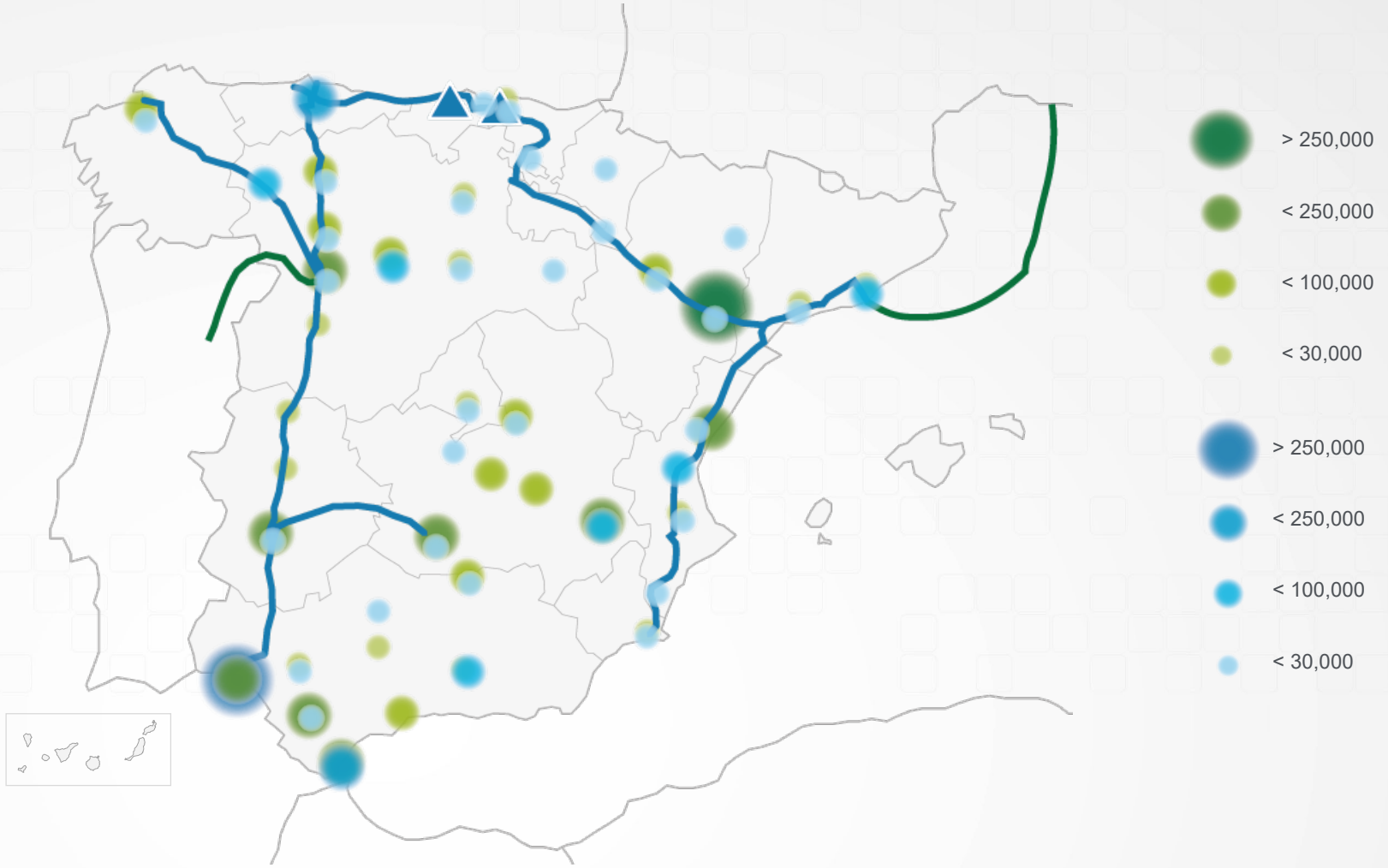
Production aggregation points

Consumption aggregation points

Spanish hydrogen infrastructure 2030 (presented to the PCI)

Underground storage facilities

H2Med



enagas

EUROPEAN HYDROGEN ENERGY CONFERENCE

EHEC 2024 EUROPEAN HYDROGEN ENERGY CONFERENCE | AeH2 SPANISH HYDROGEN ASSOCIATION

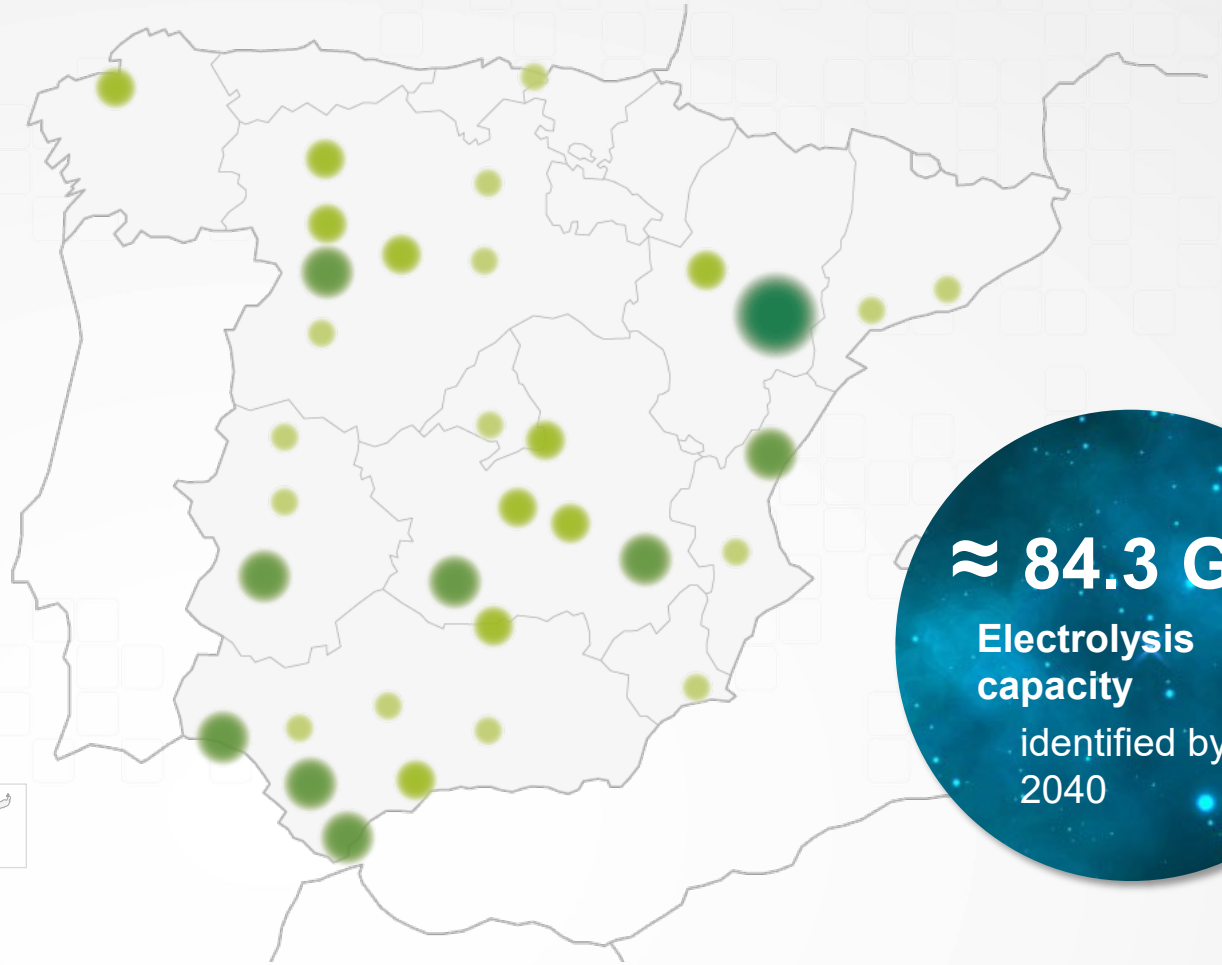
2040 Vision. Renewable H_2 production

Maximum potential scenario

≈ 8.7 Mt/y
in 2040

Identified renewable H_2 production

- Interest in a **potential connection with Morocco and Algeria**
- The data shown correspond to the **total figures provided in the Call For Interest** process by the agents



≈ 84.3 GW
Electrolysis capacity
identified by 2040

enagas

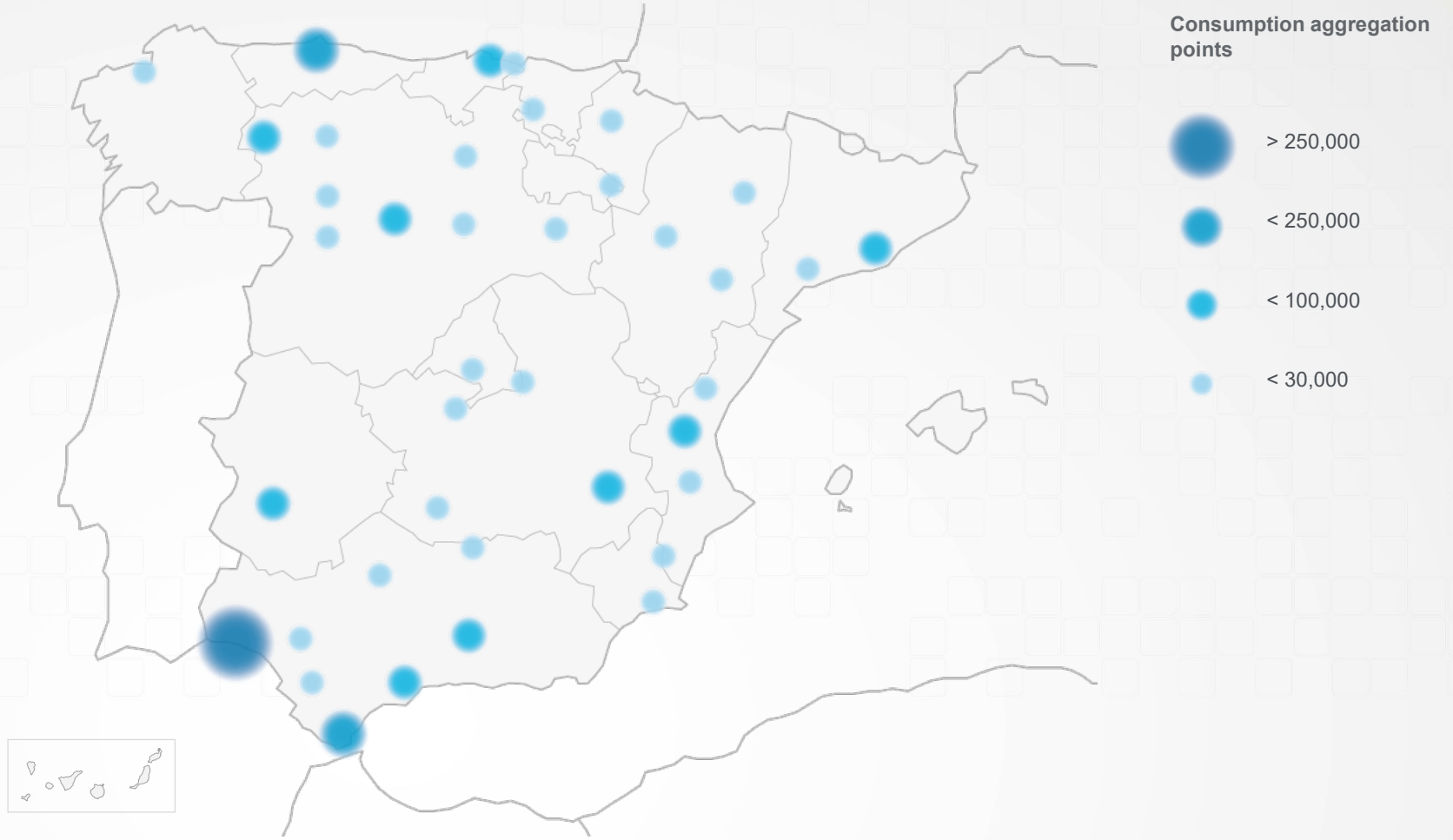
2040 Vision Renewable H_2 consumption

Maximum potential scenario

≈ 1.5 Mt/y
in 2040

Identified consumption of renewable H_2

The data shown correspond to the **total figures provided in the Call For Interest** process by the agents



enagas

Ammonia (NH_3) Results

Interest in producing more than

5 Mt/y

of ammonia involving a **consumption of approx. 0.9 Mt/y of hydrogen**

41companies

interested in the **use of infrastructure** for the transport of around 4 Mt/y of ammonia

Areas of influence

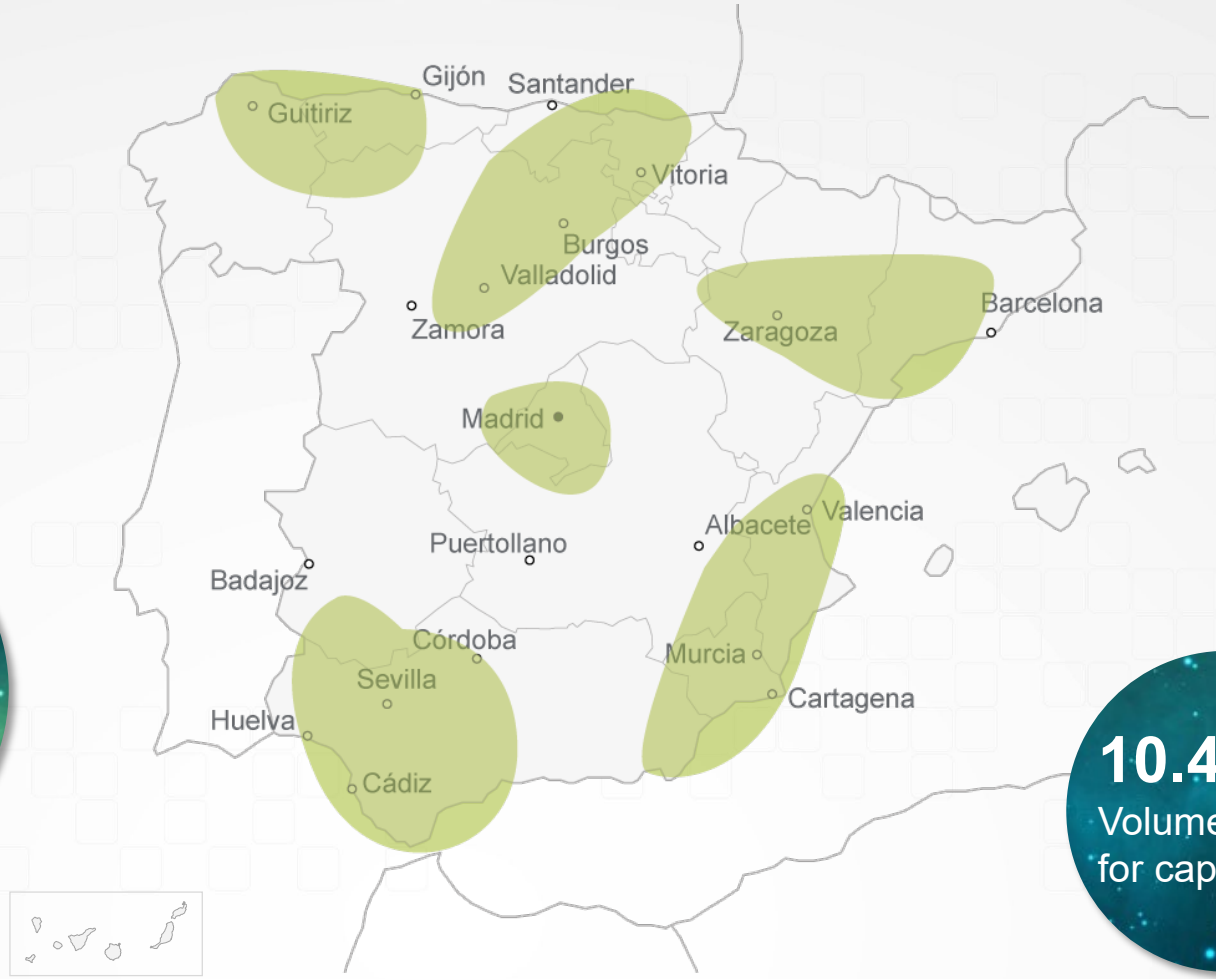
EUROPEAN HYDROGEN ENERGY CONFERENCE

EHEC 2024 EUROPEAN HYDROGEN ENERGY CONFERENCE | AeH2 SPANISH HYDROGEN ASSOCIATION

CO_2 Results

37 companies interested in **CO_2 capture**

53 companies interested in **infrastructure**



10.4 Mt/y Volume of CO_2 for capture

enagas

Table of contents

Investments

Spanish hydrogen infrastructure

Total gross investment

Spanish hydrogen infrastructure 2030 (presented to the PCI)	€3,700 Mill
Underground storage facilities	€1,200 Mill
Total	**€4,900 Mill**

H2Med

Total project investment	€2,500 Mill
Estimated total gross investment in Spain	**€1,000 Mill**

These investment figures do not include possible additional new sections resulting from the outcome of the Call For Interest

The final investment will be the one resulting from the design of the Spanish Hydrogen Backbone Network to be defined in the Government's binding plan

enagas

THE FAST TRACK TO THE HYDROGEN ECONOMY

EUROPEAN HYDROGEN ENERGY CONFERENCE

EHEC 2024 EUROPEAN HYDROGEN ENERGY CONFERENCE | AeH2 SPANISH HYDROGEN ASSOCIATION

H_2 Infrastructure development, milestones diagram schedule

2023 | 2024 | 2025 | 2026 | 2027-2029 | 2030

- 22 Sep - 17 Nov: reception of Call For Interest information.
- 31 Jan: **Enagás 2nd Hydrogen Day** and presentation of call for interest results
- **Final PCI list** (published in OJEU)
- **Application** for CEF-E **funds** for **studies**
- **Outcome** of **application for** CEF-E **funds for studies**
- CEF-E funds **application** for **construction**
- **Outcome** of CEF-E **funds for construction**
- **Construction**
- **Commissioning and start-up**

Regulatory framework development

2023 | 2024 | 2025 | 2026 | 2027

- RDL 8/2023
  - Enagás provisional HTNO
  - Mandate proposed H2 planning
- **Gas&H2 Directive and Regulation** (Agreement)
- **Proposal for non-binding H2 Backbone Infrastructure Development (2024-2033) (*)**
- **Gas&H2 Directive and Regulation** (publication in OJEU)
- **National Integrated Energy and Climate Plan (PNIEC)** Final version (approval)
- **Review of the EU's Multi-annual Financial Framework**
- **Formal establishment of ENNOH**
- **Transposition of the Gas&H2 Directive**
- **CNMC natural gas Circulars** (approval and publication)
- **Third regulatory period** (natural gas)

Schedule

(*) Next steps to be defined by the Ministry of Ecological Transition and Demographic Challenge

enagas

Many thanks