

Towards a hydrogen infrastructure in Spain

Call for interest Results

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**2023, a great
year for hydrogen**

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 H₂
infrastructure 2030

Agreement Directive on
H₂ and Decarbonised Gas

8 DECEMBER
Agreement on the
European
Regulation
on H₂ and
Decarbonised Gas



Spanish Presidency of the Council of the EU

27 DECEMBER

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

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)**



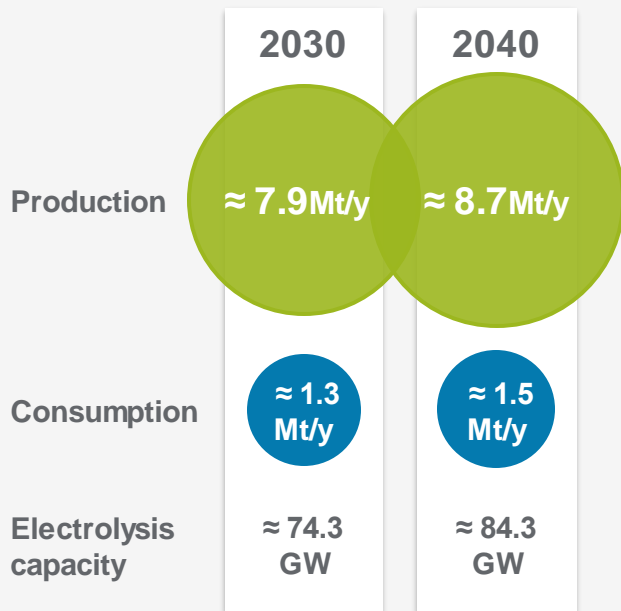
It may exercise the **functions of hydrogen backbone development in the field of European Projects of Common Interest (PCI)**, on an interim basis, through legal entities separated horizontally

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.

Call for Interest Results

Key figures

High participation and support from the whole sector



206 companies



45% producer
40% consumer
15% trader

650 projects



65% production
20% consumption
15% trading



High interest also shown in ammonia (NH₃) and CO₂

Open, transparent and non-discriminatory process, audited and verified by Bureau Veritas



Horizon 2030

Definition of Call for Interest¹ 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 maturity² 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.

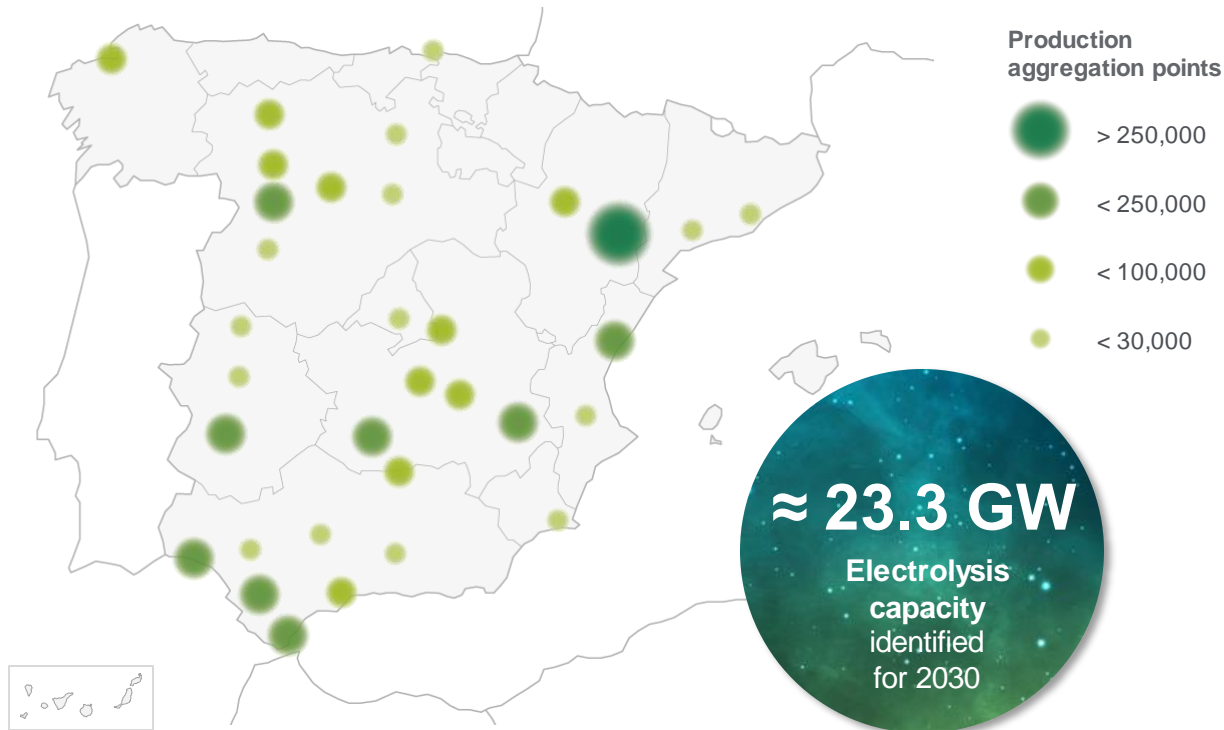
² Mature projects are considered to be those which, according to the information provided, meet one or more of the following requirements: they have a contract of hydrogen sales, are in the construction or development phase or are in the pipeline with established development companies.

Horizon 2030. Renewable H₂ production

Call for Interest scenario

≈ 2.5 Mt/y
in 2030
Identified
renewable H₂
production

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



Horizon 2030. Renewable H₂ consumption

Call for Interest scenario

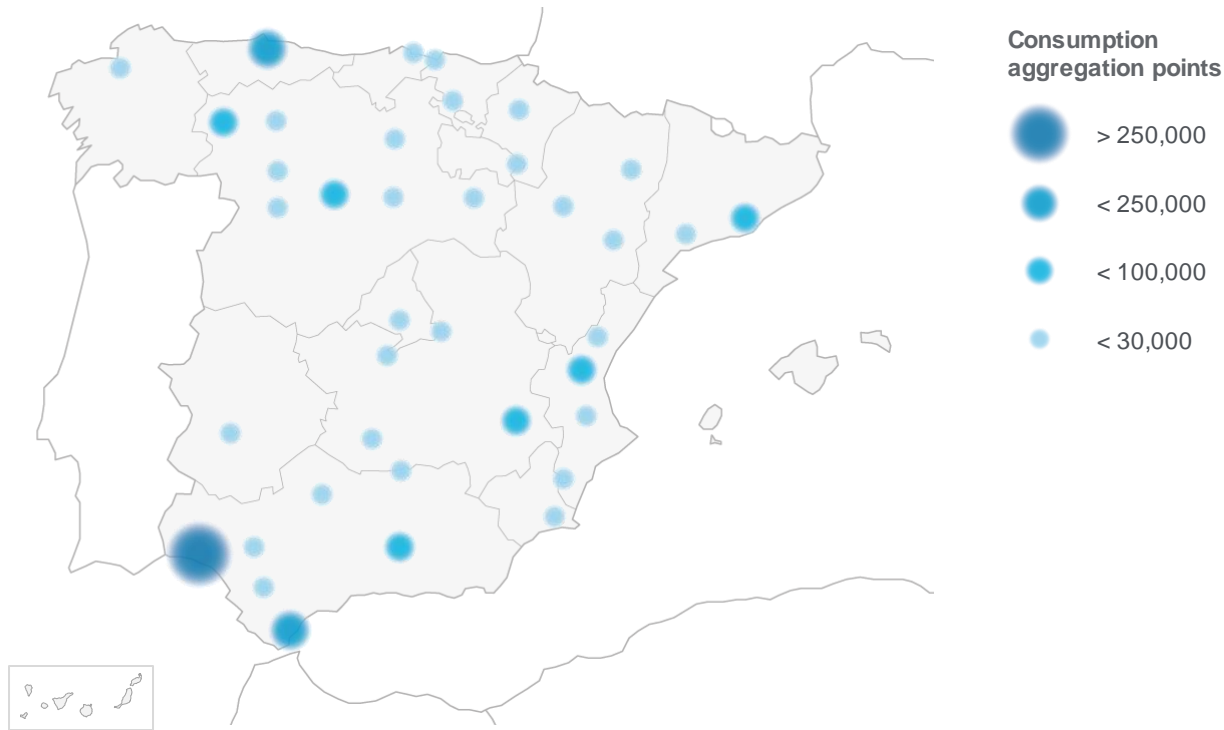
≈ 1 Mt/y

in 2030

Identified
consumption of
renewable H₂

■ In line with the
Enagás' **First Hydrogen
Day** statement

■ Exceeds 600 Kt/y of
current grey H₂
consumption,
indicating **new uses of
green hydrogen**




Horizon 2030

Call for Interest scenario

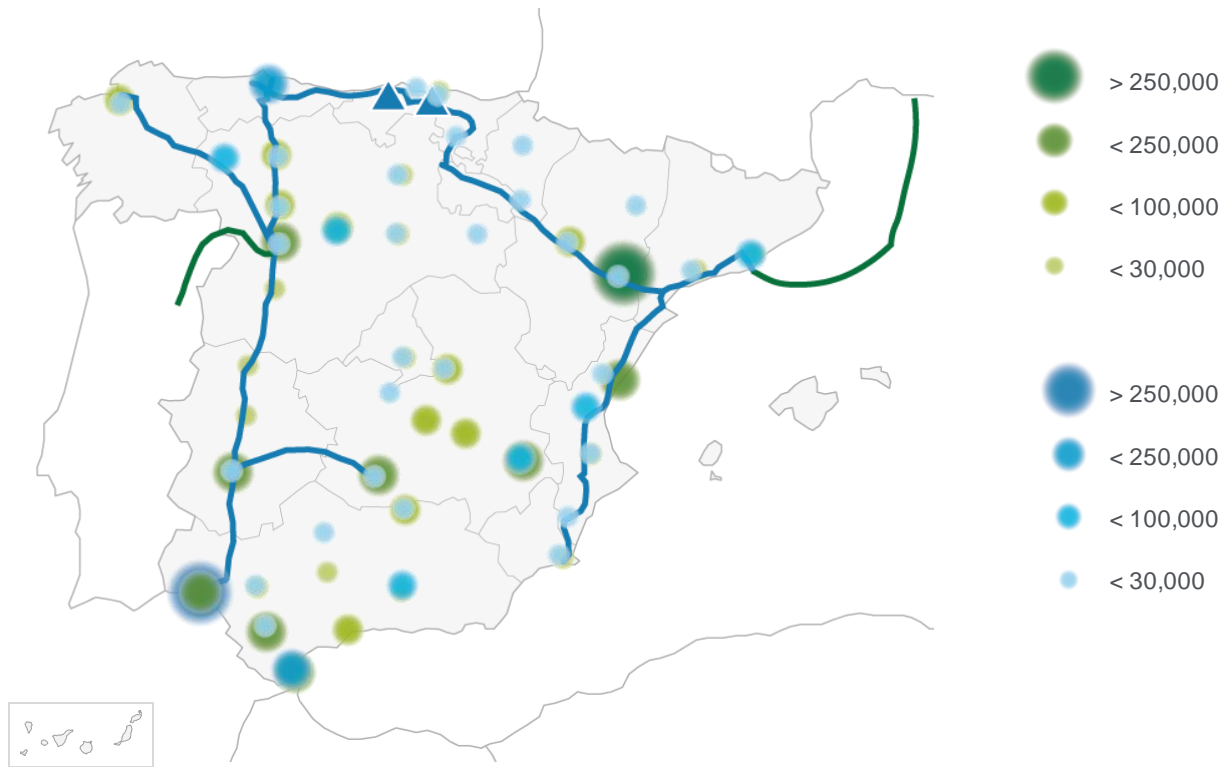
Production aggregation points

Consumption aggregation points

 Spanish hydrogen infrastructure 2030 (presented to the PCI)

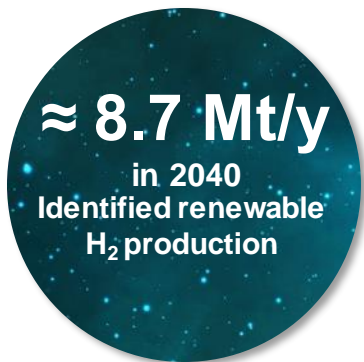
 Underground storage facilities

 H2Med

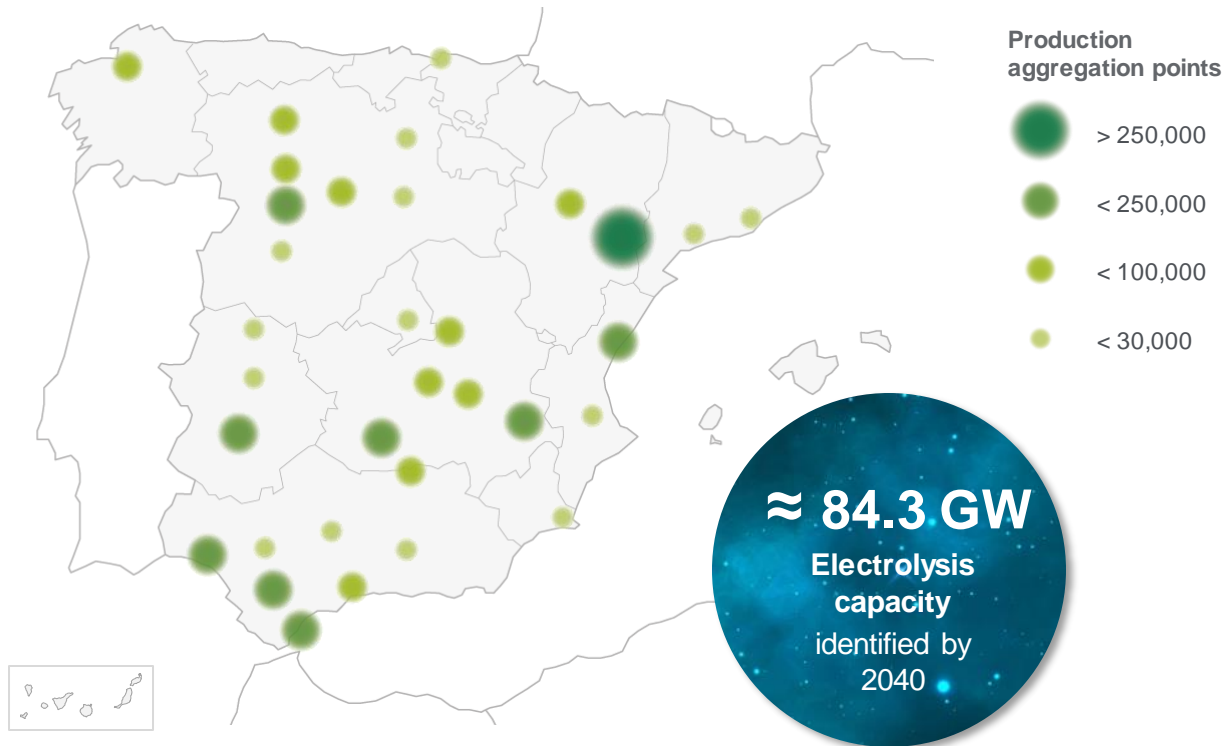


2040 Vision. Renewable H₂ production

Maximum potential scenario



- 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

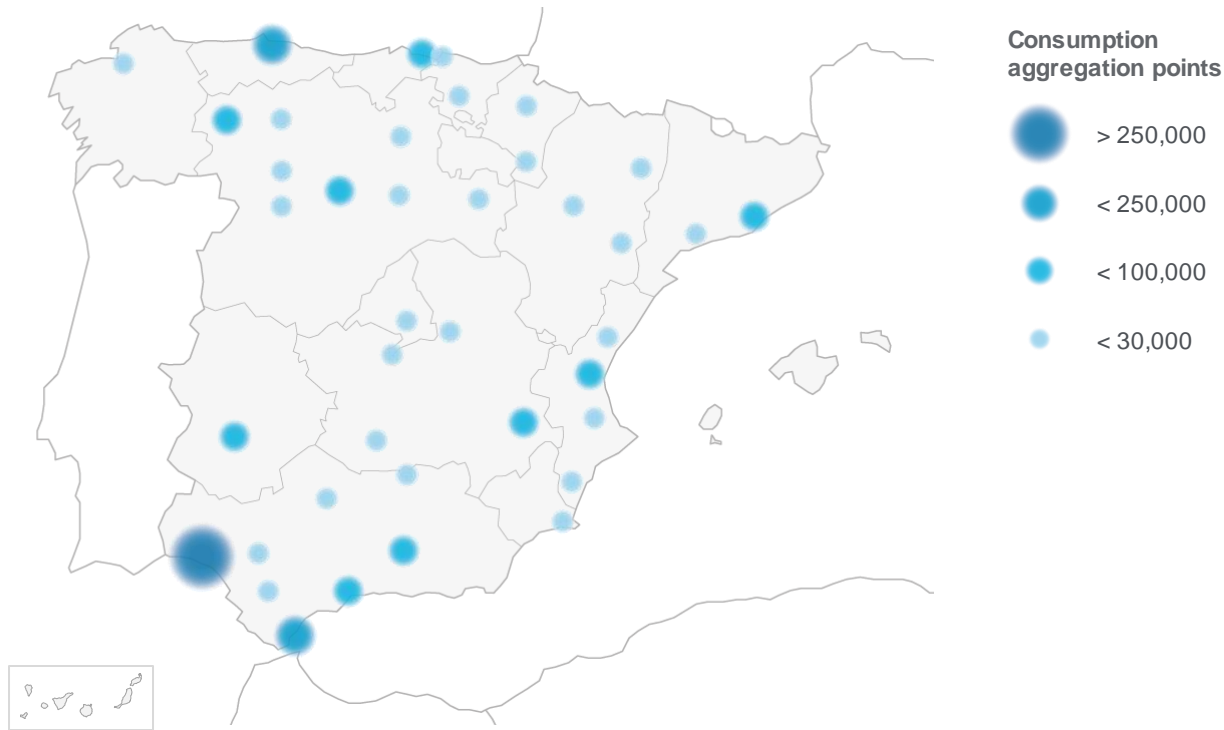


2040 Vision Renewable H₂ consumption

Maximum potential scenario

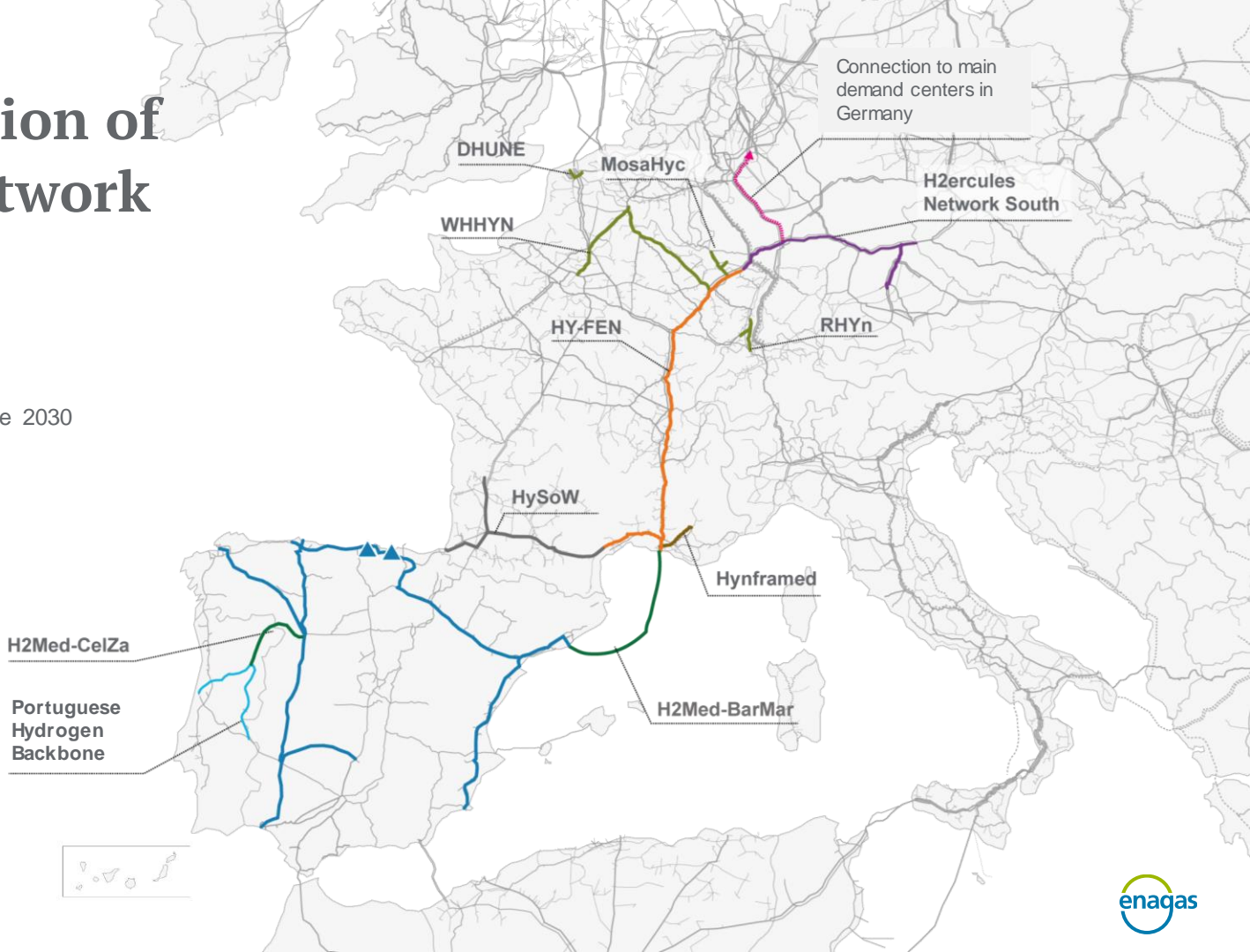


■ The data shown correspond to the **total figures provided in the Call for Interest** process by the agents



European Vision of Hydrogen Network 2030

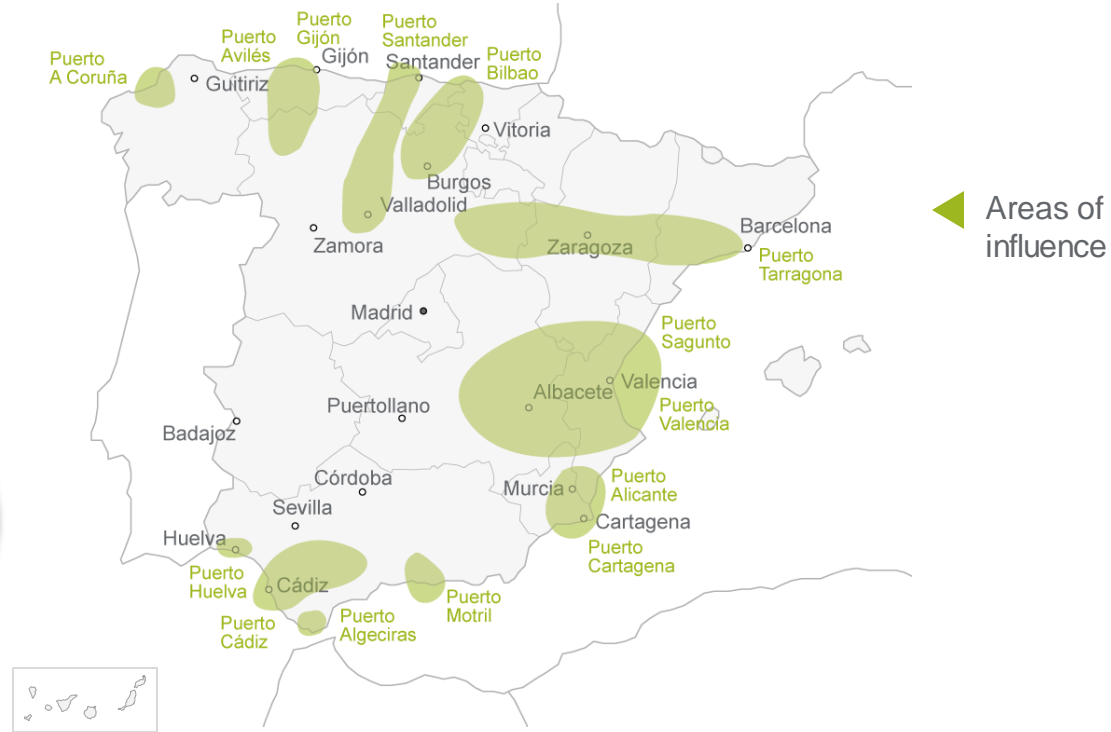
- Spanish hydrogen infrastructure 2030 (presented to the PCI)
- ▲ Underground storage facilities



Ammonia (NH₃) Results

Interest in producing more than **5 Mt/y** of ammonia involving a consumption of approx. 0.9 Mt/y of hydrogen

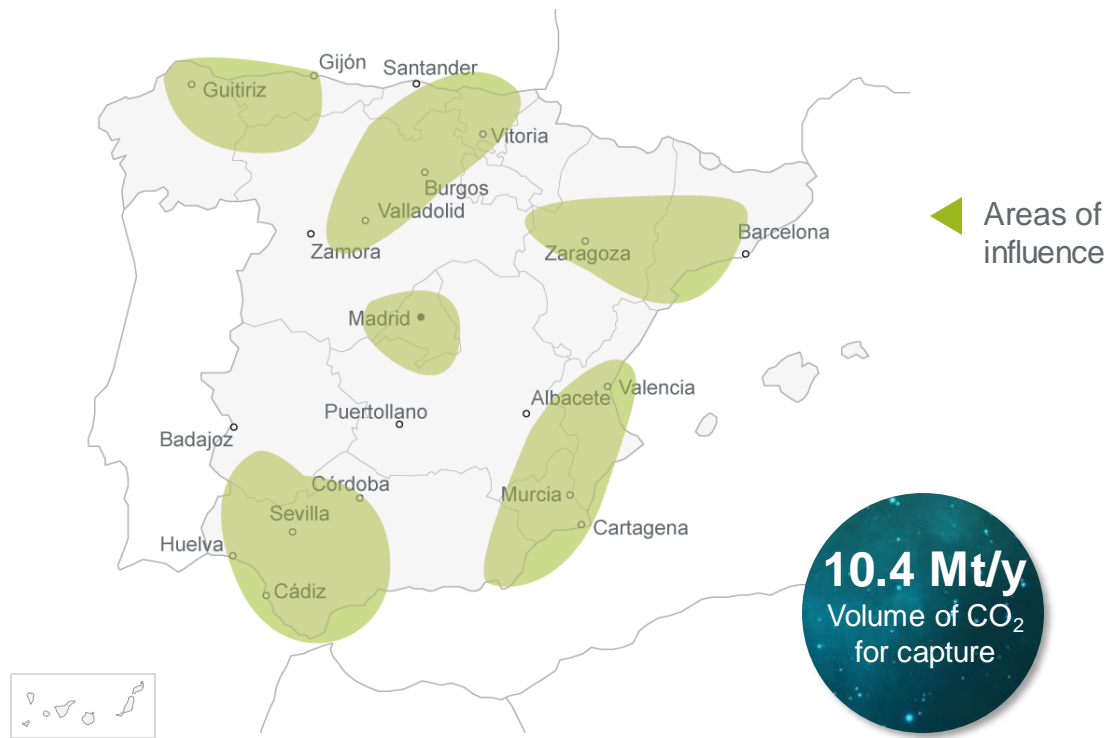
41 companies interested in the use of infrastructure for the transport of around 4 Mt/y of ammonia



CO₂ Results

37
companies
interested
in CO₂ capture

53
companies
interested in
infrastructure



Investments

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

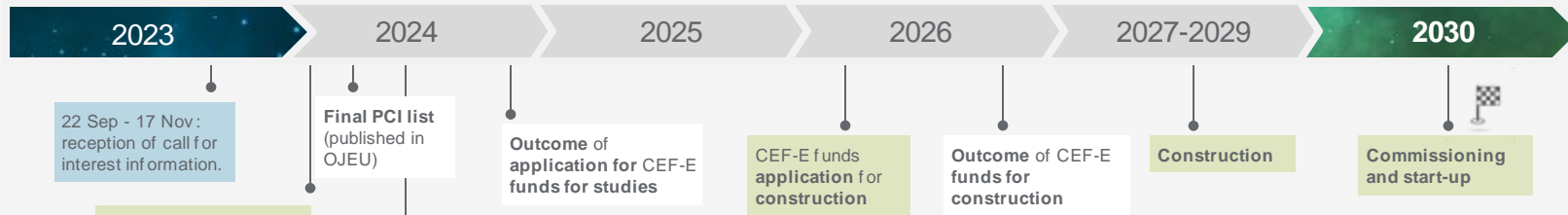
These investment figures do not include possible additional new sections resulting from the outcome of the Call for Interest

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

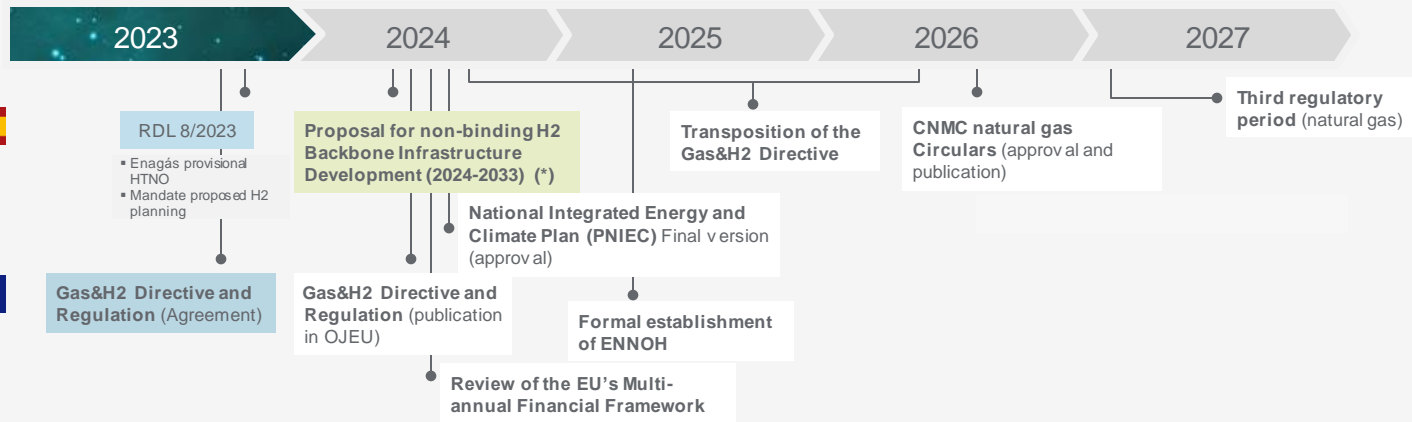
Schedule

Schedule

H₂ Infrastructure development, milestones diagram schedule



Regulatory framework development



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

Conclusions

Conclusions

- The **results of the Call For Interest** carried out by Enagás confirm the hydrogen infrastructure in Spain presented to **Projects of Common Interest (PCI)**.
- The **Call for Interest** has enabled the **identification of new production and/or consumption centres in all the Spanish autonomous communities on the Spanish mainland**, meaning in terms of positive impact, competitiveness and a dynamising effect for our industries, accompanied by positive economic development and a driving force in all the territories.
- These data show **Spain's enormous potential to become a European hydrogen hub** and in the future to be also the **gateway for renewable hydrogen from North Africa to Europe**.
- Enagás, as a TSO, has been designated as **provisional hydrogen transmission network operator**, according to the Royal Decree-Law 8/2023 of 27 December, and will send to the Directorate-General for Energy Policy and Mines a **proposal for hydrogen backbone infrastructure for Spain with a ten-year horizon (2033)**, before 29 April.
- It will be the **Ministry for Ecological Transition and the Demographic Challenge** that will **establish the next steps**.

Thank you very much

2º DÍA DEL
HIDRÓGENO
DE ENAGÁS



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