



Andalusian Green Hydrogen Valley

Cepsa launches Europe's largest green hydrogen project in Andalusia

Cepsa to produce 300,000 tons of green hydrogen in Andalusia

As part of its new 2030 'Positive Motion' strategy, Cepsa is launching the **Andalusian Green Hydrogen Valley**. This is the most ambitious renewable hydrogen project in Spain and one of the most important in Europe, which will accelerate the ecological transition and achieve greater energy independence. **Cepsa will have a total capacity of 2GW of electrolysis at two centers, located in Palos de la Frontera in Huelva and San Roque in Cádiz.**



Map data: Google Earth



Boosting industrial activity and employment in the region

With an investment of up to 3 billion euros, the project will generate 10,000 jobs, 1,000 of which will be direct. It will also enhance the work of more than 400 SMEs and self-employed workers and provide a boost to industrial activity in the region by facilitating access to affordable, accessible, secure, and sustainable energy that is close to production centers.

INVESTMENT

3
BILLION EURO

EMPLOYMENT

10,000
JOBS
(1,000 DIRECT)

ACCELERATOR PROJECT FOR

400+
SMES AND FREELANCERS

The Huelva plant, to be located at Cepsa's **La Rábida Energy Park** in Palos de la Frontera, will start up in **2026**, reaching full capacity in 2028.

The Campo de Gibraltar plant will be installed at the **San Roque Energy Park** and will be operational in **2027**.

The company is already working on the basic engineering and administrative processing of the projects.

Cepsa will implement renewable energy projects and promote the integration of new plants into the Spanish electricity system

To produce the energy needed to generate green hydrogen, Cepsa will carry out several wind, solar photovoltaic, and renewable energy projects, with a power of 7GW.

In addition, it will collaborate with other renewable energy producers in Andalusia and the rest of Spain to promote the integration of the new plants into the Spanish electricity system.



Green hydrogen will drive our green turn, prioritizing the Sustainable Development Goals and focusing on where Cepsa can have the greatest positive impact on society.

Generating green hydrogen will be fundamental for the decarbonization of both Cepsa itself and its customers, both private and industrial, and the transport sector as a whole.

This project will prevent the emission of 6 million tons of CO₂ per year, and the emission of other gases and particulate matter, thus improving air quality and contributing to achieving the United Nations 2030 Agenda's objectives.



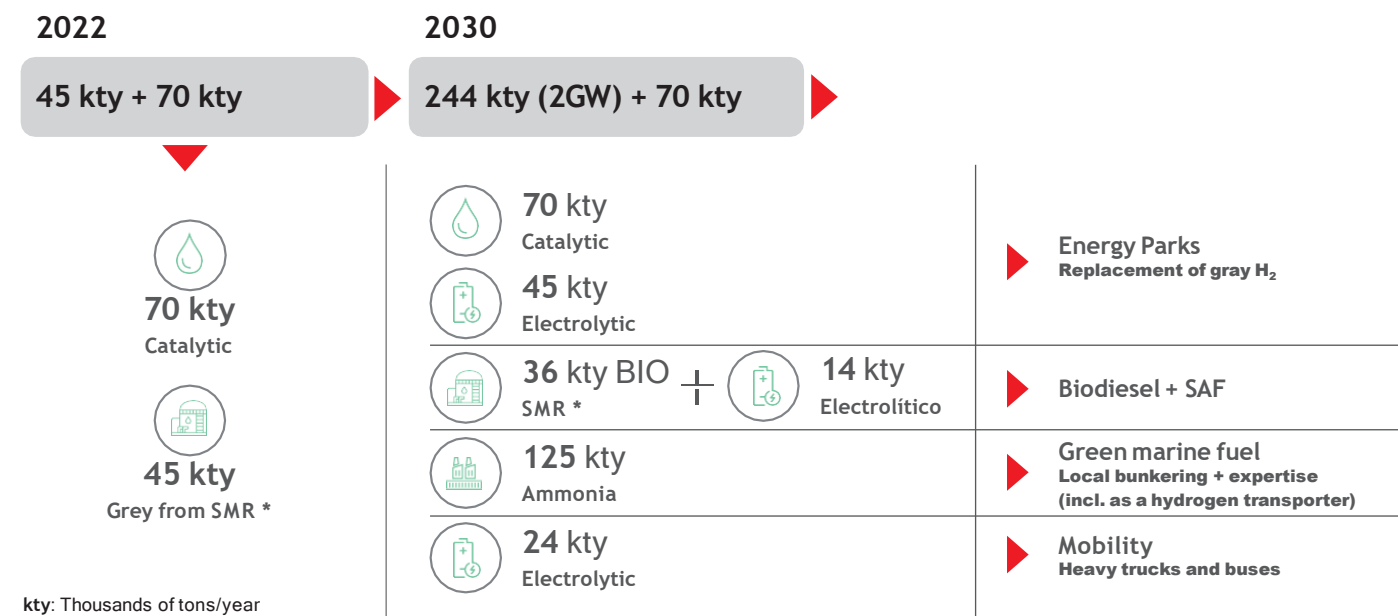
As part of its new strategy, Cepsa is to reduce its Scope 1 and 2 CO₂ emissions by 55% by 2030 compared to 2019

and its carbon intensity index by 15-20%, with the goal of achieving net zero emissions by 2050.

Cepsa to produce 50% of the green hydrogen expected to be produced in Spain by 2030

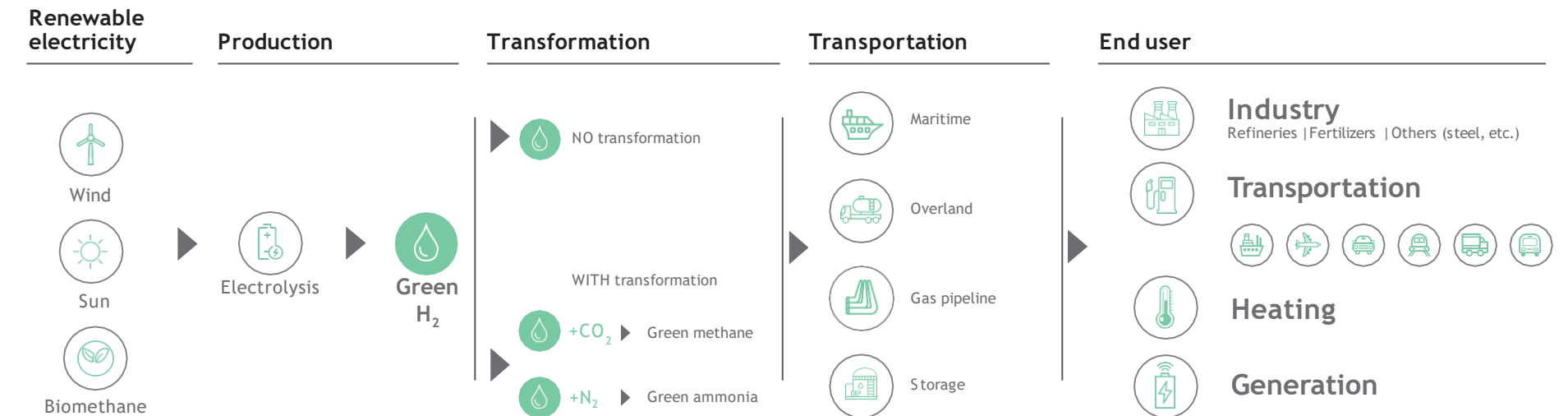
From current grey hydrogen production to **green hydrogen**

Cepsa will create 2GW of green hydrogen by 2030.



Green hydrogen is suggested as the ideal alternative to fossil fuels in industrial uses and heavy transport. It will also be a technology that Cepsa will use to boost the production of advanced biofuels.

How green hydrogen is produced and its uses



To facilitate and promote the use of green hydrogen in heavy road transport, Cepsa has set the goal of establishing **a refueling station every 300 kilometers by 2030** along the corridors connecting Spain with the rest of Europe. We will also boost the demand for associated products such as green ammonia and methanol for shipping.



A key project to secure supply and achieve energy independence

In addition to helping to achieve the objectives of the 2030 Agenda for the fight against climate change, the Andalusian Green Hydrogen Valley will turn Andalusia and Spain into a European energy powerhouse with export capacity.

Agreement with the Port of Rotterdam

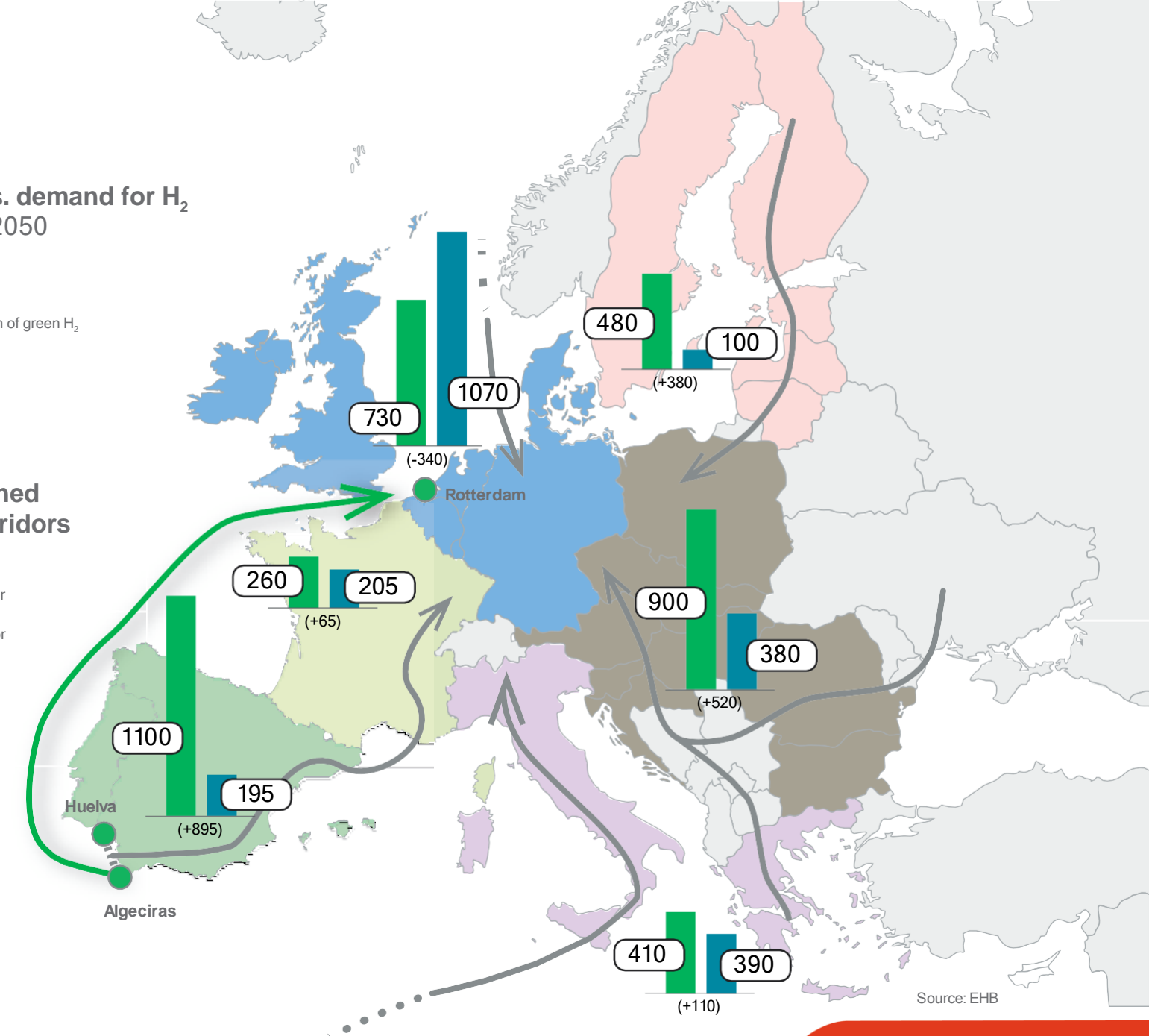
The development of this valley **will position Andalusian ports as world leaders** in international green hydrogen corridors and in supplying new green fuels for maritime transport. In this regard, **Cepsa has reached an agreement with the Port of Rotterdam** to create the **first green hydrogen corridor linking southern and northern Europe**, as well as other ports such as Singapore.

Production vs. demand for H₂ by country in 2050 (TWh)

- Potential production of green H₂
- H₂ demand

Primary planned European corridors

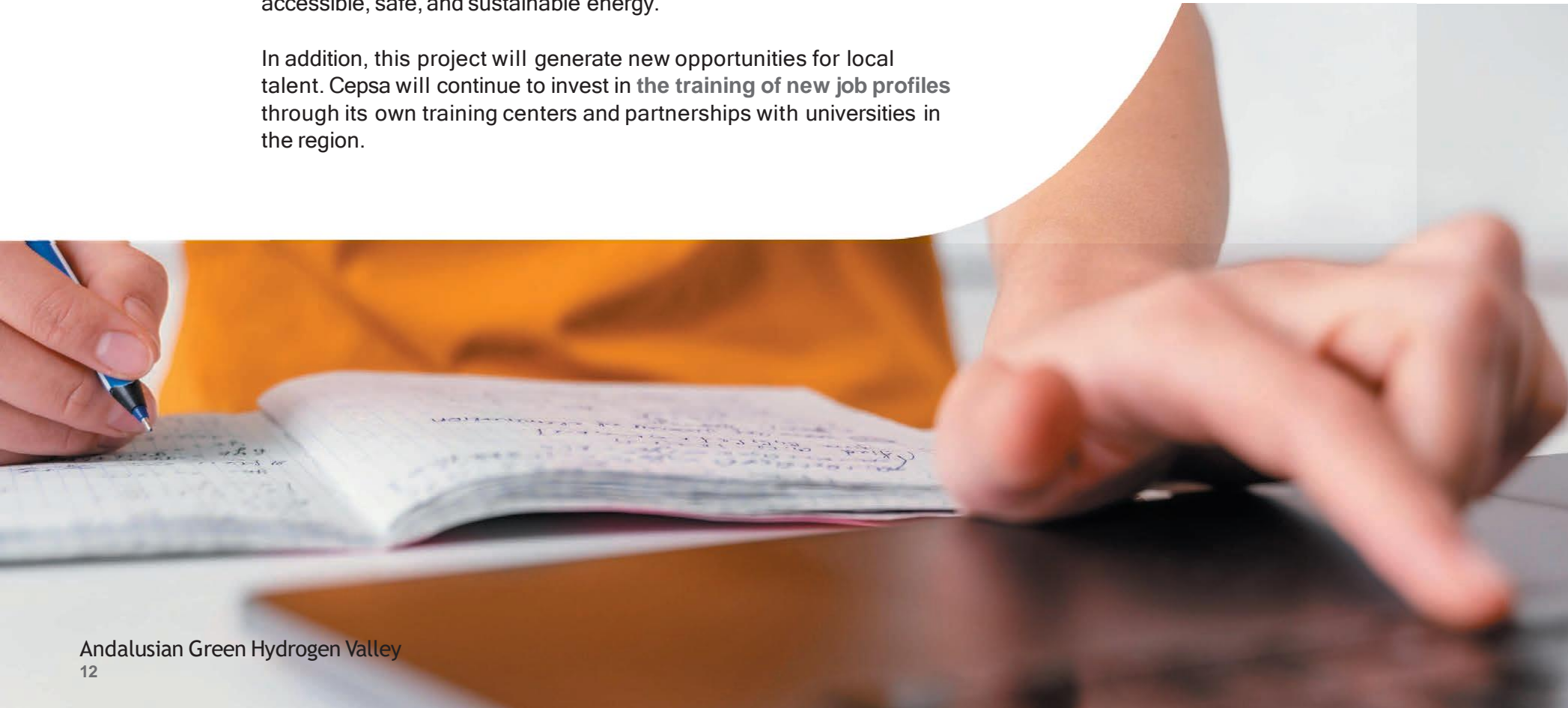
- Maritime corridor
- Overland corridor



Green hydrogen as a new energy vector

The Andalusian Green Hydrogen Valley will act as a **center of attraction for other links in the hydrogen value chain**, such as electrolyzer factories, green fertilizer plants, and hydrogen transport technologies. Andalusia already has important industrial centers. Cepsa's objective is to **promote partnerships and collaborations** with these industries to improve their competitiveness with affordable, accessible, safe, and sustainable energy.

In addition, this project will generate new opportunities for local talent. Cepsa will continue to invest in the **training of new job profiles** through its own training centers and partnerships with universities in the region.



Andalusia has the best conditions to be one of the most competitive and efficient regions in the world in the production of green hydrogen. It is one of the places in Europe with the most competitive wind and solar photovoltaic generation capacity: more than 80% of the cost of green hydrogen production is derived from the cost of renewable electricity.

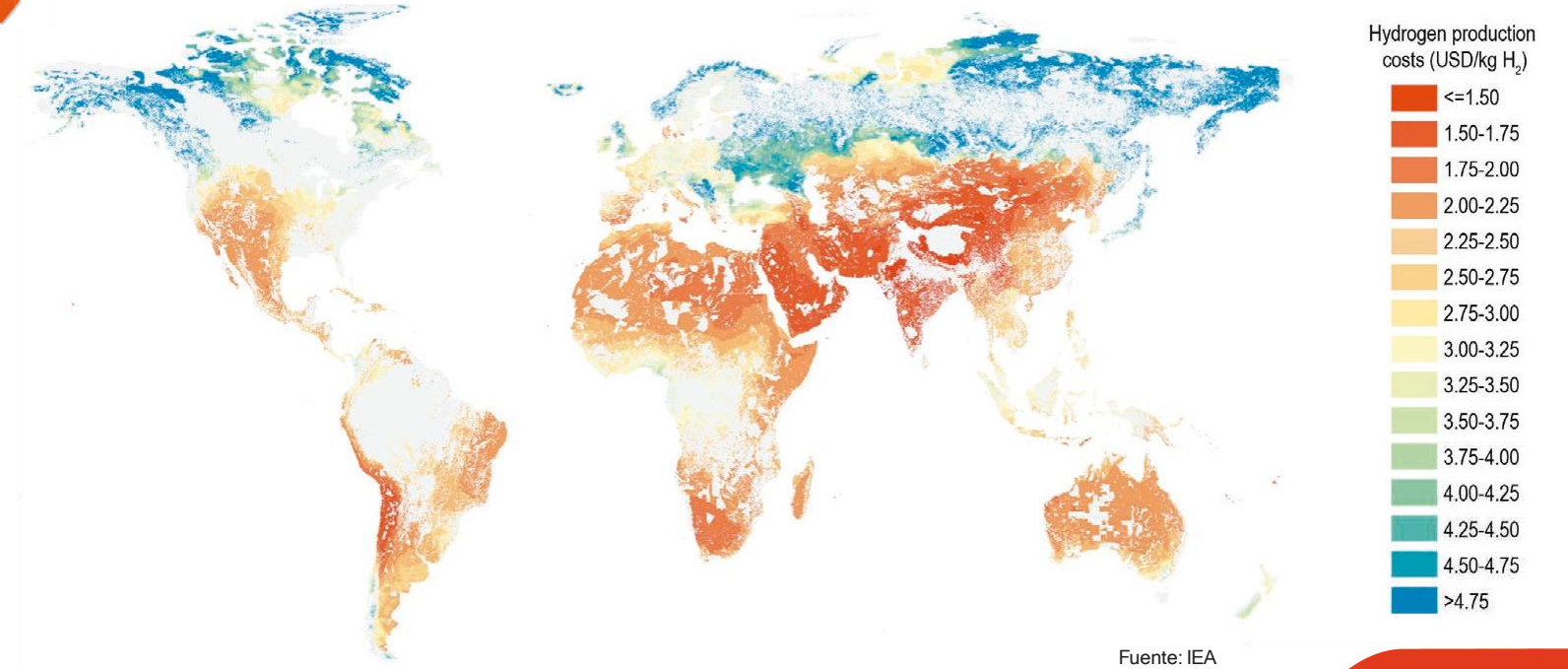
Andalusia consumes 40% of the hydrogen currently used in Spain, so Palos de la Frontera and San Roque, where there is already a significant

industrial fabric, are prime sites to implement large-scale projects. Only projects like these, with access to a broad mix of renewable sources and high end-user demand, can be competitive.

The location of the plants will contribute to the increased integration of renewable projects in the autonomous community and will improve their utilization by taking advantage of surplus renewable energy generation during off-peak hours, accelerating compliance with the region's and Spain's decarbonization goals.



Estimated cost of H₂ production (USD/kg) in 2030

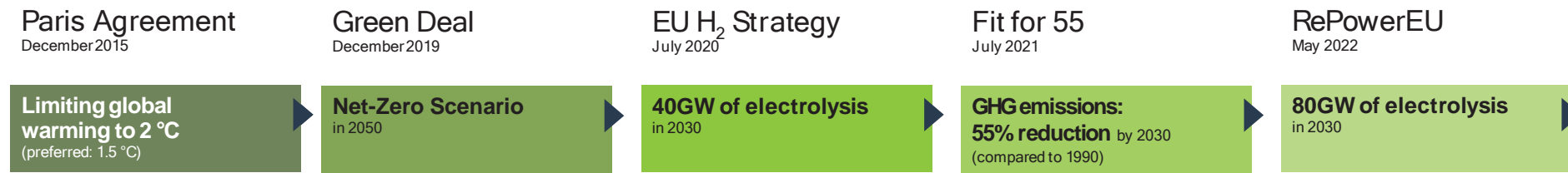


Hydrogen production costs (USD/kg H₂)

- <=1.50
- 1.50-1.75
- 1.75-2.00
- 2.00-2.25
- 2.25-2.50
- 2.50-2.75
- 2.75-3.00
- 3.00-3.25
- 3.25-3.50
- 3.50-3.75
- 3.75-4.00
- 4.00-4.25
- 4.25-4.50
- 4.50-4.75
- >4.75

Fuente: IEA

Marco regulatorio | Europa



Renewable Energy Directive (RED)

RED II

Directive in force

32% renewables of total gross final energy consumption by 2030

Overall transport renewables target of 14% by 2030

The current directive encourages advanced biofuels

RED III

Under discussion

40% of renewables over total gross final energy consumption in 2030 (45% according to the Parliament and REPowerEU).

16% reduction of GHG emission intensity (Parliament) or 29% renewable in transport (Council)

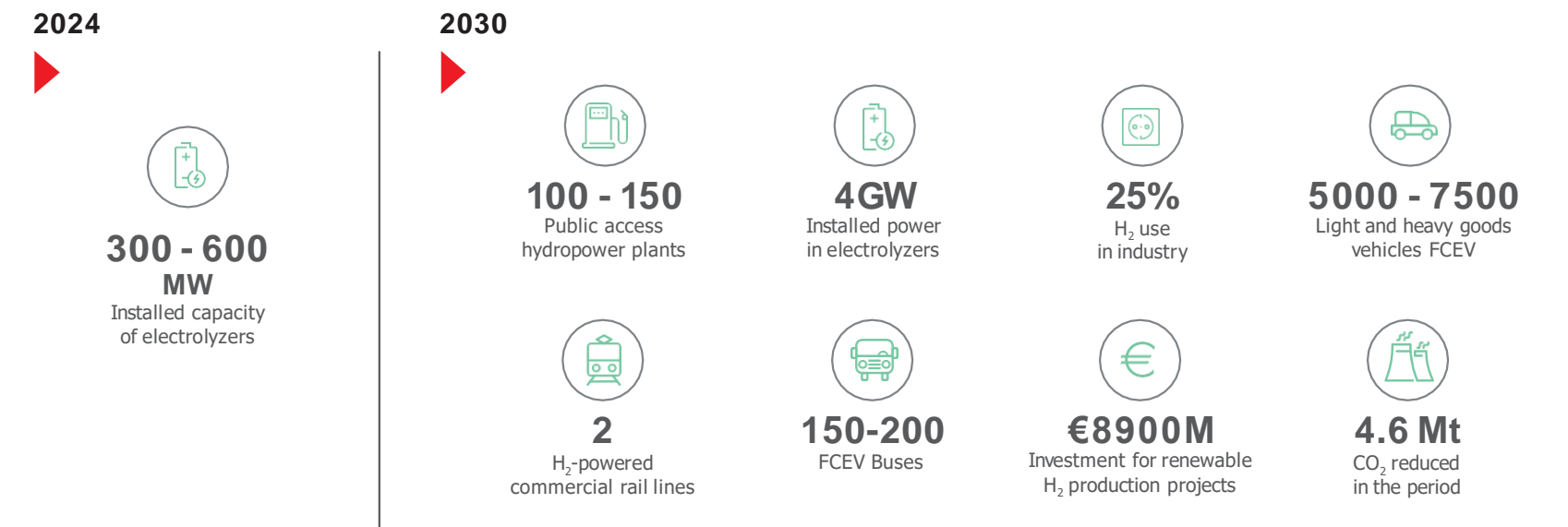
The revised directive proposes:

- Transportation: 2.6% of non-biologically-sourced renewable fuels
- Industry: (minimum) 50% of hydrogen consumed must come from renewable sources

The Spanish Government considers green hydrogen as a key element to achieve decarbonization

Regulatory framework | Spain

“Hydrogen roadmap: a commitment to renewable hydrogen”



Why green hydrogen?

Green hydrogen can decarbonize sectors that are difficult to electrify, such as heavy transport (road, air, and maritime) or intensive industry. It is a decisive energy vector for **achieving the CO₂ emission reduction targets** set by the European Union.

In addition to being an **essential source of energy for the global energy transition**, it provides the independence that is needed in Europe to ensure security of energy supply.



High storage capacity and ease of transport: that's green hydrogen

Ability to be stored

As a pressurized gas or in the form of green ammonia and methanol, and other by-products.

Ease of management and transportation

Initially, infrastructures and processes that are now used for natural gas can be used.

Supplying regions without renewable energies

It is a solution both for storage and transportation to other regions where there are no renewable resources.

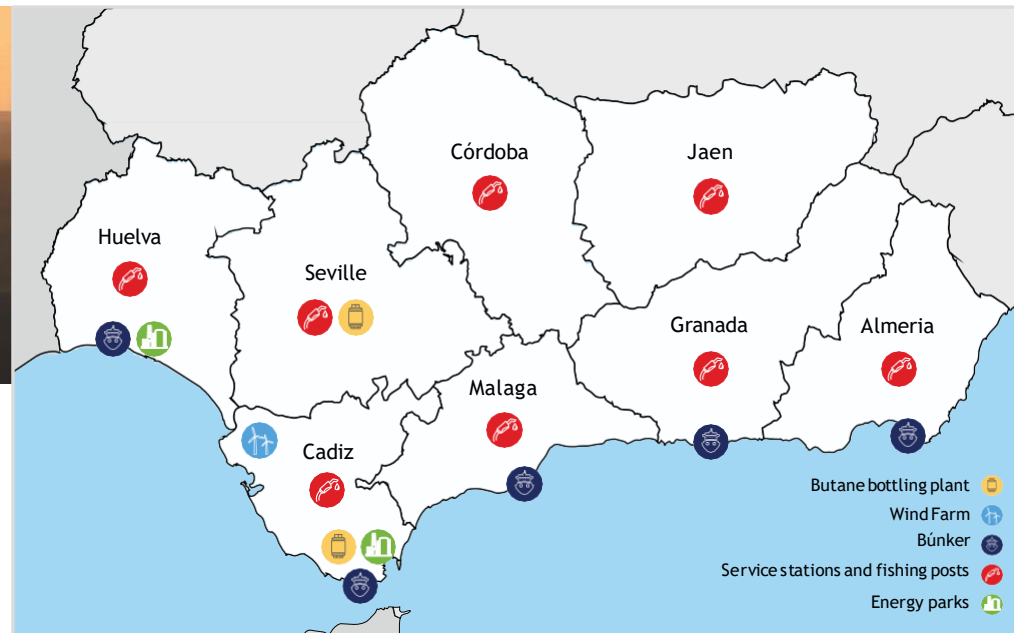
It can be stored for long periods of time

It is a more economical option for storing electricity from renewable energy than the use of batteries.

Cepsa, the leading company in Andalusia by value of production

(€13.145B in 2021)

Cepsa is already the leading company in the Andalusian region in terms of GDP generated and exports via ports. With the company's planned investments in this region, it will continue to strengthen its leading position.



Main figures

264
Service stations

17
Fishing posts

10
Ports with marine fuel supply to vessels

8.7%
Value of production in the Andalusian GDP
(2019: 4.6%)

5
Billion euros
Andalusia Investment Plan to 2030

231
Million euros
Leading industrial investor in Andalusia

5.05
Billion euros
Value of exported production

Quality employment and high levels of training

2,837
People
Direct employment
Stable and quality

4,760
People
Indirect employment

5,907
People
Induced employment

164,101
Training hours
Total

25,475
Training hours
Health & safety

Source: prepared by the company Data for 2021



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