

ENERGIAREN EUSKAL ERAKUNDEA

ENTE VASCO DE LA ENERGÍA

Basque Hydrogen Corridor and Infrastructure Development at the Port of Bilbao

EVE – Basque Energy Agency

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DEPARTAMENTO DE INDUSTRIA, TRANSICIÓN ENERGÉTICA Y SOSTENIBILIDAD

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Energy Agency of the Basque Government

(Department of Industry, Energy Transition and Sustainability)

WHAT

Development of Basque Country`s energy strategies based on the criteria of security of supply, cost competitiveness, technological and business development, and sustainability

Active participation and contribution to achieving the objectives defined within the strategies.

HOW

➢Implementation of energy policy

Through instruments such as subsidies and grants, targeting both residential and industrial sectors. This includes support for self-consumption, energy efficiency, electric mobility.

➢ Project development

Acting as a bridge between public policy and the private sector, often through public-private partnerships for project development. We currently manage around 30 subsidiaries involved in such partnerships.

➢ Strategic foresight

Through regulation (participating in public consultations and assessing the impact of new regulatory frameworks), Energy planning (offering technical support for infrastructure planning and regional energy needs) and Energy data (monitoring market trends, prices, and energy consumption across different sectors).

Basque Country in a nutshell

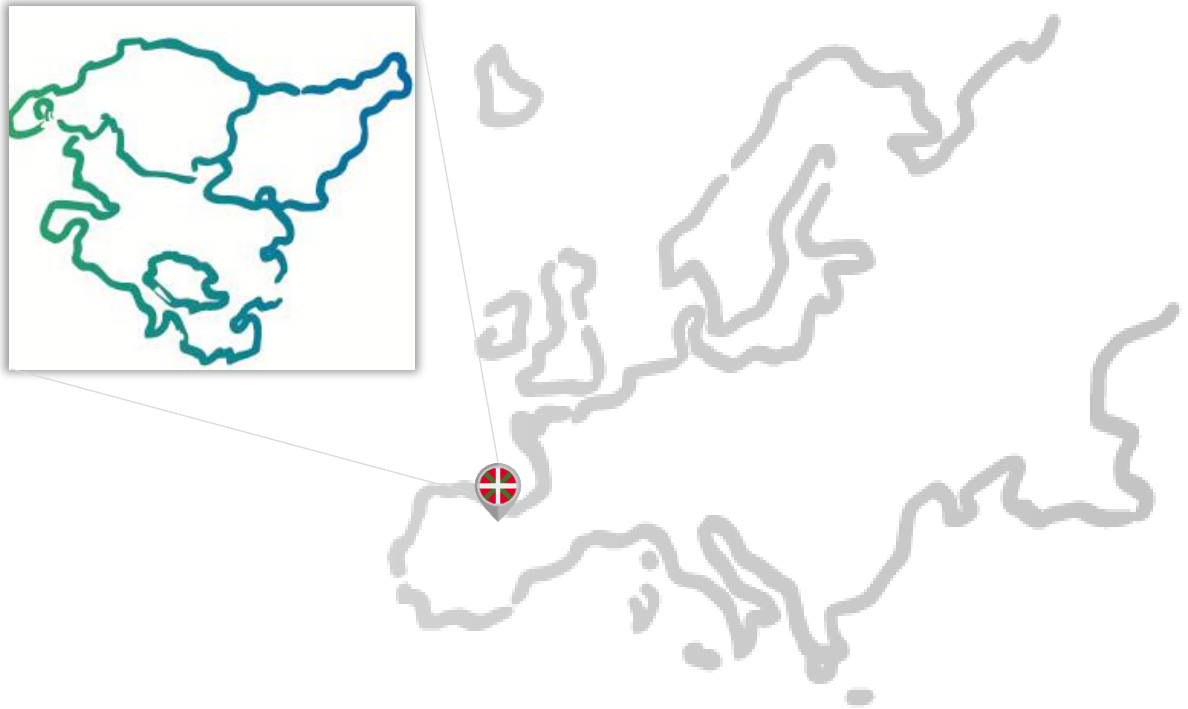
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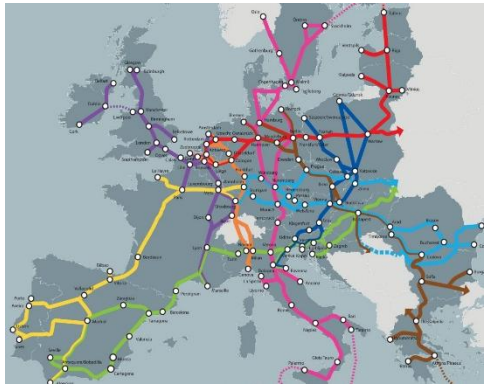
2.2 M
Inhabitants

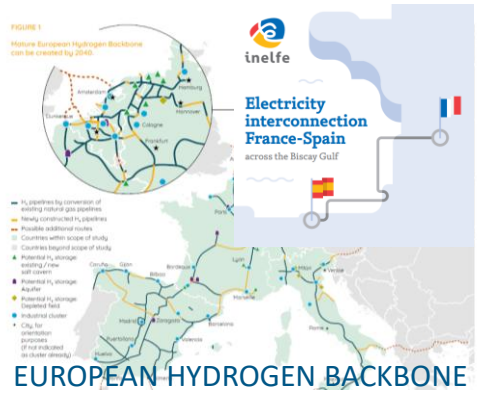
24%
industry share of GDP

14Mt/y
CO2 emissions, highly concentrated



STRATEGICALLY LOCATED





EUROPEAN HYDROGEN BACKBONE

- ☑ TEN-T (Atlantic transport corridor)
- ☑ TEN-E (strategic electrical and gas infrastructure)





- ☑ Port of Bilbao
- ☑ Refinery

Basque Hydrogen Corridor

The BH2C is key to deliver the objectives of the Basque Hydrogen Strategy and develop renewable H2 in the Basque Country. The association brings together 75 members and over 60 projects.

Investment of **€900 million** over the period 2021-2030

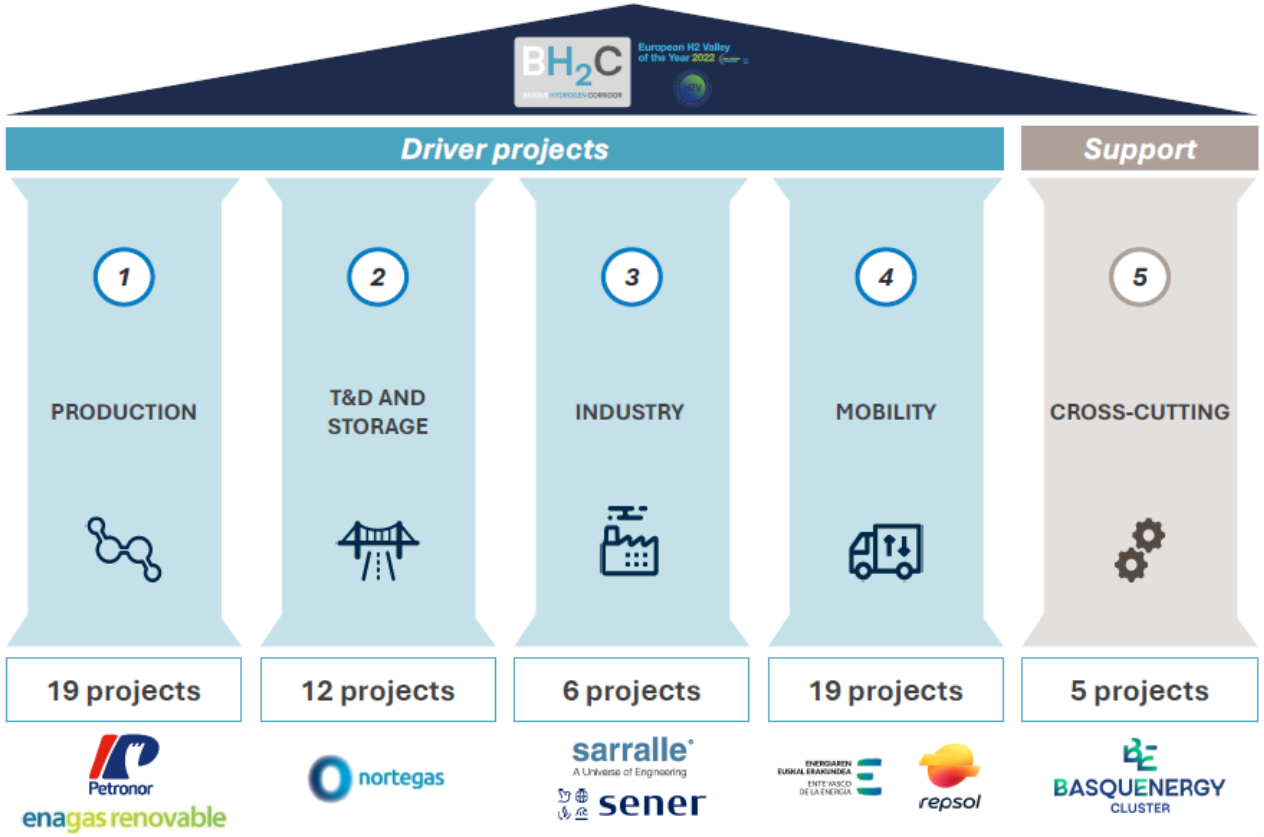
~132.5 MW of electrolysis

Production of **~21,000 ton** per year of H_2

Production of **~8,000** litres per day of e-fuels

Reduction of **~200,000 ton** per year in CO_2 emissions via H_2

Global indicators of BH2C



Basque Hydrogen Corridor – Production

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Synthetic fuels plant commissioning
December 2026



10 MW alkaline electrolyser commissioning
July 2026



BASQUE HYDROGEN

IPCEI 100 MW alkaline electrolyser construction start
January 2026



Petronor

New laboratory for monitoring hydrogen purity and electrolysis
October 2024



Europe's pioneering laboratory for hydrogen technologies
February 2024



tecnalia
MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

2,5 MW alkaline electrolyser commissioning
October 2023



Petronor

The world´s first membrane production plant to obtain Hydrogen
November 2022



H2SITE

IPCEI project for the technological development of next generation electrolysers
July 2022



sener

Basque Hydrogen Corridor – T&D and storage

World's first plant for the manufacture of palladium membranes to produce hydrogen.

October 2024



H2SITE

Verification of the optimal performance of current gas networks for use with 20% hydrogen.

January 2024



nortegas

First 100% hydrogen distribution pipeline in Spain.

October 2023



nortegas

World's largest Tube Trailer in terms of pressure (517 bar) and capacity (1.3 tons) for hydrogen transport.

February 2023



CALVERA Hydrogen

Basque Hydrogen Corridor – End use: industry

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Conversion of a natural gas-fired reheating furnace to H_2/O_2

January 2025



First ladle preheating station capable of running entirely on Green Hydrogen.

July 2023



sarralle
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NIPPON GASES

ArcelorMittal

Electric Arc Furnace Prototype

2026



Oxyfuel-cutting prototype to evaluate the use of hydrogen for metallurgical cutting

January 2024



Reheating furnace prototype for the evaluation of hydrogen combustion technologies.

March 2023



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Basque Hydrogen Corridor – End use: mobility

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Commissioning of a H2 distribution logistics center for mobility
September 2026



IBIL CALVERA Hydrogen

Commissioning of a portable public hydrogen refueling station for fuel cell vehicles.
January 2025



IBIL CALVERA Hydrogen

Supply of hydrogen buses with 259 buses delivered in 2024 and more than 400 vehicles in the pipeline.
End 2024



CAF SOLARIS

Success of the FCH2Rail project, the first hydrogen train simulating commercial service on the Spanish and Portuguese rail network.
November 2024



CAF

Irizar i6S Efficient Hydrogen bus completes European vehicle certification for H_2 and travels 2,500 km, demonstrating a range of 900 km.
July 2024



Irizar

First on-board ammonia cracking system producing high-purity hydrogen for fuel cells.
November 2023



H2SITE

First prototype fuel cell engine to extend the range of hybrid trucks, using Spanish technology.
April 2023



ajusa

Application of H_2 technology to sustainable rail mobility, integrating the entire value chain.
March 2023



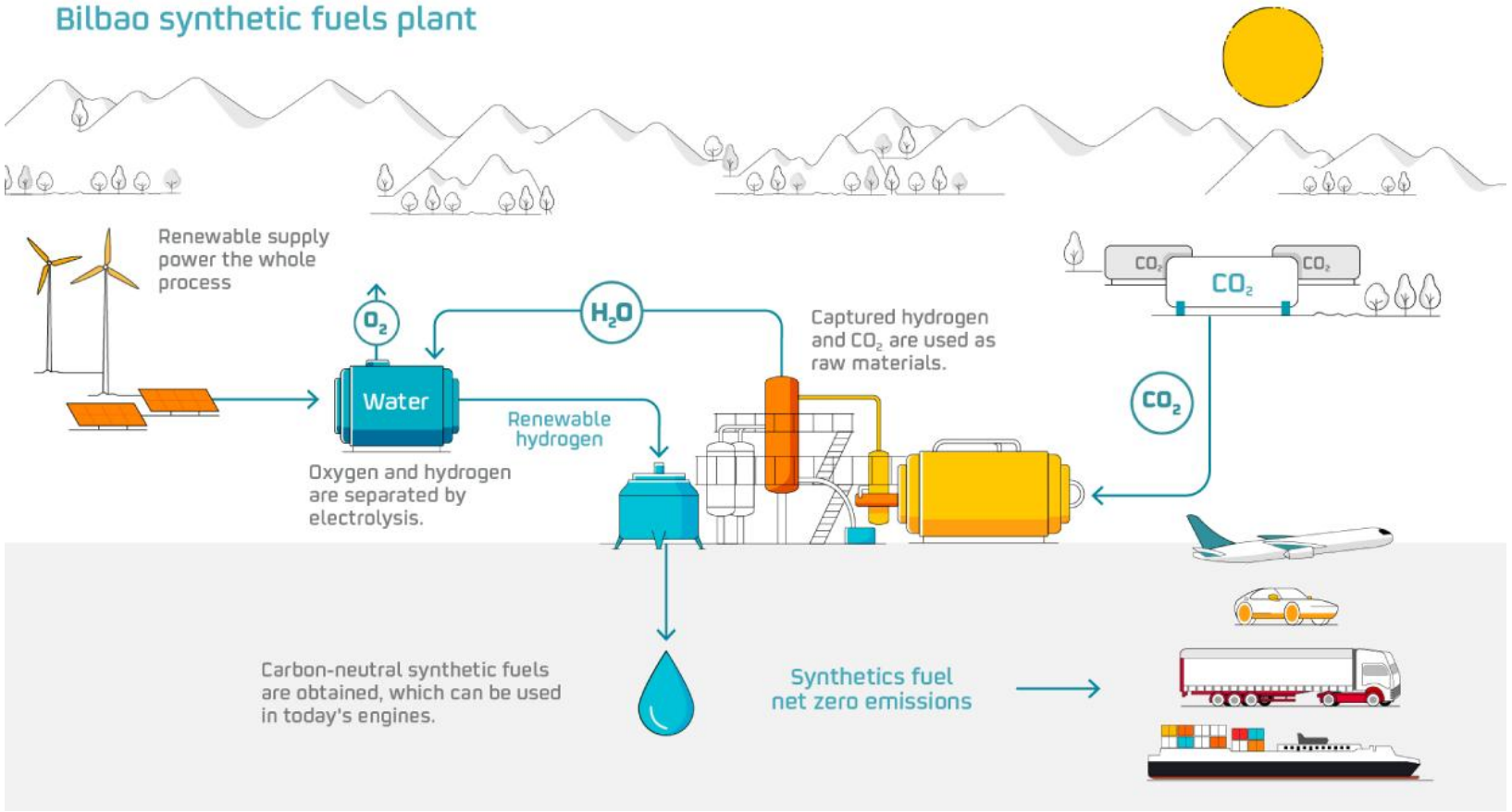
Talgo

10 MW electrolyser + synthetic fuels demo plant

The Project consists on the development of first of a kind e-fuels plant using captured CO2 and green hydrogen as raw material. The objective is to demonstrate technical and economical feasibility.

BASQUE HYDROGEN **10 MW electrolyser** + Synkedia Biscay **Synthetic fuels demo plant**





10 MW electrolyser + synthetic fuels demo plant

BASQUE HYDROGEN — **10 MW electrolyser** + Synkedia Biscay — **Synthetic fuels demo plant**

alba Emission Free Energy by Petronor + ENERGIAREN EUSKAL ERAKUNDEA / ENTE VASCO DE LA ENERGÍA + enagas renovable

alba Emission Free Energy by Petronor + aramco

1,600 t/y of H_2 production capacity.

2,100 t/y of e-fuels production capacity.

6,900 t/y of CO2 emisisions avoided.

The plant will produce e-kerosene, e-diesel and e-naphtha, while providing key insights for industrial-scale deployment and e-fuel testing.

Electrolysis capacity in the following years in the Basque Country

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Electrolysers

Petronor

E1: 2.5 MW ELECTROLYSER

- In operation

BASQUE HYDROGEN

E2: 10 MW ELECTROLYSER

- Commissioning

bbh
Bay of Biscay Hydrogen

E3: 100 MW ELECTROLYSER

- Under construction, start-up in 2029
- ~16,000 t renewable H_2/year

E4: HERMES ELECTROLYSER – 150 MW

- Pre-FID phase
- ~24,000 t renewable H_2/year

H_2 available for industry and mobility

H_2 availability and milestones

Year	Cumulative capacity and H_2
2026	**2.5 MW** **385 t H_2/year**
2027	**12.5 MW** **1,923 t H_2/year** Q1: +10 MW*
2028	
2029	**112.5 MW** **17,308 t H_2/year** Q1: +100 MW
2030	
2031	**262.5 MW** **40,385 t H_2/year** Q2: +150 MW*

Estimate: alkaline electrolysis, 8,000 h/year and 52 kWh/kg H_2. *150 MW subject to FID.

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Eskerrik asko!
Thank you!