How to manage regulatory and market uncertainty to achieve net-zero goals in the marine and aviation markets

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Gothenburg, October 2025

Legal disclamer

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About us

Repsol is an energy company that offers solutions to cover all its customers' energy needs, both at home and on the move

Repsol, a global multi-energy company committed to the goal of reaching net zero emissions by 2050.

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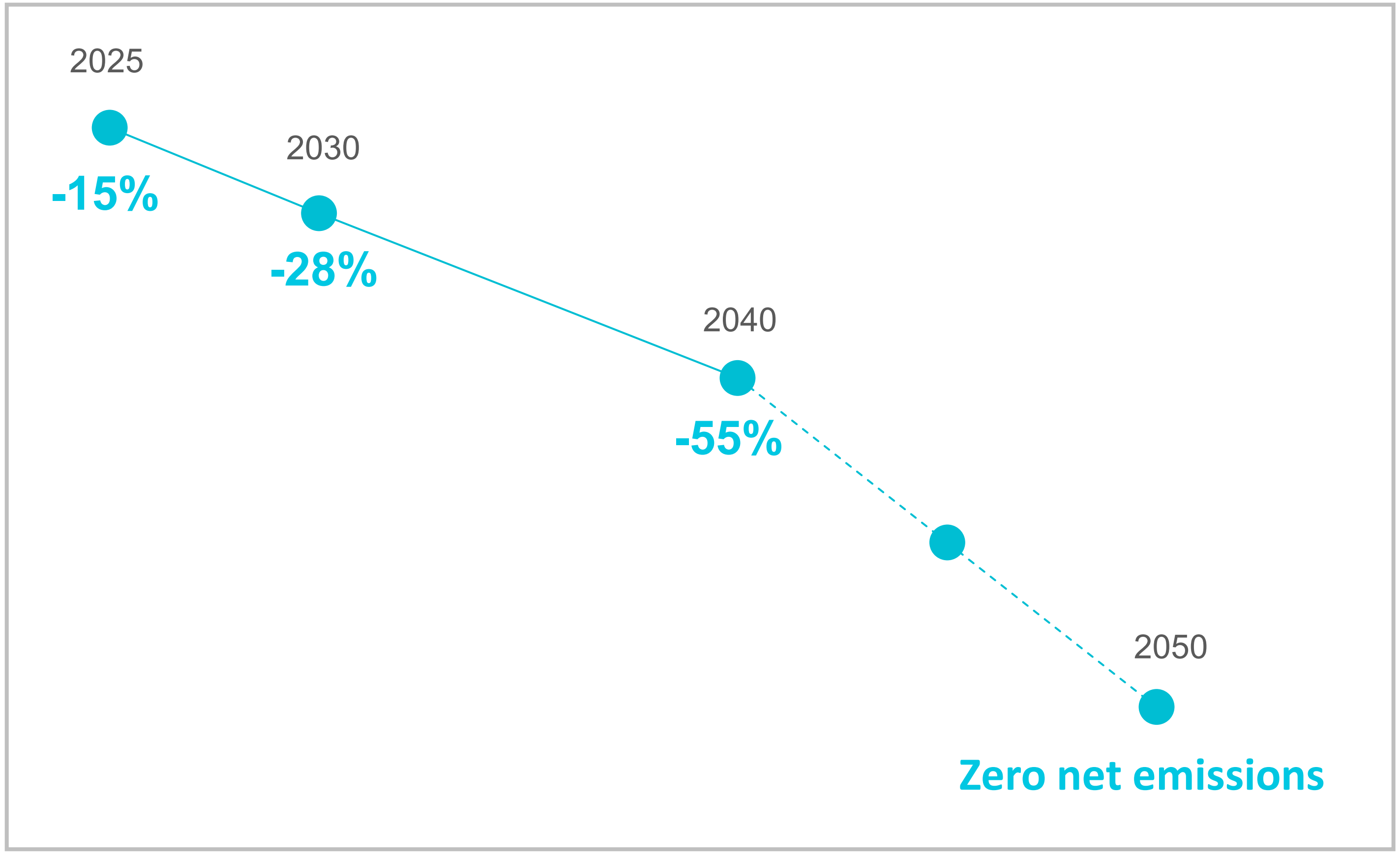
- The first company in the industry to announce its **commitment to achieve zero net emissions by 2050**
- 2024-2027: **low-carbon initiatives will account for more than 35%** of total investments
- We drive decarbonization by integrating **all technologies**
- **Leadership positioning** in the main ESG ratings and rankings

Targets for the reduction of the Carbon Intensity Indicator (CII)



We use our Industrial Complexes to set reduction targets and monitor our progress towards achieving them

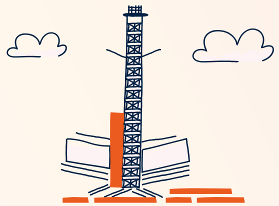
Repsol today

Company assets in **+20** countries

25,000 employees

24 M. customers

+10 M. digital clients



Upstream

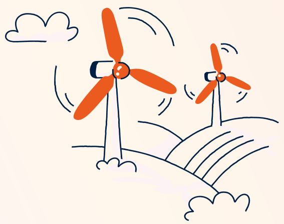
571,000 boe/d
average production in 2024

Projects in **12 countries** in key geographic areas

Industrial

7 industrial complexes in Spain, Portugal and Peru

2nd 100% renewable fuels plant on an industrial scale in the Iberian Peninsula



Renewables

Projects in Spain, USA and Chile

+4,700 MW in operation

Innovation and technology

250 technology projects in Repsol Technology Lab

+800 digital initiatives

Cliente

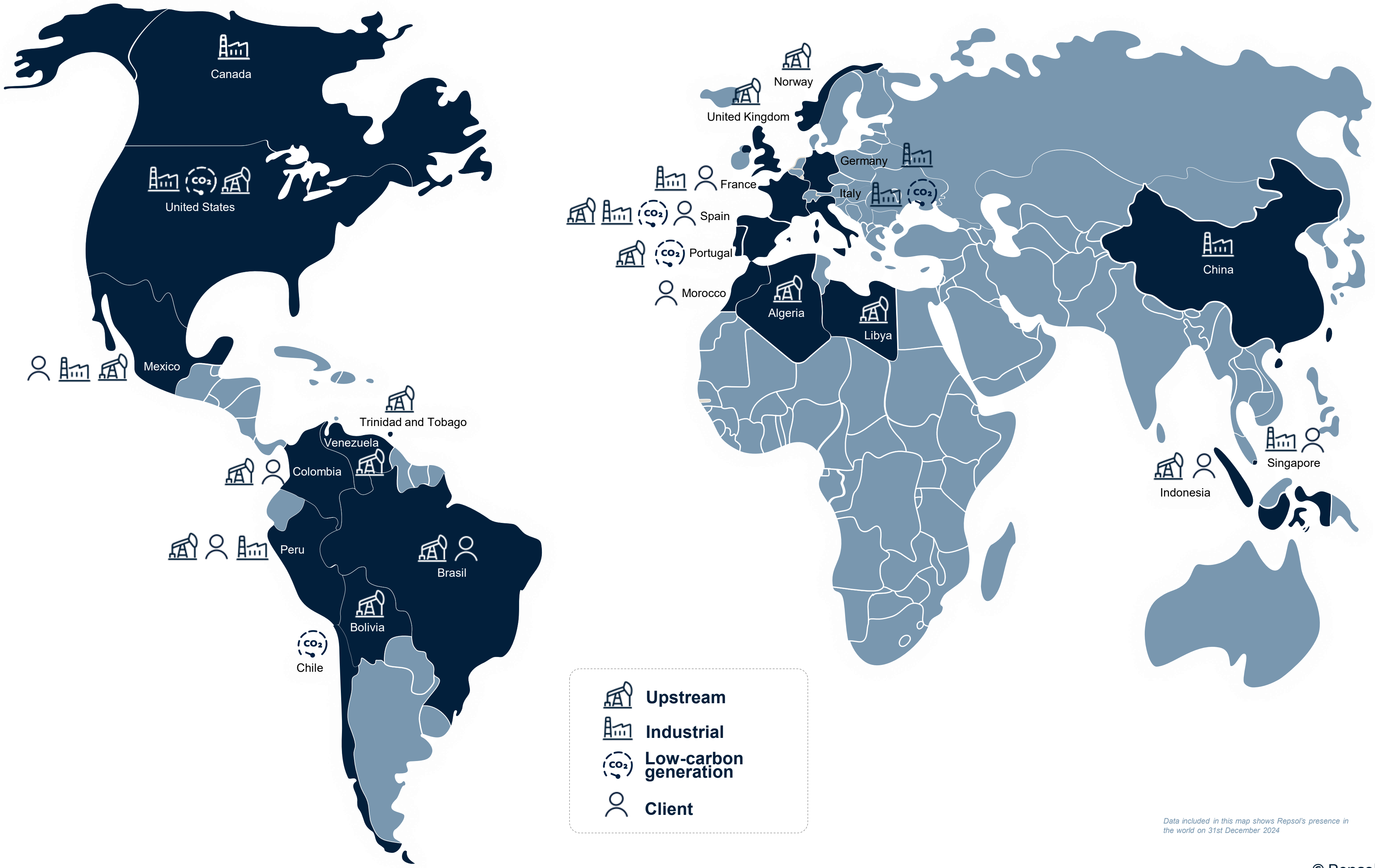
+4,500 service stations in Spain, Portugal, Peru and Mexico

+1,200 service stations supply **100% renewable fuels**

+3,200 public electric charging points installed in Spain

2.8 M. power and gas customers

Repsol in the world



GERMANY
Chemicals

ALGERIA
Upstream

AUSTRALIA[1]
Upstream

BRASIL
Upstream
LAAS*

BOLIVIA
Upstream

CANADÁ
Wholesale and gas trading

CHILE
Low-carbon generation

CHINA
Chemicals

COLOMBIA
Upstream
LAAS*

SPAIN
Refining
Chemicals
Trading
Wholesale and gas trading
LAAS*
Mobility
LPG
Retail Electricity and Gas
Low-carbon generation
Geothermal (Upstream)

UNITED STATES
Upstream
Chemicals
Trading
Wholesale and gas trading
Low-carbon generation

FRANCE
Chemicals
LAAS*
LPG

INDONESIA
Upstream
LAAS*

IRAQ[1]
Upstream

ITALY
Chemicals
Low-carbon generation

LIBYA
Upstream

MOROCCO
LAAS*

MEXICO
Upstream
Chemicals
LAAS*
Mobility

NORWAY
Upstream

PERU
Upstream
Refino
Trading
LAAS*
Mobility

PORTUGAL
Chemicals
Wholesale and gas trading
LAAS*
Mobility
LPG
Retail Electricity and Gas

UNITED KINGDOM
Upstream

SINGAPORE
Trading
LAAS*

TRINIDAD AND TOBAGO
Upstream

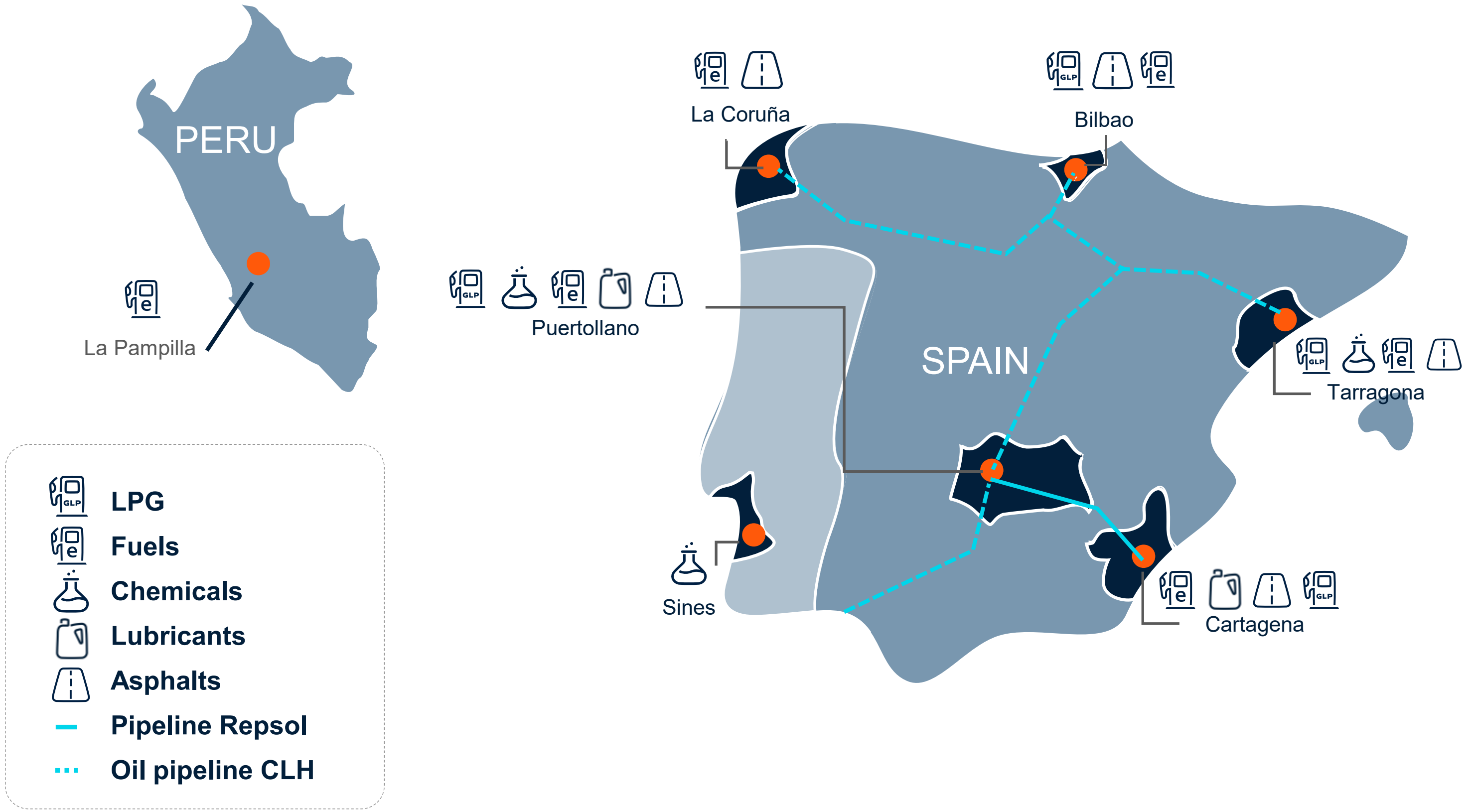
VENEZUELA
Upstream

[3] In process of release pending official validation
** LAAS: Lubricants, aviation, asphalts and specialized products*

How do we do it

Industrial

We are transforming our industrial complexes - six of which are located in the Iberian Peninsula - into **multi-energy hubs**, capable of treating a large variety of raw materials and waste to manufacture **products with a low carbon** footprint, such as 100% renewable fuels.



One of the most efficient refining systems in Europe:

7 industrial complexes
in Spain, Portugal and Peru

+1 M bbl/d
of refining capacity

1,25 MT/year
of renewable fuel production capacity

Cartagena
First 100% renewable fuels plant on an industrial scale in the Iberian Peninsula

Industrial Transformation And Circular Economy

What are renewable fuels?

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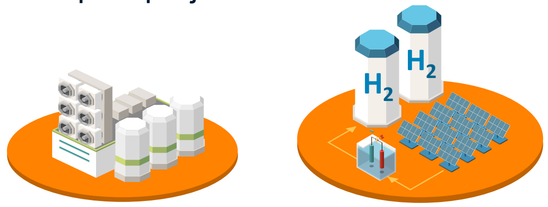
Biofuels

They are made from organic waste and turned into fuels for transportation. They are already a reality and are available at 1.300 of our service stations on the Iberian peninsula

Lipidic waste | Municipal solid waste | Agri-food industry waste | Agroforestry waste | Renewable hydrogen

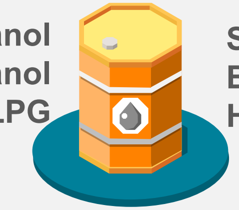
efuels

They are produced by separating hydrogen from water and combining it with CO_2 captured from the atmosphere. At present they are not sold, but there are pilot project for their manufacture.



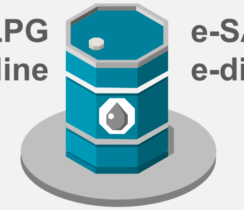
CO_2 captured | Renewable hydrogen

Biomethanol
Bioethanol
BioLPG



SAF
Biodiesel
HVO

e-LPG
e-gasoline

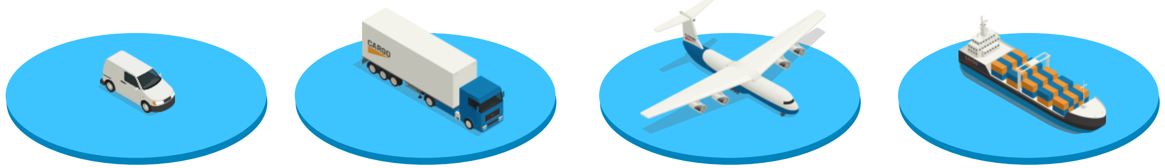


e-SAF
e-diesel

The production of renewable fuels is **an interconnected ecosystem; it does not work sector by sector**

Refineries produce fuels for multiple **applications, road transport, aviation, maritime, all from the same feedstock.** It's a co-production process

Uses in mobility



Cars | Trucks | Aircraft | Ships

Biofuels and e-fuels are already recognized as CO_2 net-zero emissions in use (ETS, RED)

Industrial transformation

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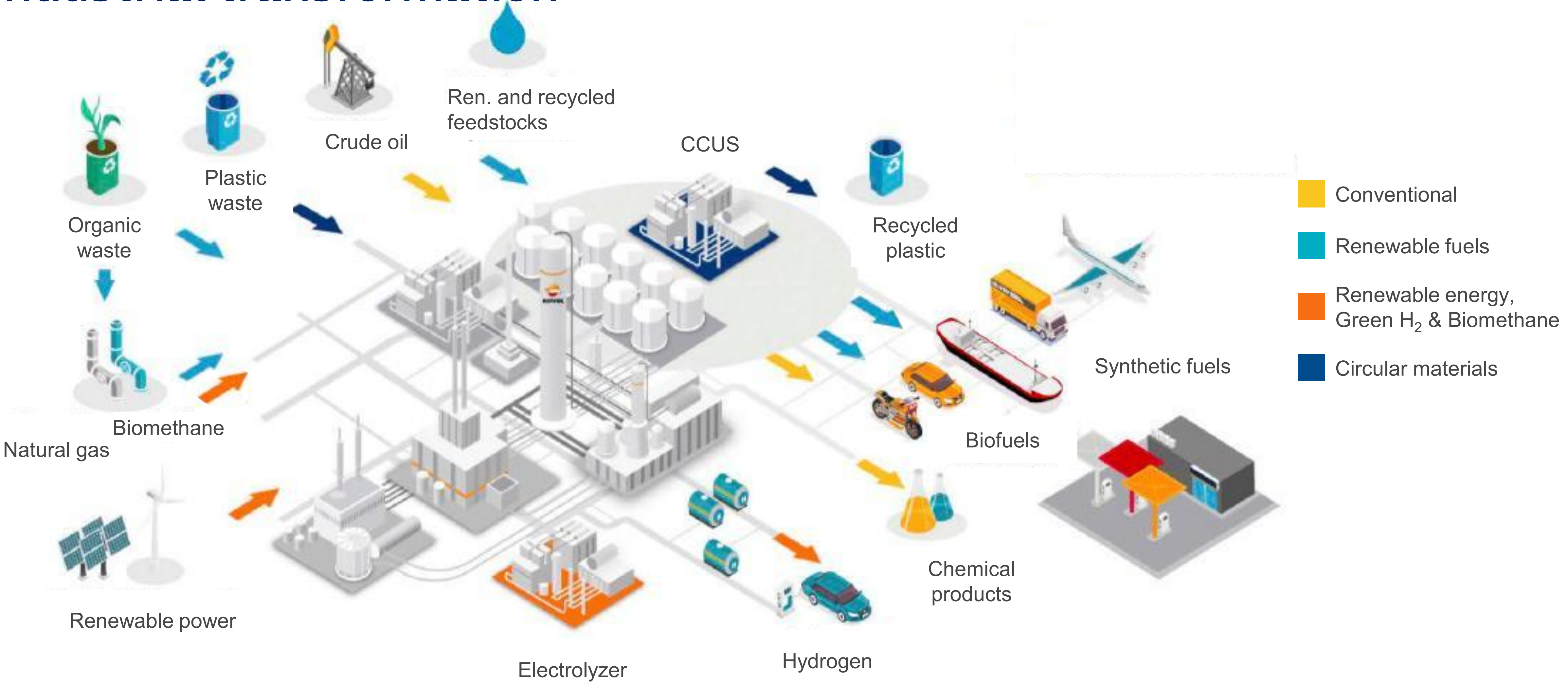

Ambition >

0,7-1,2 GWeq

Renewable H2 ambition by 2030

2,7 Mton

Renewable fuels by 2030

Renewable fuels are ALREADY a reality on land, at sea and in the air

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- **We are one of the main producers of renewable diesel in Iberia.**
- **Production of renewable gasoline since 1998 and renewable diesel since 2011.**

100% renewable diesel commercial deployment

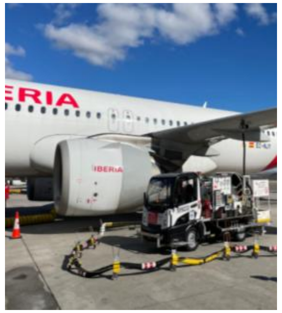
Tested in the toughest conditions for Dakar 2023 and 2024

Used for agricultural machinery

Customer and fleet supply agreements

Sesé SEAT SCANIA Coca-Cola

- **Consolidated coproduction capacity in Puertollano and Tarragona.**
- **Production in Cartagena**



First commercial flights in Spain powered by biojet from 2021 with:
2021: Evelop. Iberia, Vueling, etc.
2022: Air Europa. Iberia, Vueling, etc.
2023: Air Europa, Iberia, Vueling, Gestair, etc.
2024: Iberia, Volotea, Guardia Civil

Columbus Day Parade in Spain (October 2022)

- Repsol **offers different solutions for maritime transport** to adapt to a very flexible market in terms of products to be incorporated: renewable diesel in the short term, renewable methanol and biomethane in the medium term.

- **March 2022,** Navantia and Repsol sign an agreement to evaluate the performance of new renewable fuels.
- **August 2023,** Royal Caribbean's *Symphony of the Seas*, the first ocean-going vessel to be fueled by BioBunker from used cooking oil.
- **Septiembre de 2024,** bio-GNL supply to Brittany Ferries GNL ships in Santander.

Repsol’s renewable fuels industrial projects & investments

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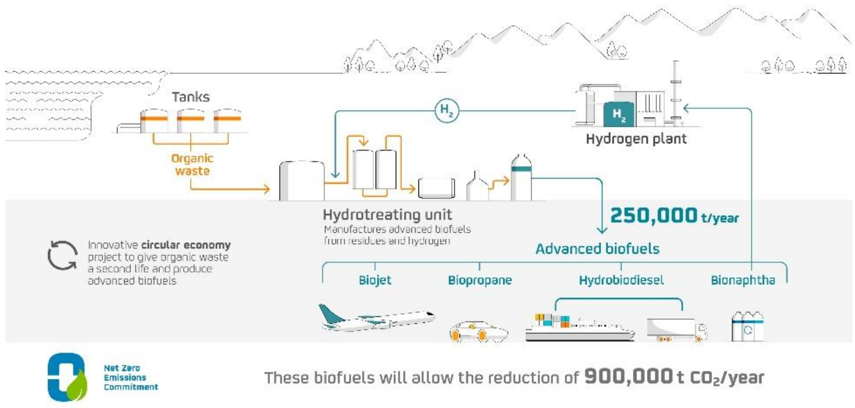
Waste Biofuels Plant (Cartagena)

+250 M€

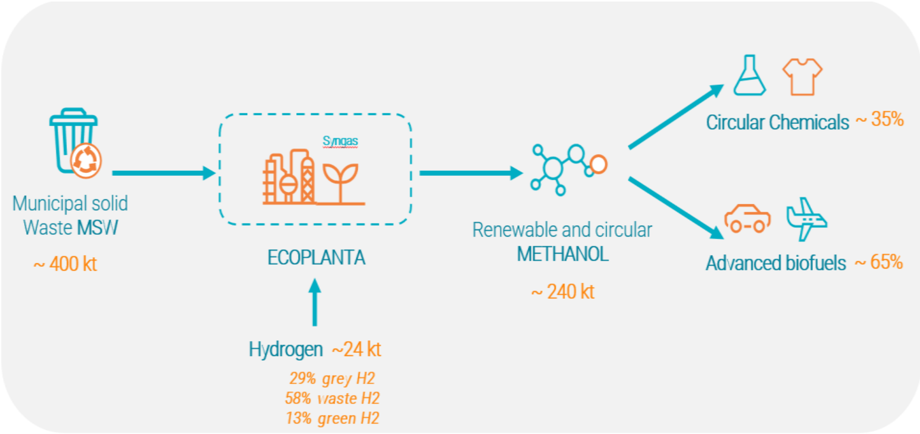


- 100% renewable fuels from lipidic waste (250K ton/year in production)
- Co-production of renewable diesel for road or maritime and SAF
- EIB financed
- A 2nd plant in Puertollano 2026: 130M € (retrofit), 200K ton/year ReDiesel

Ecoplanta (Tarragona)

INNOVATION FUND

+800 M€

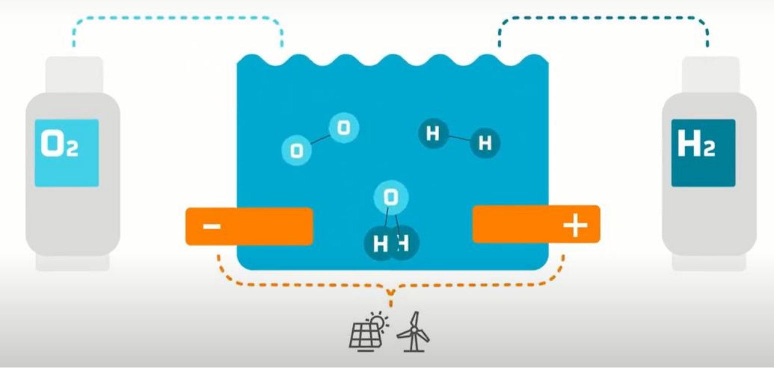


- Production 240K ton/year bio- and circular methanol from > 400K ton/year municipal solid waste
- Co-owner of technology (as Enerkem key shareholder)
- Start 2029

Electrolyser (Bilbao, Cartagena and Tarragona)

+1.000 M€

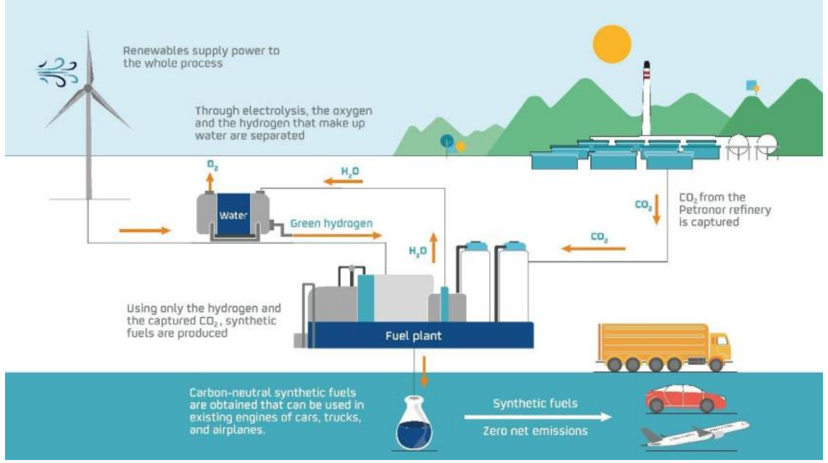
INNOVATION FUND



- Three electrolyzers: 350 MW
- IPCEI projects: 315 million €
- IF support: 62 million €
- Production: 55K ton/year H_2 for internal demand

E-fuels demo plant (Bilbao)

+100 M€



- Synfuel from captured CO2 and renewable hydrogen
- Pre-commercial size to test technology
- Start 2026

Regulation

Renewable fuels regulatory demand| Key regulatory pieces affecting demand

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Different pieces of regulation affect demand of both fossil and renewable fuels

Legislation where renewable fuels are suitable for decarbonization

ReFuel Aviation: Requires fuel suppliers to increase the percentage of SAF (Sustainable Aviation Fuel) from 2025 to 2050.

Fuel Maritime: Mandates shipping companies to use renewable fuels by limiting the carbon intensity of energy used on board ships, while also promoting the use of synthetic fuels.

Emissions Trading Scheme (Industrial - ETS I, Road & Buildings - ETS II): CO_2 emissions from biofuels & eFuels are considered to be zero CO_2 emissions.

Renewable Energy Directive: emissions from biofuels & synthetic fuels are compensated: zero CO_2 emissions.

Legislation where renewable fuels are NOT suitable for decarbonization

CO_2 Emissions in Cars (LDV): The text sets the year 2035 as the de facto deadline for banning internal combustion engines, as it requires a 100% reduction in tailpipe CO_2 emissions by that year.

CO_2 Emissions in Trucks (HDV): Incremental CO_2 emission reduction targets from 2025, aiming for a 90% reduction by 2040. Targets for new urban buses set at 100% reduction by 2035.

⚠ CO_2 in road transport regulations are **inconsistent** with other key regulations

RED III| Renewable Energy Directive (III)

Requirements, Limits on the use of raw materials and their application in Spain

Sustainability requirements, minimum GHG savings and traceability.

- All renewable fuels must meet sustainability requirements and minimum GHG savings (vs. 94 gCO2/MJ) in order to be eligible to meet regulatory targets.
- Compliance with these requirements must be verified within the framework of a third party (Certification Scheme) recognised by the European Commission **(PoS (Proof of Sustainability))**
- The traceability of these renewable fuels must be ensured (Union Database)

Usage limits

- Usage limits have been set for certain raw materials

Food and fodder crops

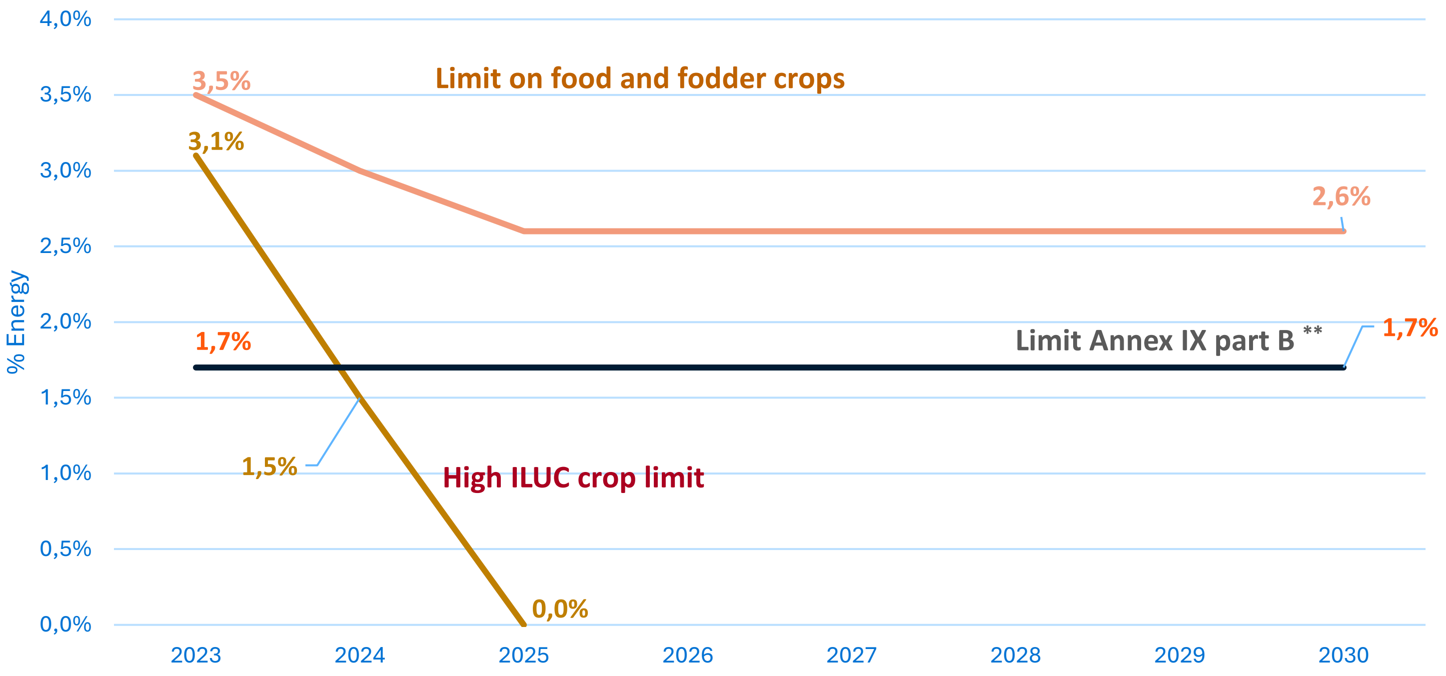
- Avoiding negative impacts on the human and animal food value chain.

Crops high risk indirect land-use change (ILUC)

- Avoid the risk of deforestation.
- In Spain, the following are considered to be at high risk ILUC**: palm oil, fresh fruit bunches (FFBs), distilled palm fatty acids (PFAD) and palm kernel oil**.

Raw materials Annex IX part B**

- To avoid mass importation from third countries.
- To avoid the risk of fraud.



** Used cooking oil (UCO), animal fats categories I, II.

Fuel EU Maritime| Increase the use of renewable fuels and low-carbon fuels and substitute energy sources in maritime transport in the Union

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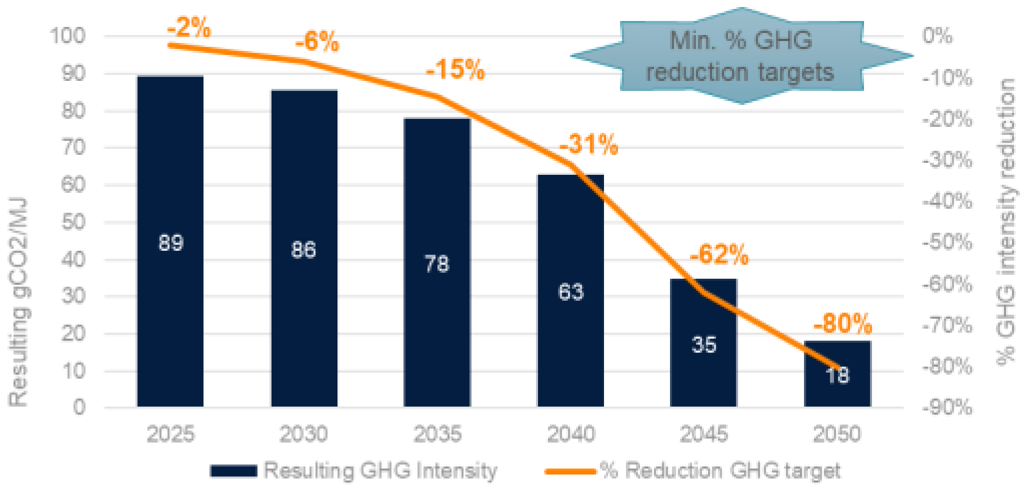
Objectives

- ❑ Obligation to **use shore-based electricity supply or zero-emission technology** in ports under the jurisdiction of a Member State.
- ❑ **GHG emission intensity limit of energy used on board** by ships arriving, staying or departing from ports under the jurisdiction of a Member State during the reporting period may not exceed the following annual limit taking as a reference value 91.16 gCO2e/MJ



Flexibility mechanism Pooling → Vessels may be grouped together to meet the objectives.

Scope

It applies to all **ships over 5,000 gross tonnes** intended for the **carriage of passengers or goods for commercial purposes** in respect of:

- **100%** of the energy used in intra-EU travel **.**
- **50%** of the energy used on travel to or from **the outermost regions of a Member State**
- **50%** of the energy used on voyages to **or from a port in a Member State from a third country**
- All energy used during your stay in a port of call under the jurisdiction of a Member State

Compliance Tools

- **Fossil fuels** with a footprint of less than 91.16 gCO2e/MJ. The intensity of fossil fuel emissions is set out in Annex II of the regulation.
- **Biofuels and biogas** that meet the sustainability criteria and the reduction of GHG emissions intensity according to the RED and that are not produced from food or fodder crops.
- **RFNBOs and RCFs** that comply with the GHG emissions intensity reduction established in the RED (70%). →**For RFNBOs** between01/01/2025 and 31/12/2033, a multiplier of value 2 may be used to calculate the reduction of the GHG emissions intensity of the energy used on board.
- **Low-carbon fuels** that comply with an emission intensity reduction set out in the Gas Directive (70%).

Refuel Aviation| Establish regulations on the use and supply of sustainable aviation fuels (SAF) in order to scale up their supply and ensure their availability

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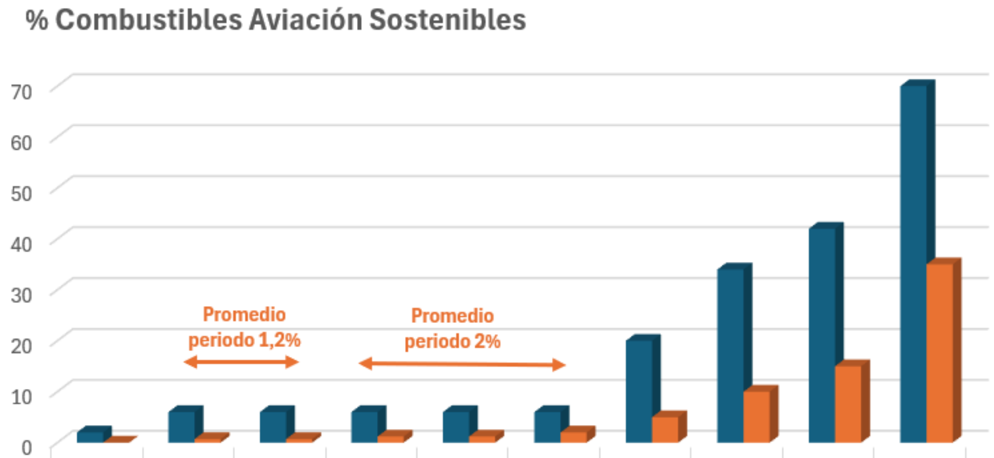
Objectives for fuel suppliers

From 01/01/2025, fuel suppliers must ensure that all aviation fuel made available to aircraft operators at **each Union airport contains a minimum annual percentage of SAF and synthetic fuel**



	2025	2030	2031	2032	2033	2034	2035	2040	2045	2050
% mínimo anual SAF	2	6	6	6	6	6	20	34	42	70
% mínimo anual sintéticos (dentro del minimo de SAF)	0	0,7	0,7	1,2	1,2	2	5	10	15	35

- ❑ **Flexibility mechanism for the period 01/01/2025-31/12/2034 →** The minimum percentages of SAF may be supplied as a weighted average of all the fuel supplied at all Union airports during the notification period
- ❑ Exceptionally, only for the objective of the average percentages of synthetic aviation fuels:
  - If it is not met in the period 01/01/2030 to 31/12/2031, it will be met before the end of the period 01/01/2032 to 31/12/2034.
  - If it is not met in the period 01/01/2032 to 31/12/2034, it will be met in the following notification period.

Compliance tools

Sustainable aviation fuels (SAF):

- Synthetic aviation fuels: RFNBO.
  - Aviation biofuels:
  - Advanced biofuels: (RED Annex IX, part A). Biofuels Annex IX, part B.
  - Other biofuels (maximum 3%) except those produced from food and feed crops.
- Recycled carbon aviation fuels

Other fuels that can be used to achieve the objectives:

- Renewable hydrogen for aviation.
- Low-carbon aviation fuels: Low-carbon H2 from nuclear and its derivatives

Methanol for Bunker

Ecoplanta Project Construction Phase

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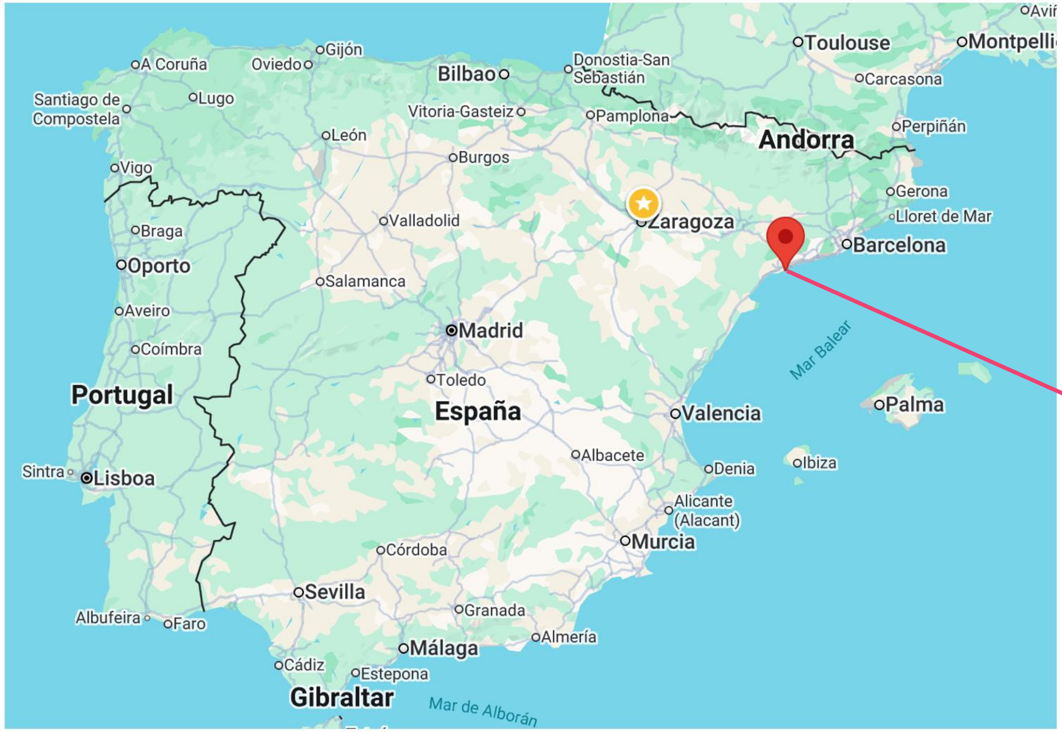
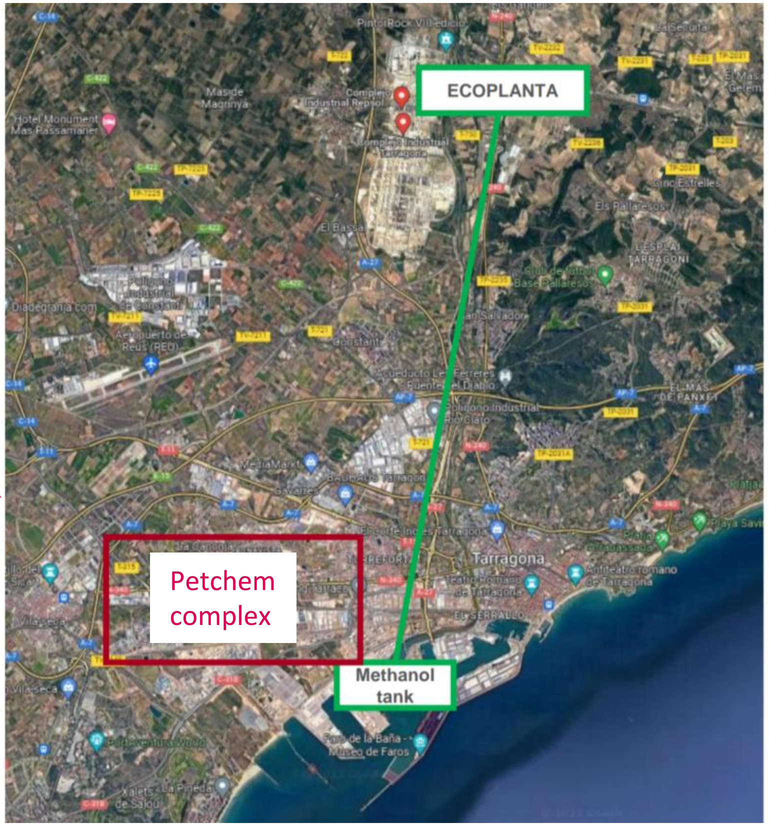
Scheduled to begin operating in 2029





340 jobs

during operation.

2,800 jobs

during construction.

MSW as a Feedstock

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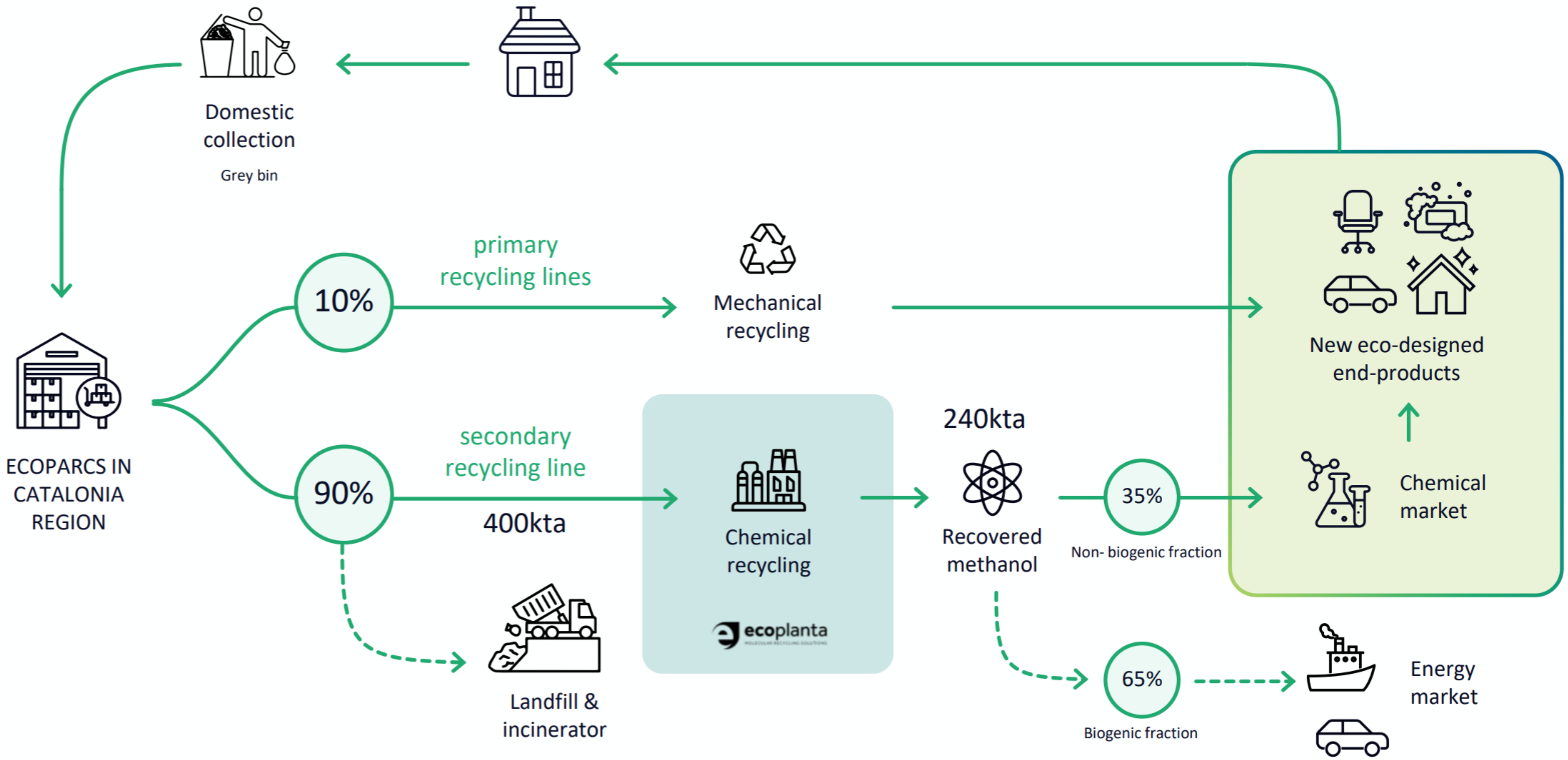

Ecoplanta project process

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Located in El Morell, Tarragona, will be the FOAK in Europe to produce methanol from waste

Schedule

FID January 2025, COD 4Q2029, + 800 M€

GHG emissions savings

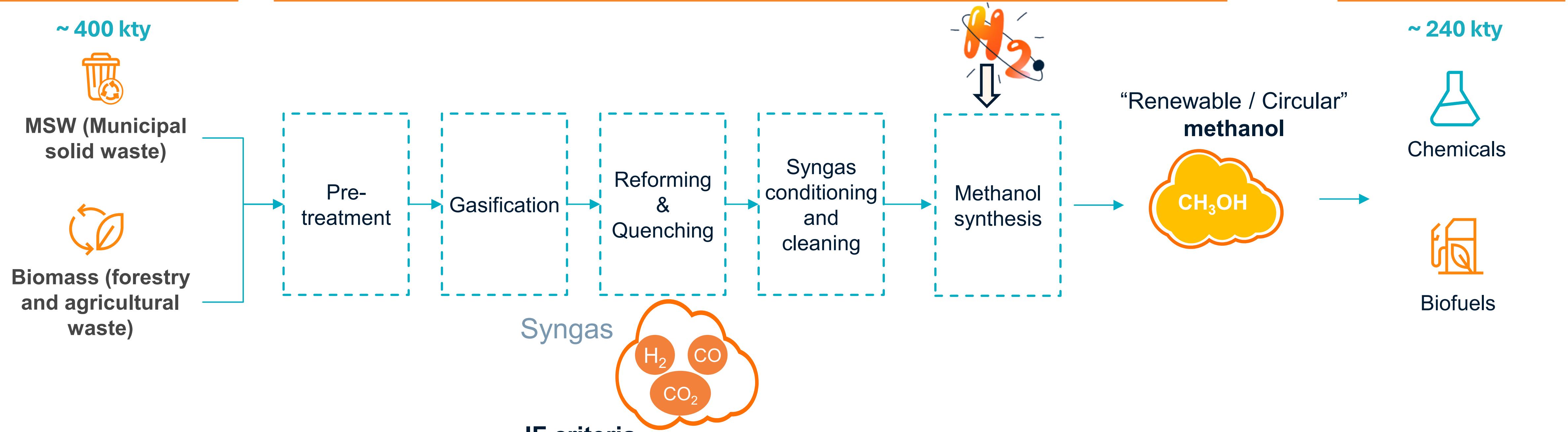
3.4 Mt CO_2eq over the first ten years of operation

Waste recovery

Recycling over 70% of the carbon present in the residual waste

ecoplanta MOLECULAR RECYCLING SOLUTIONS

Feedstock | **Gasification + methanol synthesis** | **End products**



IF criteria

A first waste-to-fuel plant in Europe to implement molecular carbon recycling

Supports the development of circularity and renewable energy

High scalability potential

Funded by the European Union
Emissions Trading System
Innovation Fund

Aviation

SAF production timeline (road needed to scale up investments)

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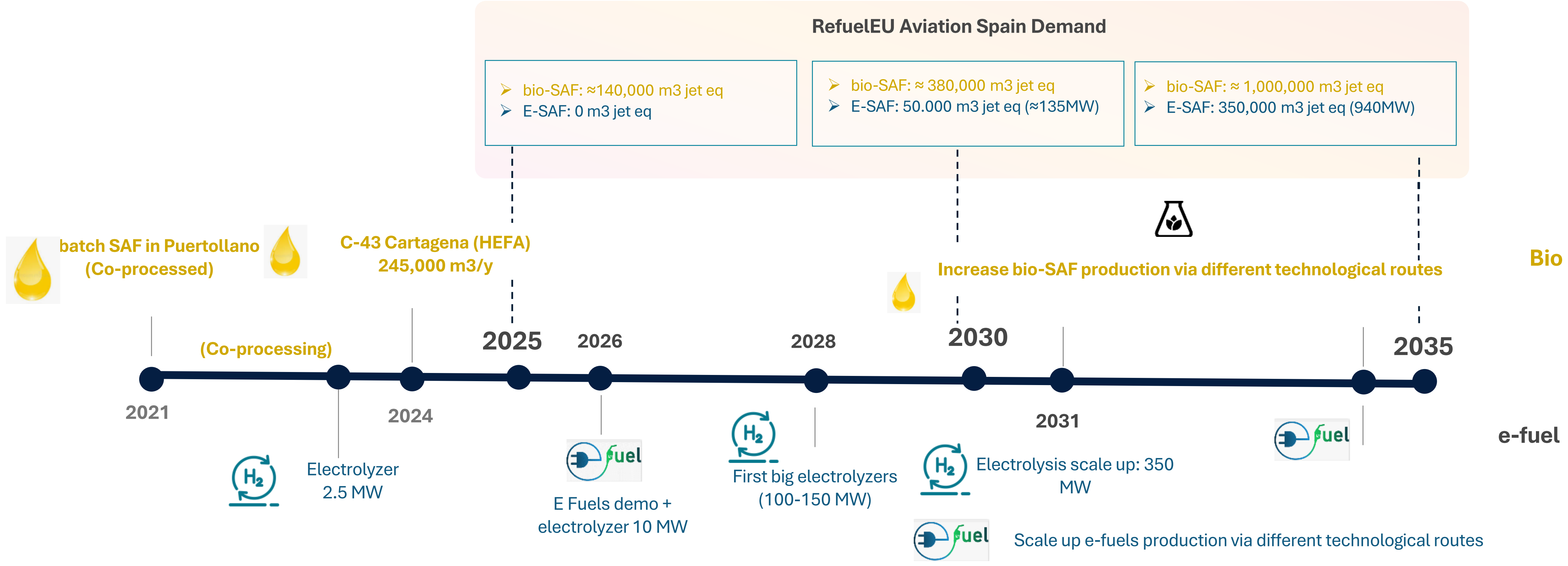

- **HEFA** route is the most mature technology, but raw materials are limited. Therefore, new technologies like **Alcohol to Jet or e-Fuels** need to be developed. Additionally, e-Fuels are specifically supported by ReFuel Aviation.
- New technologies projects are very CAPEX intensive . E-fuels costs depends mainly on electrolytic hydrogen costs.
- Repsol is deploying electrolytic hydrogen production in our industrial complexes to produce RFNBOs and to reduce the carbon footprint of our biofuels, complying with RED. The operating experience in electrolysis will help us to operate more efficiently future e-fuels plants.
- To execute the investments, we need funding gap and a clear and stable regulatory framework.

Biofuels plant in Cartagena (C-43)

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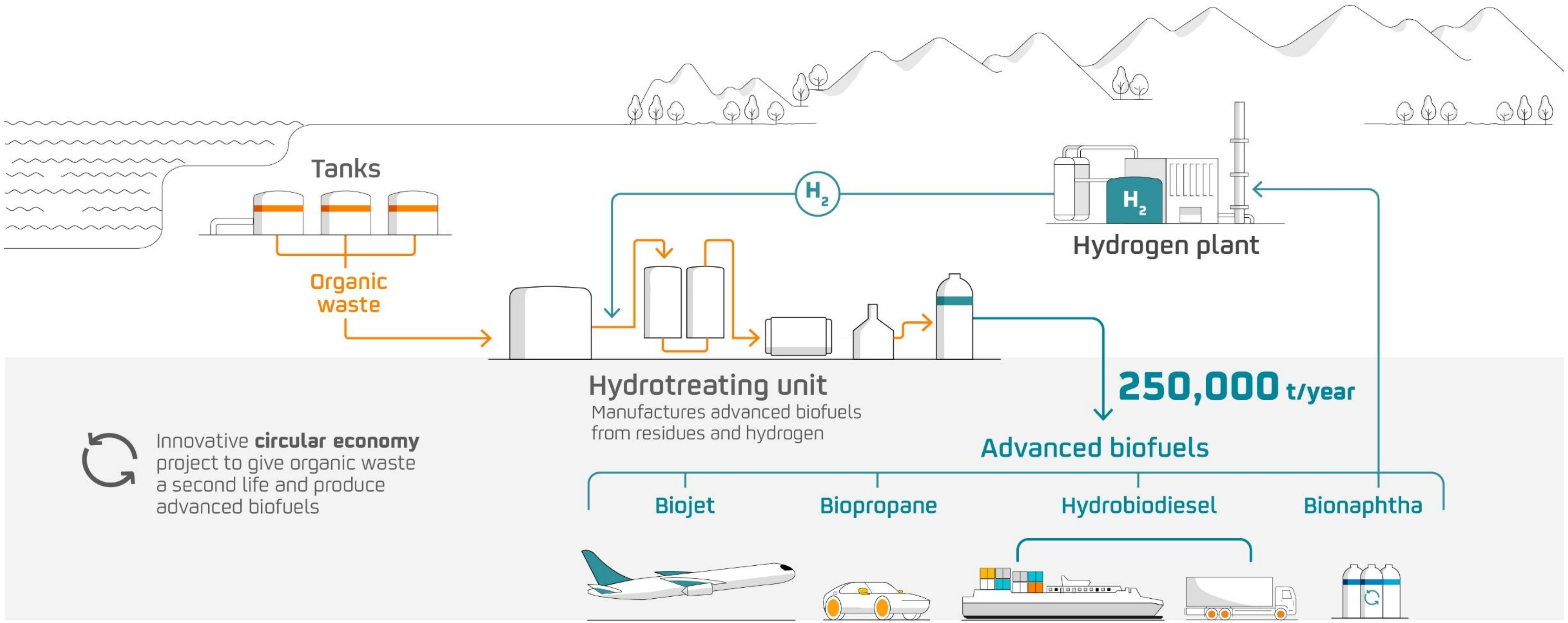


Net Zero Emissions Commitment

These biofuels will allow the reduction of **900,000 t CO_2/year**

Bilbao e-fuels demo plant

Project Details

Synkedia Biscay

Start date

2026 (Demo)

Project Capacity

2,1 kton/y (Demo)

CO2 Reduction

6,9 Kton/y (Demo)

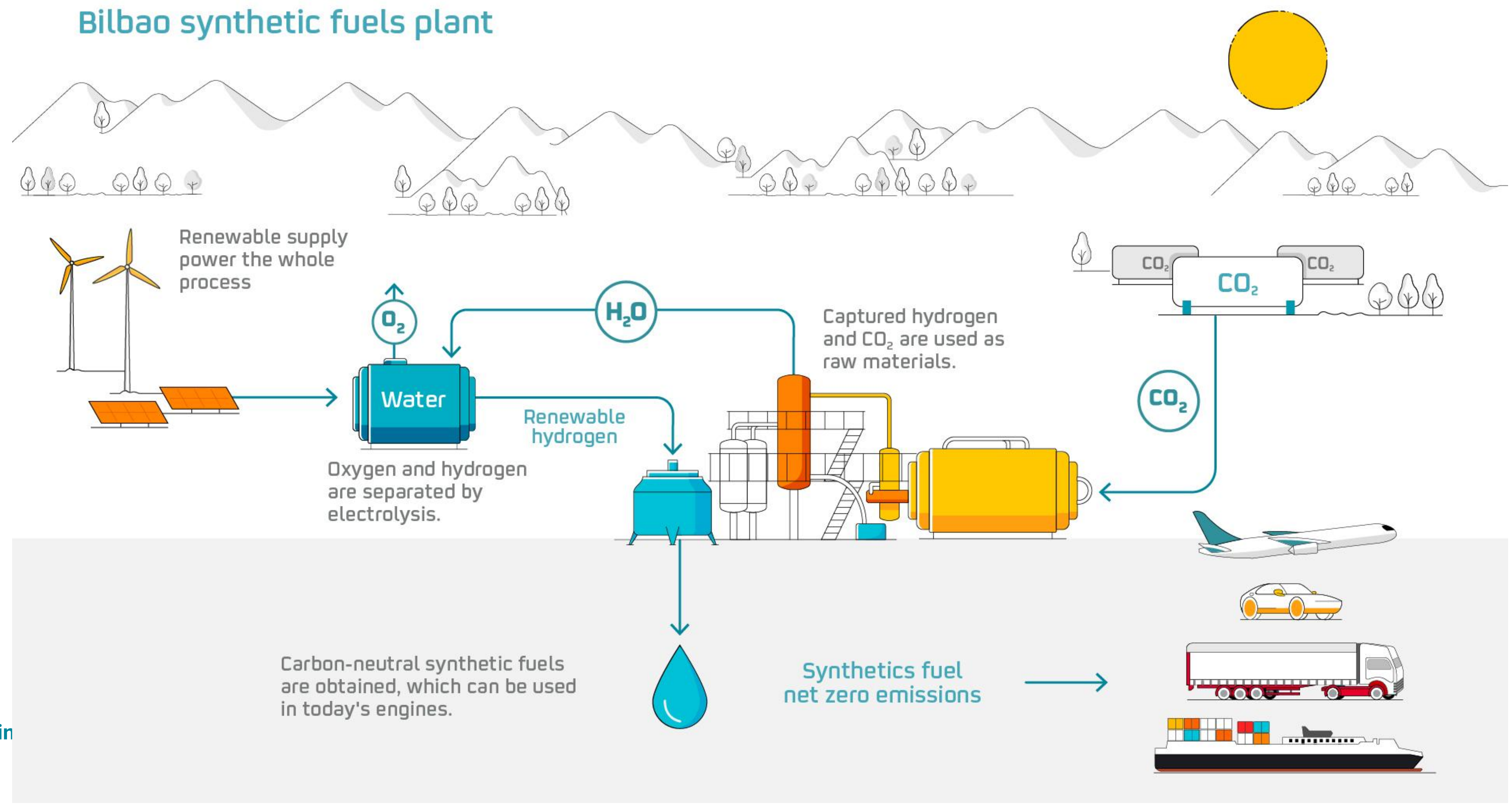
CAPEX

160 M€ (Demo + 10 MW Electrolyser)

Level of technological readin

5-6 (RWGS)

8-9 (FT and Upgrading)



E-fuels challenges

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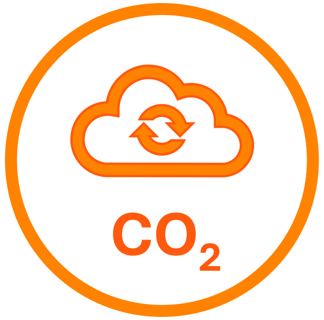
More than 60% of an eSAF molecule is hydrogen

Co-location of lower hydrogen cost and enough eligible CO2 is highly difficult



Depending on a single CO2 source is challenging

Reduce the requirements established in the RFNBO delegated act

Make the requirements for recognizing eligible CO_2 for e-fuel production more flexible

CAPEX intensive route

Technology under development

Difficult to get long term Offtake

Construction of the e-fuels demo plant

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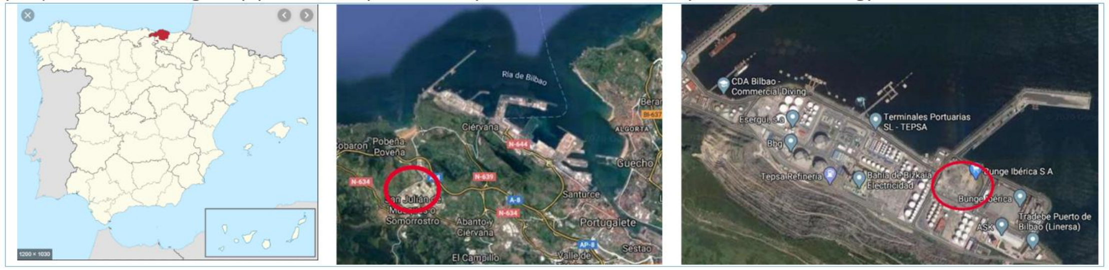

KEY TAKEAWAYS

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- We need an integrated approach recognizing cross-sector ripple effects
- Apply the principle of technology neutrality across sectors
- The strategic role of road transport is critical for the competitiveness of aviation and the decarbonization of maritime sectors
- Climate and energy policies must be grounded in economic and industrial realities to ensure an energy transition that is both ambitious and achievable
- Faced with strong global competition, the EU must step up its efforts to develop a competitive industrial strategy. In today's global context, Europe cannot, and should not, cede its role as a manufacturing leader to others

Thank you

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