H4D Partnership

Navigator of EU Policies and Regulations Governing Imports of Hydrogen and Its Derivatives

WORLD BANK GROUP

ESMAP
Energy Sector Management Assistance Program

In collaboration with

Hydrogen Europe

ccee

International PtX Hub

Updated edition, October 2026

This document summarizes EU policies and regulations adopted as of 18 October 2026. Selected legislative proposals are included where relevant and clearly identified as not yet binding.

The European Union (EU) is enabling the establishment of a regional hydrogen market to achieve carbon neutrality by 2050. In line with the RePowerEU Plan, the EU put forward an aspirational target of 10 Mt of renewable hydrogen production and 10 Mt of renewable hydrogen import by 2030.

EU Framework



- 2019 — **European Green Deal**
- 2020 — **European Hydrogen Strategy**
- 2021 — **Fit for 55 Package**
- 2022 — **REPowerEU Plan**
- 2023 — **Green Deal Industrial Plan**
  - **Net-Zero Industry Act**
  - **Critical Raw Materials Act**
- 2024 — **Hydrogen and Decarbonized Gas Market Package**
- 2025 — **Clean Industrial Deal** NEW
- 2026 — **Fertiliser Action Plan** NEW
- 2026 — **Industrial Accelerator Act (proposal)** NEW

UPDATE

The Fit for 55 package has been fully adopted. It introduces new measures and revises existing legislation to achieve a 55% reduction in greenhouse gas (GHG) emissions by 2030, supporting the broader objective of climate neutrality by 2050. Key elements include:

- Emissions Trading System [**EU ETS**]
- Alternative Fuels Infrastructure Regulation [**AFIR**]
- Renewable Energy Directive [**RED III**]
- **FuelEU** Maritime
- **RefuelEU** Aviation
- Carbon Border Adjustment Mechanism [**CBAM**]

H2 end-use framework

UPDATE

ReFuel EU Aviation

- SAF minimum: 2% from 2025; 6% from 2030.
- Synthetic fuels: 1.2% average in 2030–2031; minimum 0.7% each year.
- The synthetic aviation fuel minimum share is included within the total sustainable aviation fuel (SAF) requirement
- Commission guidance explains exemptions from aircraft operators' refuelling obligations under Article 5. These exemptions do not remove fuel suppliers' SAF requirements.

AFIR

Set a requirement for a minimum coverage of hydrogen refueling stations (HRS) over the Trans-European Transport Network (TEN-T).
Hydrogen refuelling specifications updated to EN 17127:2024 under Regulation 2025/656, applicable from 8 January 2026.

UPDATE

FuelEU Maritime

- From 1 January 2025, FuelEU Maritime requires fuel GHG intensity reductions of 2% in 2025 and 6% in 2030, with a conditional 2% Renewable Fuel of Non-Biological Origin (RFNBO) subtarget from 2034.
- Shipping companies must submit annual fuel-use and emissions reports for verification. The first reports, covering 2025, were due by 31 January 2026.
- EU rules set requirements for verifier accreditation (Regulation 2025/192) and the operation of the FuelEU compliance database (Regulation 2026/394).

UPDATE

EU ETS & CBAM

- EU ETS: carbon pricing for covered industry, aviation and shipping.
- CBAM: hast taken effect since 1st January 2026.

EU ETS **CBAM**

UPDATE

Other Regulations

CO2 standards for cars, vans and heavy-duty vehicles. Hydrogen fuel-cell vehicles can qualify as zero-emission vehicles. E-fuels do not automatically meet zero-emission requirements.

Cars & Vans **Heavy duty**

Renewable Energy Directive III (RED III)

RES 45% by 2030

EU's overall energy consumption, with an indicative aspirational goal of reaching 45% of renewable energy sources (RES) by 2030.

RED III General Provisions

Reviews the Additionality Delegated Act and reassesses the capacity to achieve binding targets for renewable fuels of non-biological origin. RFNBO electricity-sourcing and GHG-saving criteria are set by Delegated Regulations 2023/1184 and 2023/1185.

Hydrogen produced by an electrolyzer running on renewable electricity qualifies as a RFNBO, provided it meets the EU's electricity-sourcing and GHG-savings criteria.

RFNBOs

Binding sectoral targets

Transport

- Binding target of 14.5% reduction of GHG intensity from the use of renewables or a binding target of at least 29% share of renewables within the final consumption by 2030.
- Binding combined sub-target of 5.5% of advanced biofuels and RFNBOs- with a min. requirement of 1% RFNBOs by 2030.

-14.5% GHG or 29% RE by 2030

42% of H2 to be RFNBOs by 2030

60% by 2035

Industry

42% of the hydrogen used in industry should come from RFNBOs by 2030 and 60% by 2035.

NEW **RED III accounting guidance**

Comission's guidance explains how renewable hydrogen and other RFNBOs count towards RED III targets for industry and transport.

Developers and buyers should also check national implementation rules to understand how these targets apply in their intended EU market.

RFNBO production criteria, including requirements on additionality and the temporal and geographical correlation of renewable electricity, are established through directly applicable EU delegated regulations and therefore do not require transposition into national law.

NEW

RED III transposition requirements

RED III Missed

EU Member States were required to transpose most RED III provisions into national law by 21 May 2025, including measures to implement renewable hydrogen demand targets in industry and transport. Transposition requires establishing the legal responsibilities, monitoring and enforcement arrangements needed to deliver these targets; the May 2025 deadline concerns adoption of the implementing legislation rather than achievement of the targets.

Delegated Acts

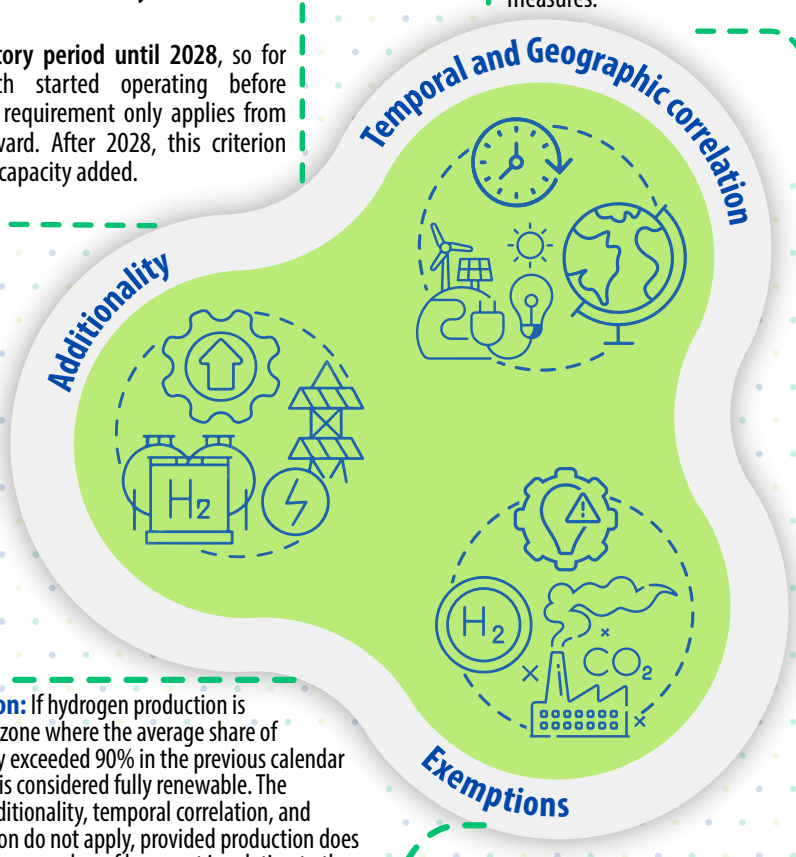
To guarantee that hydrogen is produced from renewable energy sources (RES) and achieves a minimum of 70% greenhouse gas (GHG) emissions savings, the European Commission (EC) adopted two delegated acts under the Renewable Energy Directive II (RED II) in June 2023. These regulations apply to both domestic producers within the EU and international producers exporting renewable hydrogen to the EU, ensuring uniform standards across all markets.

Delegated Act 1: Methodology for Renewable Fuels of Non-Biological Origin (RFNBO).

Production must be based on **additional renewable energy capacity**, to ensure that the increased hydrogen production goes hand in hand with new renewable electricity generation. Considerations:

- In this context "new" means that the RES must come into operation **maximum 3 years** before the electrolyzer.
- **There is a transitory period until 2028**, so for installations which started operating before January 2028 this requirement only applies from January 2038 onward. After 2028, this criterion applies to all extra capacity added.

This ensures that hydrogen production occurs in **alignment with the availability of renewable electricity, both in time and location**, to prevent the demand for renewable electricity from indirectly encouraging increased fossil fuel-based electricity generation. There is a European Commission (EC) review scheduled by 2028 to assess the impact of the requirements, including temporal correlation, and to determine if adjustments are needed to ensure the effectiveness of the measures.



Temporal Correlation

Temporal correlation is considered met if hydrogen production occurs:

- **Until 2030**, within the same calendar **month** as the renewable electricity generation, and **hourly thereafter**.
- Additionally, if the spot market day-ahead price for electricity is lower than 20 €/MWh or 0.36 times the ETS price.
- Monthly matching through 31 December 2029.
- Hourly matching from 1 January 2030.
- Earlier national hourly matching permitted from 1 July 2027.

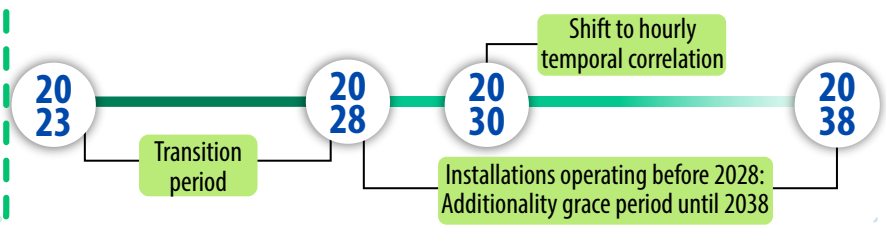
Geographic Correlation

- Same bidding zone with some flexibility for third countries (See Recital 3 of RFNBO Delegated Act).
- Plus, interconnected bidding zone when no congestion (based on hourly prices).

General exemption: If hydrogen production is located in a bidding zone where the average share of renewable electricity exceeded 90% in the previous calendar year, grid electricity is considered fully renewable. The requirements for additionality, temporal correlation, and geographic correlation do not apply, provided production does not exceed a maximum number of hours set in relation to the share of renewable electricity.

Exemption to additionality: If hydrogen production is located in a bidding zone where the emission intensity of electricity is lower than 18 gCO2eq/MJ, provided the producer has renewable power purchase agreements covering at least the amount of electricity claimed as renewable and meets the temporal and geographic correlation requirements.
It is important to consider that once either of these two conditions is met, the bidding zone will continue to be considered as meeting it for the following five calendar years.

Timeline for implementation



Delegated Act 2: GHG-emissions methodology for RFNBOs and recycled carbon fuels

This regulation provides a methodology for calculating life-cycle GHG emissions for RFNBOs (such as green methanol and SAFs).

UPDATE



1. Sustainable CO2 sources

- Biogenic CO2.
- Direct air capture.
- Qualifying industrial captured CO2: before 2041.
- Power-generation captured CO2: before 2036.

Main aspects in emissions calculation



2. GHG emissions

- 70% GHG savings required.
- Benchmark (94 gCO2eq/MJ) in transport fuel which equals 28.2 gCO2eq/MJ or (if converted with lower heating value (LHV) of hydrogen (120MJ/kg)) 3.4 kgCO2eq/kg.



3. Allocation of emissions

- Carbon footprint proportionally distributed among all of the output fuels (except in co-processing with conventional fuels).
- Energetic allocation method for fuels and economic-value based allocation for non-fuels.



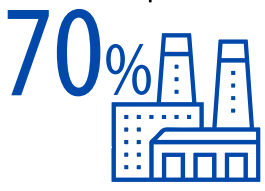
4. Emissions from use of non-renewable electricity. 3 (yearly) choices:

- Average electricity mix.
- Grid electricity is zero emissions for # hours (when nuclear and RES set spot price minus hours of the power purchase agreement (PPA) production).
- Hourly emissions of the marginal unit in the market.

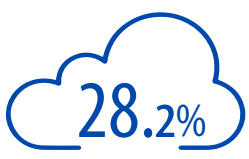
Low Carbon Fuels Delegated Act

NEW

Delegated Regulation (EU) 2025/2359 was adopted on 8 July 2025 and entered into force on 11 December 2025.



- It requires at least 70% lifecycle GHG emissions savings against a fossil fuel comparator of 94 gCO_2e/MJ.



- Maximum emissions: 28.2 gCO_2e/MJ, equivalent to approximately 3.38 $kgCO_2e/kg$ H_2, based on hydrogen's lower heating value.

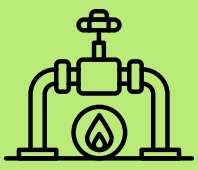


- Meeting the low-carbon requirements does not make hydrogen renewable or qualify it as an RFNBO.

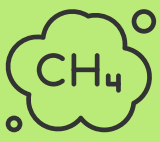
Illustrative low carbon pathways



Electrolysis using qualifying low-carbon electricity.



Natural gas with carbon capture.



Methane pyrolysis.

International Trade

Mutual Recognition Agreements (MRA)

Multilateral agreements facilitate compatibility between certification schemes from different constituencies, essential for global hydrogen trade. The certification schemes recognized by the EU can indeed certify different parts of the hydrogen production chain. For example, an electrolyzer could be certified by CertifHy, while a Fischer-Tropsch facility might be certified by International Sustainability and Carbon Certification (ISCC), ultimately leading to a single EU-compliant certificate. The EU requires mutual recognition between these schemes for RFNBOs. Despite this framework, political and regulatory challenges add complexity.

UPDATE

Digital Product Passport (DPP)

The DPP stores and shares information on a product's sustainability and circularity. The EU registry has been operational since 20 July 2026, with requirements introduced progressively for specific product groups. There is currently no general DPP requirement for hydrogen fuels.

UPDATE

Internationally Recognized Standards

ISO 19870-1:2026 provides a common methodology for calculating hydrogen production GHG emissions, from raw-material extraction to the production gate. It supports comparison across markets but does not cover the full delivery chain or replace EU RFNBO and CBAM requirements.

NEW The Union Database (UDB) complements certification by tracing renewable hydrogen and other eligible fuels, including imports, through the supply chain and recording their sustainability and GHG emissions data.

EU Emissions Trading System (EU ETS).

The EU ETS puts a price on emissions from covered industry, aviation and maritime transport. It also provides the carbon-price reference for CBAM, which applies to covered imports, including hydrogen.

UPDATE

Maritime

- Shipping companies must surrender allowances for 70% of their covered 2025 emissions in 2026, rising to 100% of their covered 2026 emissions in 2027. Methane (CH_4) and nitrous oxide (N_2O) are included from 2026.

UPDATE

Aviation

- From 2026, airlines no longer receive free EU ETS allowances and must obtain allowances for all emissions covered by the system.

Carbon Border Adjustment Mechanism (CBAM).

For emissions Calculation and Verification Requirements for Non-EU Exporters

CBAM aims to address carbon leakage risks by pricing the carbon content of imports of selected goods based on the EU's average carbon price and embedded emissions, helping to level the playing field between EU and third-country producers.

CBAM Timeline: gradually replace free allowances in time and product scope.

UPDATE

Full implementation: financial liability for covered imports begins accruing from 1 January 2026; however, the actual payment of fees — through the purchase and surrender of CBAM certificates — does not take effect until 2027 (certificate sales open 1 February 2027; first declaration and surrender due 30 September 2027, covering 2026 imports).

UPDATE

Phase-out of Free Allowances (2026–2034)

Free EU ETS allowances for CBAM-covered sectors are reduced each year from 2026, falling to zero by 2034, with the steepest cuts after 2029.

As free allocation declines, CBAM certificates progressively absorb the carbon-leakage protection role.

Certificate prices are benchmarked to EU ETS allowance auction prices: quarterly averages in 2026, weekly averages from 2027 onward.

UPDATE

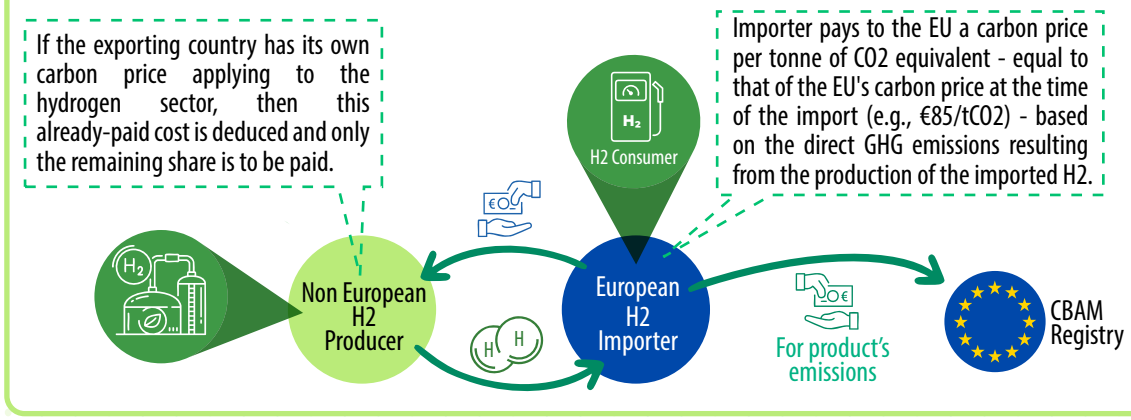
CBAM FInancial Compliance dates:

- Certificates for 2026 imports become available for purchase from February 2027.
- First declaration and surrender: 30 September 2027, for 2026 imports.

CBAM Coverage: The mechanism covers iron and steel, cement, aluminum, fertilizers (ammonia), electricity, and hydrogen. Other hydrogen derivatives — such as e-fuels, including e-SAF and e-methanol — are not currently within CBAM's scope.

RFNBO certification demonstrates compliance with renewable-fuel requirements, while CBAM determines carbon obligations for covered imports. They use different emissions-accounting rules; RFNBO certification does not replace CBAM reporting and verification.

How does the scheme work in practice?



Import Infrastructure

Several ports will offer services to transport CO2, H2 or derivatives via pipelines in the next 5 years, in their efforts to decarbonize their operations and enable Europe's net zero objectives.

UPDATE

Priority infrastructure needs for hydrogen imports into Europe:

- Hydrogen import terminals and storage.
- Ammonia cracking and conversion infrastructure.
- Cross-border hydrogen networks and backbone connections.

Backbone

Define the critical role of hydrogen infrastructure – based on existing and new pipelines – in enabling the development of a competitive, liquid, pan-European renewable and low-carbon hydrogen market.

NEW

Hydrogen and Gas Market Package: network access and planning.

- TEN-E: cross-border energy infrastructure and PCI/PMI framework.
- TEN-T: transport network.
- Energy Efficiency Directive: energy efficiency first.

Focus on Strategic Investments on Import Infrastructure

Many ports plan to offer transport via pipeline in the next 5 years

Hydrogen Financing and Market Access

	Instruments	Eligibility
European Investment Bank | Global	Investment loans and project financing.	Eligible projects outside the EU, subject to country coverage and project appraisal.
European Investment Bank | Green Hydrogen Fund	Project preparation and investment grants.	Selected green hydrogen projects in developing countries, linked to EIB operations.
Global Gateway European Fund for Sustainable Development Plus	Guarantees and blended finance.	Eligible projects in EU partner countries, accessed through implementing financial institutions.
European Commission Mechanism to support the market development of hydrogen	Connects suppliers with EU buyers and provides information on financing opportunities.	European and international suppliers of renewable or low-carbon hydrogen and derivatives, subject to platform and call requirements.

Hydrogen with an industrial perspective

NEW



Clean Industrial Deal

- Introduced on 26 February 2025, it shapes the outlook for Europe's hydrogen and clean technology sectors by linking industrial competitiveness with decarbonisation.
- Seeks to create lead markets for low-carbon products, including steel and chemicals, strengthening demand from industries that use hydrogen.
- Promotes affordable energy and investment in clean technologies, supporting the scale-up of hydrogen production, use and equipment manufacturing

NEW



Industrial Accelerator Act (proposal, 4 March 2026)

- Aims to create demand for low-carbon and European-made products through public procurement and public funding requirements in selected strategic sectors.
- Relevant to hydrogen equipment manufacturing and industries using hydrogen, including low-carbon steel.
- Final requirements remain subject to adoption; the proposal does not establish a binding hydrogen consumption quota.

NEW



Net-Zero Industry Act

- Supports EU manufacturing of clean technologies, including electrolysers and fuel cells.
- Since 30 December 2025, specified renewable-energy auctions must consider criteria beyond price, including sustainability and supply-chain resilience. Commission guidance published in July 2026 explains how to apply these requirements.
- These rules do not change the criteria for hydrogen to qualify as a renewable fuel of non-biological origin (RFNBO).

NEW



The Clean Industrial Deal State Aid Framework (**CISAF**) allows Member States to support clean energy, industrial decarbonisation and clean technology manufacturing. It applies from 25 June 2025 to 31 December 2030.

CISAF sets the rules under which EU governments can provide financial support to companies. It covers five areas:

- Clean energy: accelerating deployment.
- Electricity costs: support for energy-intensive industries.
- Industrial decarbonisation: investment to reduce industrial emissions.
- Clean technology manufacturing: expanding production capacity.
- Private investment: reducing investment risks. Competition Policy

For hydrogen, this can support both production and equipment manufacturing, and industrial users such as steel and chemicals investing in decarbonisation.