



WORLD BANK GROUP

THE WORLD BANK
IBRD · IDA

IFC

International
Finance Corporation

MIGA

Multilateral Investment
Guarantee Agency



ESMAP

Energy Sector Management
Assistance Program



Hydrogen
Europe

In collaboration with

giz

Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

ccee

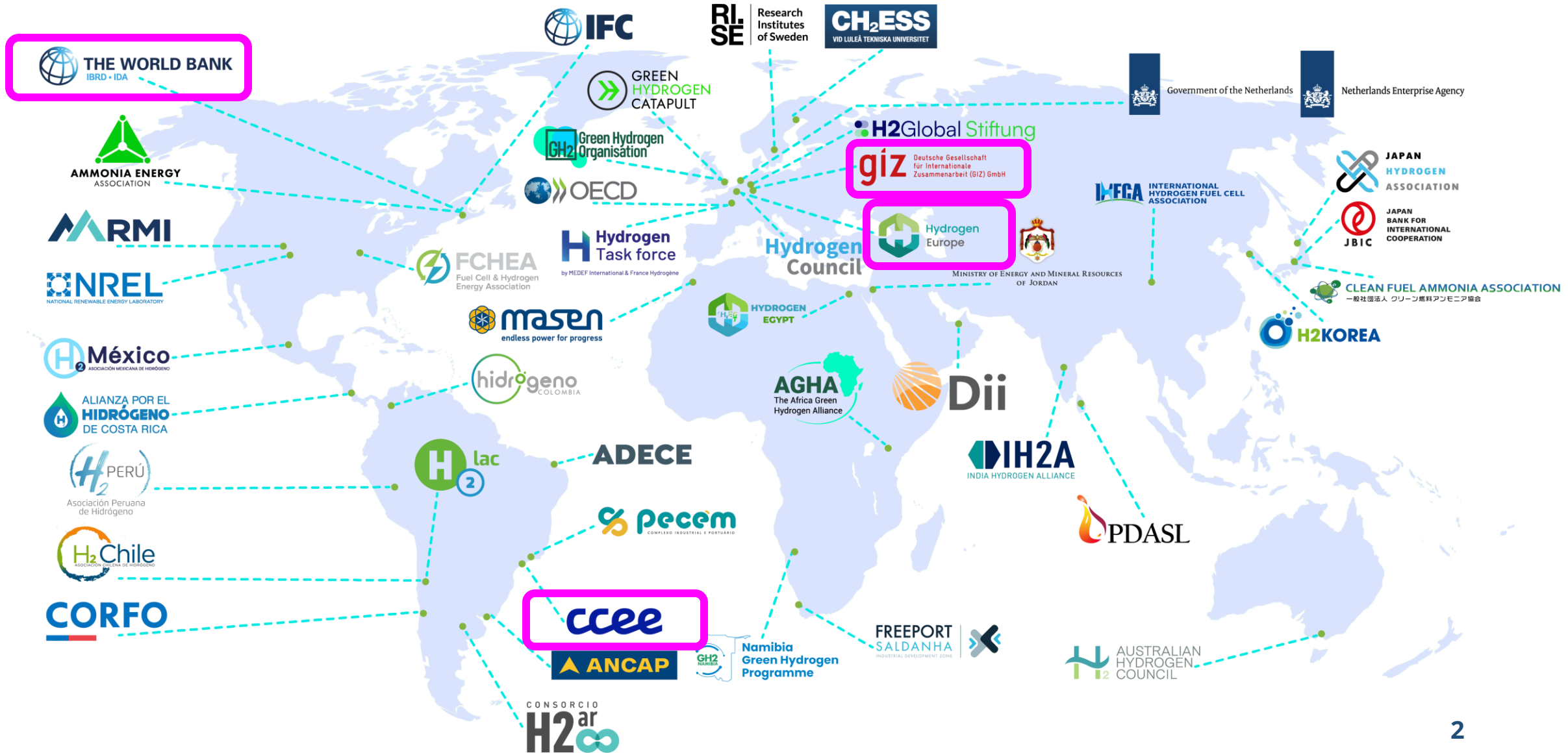
International
PtX Hub



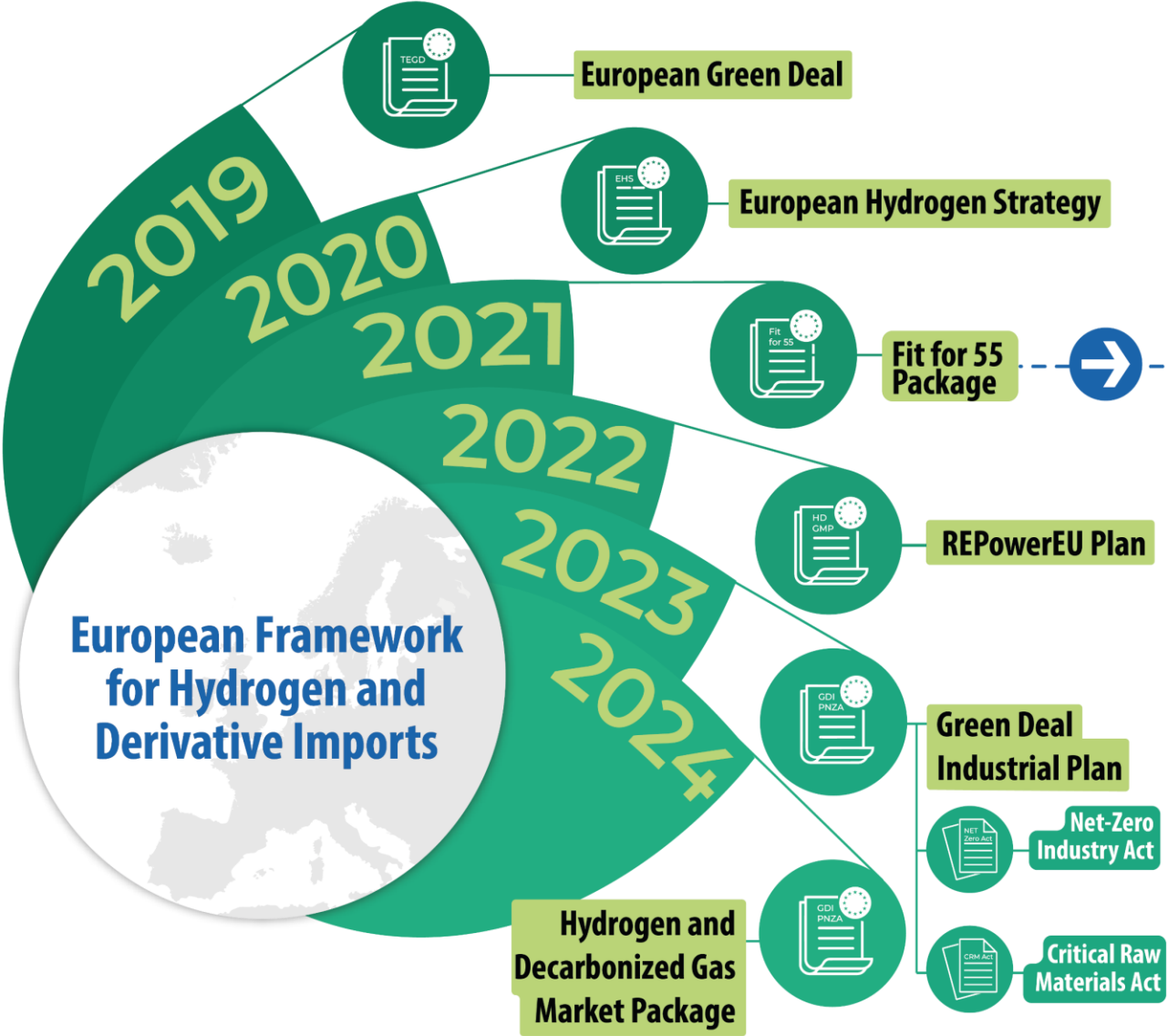
Navigator of Policies and Regulations Governing Hydrogen and Derivatives Imports in the European Union



H4D: Facilitating North-South Knowledge Exchange

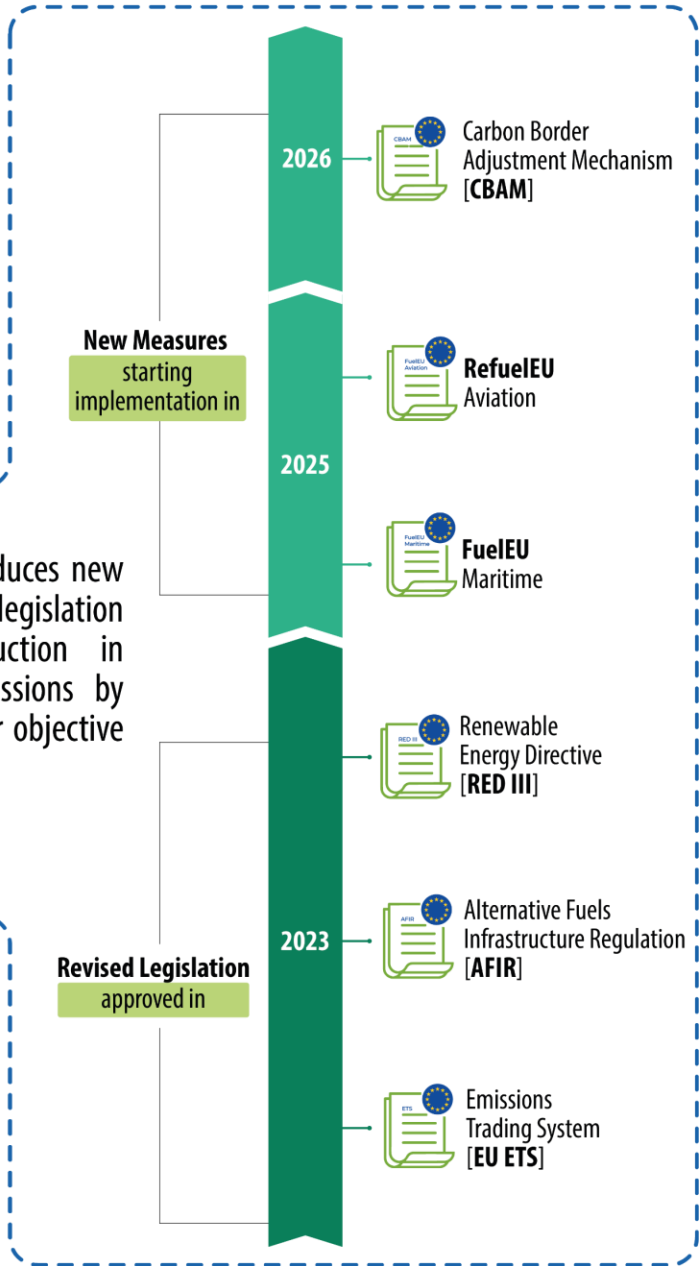


The European Union (EU) is enabling the establishment of a regional hydrogen market to achieve carbon neutrality by 2050. In line with the RePowerEU Plan, the EU put forward the target of 10 Mt of renewable hydrogen production and 10 Mt of renewable hydrogen import by 2030.



The Fit for 55 package introduces new measures and revises existing legislation to achieve a 55% reduction in greenhouse gas (GHG) emissions by 2030, supporting the broader objective of carbon neutrality by 2050.

Key elements include:





Navigator of Policies and Regulations Governing Hydrogen
and Derivatives Imports in the European Union

Delegated Acts

Delegated Act on a methodology for renewable fuels on non-biological origin

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 on. After 2028, this criterion applies to all extra capacity added.

General exemption: If hydrogen production is located in a bidding zone where the emission intensity of electricity is lower than 18 gCO₂e/MJ.

Exemption to additionality: If hydrogen production located in a bidding zone with an average renewable electricity share exceeding 90 % in the previous calendar year.

It is important to consider that if either of these two requirements is met, the hydrogen production will continue to be considered under these conditions for the following five calendar years.

Temporal and Geographic correlation

Additionality



Exemptions

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:

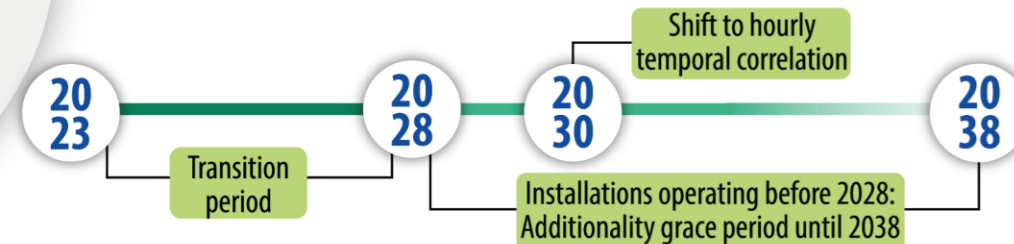
- **Until 2030**, within the same calendar **month** as the renewable electricity generation, and **hourly thereafter**.
- Additionally, if the spot market day-ahead price for electricity is lower than 20 €/MWh or 0.36 times the ETS price.



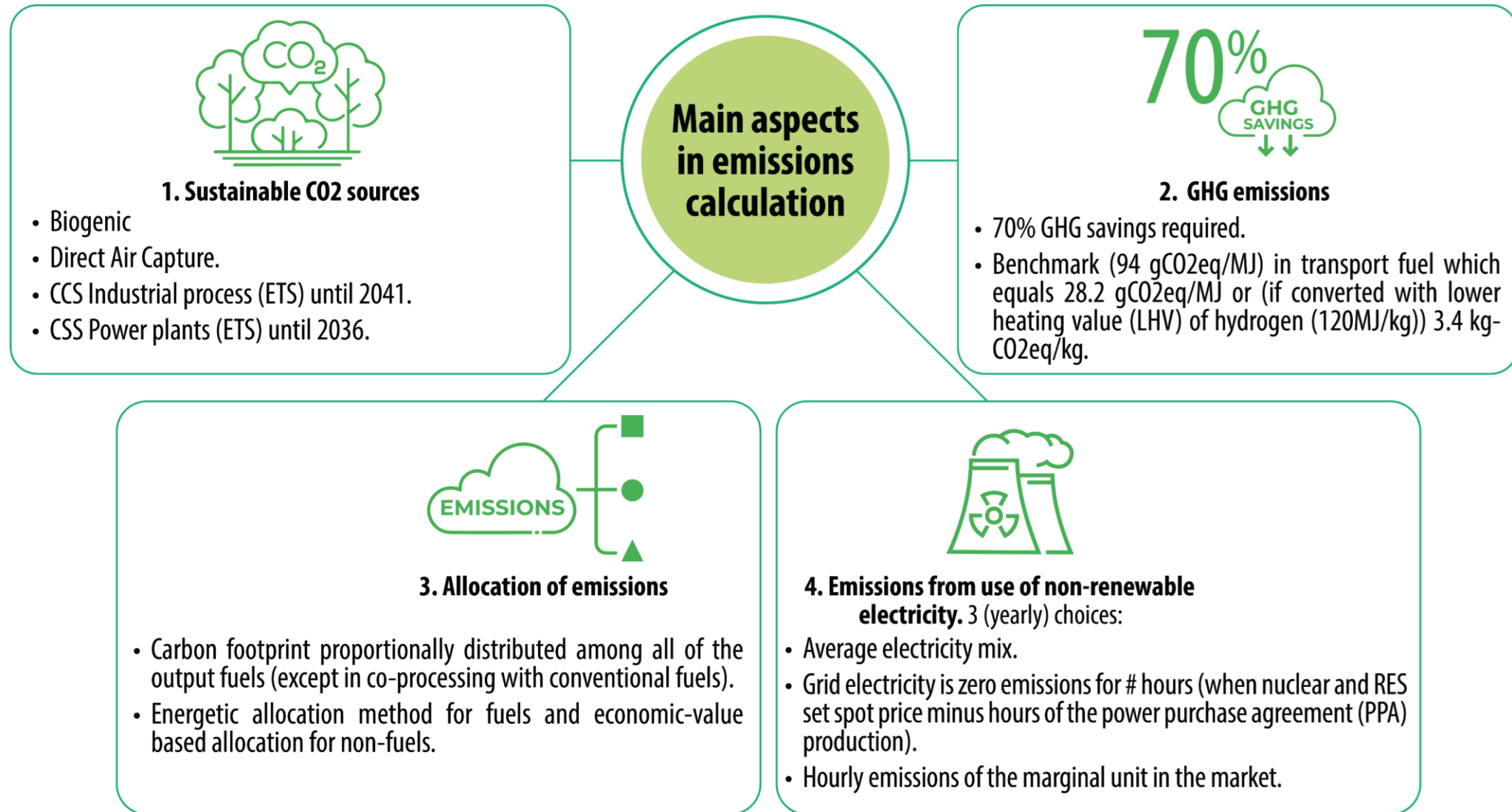
Geographic Correlation

- 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).

Timeline for implementation



Delegated Act establishing a minimum threshold for greenhouse gas (GHG) emissions savings of recycled carbon fuels



International Trade



**Mutual Recognition Agreements
(MRA)**

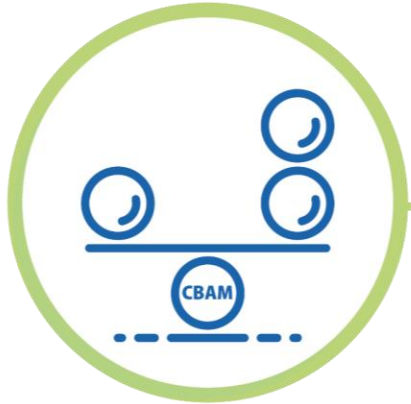


**Digital Product Passport
(DPP)**



**Internationally
Recognized Standards**

Carbon Border Adjustment Mechanism (CBAM).



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.



Transitional Period (2023-2025): reporting requirements no financial obligations.



Full Implementation (2026-onwards): with the requirement to purchase CBAM certificates. The full financial obligations of CBAM, meaning the payment of fees (through CBAM certificates), will take effect after the transition period ends.

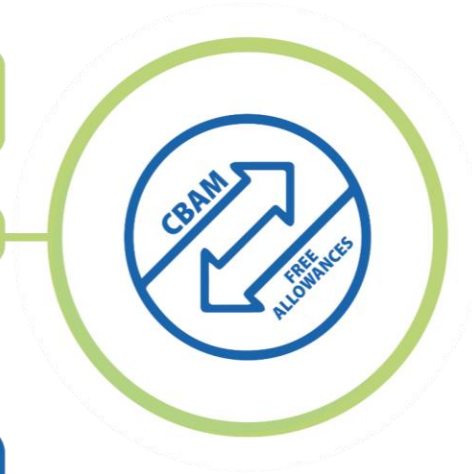


Phase-Out of Free Allowances (2026–2034): under the EU ETS, some industries currently receive free carbon allowances to stay competitive. However, as CBAM takes effect, these free allowances will be gradually phased out by 2034, with CBAM addressing carbon leakage risks for those sectors.



CBAM Coverage: It covers iron, steel, cement, aluminum, fertilizers (ammonia), electricity and hydrogen. It is important to highlight that other hydrogen derivatives, such as e-fuels, including e-SAF or e-methanol, are not currently under the scope of CBAM.

After 2025, the European Commission is to evaluate whether to introduce an export rebate for EU exporters. This raises the issue of WTO compatibility.



Country lending operations led by IBRD-IDA



CHILE PROJECT



\$150M
Approved IPF
FY23



Blended finance for
electrolyzer CAPEX and risk
mitigation instruments

Interest to
replicate
facility in
Colombia and
Namibia



INDIA PROJECT



\$1.5B
Approved DPL FY23 (phase 1)
\$1.5B
Approved DPL FY24 (phase 2)



Policy support
Offtake
Equipment manufacturing
RE power access



MAURITANIA PROJECT



\$100M
IPF (Approved FY24)



Blended finance and
capacity building



BRAZIL PROJECT



\$125M
IPF (for approval FY25)
\$1.5B
IPF (for approval FY25)



Blended finance and
enabling infrastructure



THANK YOU



WORLD BANK GROUP

THE WORLD BANK
IBRD • IDA

IFC

International
Finance Corporation

MIGA

Multilateral Investment
Guarantee Agency



ESMAP

Energy Sector Management
Assistance Program



Hydrogen
Europe

In collaboration with

giz

Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

ccee

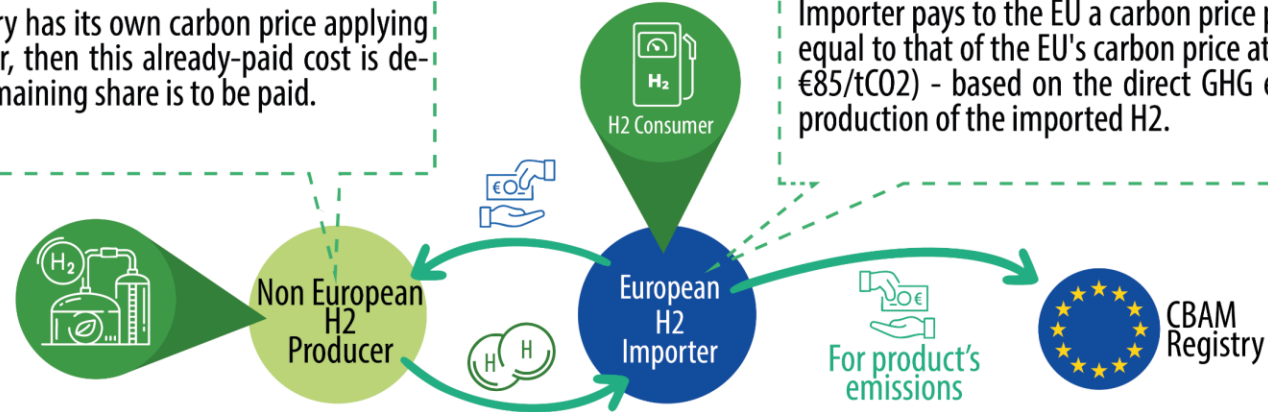




How does the scheme work in practice?

If the exporting country has its own carbon price applying to the hydrogen sector, then this already-paid cost is deducted and only the remaining share is to be paid.

Importer pays to the EU a carbon price per tonne of CO₂ equivalent - equal to that of the EU's carbon price at the time of the import (e.g., €85/tCO₂) - based on the direct GHG emissions resulting from the production of the imported H₂.



Hydrogen derivatives and carbon emissions accounting

Until 2024, emissions can be calculated using measurement-based or calculation-based methods (standard or mass balance). The CBAM allows for existing carbon pricing or emission monitoring schemes to be used if they provide similar accuracy and coverage.



There is limited infrastructure for hydrogen in Europe in particular for:

- Liquid hydrogen infrastructure/ terminals
- Industrial-scale crackers (needed to decompose ammonia back into hydrogen).

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.



Focus on Strategic Investments on Import Infrastructure



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

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.

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.



Digital Product Passport (DPP)

This digital tool stores and shares detailed information throughout the entire life cycle, promoting transparency, reliability, and compliance in hydrogen value chains while supporting digital innovation. While it holds great potential, it is still in the very early stages of development.



Internationally Recognized Standards

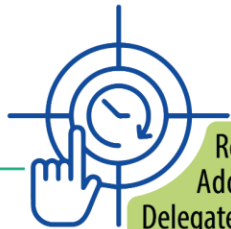
Establishing unified standards, such as ISO TS 19870:2023:

Methodology for determining the greenhouse gas emissions associated with the production, conditioning and transport of hydrogen to consumption gate.

Renewable Energy Directive III (RED III)



EU's overall energy consumption to reach 42.5% of newable Energy Sources (RES) by 2030.



Reviews the Additionality Delegated Act and reassesses the capacity to achieve binding targets for renewable fuels of non-biological origin.



General Provisions

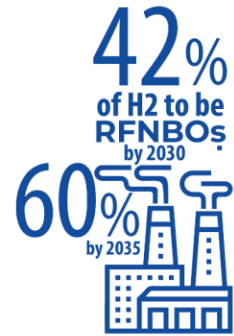


Renewable hydrogen produced by feeding renewables-based electricity into an electrolyzer is considered a Renewable Fuels of Non-Biological Origin (RFNBO).



Industry

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



Binding sectoral targets

Transport



or



- Binding target of 14.5% reduction of greenhouse gases (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.



H2 end-use framework



ReFuel EU Aviation

Quotas for sustainable aviation fuels (SAF)-6% by 2030- and specific sub-quotas for RFNBOs.



Fuels EU Maritime

GHG savings targets and specific quota-1% by 2030- for RFNBOs.



EU ETS & CBAM

Tools to put a price on carbon emissions from the production of carbon-intensive goods as well as from the production processes of hydrogen entering the EU.

EU ETS

CBAM



AFIR

Set a requirement for a minimum coverage of hydrogen refueling stations (HRS) over the Trans-European Transport Network (TEN-T).



Other Regulations

Cars, vans and heavy-duty vehicles regulation include CO₂ emission reduction targets that will likely be met with hydrogen-based e-fuels.

Cars & Vans

Heavy duty

International PtX Hub