EU grants pre-approval to RFNBO certification

September 16, 2024

EU Renewable Energy Directive (RED) sets out binding targets for RFNBO* in transport and industrial sectors:

European Commission

By 2030

- 1% RFNBO share in transportation
- 42% of H2 in industry should be RFNBO

**Renewable fuel of non-biological origin (RFNBO) refers to liquid and gaseous fuels which the energy content derives from renewable energy sources other than biomass*

→ Demand for **RFNBO certification** is driven by a need for clear and verifiable process throughout fuel supply chain

→ **3 "voluntary schemes"** have obtained pre-approval from the EU Commission

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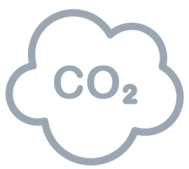
[Reminder]
What counts as RFNBO?

2 criteria need to be met to qualify as renewable fuel of non-biological origin (RFNBO):

Sustainability: the electricity must be fully renewable
(meeting the additionality, temporal and geographical correlation requirements)



GHG emissions reduction: at least 70% emissions reduction compared to fossil fuels

RFNBO Criteria (Detailed rules are laid out in RED Delegated Acts)			
Emission threshold (kgCO2/kgH2)	**Additionality**	**Temporal Correlation**	**Geographical Correlation**
~3.38 (-70% reduction to Grey H2 emissions)	RE* asset must be at most **36 months** ❶	**Hourly** matching after **2030**	RE* to be produced in the **same 'bidding zone'** ❷

**RE: Renewable Energy / PPA: Power Purchase Agreement*

❶ ***Not applicable*** *if grid carbon content < 18gCO2eq/MJ and RE PPA* signed for the equivalent amount*

❷ ***Not applicable*** *if share of renewable energy > 90% in the same bidding zone*

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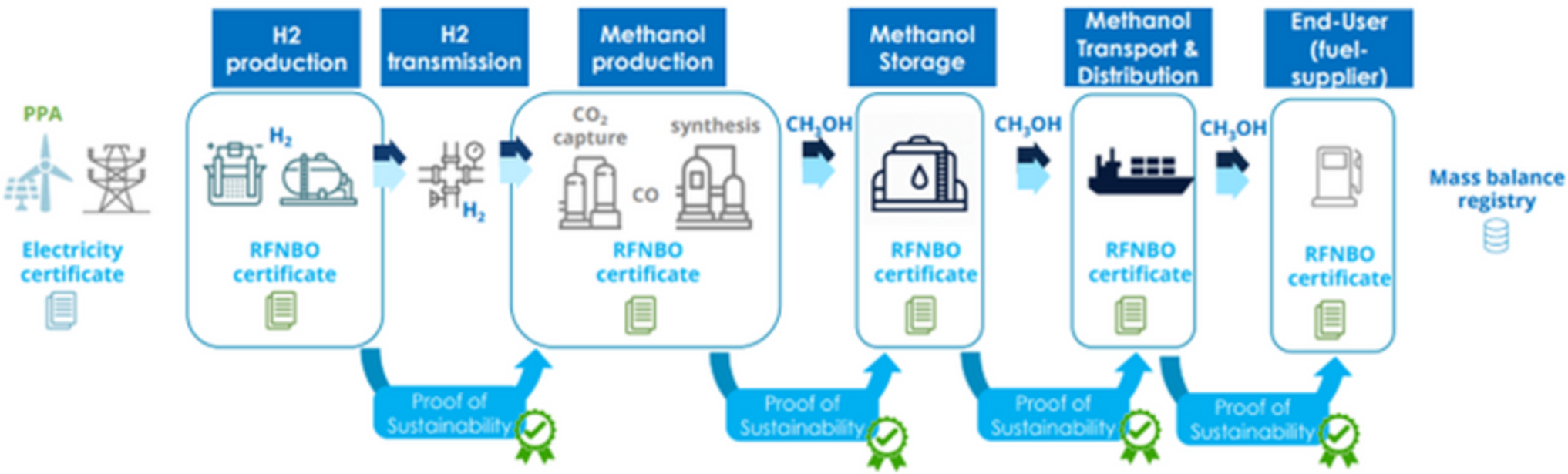
How does the RFNBO certification work?



Source: Hinicio

RFNBO certificate (valid for 12 months) provides a proof that:

- ✓ Each stage of the supply chain complies with sustainability criteria and GHG emissions reduction requirements
- ✓ Green molecules are traceable through a **chain of custody** from the point of origin to the final consumer (**“well-to-wheel”**)
- ✓ the characteristics of certified molecules match with the fuels physically consumed by end-user (**mass balance system**)

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Who is in charge of RFNBO certification?

Producers can request for certification by credible third parties that are recognized by the EU Commission

Voluntary Scheme

Schemes set up by international certification bodies

National Scheme

Schemes set up by the EU Member States

So far, **5 volunatry schemes** have applied for official recognition by the EU Commission

CertifHy

ISCC International Sustainability & Carbon Certification

REDcert Gesellschaft zur Zertifizierung nachhaltig erzeugter Biomasse mbH

KZR INIG Certification System

ccee

3 have received positive technical assessment

(as of Sep 9, 2024)

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Comparison of H2 certification systems around the world

Label	RFNBO	Clean H2	Low-carbon H2	Green H2
Production method	Electrolysis	All	All	Electrolysis, Biomass conversion
Scope	Well-to-Wheel [1]	Well-to-Gate [2]	Well-to-Gate	Well-to-Gate
Emissions threshold	3.38 kgCO2/kgH2	4 kgCO2/kgH2	3.4 kgCO2/kgH2	2 kgCO2/kgH2
Certifying body	Voluntary or national schemes	Korea Energy Economics Institute	Japan Hydrogen Association	National Green Hydrogen Mission

1. "Well-to-Wheel" counts all life-cycle emissions including production, transportation, processing and distribution of the fuel
2. "Well-to-Gate" counts emissions within the production site excluding emissions from processing, transportation and distribution of the fuel

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