

International Power-to-X Hub

Green Hydrogen Certification Workshop

Certifying Greenhouse Gas Accounting and Sustainability Criteria for Hydrogen and PtX Products

3 August 2023 – Vietnam-Germany Workshop

Digital Housekeeping



Microphone always off when you are not contributing (avoid noise).



Please, **camera on** if the internet connection allows it



Please, **raise your hand** if you want to contribute:



Feel free to use the **chat** for comments and questions (please indicate to whom your question is addressed, NAME: QUESTION)



Rename yourself if necessary (NAME | INSTITUTION) > right click on your video and choose: rename



Simultaneous interpretation in Vietnamese – English is available.



If you have technical problems, please reach out: Philip.katz@ecologic.eu or via phone: +4930 86880-142

In collaboration with:



Supported by:



on the basis of a decision
by the German Bundestag

Implemented by



Agenda

- 1 Survey of participants
- 2 Background and context for the EU hydrogen certification rules and procedures
- 3 How do certification systems certify environmental qualities?

Coffee break

- 4 Under which conditions the EU considers hydrogen as “of renewable origin”
- 5 EU methodology for assessing GHG emissions savings from H2-based fuels and from recycled carbon fuels

In collaboration with:



Supported by:



Implemented by



on the basis of a decision
by the German Bundestag

Agenda

- 1 Survey of participants
- 2 Background and context for the EU hydrogen certification rules and procedures
- 3 How do certification systems certify environmental qualities?

Coffee break

- 4 Under which conditions the EU considers hydrogen as “of renewable origin”
- 5 EU methodology for assessing GHG emissions savings from H2-based fuels and from recycled carbon fuels

In collaboration with:



Supported by:



Implemented by



on the basis of a decision
by the German Bundestag

Disclaimer: No liability can be accepted for the accuracy of the information within this presentation. The contents of the presentation do not constitute a legal interpretation of the Delegated Acts.

Background and context for the EU hydrogen certification rules and procedures

Raffaele Piria, Ecologic Institute

In collaboration with:



Supported by:



on the basis of a decision by the German Bundestag



Implemented by



These slides will be made available to you after this workshop.

More detailed information on most of the issues covered in the workshop can be found in the paper by the same authors on the PtX Hub website

<https://ptx-hub.org/eu-requirements-for-green-hydrogen-and-its-derivatives/>

The cover features a green-to-teal gradient background with a faint, abstract network diagram. At the top, logos for International PtX Hub, the Federal Ministry for Economic Affairs and Climate Action, IKI International Climate Initiative, and giz are displayed. The title 'EU REQUIREMENTS FOR RENEWABLE HYDROGEN AND ITS DERIVATIVES' is prominently centered in white. Below the title, a summary paragraph states: 'Analysis of the two Delegated Acts adopted by the European Commission in February 2023 specifying the conditions under which electricity used to produce renewable fuels of non-biological origin (RFNBO) may be counted as fully renewable & the methodology to assess the greenhouse gas emissions savings from RFNBO.'

In collaboration with:



Supported by:
Federal Ministry for Economic Affairs and Climate Action
on the basis of a decision by the German Bundestag



Implemented by:
giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Rapidly increasing ambition of EU climate and energy policies

| | |
|--------------------------------|---|
| GHG emissions compared to 1990 | Renewable Energy (RE) % of total energy consumption |
|--------------------------------|---|



| | Adoption | Context | Climate Target | Renewables Target |
|-------------------------------|-----------|--|---------------------------------|-------------------|
| EU Energy and Climate Package | 2007-2009 | 1 st comprehensive EU climate & energy policy package | - 20% by 2020 | 20% RE by 2020 |
| Clean Energy Package | 2014-2018 | Input to & implementation of Paris Agreement | - 40% by 2030 | 32% RE by 2030 |
| EU Green Deal / Fit-for-55 | 2019-2023 | Reaction to climate disasters and massive youth climate movement | - 55% by 2030 - 100% by 2050 | 40% RE by 2030 |
| REPowerEU | 2022 -> | Reaction to Russia's invasion of Ukraine | Unchanged | 42.5% RE by 2030 |

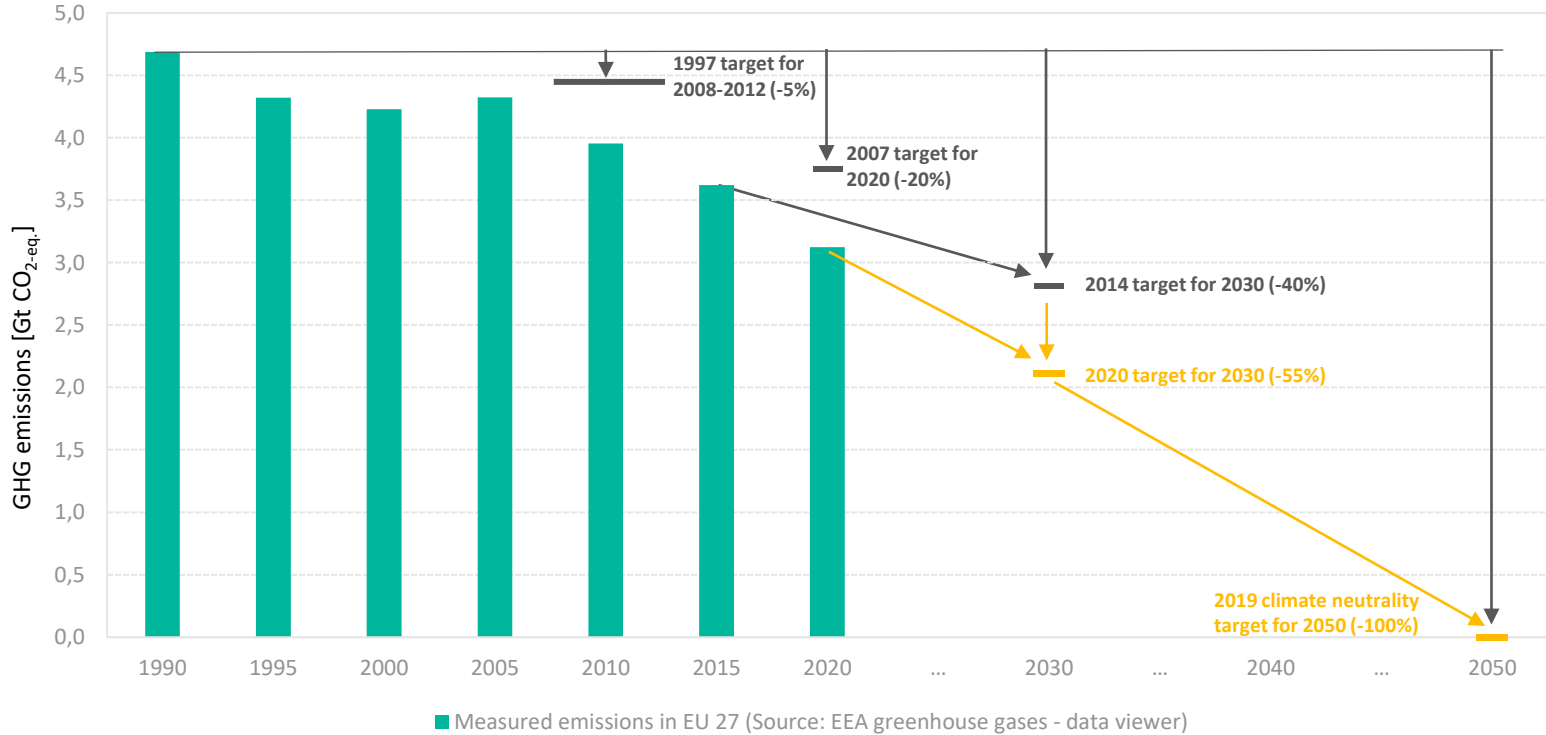
45% indicative top up

In collaboration with:



on the basis of a decision by the German Bundestag

EU climate achievements and targets



In collaboration with:



on the basis of a decision by the German Bundestag

EU ETS and CBAM as key drivers for greening hydrogen supply

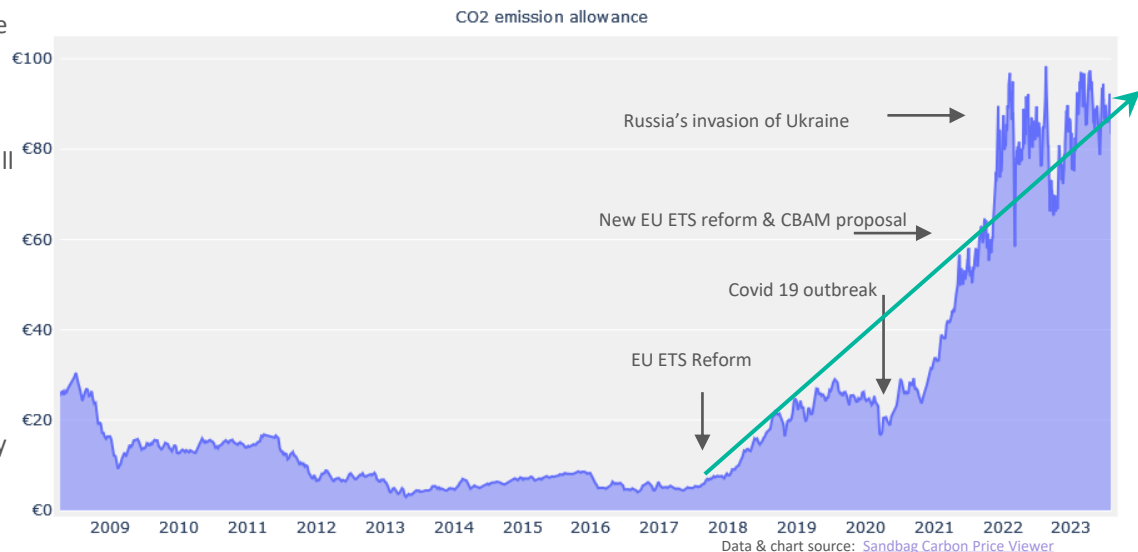
EU ETS – Emission Trading Scheme

- Set up in 2005, sharpened several times
- Emitters from covered sector must buy emission allowances. Initially, low prices. Now: real money !
- Cap and trade system: yearly decreasing amounts of emission allowances (EUA) & free market
- It covers large emitters, expanded to more and more sectors like aviation, now shipping comes in (40% of GHG)
- “EU ETS2 “ being introduced to cover further 40% of GHG emissions, mainly fuels for buildings and transport
- EUA free allocation for sectors exposed to global competition will be gradually phased out up to 2034, at the same pace as the introduction of CBAM.

CBAM – Carbon Boarder Adjustment Mechanism

- Legally adopted. Transition (only monitoring) phase until 2026. Enters into force gradually from 2026 to 2034.
- Will impose a tariff on imports of carbon intensive goods not subject to carbon price at extraction/ production site.
- It covers iron and steel, cement, **fertilizers**, aluminum, electricity and **hydrogen**. By 2026, proposal to include further products at risk of carbon leakage by 2026 (including e.g. **organic chemicals** and **polymers**).

EU Emission Allowances (1t CO₂) price development



EU ETS Futures
as of 2 August 2023

Dec25 € 91.3

Dec24 € 87,3

Dec23 € 83.2

In collaboration with:



Supported by:



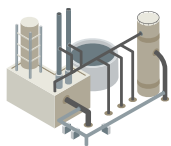
Implemented by



on the basis of a decision
by the German Bundestag

EU and German hydrogen policy framework

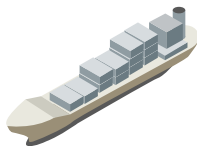
Focus: hard to abate sectors



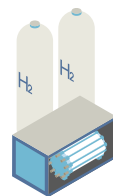
Heavy Industry



Long distance traffic



Heavy goods transport



Long term storage

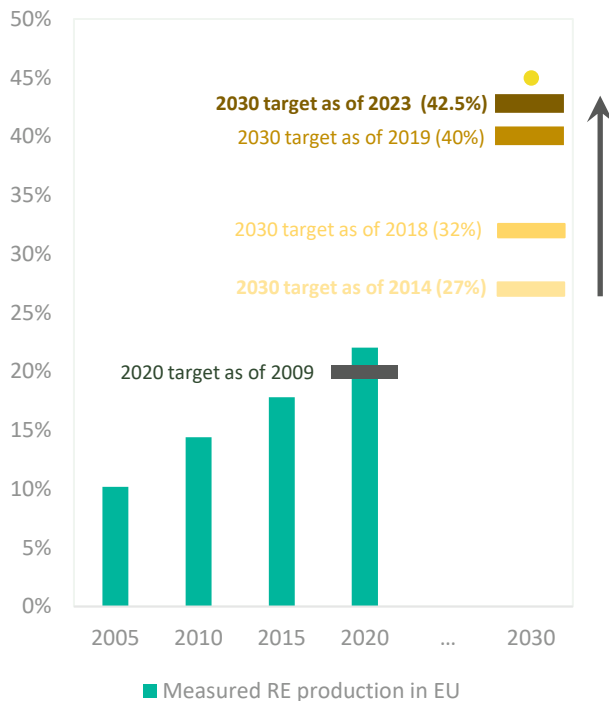
Hydrogen goals for 2030

| | EU | Germany |
|-------------------|----------------------|------------------------|
| Inland production | 10 Mt H ₂ | ~2.5 Mt H ₂ |
| Imports | 10 Mt H ₂ | 0.42 Mt H ₂ |

Foreign trade and geopolitical aspects

- Future energy imports will be mainly based on renewables energy
- Imports via cable or pipeline from neighboring countries economically more attractive
- However, imports via ships essential to diversify supplier countries and import routes
- Infrastructure investments are planned
- Building new energy partnerships with reliable countries
- EU energy platform for strategic and aggregated procurement in planning

EU renewable energy sources (RE) targets and deployment



EU Renewable Energy Directives (RED)

RED I (2009): 20% by 2020

10% special target for transport sector can be met with biofuels complying with sustainability criteria. It established rules on **Guarantees of Origin (GOs)**.

RED II (2018): 32% by 2030

14% RES target for transport sector, including sustainable biofuels (stricter rules) and **RFNBO** => “renewable liquid and gaseous transport fuels of non-biological origin”. Commission must adopt **Delegated Acts** with detailed rules on RFNBO.

RED III (2023 – likely to be approved in 2023): 42.5% by 2030 (45% indicative top up)

Based on “Fit for 55”: Final political agreement achieved, legal text not yet available. It includes specific **RFNBO subgoals** both for **industrial sector** and **transportation** (focus on **aviation and shipping**).

RED IV (being discussed):

Based on “REPowerEU” => It might lead to higher RFNBO subgoals for hard to abate sectors.

“Delegated Acts” => What does it mean?

Selected types of EU legal instruments

EU Treaties: Adopted unanimously by Member States, the fundament for all the rest.

Strategic policy documents: Non-binding documents that might e.g. discuss strategic guidelines and targets.

Example: Commission’s Communication EUPower Plan

Directives: Legal acts proposed by Commission, adopted by Parliament and Council, requiring transposition into national law.
Example: Renewable Energy Directive of 2018 (RED II)

(Delegated) Regulations: Legal acts proposed by Commission, adopted by Parliament and Council. They are directly applicable.

These two Delegated Regulations have entered in force on 10 July 2023 after three years of intense deliberation.



Key contents covered by these two Delegated Regulations

Commission Delegated Regulation (EU) 2023/1185, based on Article 28, RED II

- Defines under which conditions electricity used to produce RFNBO can be considered as renewable
- Applies also to RFNBO produced outside the EU (to be considered as renewable under EU law)

Commission Delegated Regulation (EU) 2023/1185, based on Article 28, RED II

- Sets GHG emission savings threshold for recycled carbon fuels (RCF) to be considered as renewable
- Sets GHG accounting rules for RFNBO and RCF

More on them, and on how these features can be certified

=> See the following presentations

Why might these DAs be relevant for stakeholders outside the EU?

- EU importers more likely to buy H₂ or H₂-based energy carriers if they count for the RED II target
- Secondary policies in the EU, e.g. for greening public procurement, are likely to refer to the DAs
- The same applies to private voluntary schemes, e.g. for “green steel”, “green ammonia” etc.
- The EU has often been a global trendsetter in climate and energy policies. Other countries might refer to these rules as well

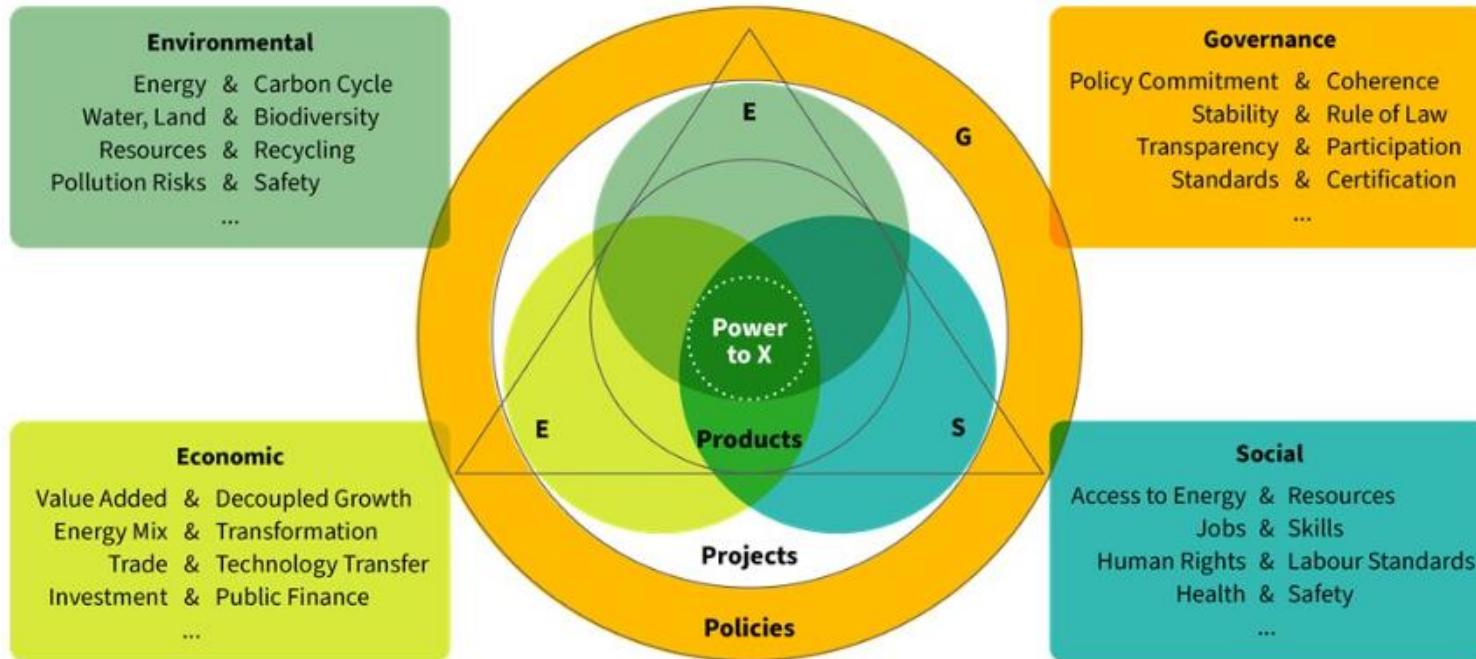
In collaboration with:



on the basis of a decision
by the German Bundestag



What about the other dimensions of sustainability?



Source: <https://ptx-hub.org/ptx-sustainability/>

In collaboration with:



Supported by:
Federal Ministry
for Economic Affairs
and Climate Action

on the basis of a decision
by the German Bundestag



Implemented by
giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

Thank you for your attention.

© International PtX Hub – Catalysing defossilisation globally | info@ptx-hub.org

In collaboration with:

