

Agenda

- 1 Round of introduction 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

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Certification for Hydrogen and PtX – An Introduction

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Need for Certification

- **Global demand for hydrogen** and its derivatives triggered by
 - **voluntary** industrial desire for **low-carbon claims**; *and by*
 - **compliance markets** (for RFNBOs in EU mobility sector, industrial quotas, contracts for difference, carbon border adjustment mechanisms, ...)
 - Production and transport **characteristics can not be identified or verified by the physical hydrogen** itself, but have to be documented separately.
 - Liquid global markets need a **common language** to assess, to describe and to categorise the characteristics of the hydrogen.
 - Interest of importing countries / market parties for imported hydrogen:
 - **Ensuring that ecological requirements** (sustainability/GHG emission reduction) **are fulfilled**
 - **Reliable accounting** of imported hydrogen volumes for specific consumers and countries
 - **Avoiding of double counting**
- **Certification is needed for supply chain accounting** of imported hydrogen and derivatives (and partly required on mandatory basis by regulation) and therefore **essential for creating global markets** for hydrogen and derivatives.

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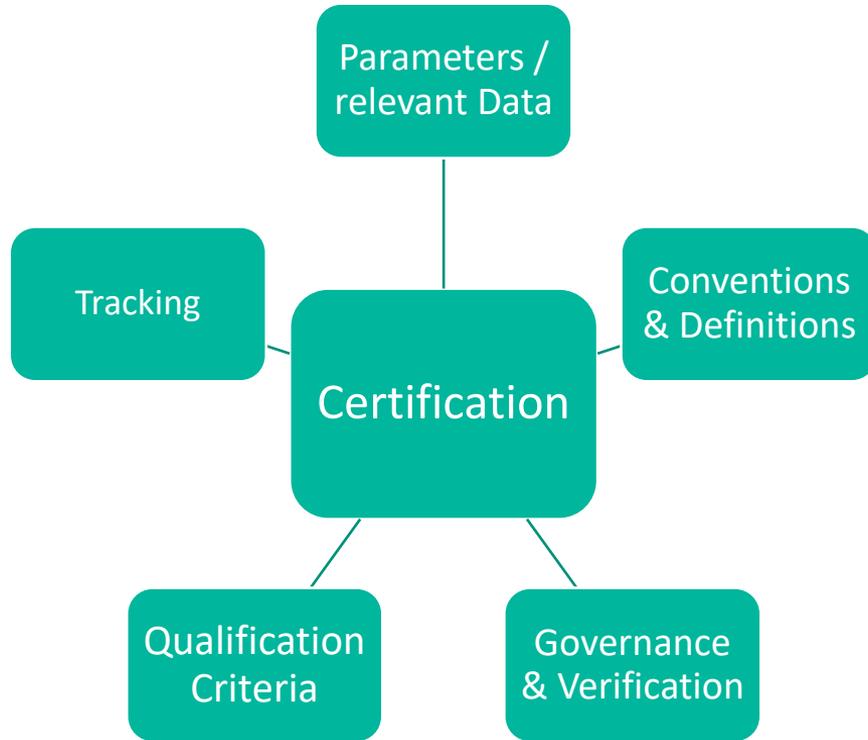
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Required elements of a certification scheme



Standards = standardized way of doing things

Certification = proof of compliance with standards

Relevant roles:

- Governance Institutions
 - Regulatory Bodies (gov./private)
 - (approved) voluntary schemes
 - Technical system providers
- Auditors
- System Users

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Tracking approaches - Introduction

- Tracking: a methodology for the accounting of generation attributes in energy markets and their allocation to final consumption of energy (e.g. for consumer information or for target accounting). Tracking is therefore the method to prove the chain of custody.
- Easy for segregated goods, more sophisticated for goods which are grid-based or otherwise mixed.
- Possible approaches:
 - Identity Preservation and Segregation
 - Mass Balance
 - Certificate Systems (Book & Claim Approach)

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Tracking Approaches – Mass Balance

- Aims at ensuring a continuous traceability of a given quantity of specific goods all the way along the contractual product cycle including production, transport, supply and consumption of the tracked object.
- Technical option of a physical transport of the tracked product from the point of production to the point of consumption is mandatory. The tracking of attributes follows the trading chains of the physical good.
- Does allow for physical mixing of certified and non-certified products, but this is not a characteristic by definition.
- In the EU, this is common for gas grids (e.g. biogas). It is required by the recent EU Delegated Act on RFNBOs for accountability in the mobility sector in the EU.
- Stricter forms include Identity Preservation / Segregation: a certified product, or even an individual batch of the certified product (--> IP) is kept physically separate from other sources.

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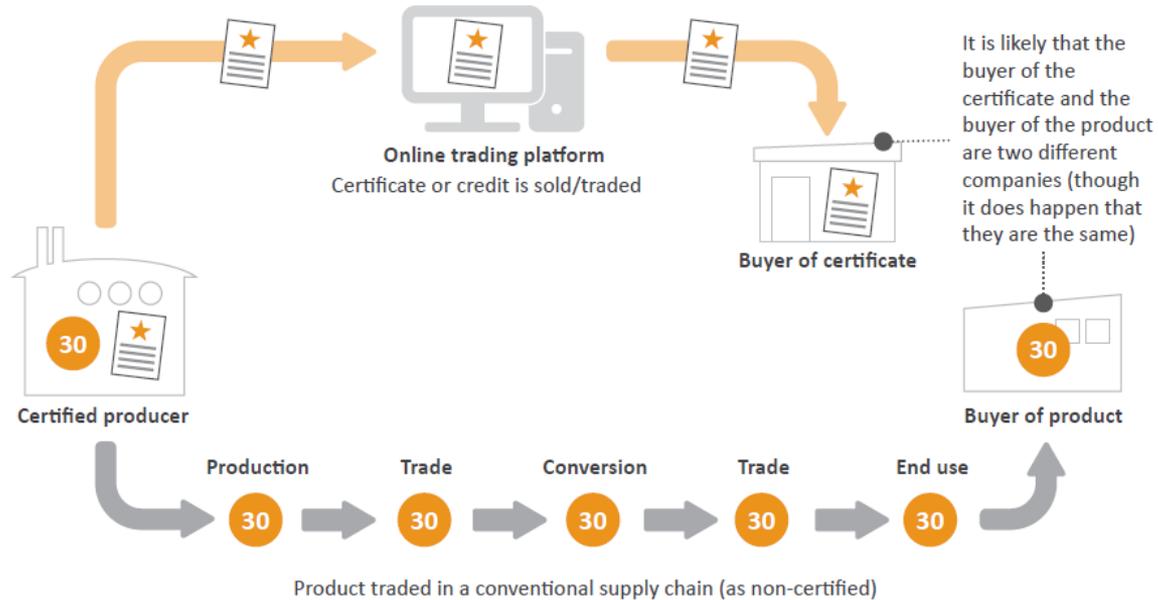
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Tracking Approaches – Illustration of Certificate Systems



Source: ISEAL (2016)

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Tracking Approaches – Certificate Systems / Guarantees of Origin (GOs)

- Facilitate „**Book & Claim**“ systems, where there is a **full de-coupling** of
 - the **physical trade of a commodity** like electricity (including feed-in, trade, transport and consumption of electricity); *and*
 - the **accounting of the respective production attributes** (like primary energy source) to a specific consumption of the same volume of electricity.
- Allows for **creating a financial link** between the producer of a product with specific characteristics with a consumer of that product type even when the physical supply chain makes the physical sourcing difficult.
- **Can also be applied if no physical option exists at all for delivering the commodity** from the point of production to the point of consumption. However, such a **requirement can be defined as convention** by respective criteria.
- **Requires a consistent definition of overall accounting schemes** in order to avoid inconsistencies, double counting and leakage.
- **Mass balance and GOs can also be combined as mandatory bundled use.** This combines the benefits of a more physical traceability with the robustness of a centrally governed and statistically transparent certificate registry system.
- In the EU, GOs are defined by EU Renewable Energy Directive (RED II), originally for RES-E, now also for other energy types.

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Voluntary Schemes

- With a view to imports of “renewable fuels of non-biological origin” (RFNBOs) to the EU which can be accounted towards renewable targets in the mobility sector, specific certification schemes have to be approved by the European Commission as so-called “**Voluntary Schemes**”.
- It is up to Voluntary schemes to convince the European Commission about their approach for::
 - Details of how verification procedures are organized
 - how relevant criteria are exactly being applied (e.g. on equivalent application of the Delegated Act criteria)
 - → learning curve by EC
- It is then up to the respective certification scheme to acknowledge auditors which may act as “Certification Bodies” in order to verify the data of interest in the framework of the certification scheme.
- Currently two organizations which have handed in its applications a Voluntary Scheme for RFNBO at the European Commission: CertifHy (<https://www.certifyhy.eu/>) and ISCC (International Sustainability & Carbon Certification, <https://www.iscc-system.org/>).
Other schemes like RSB, REDcert or Green Hydrogen Organisation have announced interest for application.
Latest information online: https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/voluntary-schemes_en
- The Commission does not give any indication on how long the expected time until approval of such voluntary schemes is. The latest information is that the Commission still is about to set up the internal assessment framework.

Summary and key messages

- Application of **certification schemes** will be **essential for participating in international trade** of H₂ and PtX.
- For export of RFNBOs to EU, application of the **mass balance tracking approach** will be mandatory in order to get **highest willingness to pay** by buyers (particularly from the transport sector).
- This also implies that the RFNBO volumes have to be **transported physically to the EU**.
- No specific certification systems are in place for the time being. For the European markets, the so-called „**voluntary schemes**“ will be **relevant contact points** after their respective approval by the European Commission.
- With respect to specific rules and individual production countries, there will be a learning curve on a case to case basis.

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