Integrating Guarantees of Origin for multiple energy carriers

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Why coordinate certificate schemes of different energy carriers?

- **Energy carrier conversion**
  - Gas - Methane
  - Electricity
  - Hydrogen

- **Demands**

- **GO Conversion Issuance**
  - GO system
    - Gas - Methane
  - GO system
    - Hydrogen
  - GO system
    - Electricity
  - GO system
    - Hydrogen
Recommended rules

For certificate handling in relation with conversion

### Conversion Issuance Rules
- Cancel GOs for (measured) input energy carrier
- Issue new GOs for measured output energy carrier
- GO conversion Issuance is subject to physical conversion
- Convey Energy Source from input GOs proportionally to output GOs
- Auditable track (Data in registry, Information on cancellation statement)
- Data on output GOs (source, purpose, conversion tag, label, carbon footprint: from input GO, rest from conversion device)

### Recognition of input GOs
- Publish national Domain Scheme rules
- Import criteria for avoiding double counting
- Liability allocation

### Cancellation check
- Preferably Ex ante, Ex post only defendable with high fraud detection measures
- Classify cancellation ‘for Conversion’ purpose
Kick-off recommendations

Benefitting from evaluation while gaining experience in the market

• New GO validity period after conversion
• Plausibility check of input-output flows
• Limitative description of data format of GOs
• Pre-conversion info on public support: balance complexity with information value
GO Conversion Issuance Process

Identified challenges

1. Conversion GO quality check
   - Verification criteria

2. GO Cancellation pre-conversion (Registry communication)
   - Communication between registries

3. Match #cancelled GOs with Input measurement value
   - Measurement, reporting and verification processes

4. Issue GOs for new energy carrier – copy data from cancelled GOs
   - Attribute Inheritance - Automated data input?

GO Cancelled
Gas - Methane

GO Issued
Electricity

Input measurement

Output measurement

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Smoothening the Conversion Issuance Process

1. Determining the quantity of the Attributes of the Input for Conversion and matching Input to Output:
   - Measurement reporting goes to Conversion Issuance registry => here it can be determined how many GOs to cancel
   - Easier to automate if GO Cancellation (for Input) and Conversion Issuance (for Output) are in same registry

2. Proving the Input Attributes:
   - Cancelling GOs in the Conversion registry after Importing them

3. Attribute Inheritance on GOs after Conversion Issuance:
   - Balance simplicity with information relevance
Determining Quantity of Input Attributes

Measure Input quantity → Report Input quantity to Conversion Issuing Body → Verify Input quantity → Cancel GOs in accordance with Input quantity → Inform Conversion Issuing Body of Cancelled GOs (*) → Ensure Uniqueness of Cancelled Input GOs

(*) Only a relevant step if the Conversion Issuing Body is another party then the Issuing Body who cancels the GOs
Verifying Quality of Input Attributes

**Conversion GOs Issued** = \( \frac{\text{cancelled GOs}}{\text{Input measurement}} \times \text{Output measurement} \)

- **Cancellation data**
  - Verification:
    - Conversion Device
    - Consumption period
    - ‘For Conversion’
  - Attributes
    - Energy Source
    - ...

- **GO Cancelled**
  - Gas - Methane

- **GO Issued**
  - Electricity

- **Attributes on Conversion GOs**
  - Confirmed by cancellation data:
    - Production Device = Conversion Device
    - Production period = Consumption Period
    - ‘Cancellation For Conversion’ \(\rightarrow\) Conversion Tag
  - Inherited Attributes
    - Energy Source
    - ...

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Attribute Inheritance

Balance simplicity with information relevance

• Technically easiest: only Energy Source is carried forward

• Cut-off residue Attributes at some point.
  Given proportional allocation of Input Attributes to the Output Attributes: challenging when a residue (<MWh) of Input Attributes goes to next production period

• Conversion Tag

• Keep complete information from cancelled GOs within the Conversion registry
  • This ensures verifiability but keeps the tradeable GO instrument lean and its data format standardised.
  • The issued certificate after Conversion could link to the cancellation information where more information can be obtained from the cancelled certificates

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Let’s lay solid grounds for the future of energy certification

Thank you for your attention!

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