



# CertifHy - Developing the 1<sup>st</sup> EU-wide Guarantee of Origin scheme for Premium Hydrogen

Project co-finance by the FCH JU  
under FP7:



The research leading to these results has received funding from the European Union's Seventh Framework Programme (FP7/2007-2013) for the Fuel Cells and Hydrogen Joint Technology Initiative under grant agreement n° 633107 - Duration: 24 months (Nov 1st 2014 to October 30th 2016)

## Objective:

- Developing consensus on a definition for Premium Hydrogen, including a definition for Green Hydrogen and (non-renewable) Low-carbon Hydrogen.
- Detailed proposal for the 1<sup>st</sup> EU-wide Guarantee of Origin (GO) scheme
- Roadmap for implementation of the first GO scheme for Premium Hydrogen

### Project coordinator



### Consortium Partners



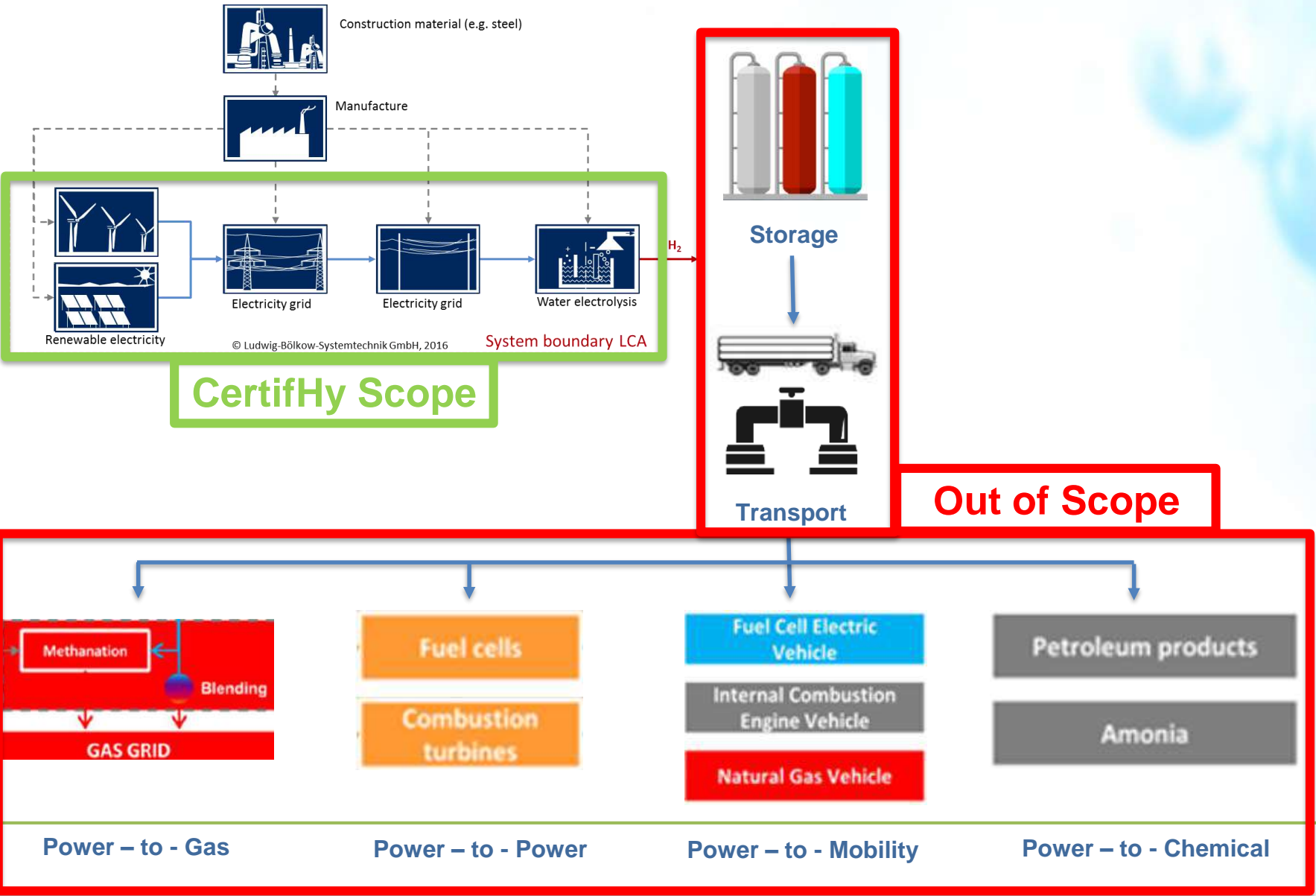
### Affiliated Partners

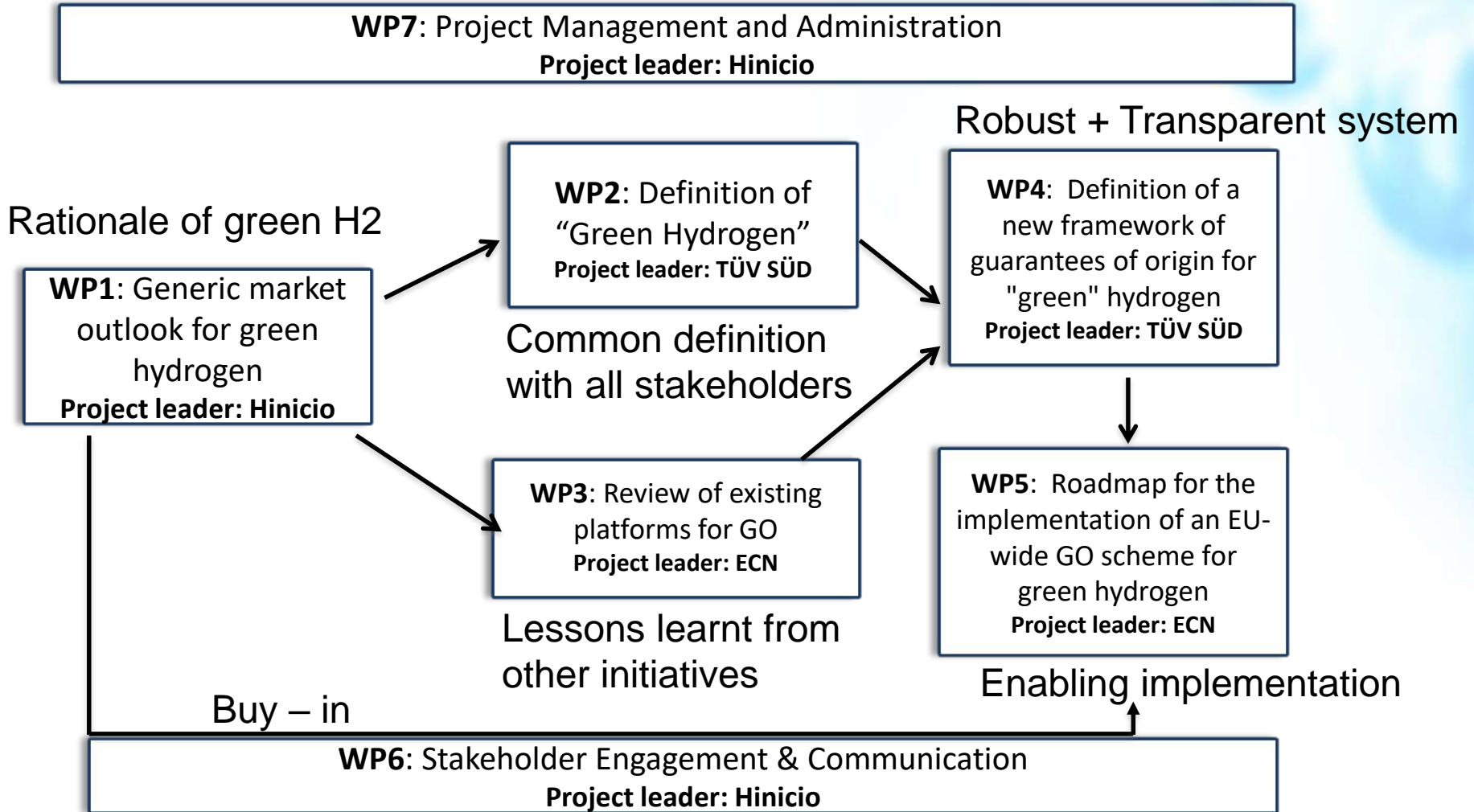


### And many other stakeholders...



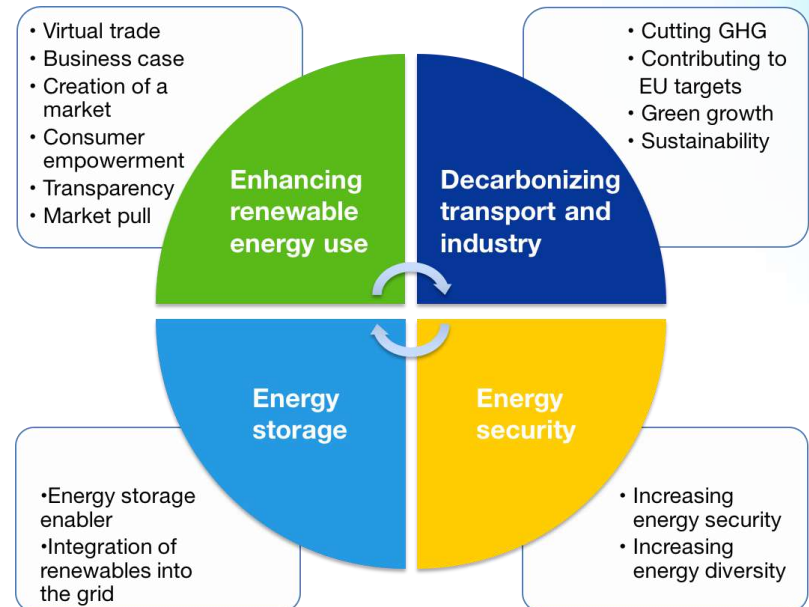
Step-by-step consulting process





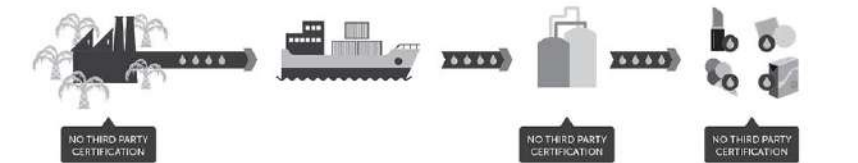
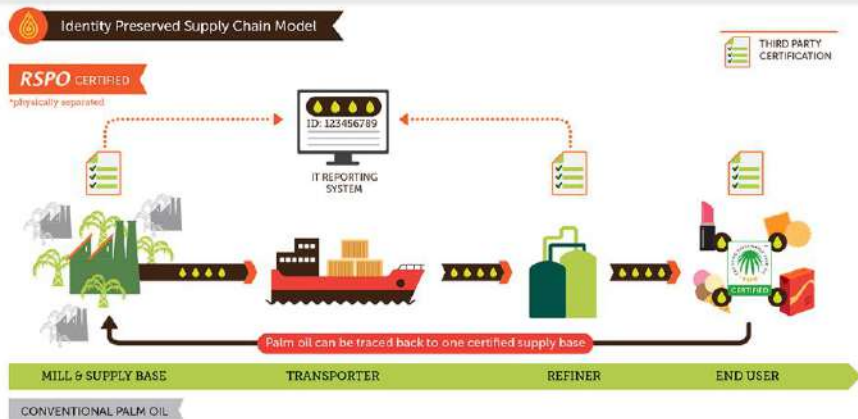
- CertifHy will boost demand and supply of Premium Hydrogen throughout Europe by the creation of a market for Premium Hydrogen
- Premium Hydrogen can help Europe become the number one in renewables and reach EU targets of cutting 80- 95% of greenhouse gas emissions by 2050.
- Global demand for hydrogen = 50 Million tons by 2025
- 3,5% hydrogen market growth per year
- 50 - 60% of all hydrogen for the growing market of transportation will originate from renewable or low-carbon sources by 2030.

## Benefits of an EU-wide GO scheme for Premium Hydrogen

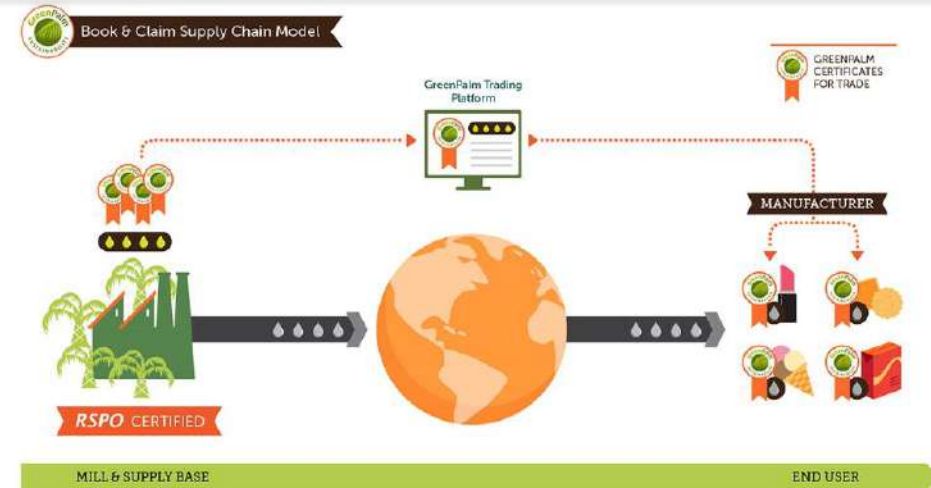


- A **Guarantee of Origin (GO)** guarantees the origin of a product and provides information to customers on the source of their products.
- **Examples:** Fair trade (coffee, oranges), Palm oil, green electricity etc.

## Example: Palm Oil - Identity preserved vs. Book & Claim Supply Chain Model

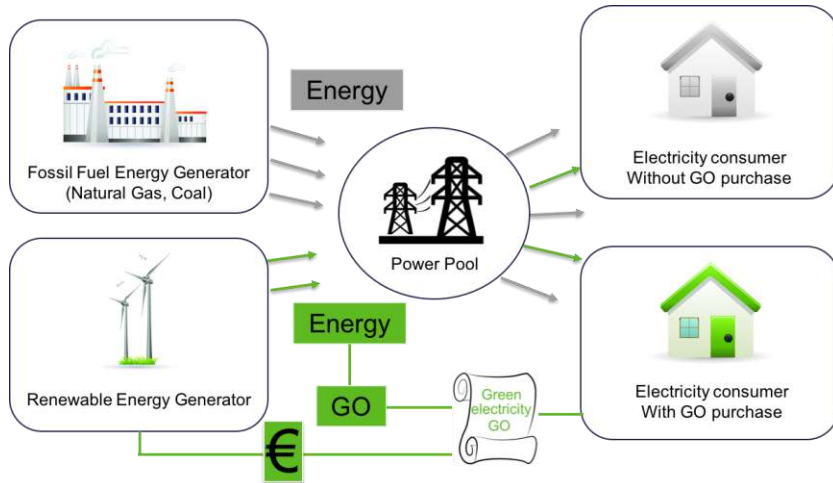


Sustainable palm oil from a single identifiable certified source is kept separately from ordinary palm oil throughout supply chain.

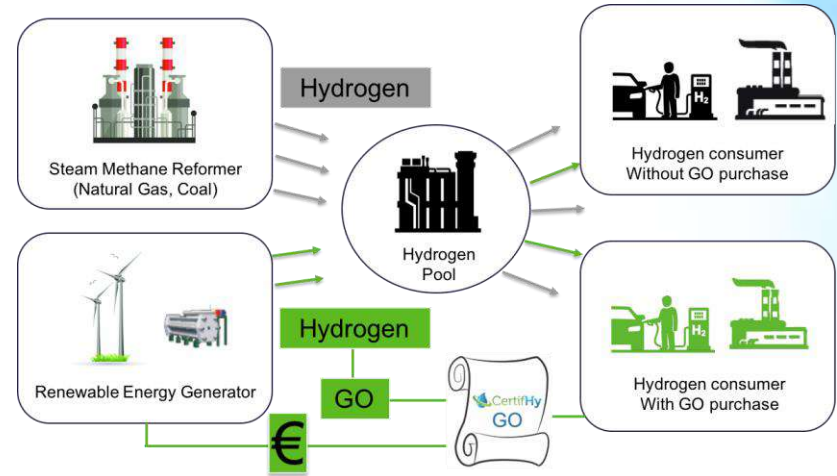


The chain is not monitored for the presence of sustainable palm oil. Manufacturers and retailers can buy a GreenPalm certificate from a RSPO-certified grower

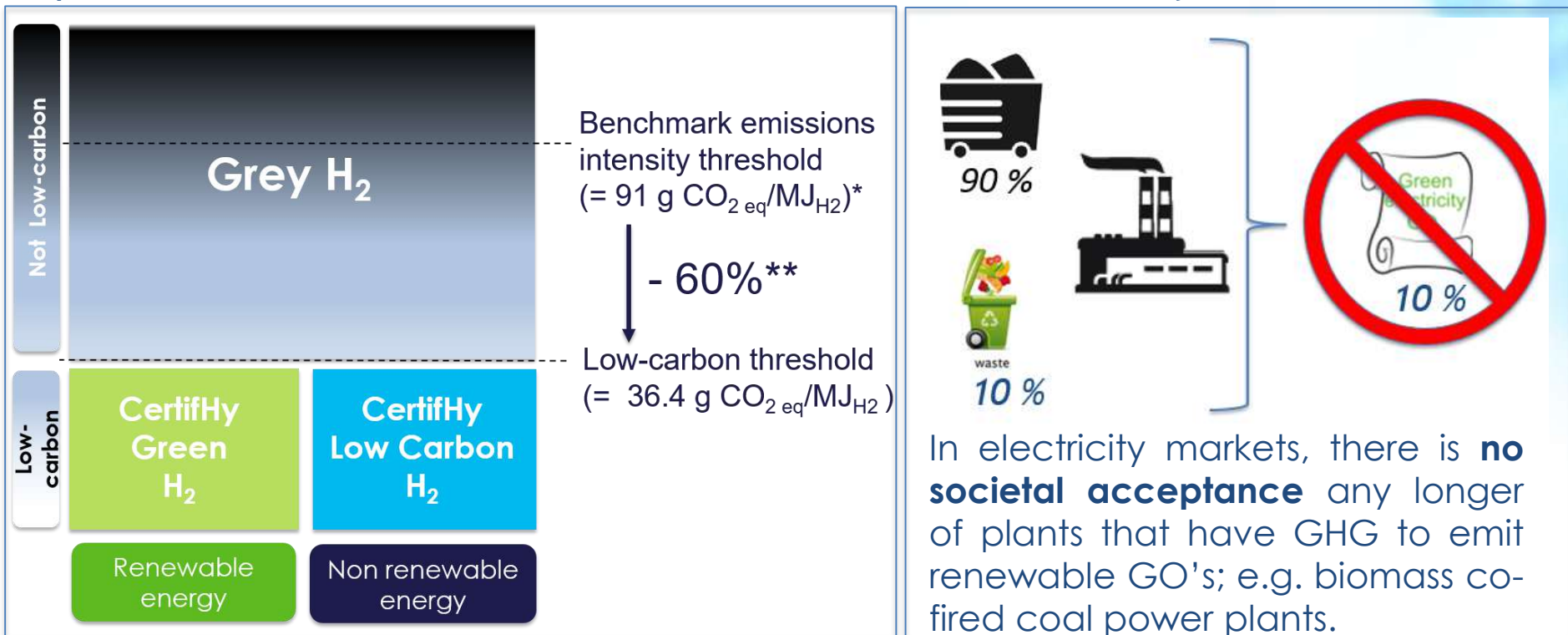
## Renewable electricity GO scheme



## Green hydrogen GO scheme



- Premium Hydrogen is hydrogen produced with low carbon emissions and includes CertifHy Green Hydrogen and CertifHy Low Carbon Hydrogen.
- For **Green Hydrogen**, renewable Feedstock and GHG Emissions of hydrogen producers are addressed: similar trend in renewable electricity GOs.

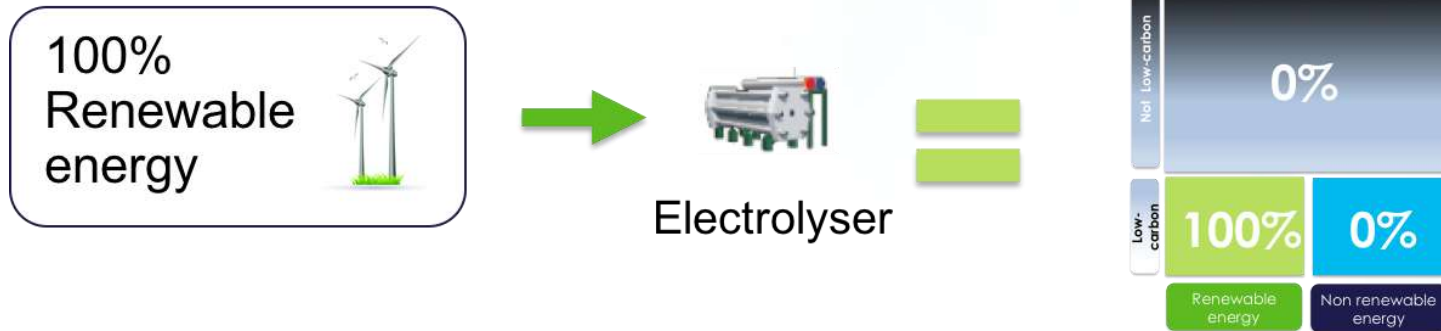


\* Best Available Technology = Natural gas steam methane reforming >95% of H<sub>2</sub> merchant market

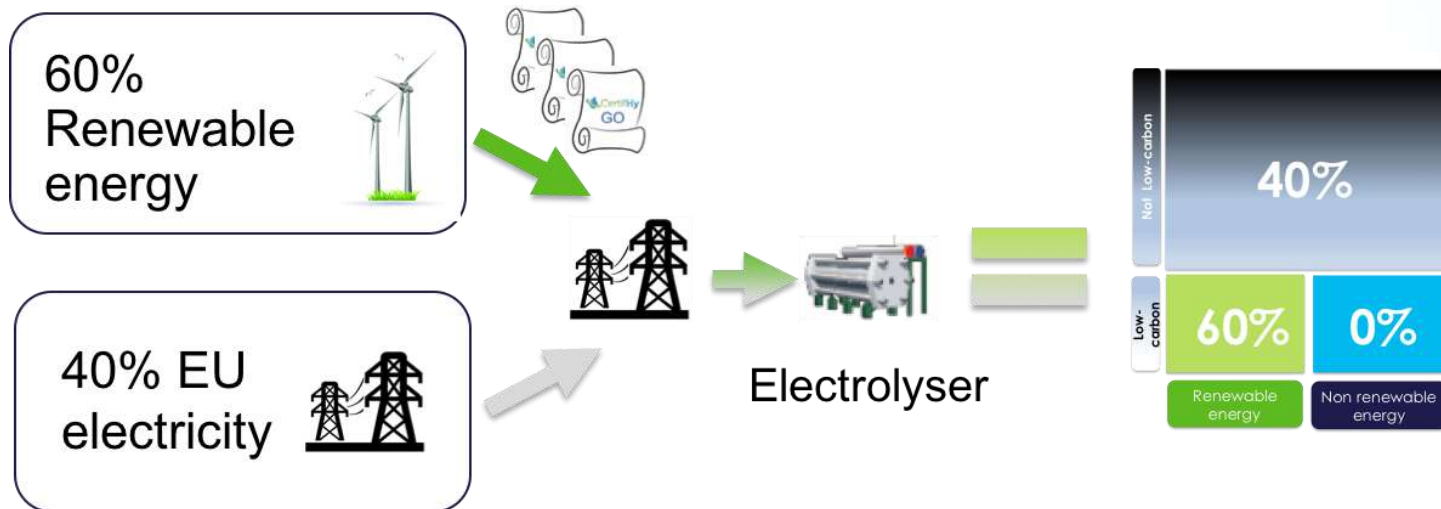
\*\* cfr RED reduction requirement for biofuels in 2018



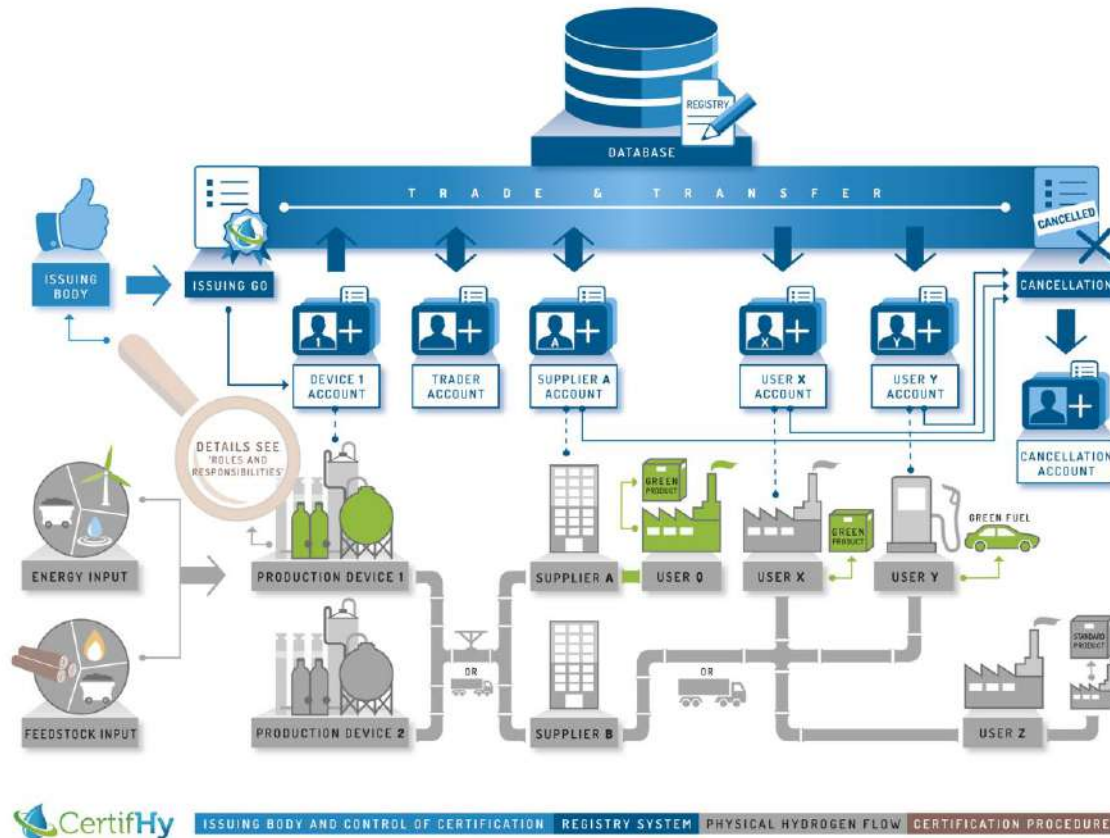
## Example 1: 100% CertifHy Green Hydrogen



## Example 2: 60% CertifHy Green Hydrogen

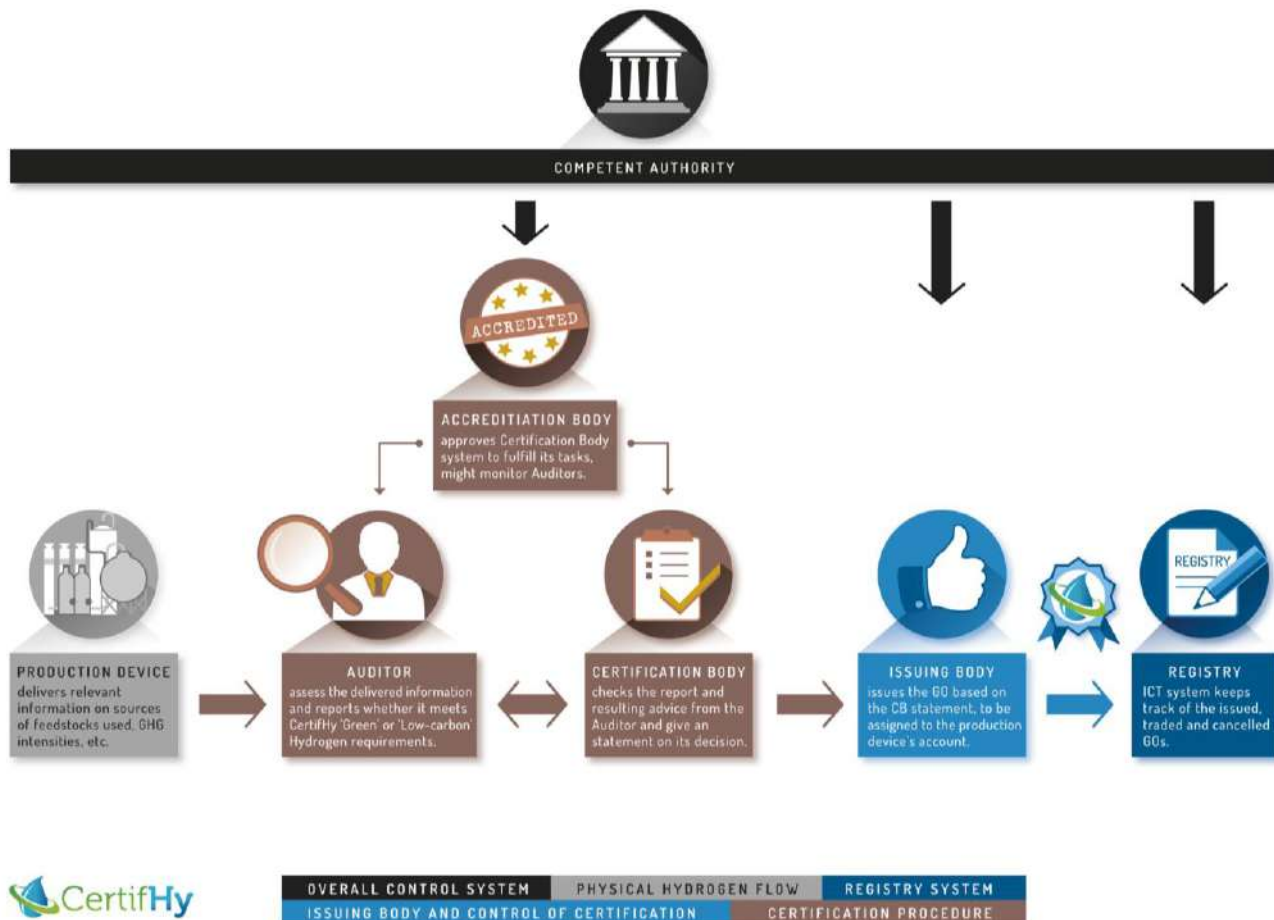


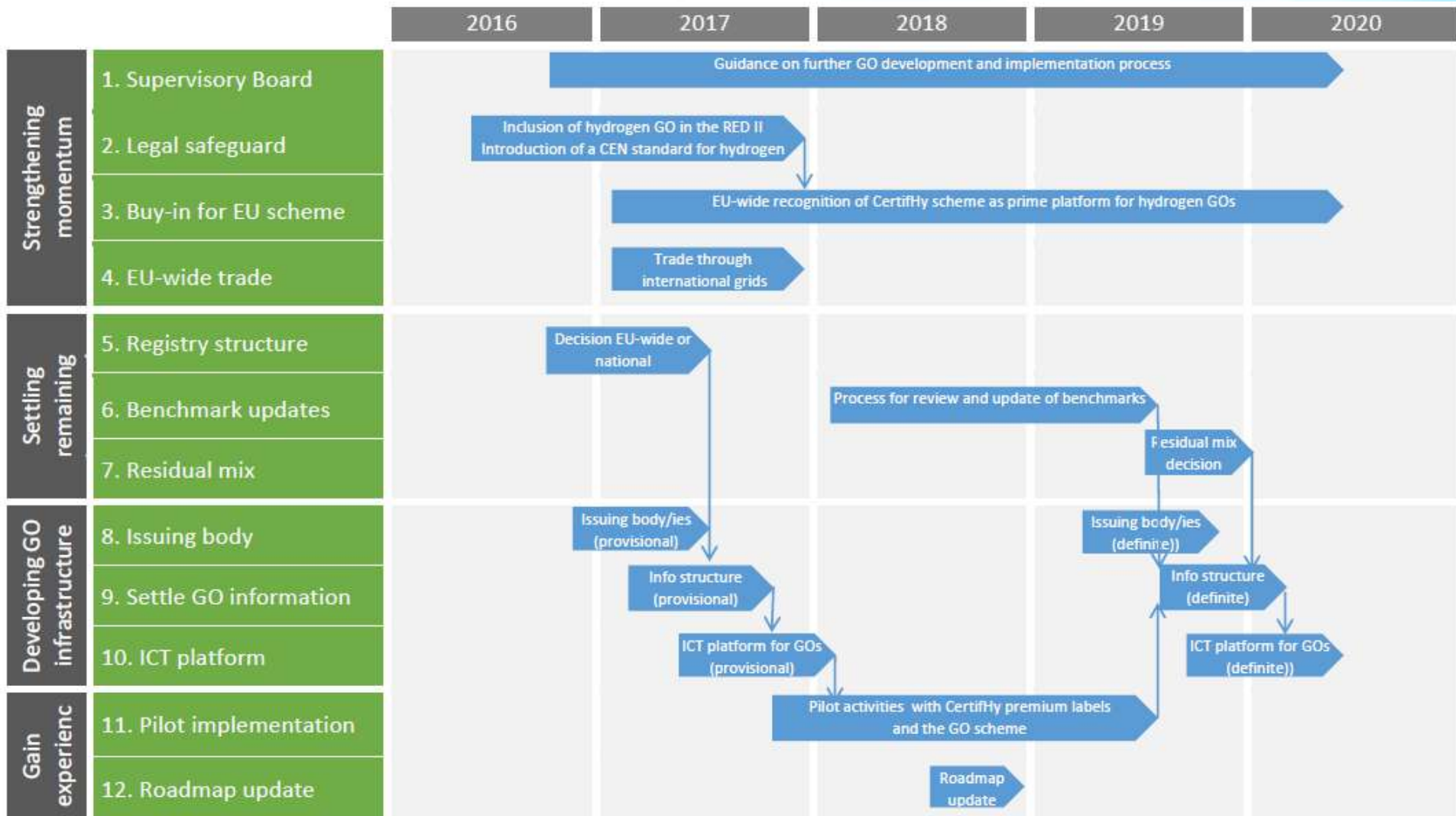
The proposed Premium Hydrogen GO scheme decouples the premium attribute from the physical flow of the product and makes Premium Hydrogen available EU-wide, independently from its production sites, just like renewable electricity or sustainable palm oil GO's.



## Organization of the GO scheme

## GO structure





| Action                                                             | Start                 | Completion                     | Involved parties               | Key results to be delivered                                              |                                                                                |
|--------------------------------------------------------------------|-----------------------|--------------------------------|--------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| <b>First challenge: Strengthening momentum</b>                     |                       |                                |                                |                                                                          |                                                                                |
| 1                                                                  | Supervisory Board     | Late 2016                      | 2020, at scheme implementation | Policy makers (EU and MS), industry (full-chain), NGOs, GO&label experts | Guidance on the further GO development and implementation process              |
| 2                                                                  | Legal safeguard       | Mid- 2016                      | End 2017                       | CertifHy consortium, EC DG ENER and other relevant DGs                   | Inclusion of a hydrogen GO in the RED II                                       |
| 3                                                                  | Buy-in for EU scheme  | Early 2017                     | 2020, and beyond               | Supervisory Board, active role for all board members                     | EU-wide recognition of CertifHy scheme as the prime platform for hydrogen GOs  |
| 4                                                                  | International trade   | Early 2017                     | End 2017                       | EC DG ENER, Supervisory Board                                            | Possibility to trade hydrogen GOs through international grids                  |
| <b>Second challenge: Settling remaining issues and open points</b> |                       |                                |                                |                                                                          |                                                                                |
| 5                                                                  | Registry structure    | End 2016                       | Mid-2017                       | Supervisory Board                                                        | Decision on EU versus national registries                                      |
| 6                                                                  | Benchmark updates     | Early 2018                     | Mid-2019                       | Supervisory Board, issuing body                                          | Process for review and update of benchmarks                                    |
| 7                                                                  | Residual mix          | Mid-2019                       | End-2019                       | Supervisory Board                                                        | Final decision on the approach on this matter, on the basis of pilot outcomes. |
| <b>Third challenge: Developing required GO infrastructure</b>      |                       |                                |                                |                                                                          |                                                                                |
| 8                                                                  | Issuing body          | End 2016 (p)<br>Earl. 2019 (d) | Mid-2017 (p)<br>End 2019 (d)   | Supervisory Board, AIB                                                   | Appointment of a hydrogen GO issuing body                                      |
| 9                                                                  | Settle GO information | Early 2017(p)<br>Mid-2019 (d)  | End 2017 (p)<br>Early 2020 (d) | Issuing body, Supervisory Board                                          | Final GO information structure                                                 |
| 10                                                                 | ICT platform          | Mid-2017 (p)<br>Late 2019 (d)  | End 2017 (p)<br>Mid-2020 (d)   | Issuing body, Supervisory Board                                          | An operating ICT platform for GOs                                              |
| <b>Fourth challenge: Gaining practical experience</b>              |                       |                                |                                |                                                                          |                                                                                |
| 11                                                                 | Pilots                | End 2017                       | Mid-2019                       | Supervisory Board, participants                                          | Lessons on label value, GO scheme, res. mix                                    |
| 12                                                                 | Roadmap update        | Mid-2018                       | End 2018                       | Supervisory Board                                                        | Actualisation of the roadmap                                                   |

The implementation of CertifHy is supported by international leading stakeholders of a wide range of industries

|                                                                      | Association of Issuing Bodies | Air Products | Akzo Nobel | Areva H2gen | Air Liquide | BMW | CCS Global Group | Clean Energy Partnership | Colruyt | European Biogas Association | EDF | European Hydrogen Association | EkoEnergy | Hydrogenics | Hygear |
|----------------------------------------------------------------------|-------------------------------|--------------|------------|-------------|-------------|-----|------------------|--------------------------|---------|-----------------------------|-----|-------------------------------|-----------|-------------|--------|
| Definitions of the two types of premium hydrogen                     | x                             | x            | x          | x           | x           | x   | x                | x                        | x       | x                           | x   | x                             |           | (x)         | x      |
| Guidelines for the setup of the GO scheme                            | x                             | x            | x          | x           | x           | x   | x                | x                        | x       | x                           | x   | x                             |           | x           | x      |
| Roadmap for the implementation                                       | x                             | x            | x          | x           | x           | x   | x                | x                        | x       | x                           | x   | x                             |           | x           | x      |
| Participation of Stakeholder Platform                                | x                             |              |            | x           | x           | x   |                  | x                        | x       | x                           | x   | x                             |           | x           | x      |
| Set up pilots in which the GOs scheme can be tested                  | x                             | x            | x          | x           | x           |     |                  |                          | x       |                             |     | x                             |           | x           | x      |
| Manage / Build ICT system and registry platform                      | x                             |              |            |             |             |     |                  |                          |         |                             |     |                               |           |             |        |
| Act as Issuing body                                                  | x                             |              |            |             |             |     |                  |                          |         |                             |     |                               |           |             |        |
| Creation of EU-wide buy-in for the GO scheme and the CertifHy labels | x                             |              |            | x           |             | x   |                  | x                        |         |                             | x   |                               |           | x           | x      |

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|                                                                      | Hychico | H2 Mobility Germany | ITM Power | Linde | Machiels | Netherlands Standardization Institute NEN | NG | Polito | Symbio Fuel Cell | Teesing | Toyota | UCL | Uniper | Verbund | WaterstofNet |
|----------------------------------------------------------------------|---------|---------------------|-----------|-------|----------|-------------------------------------------|----|--------|------------------|---------|--------|-----|--------|---------|--------------|
| Definitions of the two types of premium hydrogen                     | x       | x                   | x         | x     | x        | x                                         | x  | x      | x                | x       | x      | x   | x      | x       | x            |
| Guidelines for the setup of the GO scheme                            | x       | x                   | x         | x     | x        | x                                         | x  | x      | x                | x       | x      | x   | x      | x       | x            |
| Roadmap for the implementation                                       | x       | x                   | x         | x     | x        | x                                         | x  | x      | x                | x       | x      | x   | x      | x       | x            |
| Participation of Stakeholder Platform                                |         |                     | x         | x     |          | x                                         |    | x      |                  | x       |        |     | x      | x       | x            |
| Set up pilots in which the GOs scheme can be tested                  | x       | x                   | x         |       | x        | x                                         |    | x      |                  |         |        |     | x      | x       | x            |
| Manage / Build ICT system and registry platform                      |         |                     |           |       |          | x                                         |    |        |                  |         |        |     |        | x       |              |
| Act as Issuing body                                                  |         |                     |           |       |          | x                                         |    | x      |                  |         |        |     |        |         |              |
| Creation of EU-wide buy-in for the GO scheme and the CertifHy labels |         |                     |           |       | x        |                                           | x  |        |                  |         | x      |     |        | x       | x            |

THANK YOU FOR YOUR ATTENTION !

**Contact us:**



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