

2014 2016 2017 2018/9 2020s..

## Phase 1

- 1 Define a widely acceptable definition of green hydrogen
- 2 Determine how to design and implement a robust EU wide GO scheme

### Affiliated partners:



2/23/2018

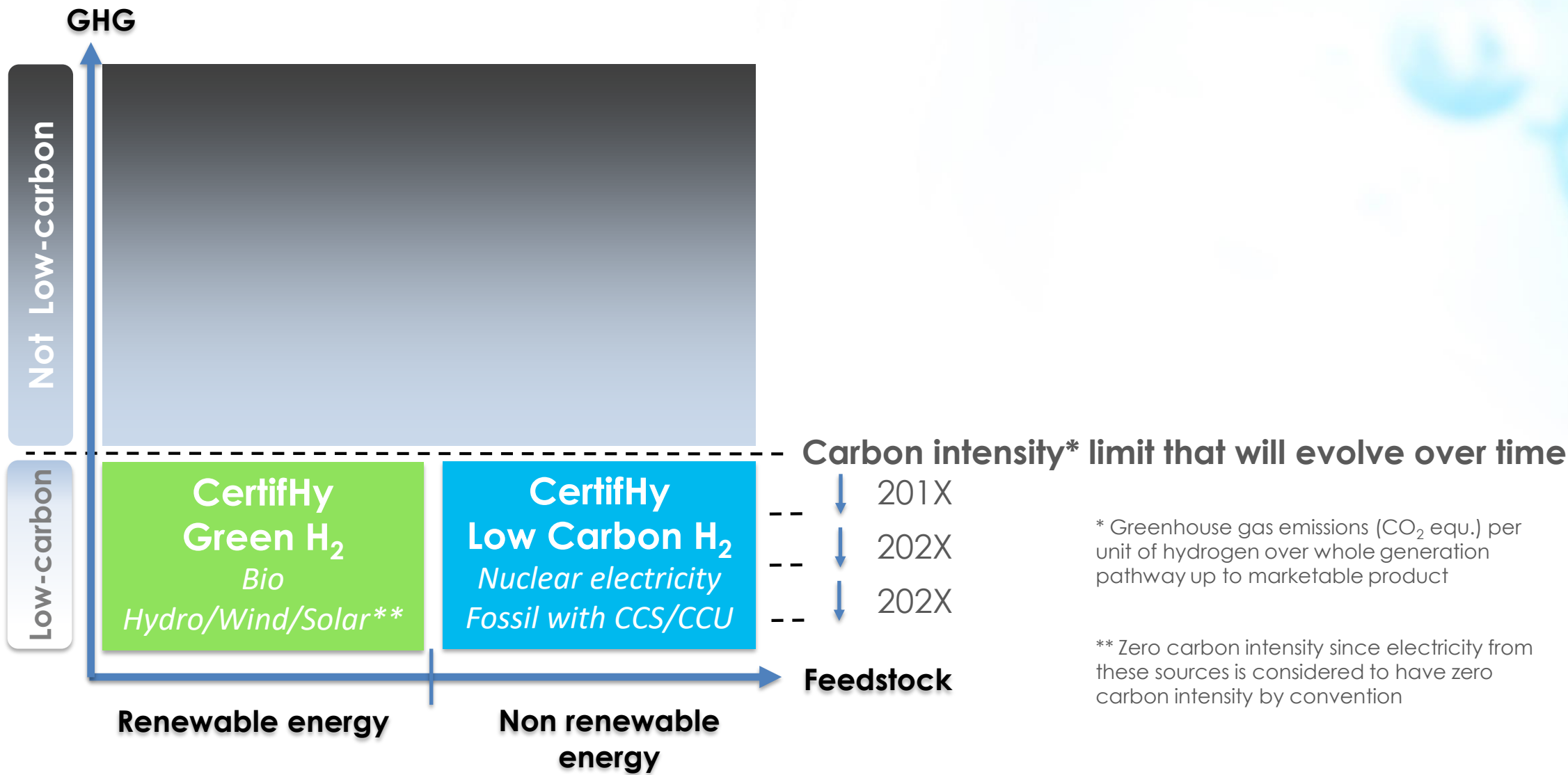
## Phase 2

- 1 Set-up a hydrogen GO Stakeholder platform
- 2 Finalise the scheme design ensuring it can be the main route to guarantee the origin of green & low carbon hydrogen across EU Member States
- 3 Run a pilot scheme to test the proposed design
- 4 Identify actions which need to be undertaken after the completion of the study to achieve an EU wide deployment of the scheme

## Phase 3

Prepare EU wide deployment

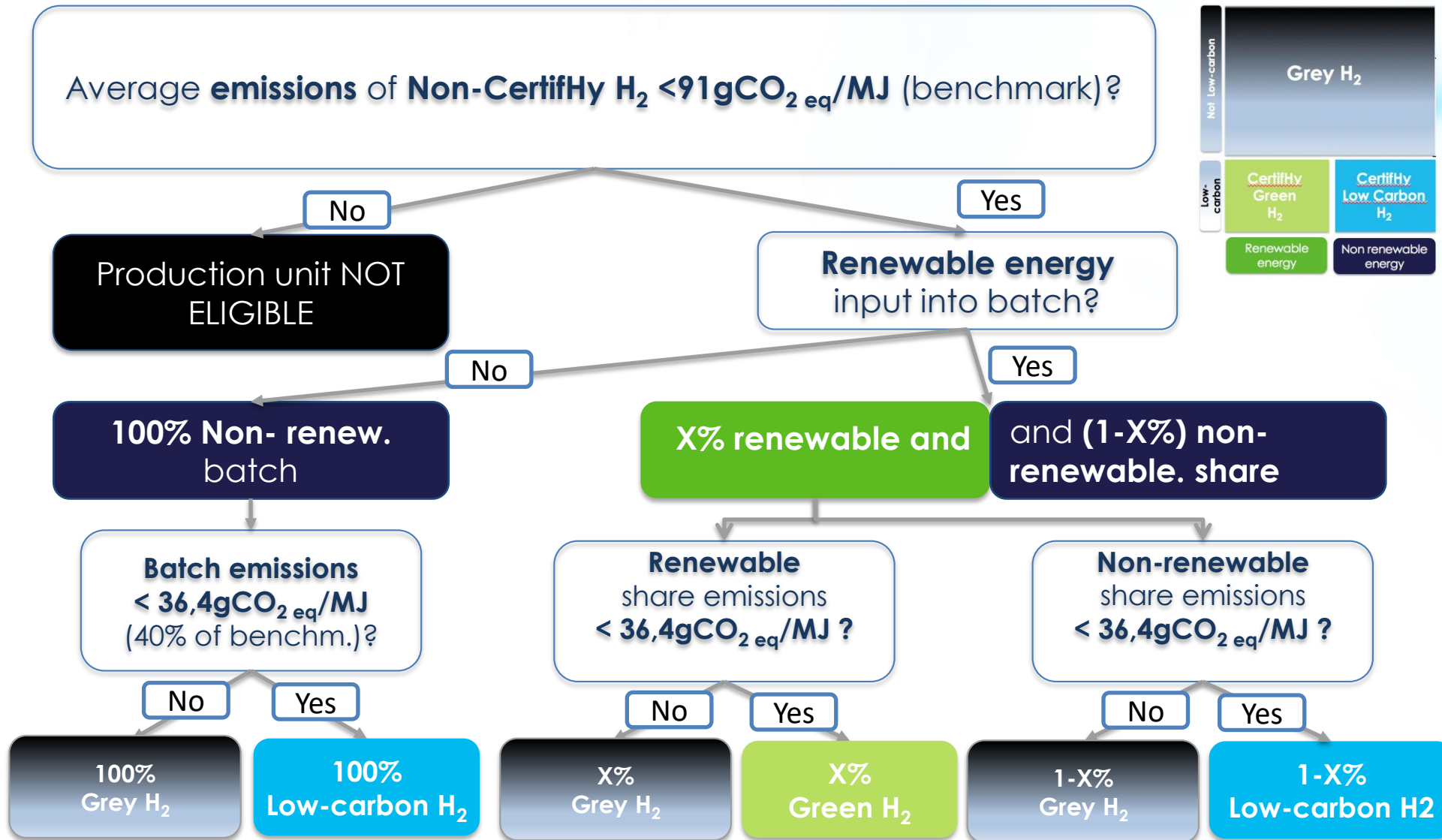
One definition of green and Low Carbon hydrogen throughout Europe gives confidence to consumers and will allow green H2 uptake: a common agreement of definition was a main outcomes of Phase 1



\* Greenhouse gas emissions (CO<sub>2</sub> equ.) per unit of hydrogen over whole generation pathway up to marketable product

\*\* Zero carbon intensity since electricity from these sources is considered to have zero carbon intensity by convention

# Decision tree presenting the criteria for producing Low-Carbon and CertifHy Green H<sub>2</sub>





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### Phase 2

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### Phase 3

EU wide deployment

## Ex-post certification

- Based on ISO 14065
- Validation of production device for registration
- Issuance after verification

## Unit

- 1 MWh (based on lower heating value)

## Quality

- H<sub>2</sub> available for commercial trade

## Measurement / accuracy

- Based on best available practice
- Compliance with national requirements - if available

## Level of assurance

- Reasonable level of assurance

## Materiality

- 5% of the CertifHy GOs

PART 1: Factual information	Comments
<ul style="list-style-type: none"> <li>• Producer (legal entity)</li> </ul>	VAT
<ul style="list-style-type: none"> <li>• Identity of the Originating Facility/Production Device                             <ul style="list-style-type: none"> <li>○ Production device ID; the unique number which has been assigned to the Production Device</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li>• Date and time of hydrogen production (beginning and end) of the batch</li> <li>• Production year</li> </ul>	dd.mm.yyyy
<ul style="list-style-type: none"> <li>• Energy sources (the level of detail shall be established during the Road Map implementation Action 10):</li> </ul>	MWh/year
<ul style="list-style-type: none"> <li>• Support                             <ul style="list-style-type: none"> <li>○ investment supported</li> <li>○ production supported</li> <li>○ supported scientific/demo/pilot project</li> <li>○ unsupported</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li>• Share of renewable energy in total energy input for producing the hydrogen (excluding ancillary energy consumption)</li> </ul>	%
<ul style="list-style-type: none"> <li>• Raw material sources (level of detail to be established; this is a proposed level of detail):                             <ul style="list-style-type: none"> <li>○ Sustainable liquid Biomass</li> <li>○ Natural Gas</li> <li>○ ...</li> </ul> </li> </ul>	kg/year
<ul style="list-style-type: none"> <li>• GHG balance (level of detail to be established; this is a proposed level of detail):                             <ul style="list-style-type: none"> <li>○ GHG emissions intensity of total hydrogen produced in the production period</li> <li>○ Average GHG emissions intensity of the low carbon share</li> <li>○ Average GHG emissions intensity of the renewable share</li> <li>○ Average GHG emissions intensity of non low carbon share</li> </ul> </li> </ul>	g CO <sub>2eq</sub> /MJ <sub>H2</sub>
<ul style="list-style-type: none"> <li>• Main or by-product:                             <ul style="list-style-type: none"> <li>○ Main product</li> <li>○ By-product                                     <ul style="list-style-type: none"> <li>▪ GHG emissions allocation by input energy share</li> </ul> </li> </ul> </li> </ul>	g CO <sub>2eq</sub> /MJ <sub>H2</sub>
<ul style="list-style-type: none"> <li>• ID of GO</li> </ul>	

Find out more:



[www.certifhy.eu](http://www.certifhy.eu)



[certifhy@hinicio.com](mailto:certifhy@hinicio.com)



#CertifHy



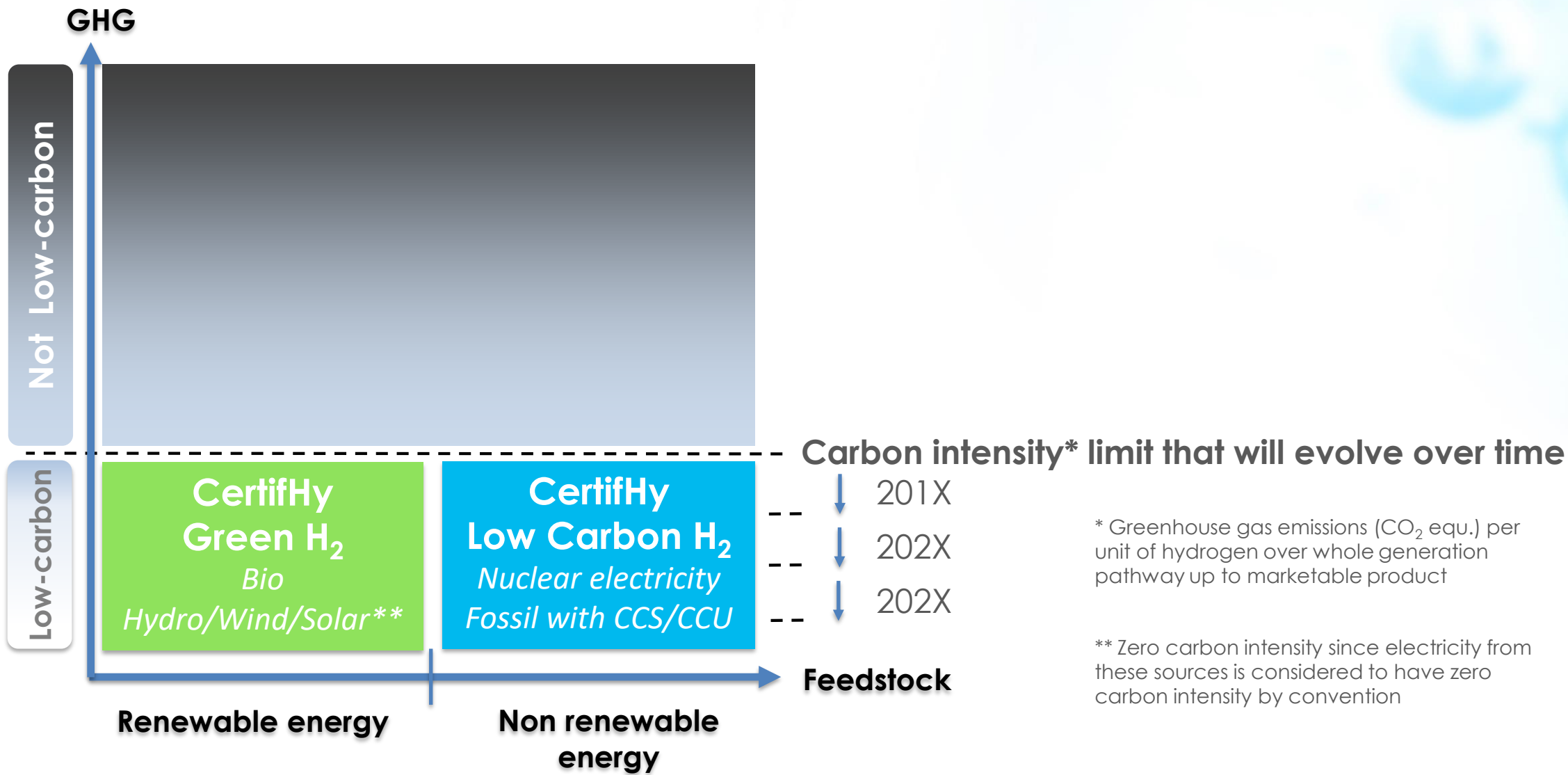
Project supported by the FCH JU



# Appendix



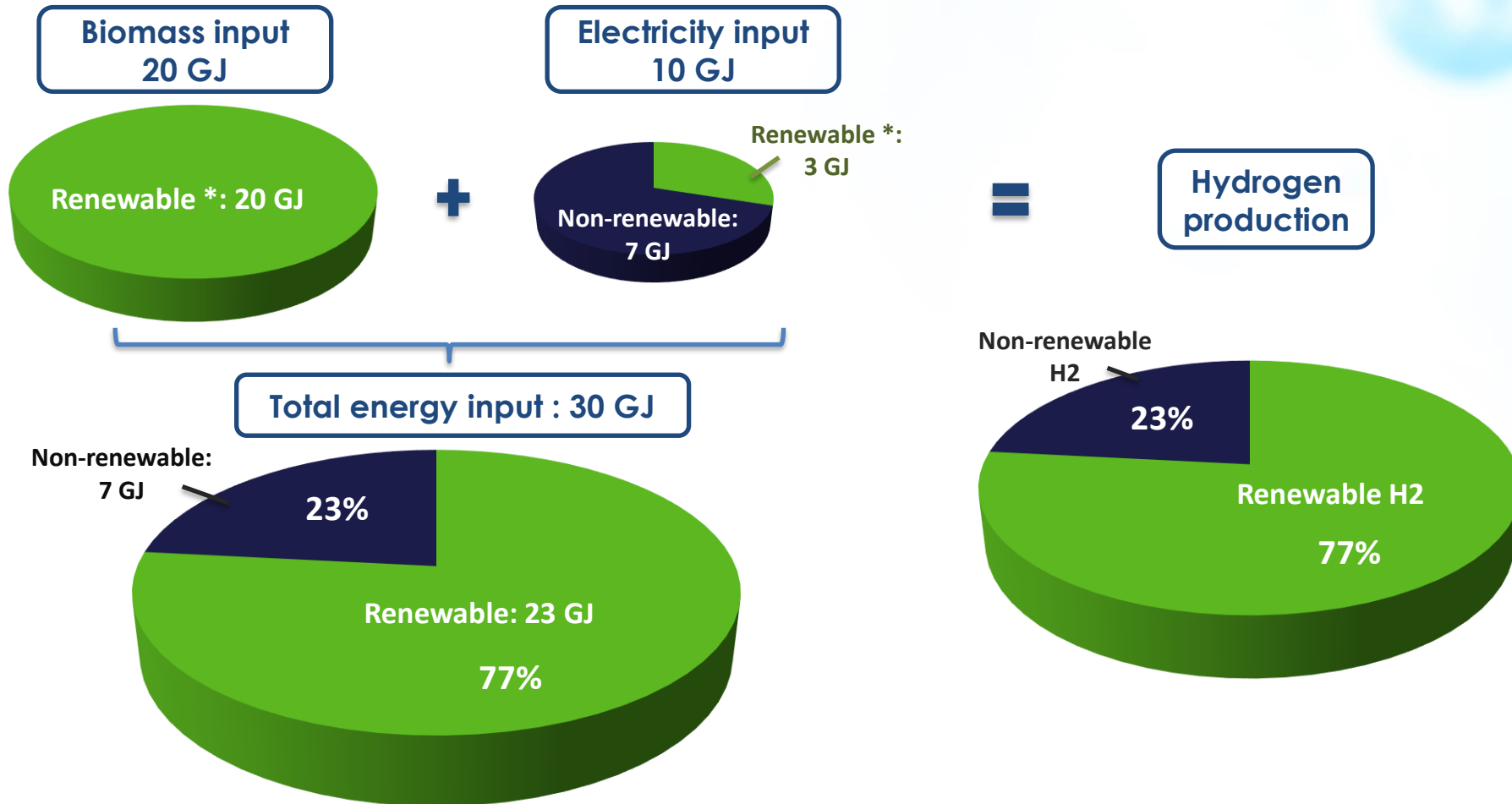
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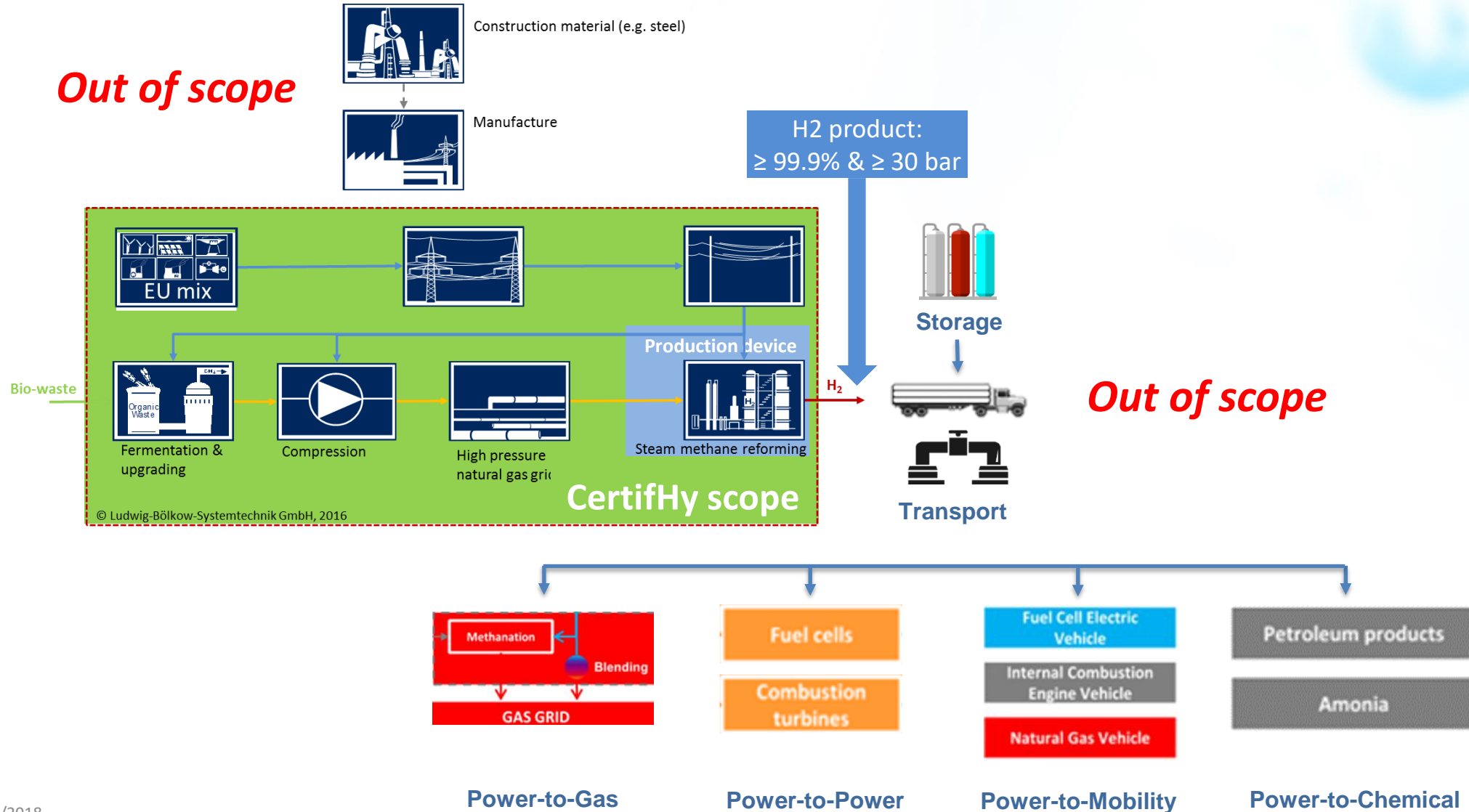
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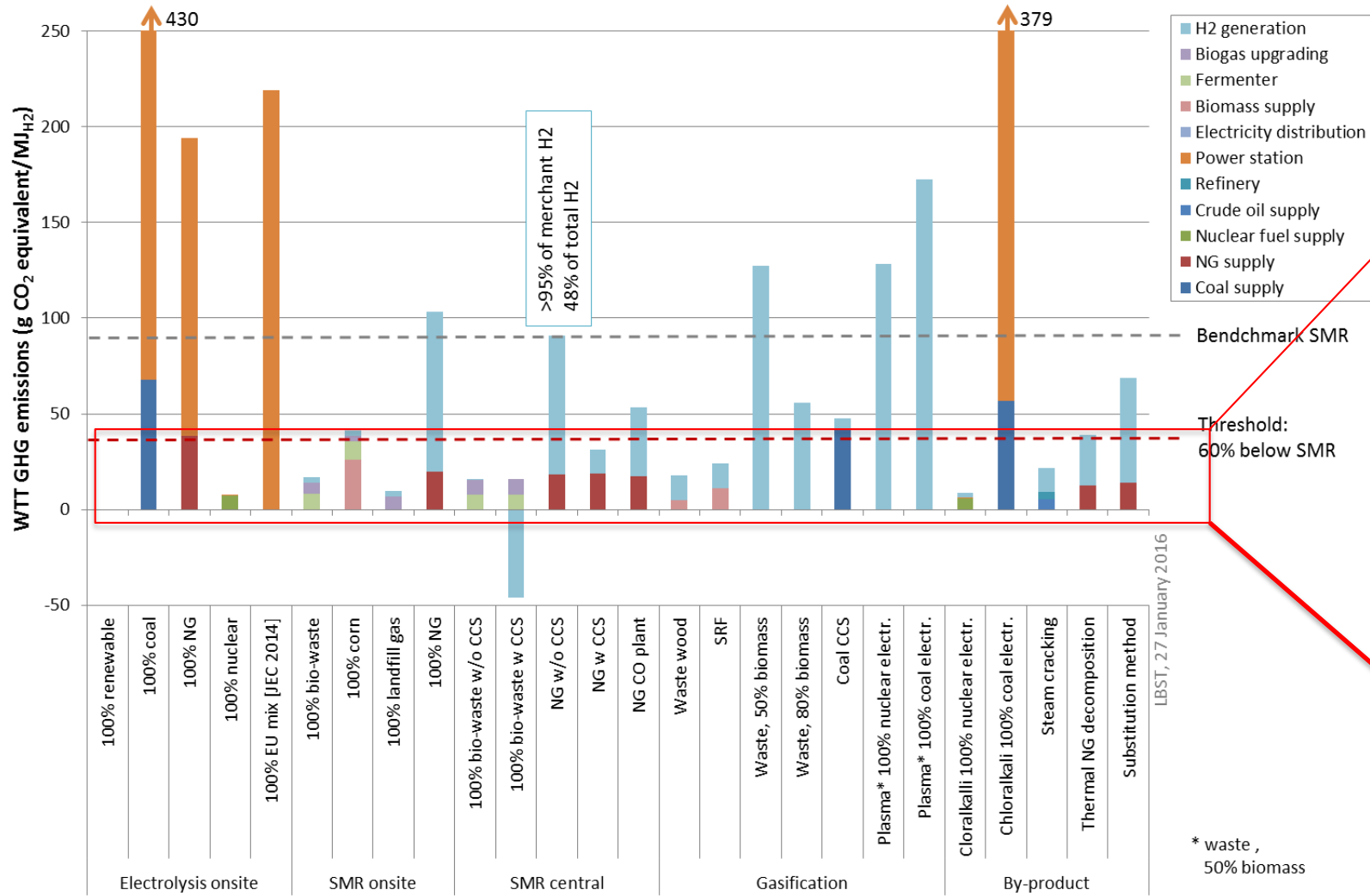




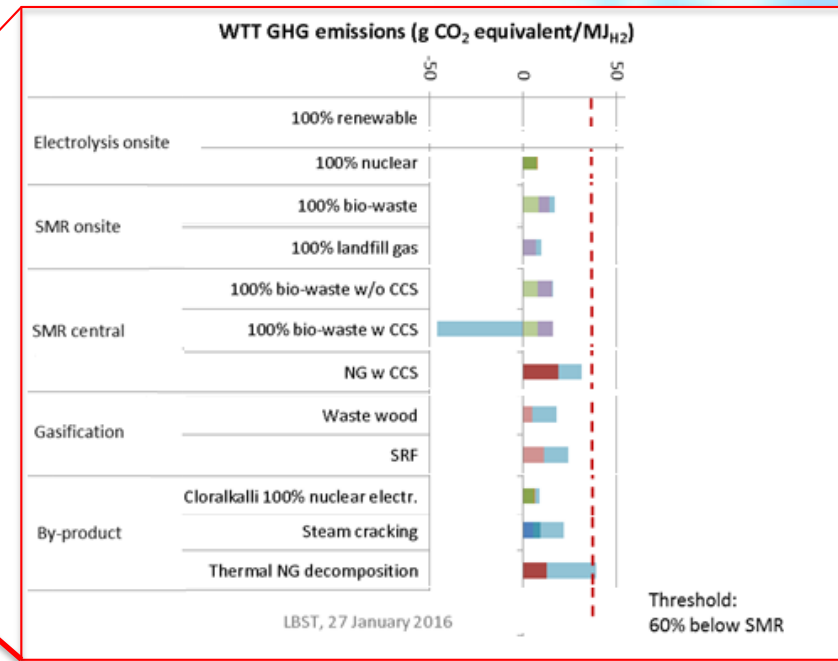
For scope, it was decided that H2 GOs and the associated GHG emissions would cover the whole generation pathway up to marketable product



# With the low carbon benchmark set at an ambitious level, yet allowing for bio-based sources to be eligible

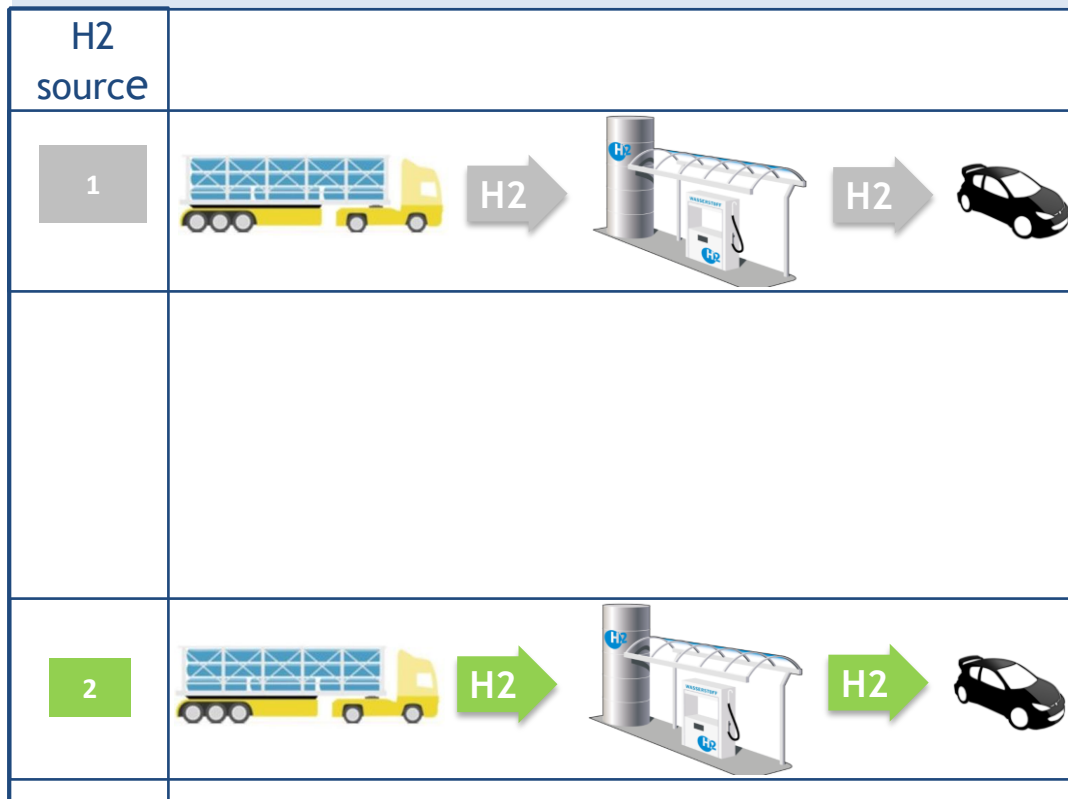


## Eligible pathways

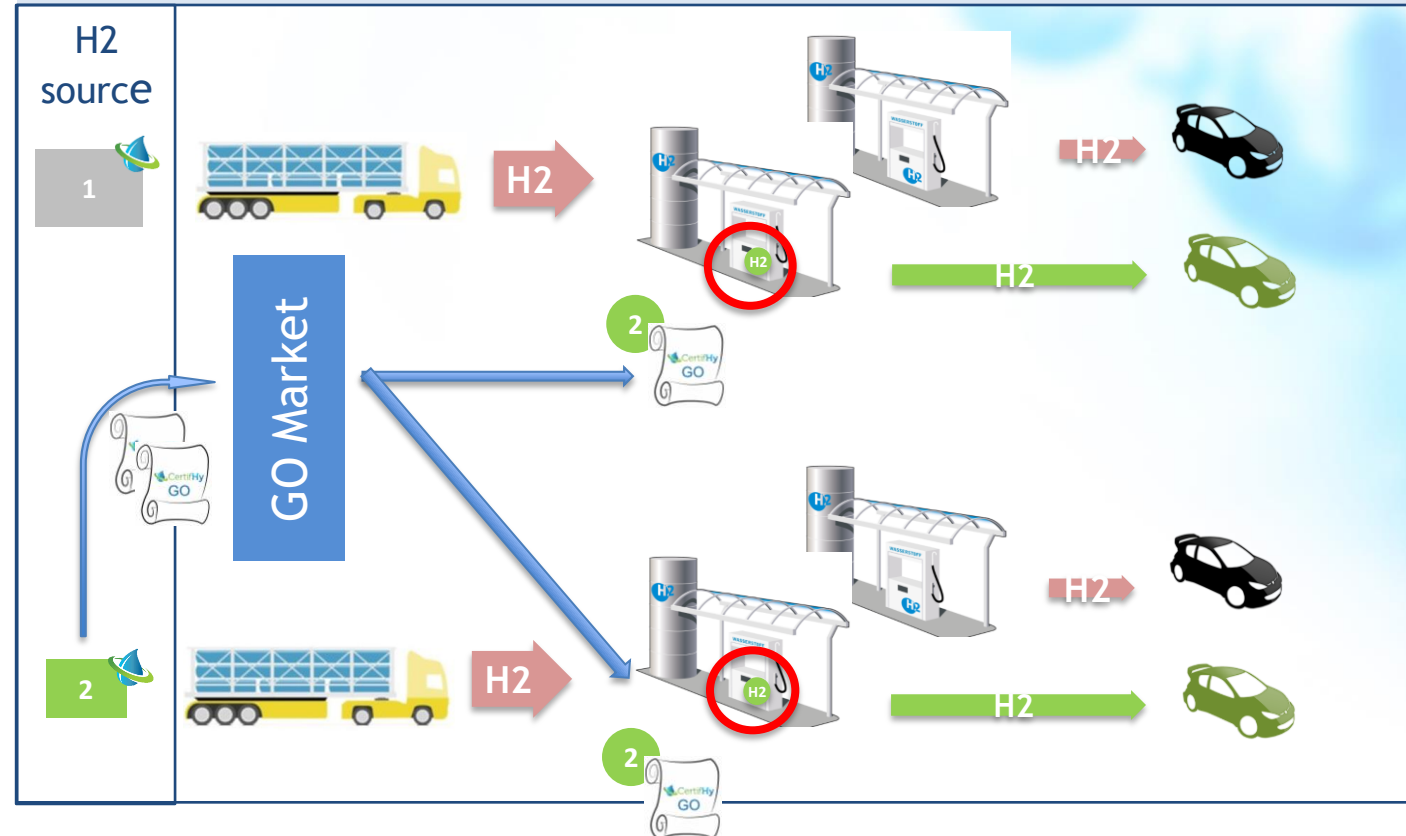




### No GO Scheme: Dedicated Supply Chain



### CertifHy GO Scheme: Case HRS operator ensures green hydrogen being consumed by FCEV



n

H2 source



Benchmark



Renewable and low carbon



Residual mix

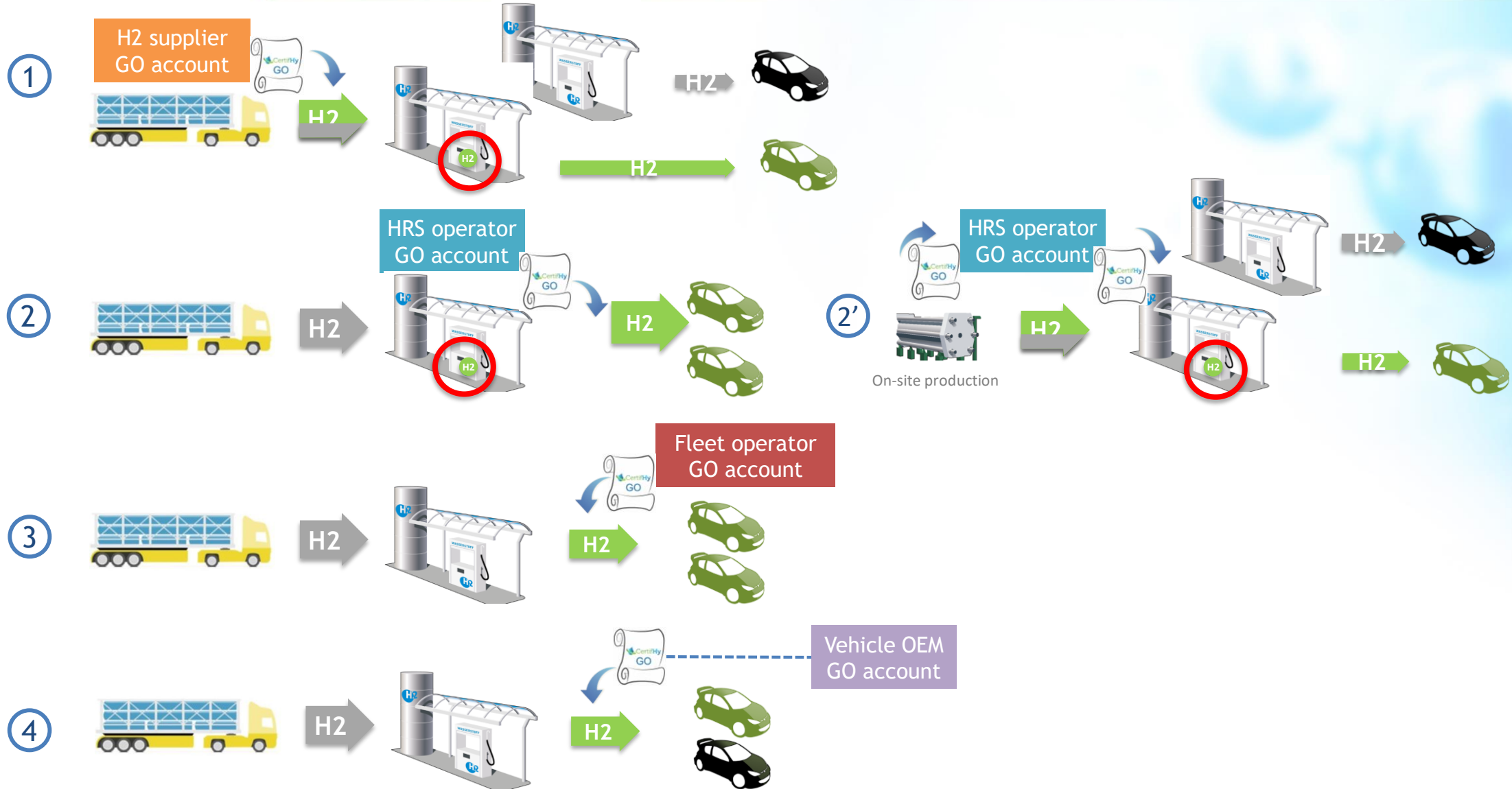


Participating to CertifHy scheme



CertifHy Green H2

GO Market





### WG 1: GO Scheme and procedures

### WG 2: GO issuing (Producers)

### WG 3: GO commercialisation and use (Users)

### WG 4: Regulatory framework

Join the Working Groups!!



SMR with CCU - Port Jérôme (France)

1

**AIR LIQUIDE**

Available GO volume	TBD
	Up to 900 000 kg

Electrolyser + Wind - Halle (Belgium)

2

**colruyt**

Available GO volume	0
	0

Up to 900 tons of Low Carbon H2

Chlor Alkali - Botlek (Netherlands)

3

**AIR PRODUCTS**

**AkzoNobel**

Available GO volume	Up to 50 tons
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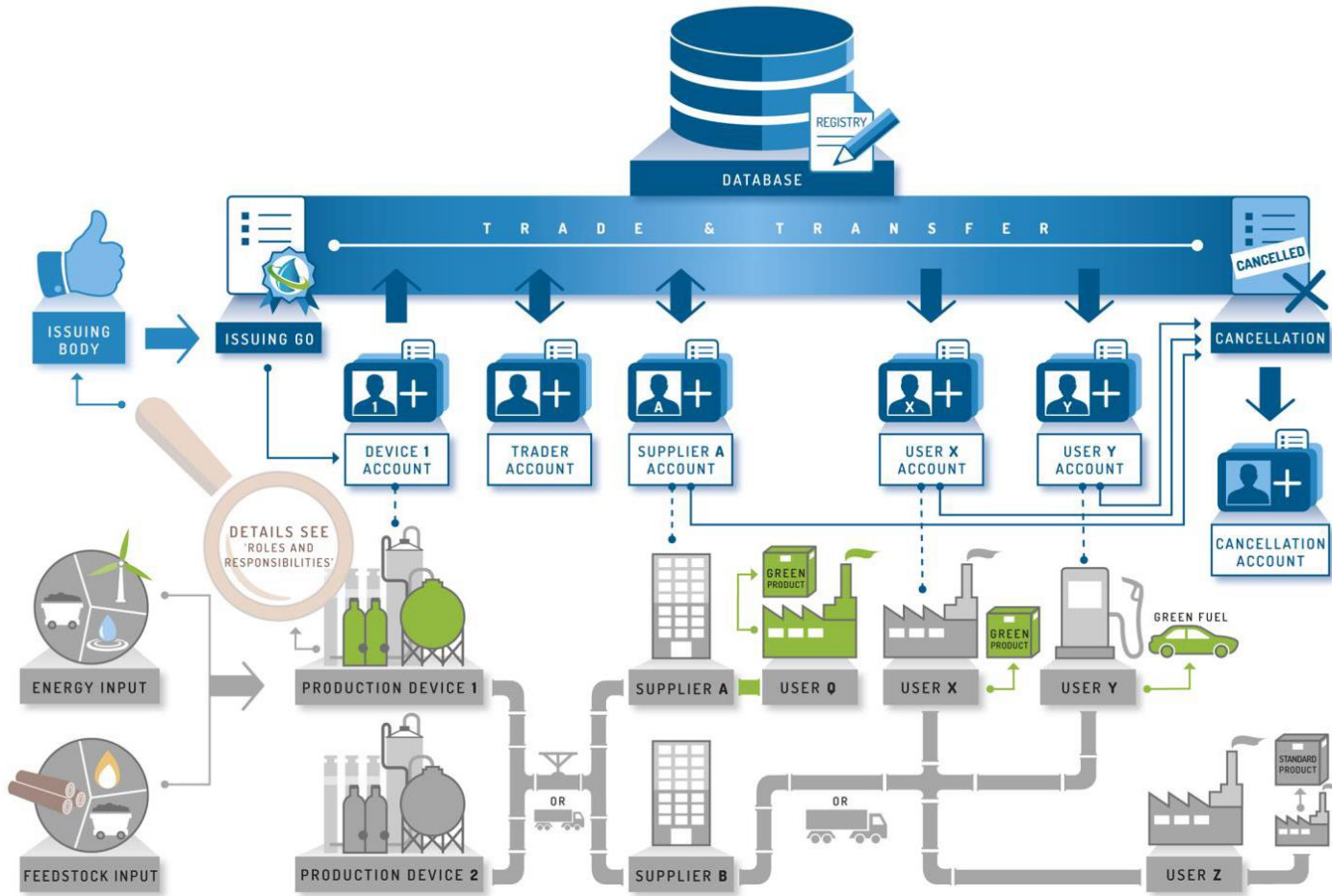
Electrolyser + grid - Falkenhagen (Germany)

4

**uni per**

Available GO volume	Up to 38 tons
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Up to 88 tons of Green H2



## Cancellation statement

/  
Delivery note



ID: 12354ABC

[www.hydrogenGOinformation.com](http://www.hydrogenGOinformation.com)

