



Project supported by the FCH JU



# CertifHy

Creating the 1st EU-wide  
Guarantee of Origin for  
Green Hydrogen

FCH JU - Program Review Days 2018  
14 Nov 2018



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



#CertifHy

## CertifHy Phase 1:

- Definition of green hydrogen
- GO scheme

## CertifHy Phase 2:

- Current status
- Achievements
- Next steps

## CertifHy 3

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:



## Phase 2

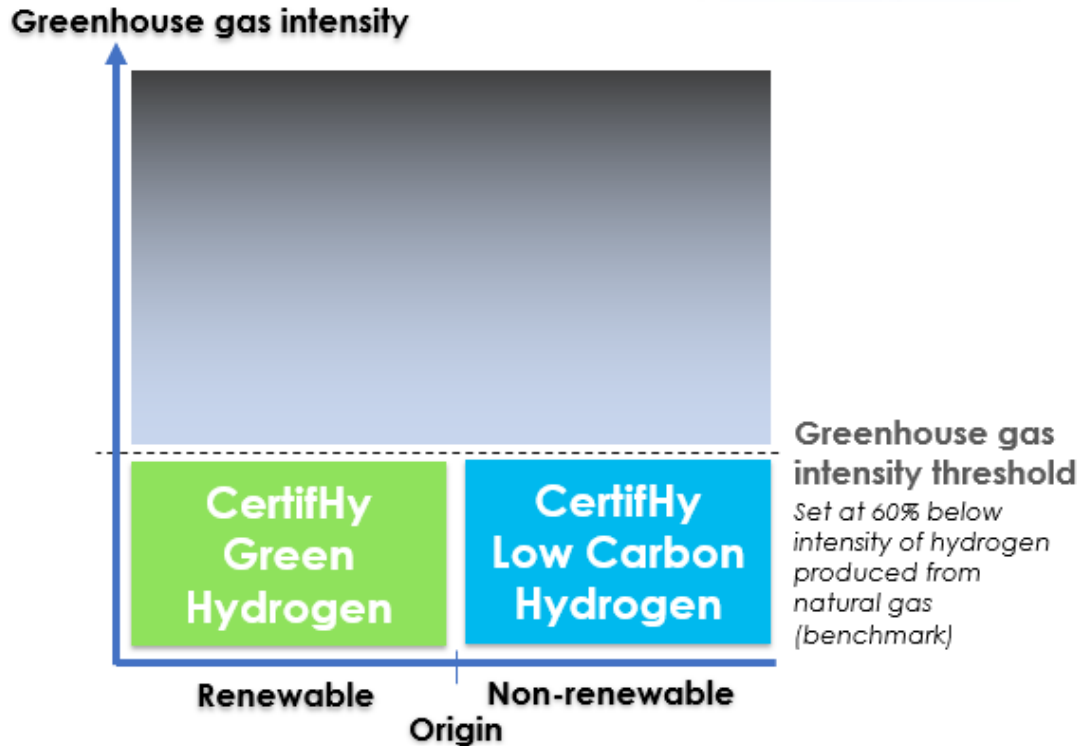
- 1 Set-up a hydrogen GO Stakeholder platform
- 2 Finalise the scheme design ensuring it can be the **main route to guarantee the origin of green & low carbon hydrogen across EU Member States**
- 3 Run a pilot scheme to test the proposed design
- 4 Identify actions which need to be undertaken after the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

## Phase 3

- 1 Prepare EU wide deployment: Implement key elements
  - Competent authority
  - Issuing Body
  - Registry operator
  - Accreditation body
- 2 Finalise Regulation, Codes and Standards:
  - CEN Standard
  - EU and national regulation
  - CertifHy scheme docs

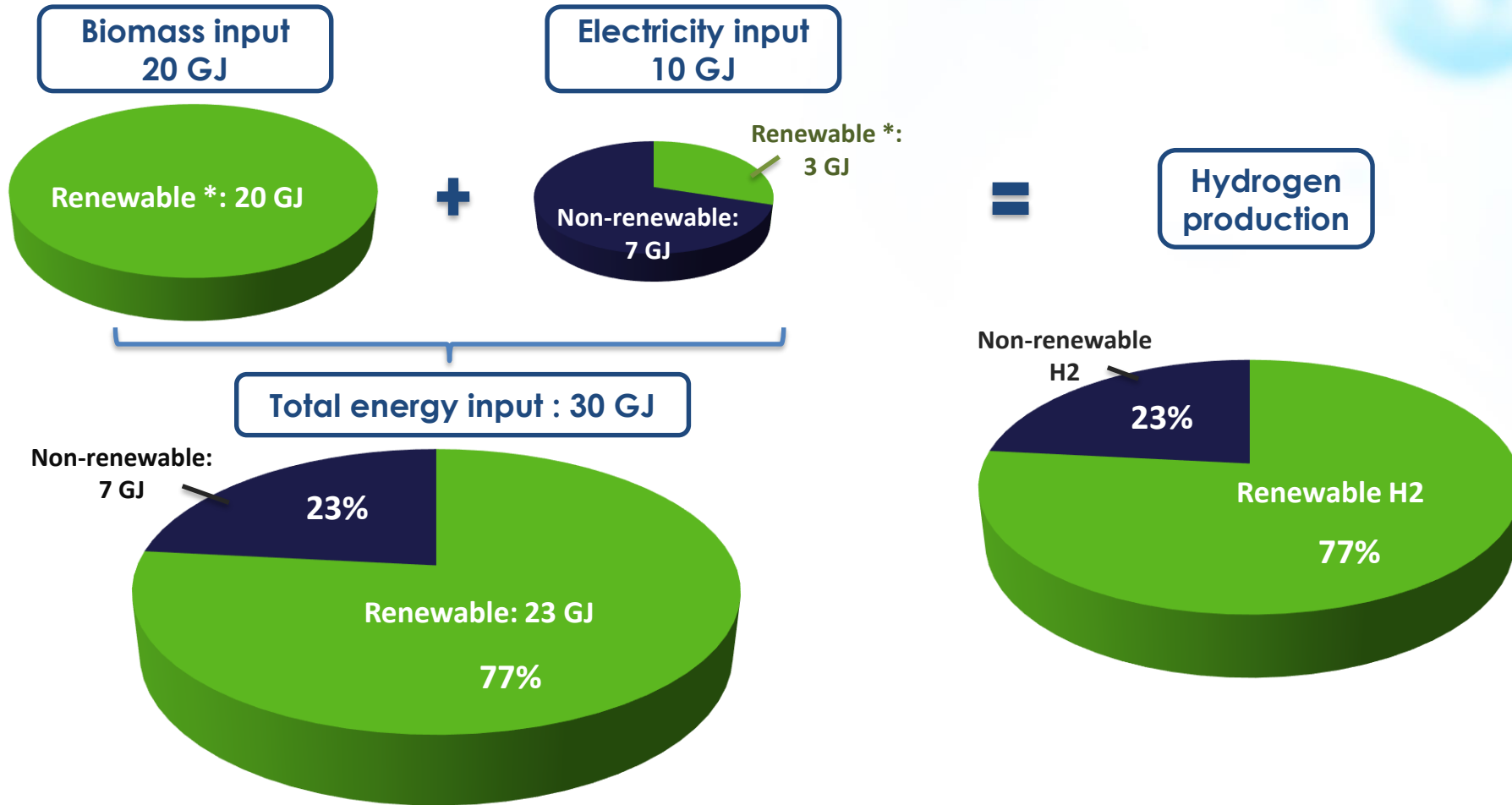
## Green and Low Carbon hydrogen concepts

The CertifHy scheme considers both the origin of the hydrogen and its greenhouse gas (GHG) intensity in reference to a benchmark which is the GHG intensity production of hydrogen from natural gas.

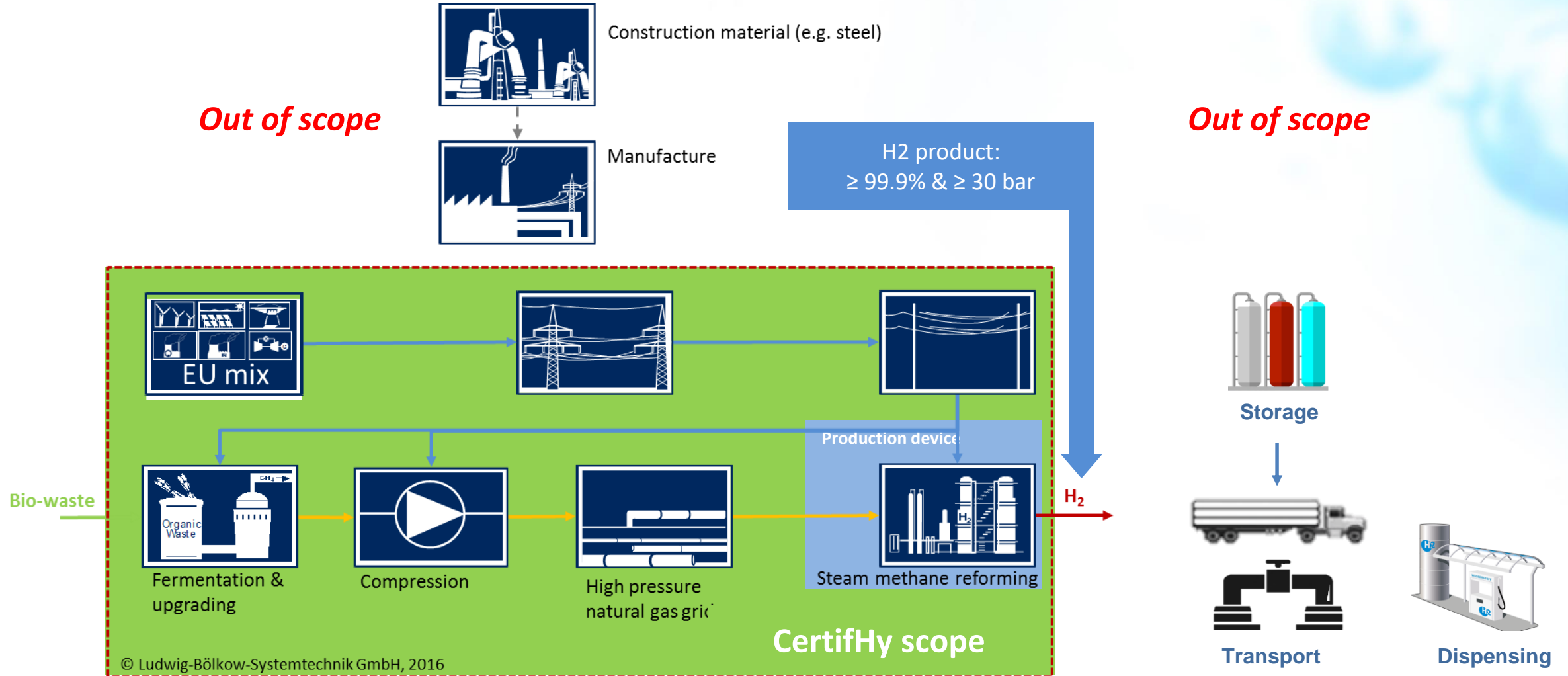


Two labels are defined for hydrogen having a greenhouse gas intensity below benchmark by at least 60%:

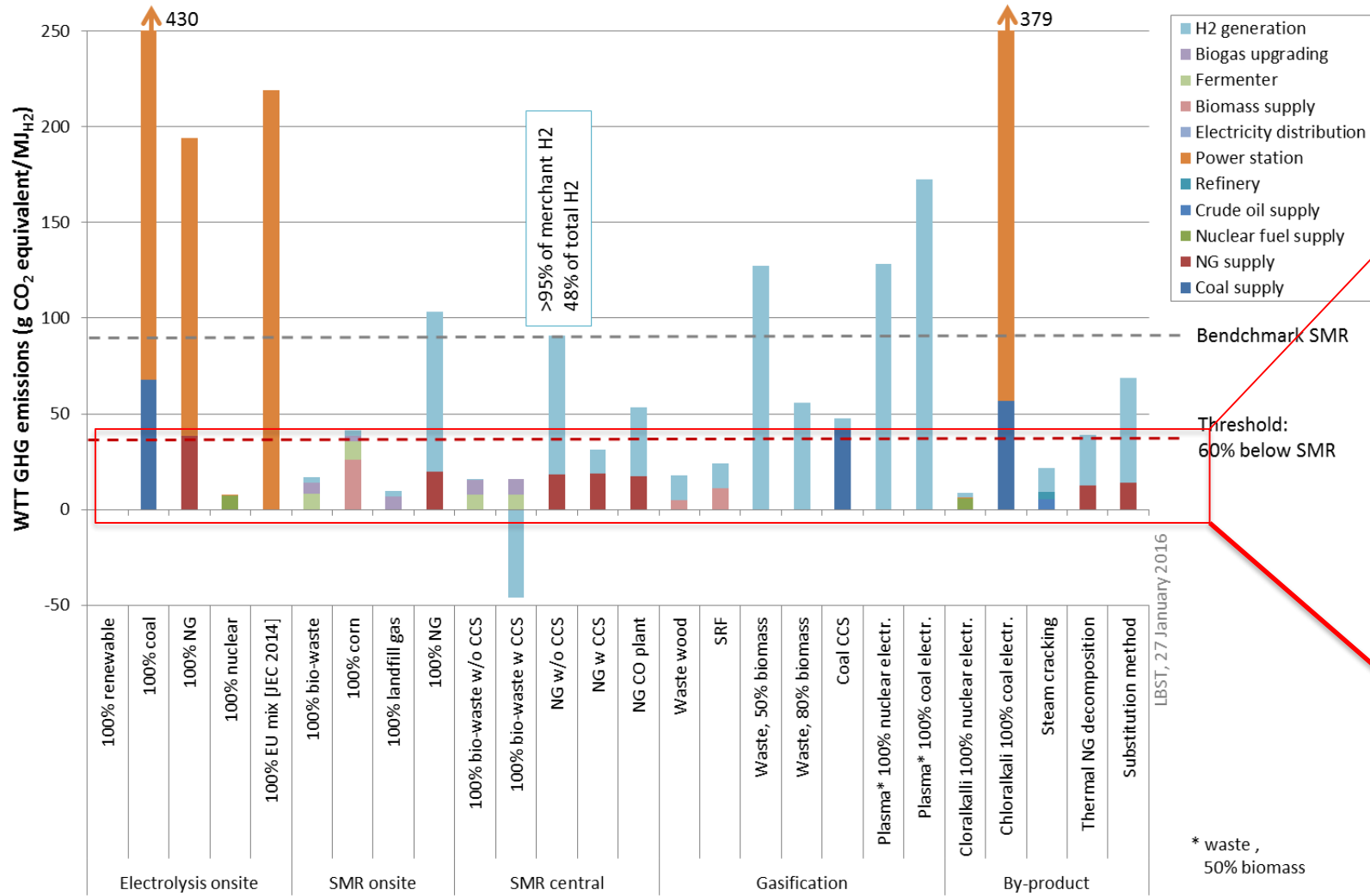
- CertifHy Green Hydrogen if the hydrogen is made from renewable energy
- CertifHy Low Carbon Hydrogen otherwise.



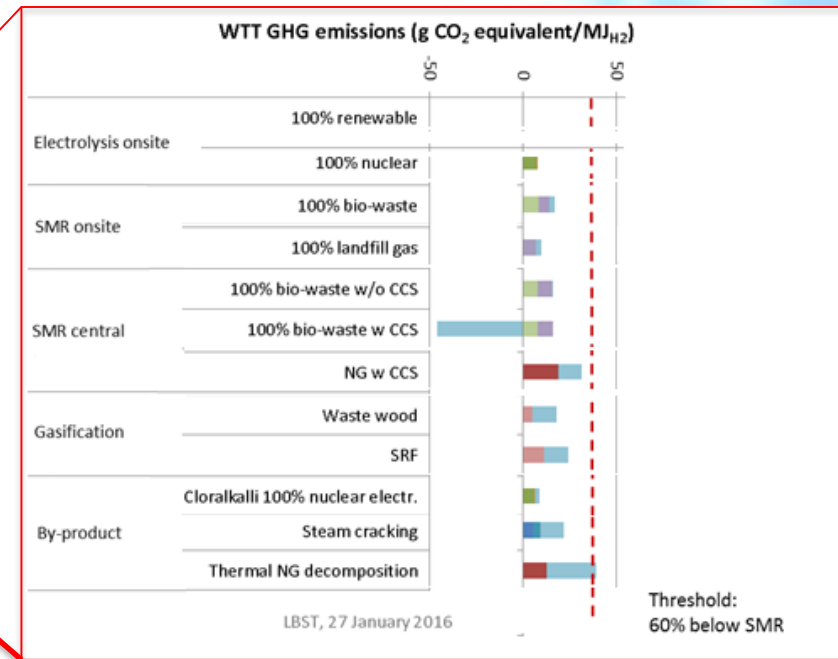
\* Via GO or direct feedstock



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

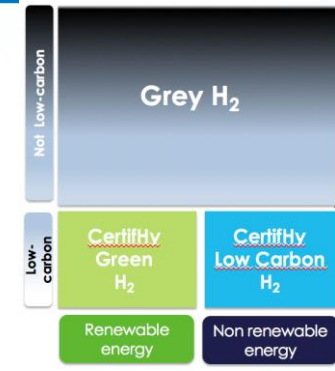
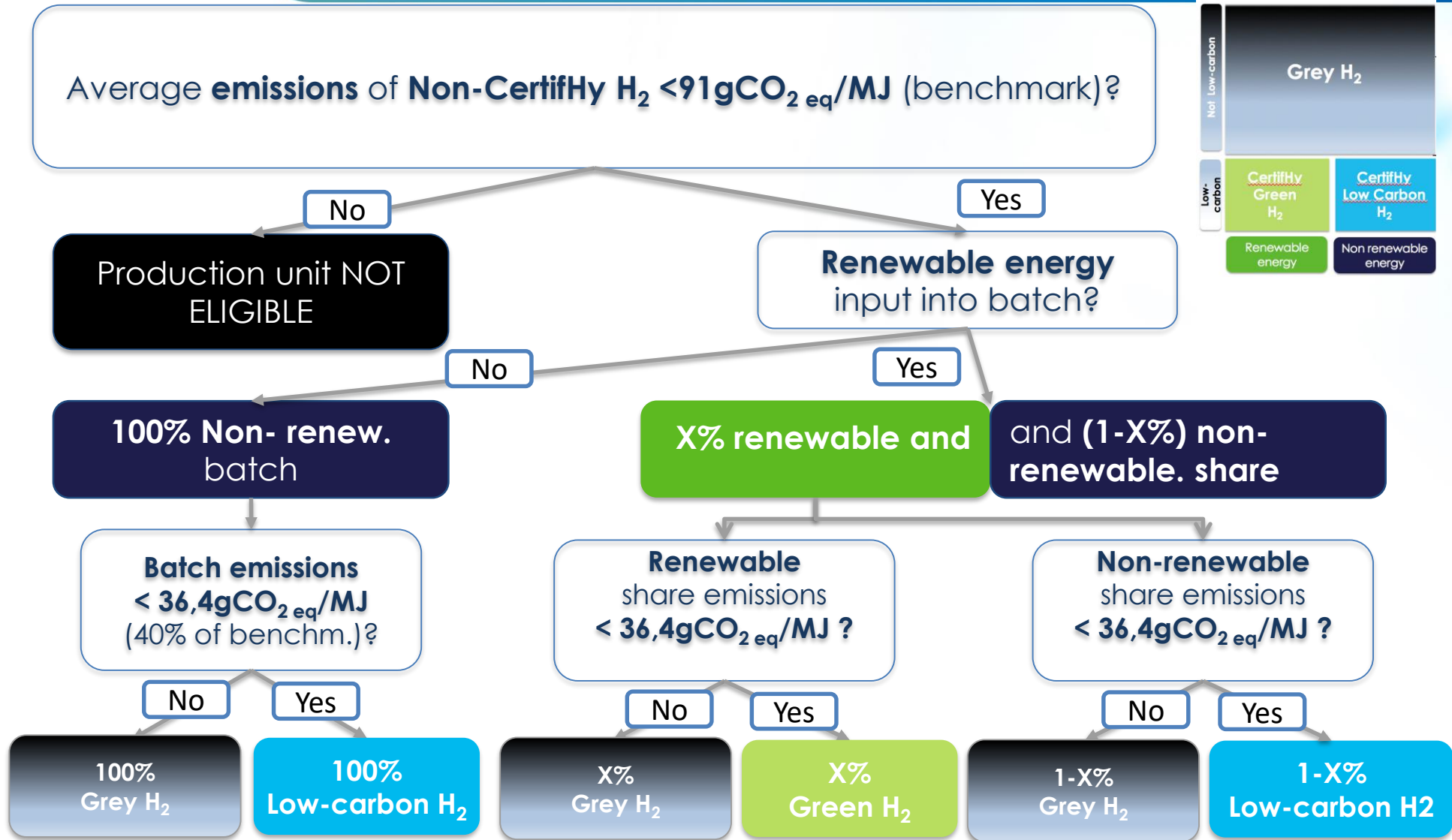


## Eligible pathways



\* waste ,  
50% biomass

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







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+ 30 new ORGANISATIONS in 2018 with increasing international interest (USA, Canada, Japan, Australia)

## WG 1: GO Scheme and procedures



Logos for WG 1 include: Verbund, ENGIE, EDF, Air Liquide, GRTgaz, uni per, Statkraft, colruyt, HYGRO, Shell, Mitsubishi Hitachi Power Systems, Daimler, AGCS, Hydrogenics, H2U, Energinet, AIB, I-REC Standard, Vertogas, NEN, GERG, VREG, Deloitte Touche Tohmatsu, ACT, and EMEC.

## WG 2: GO issuing (Producers)



Logos for WG 2 include: Air Liquide, Linde, CAR, ENGIE, PRODUCTS, uni per, ENERTRAG, enovos, thysenkrupp, colruyt, HYGRO, OMV, HYOP, GROUP MACHIELS, AkzoNobel, H2U, ITM POWER, Q8, WIND TO GAS Südermarsch, ABERDEEN CITY COUNCIL, GRTgaz, HYGEAR, Universidad de Valladolid, ICSI, Wind Europe, NREL, and METI.

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



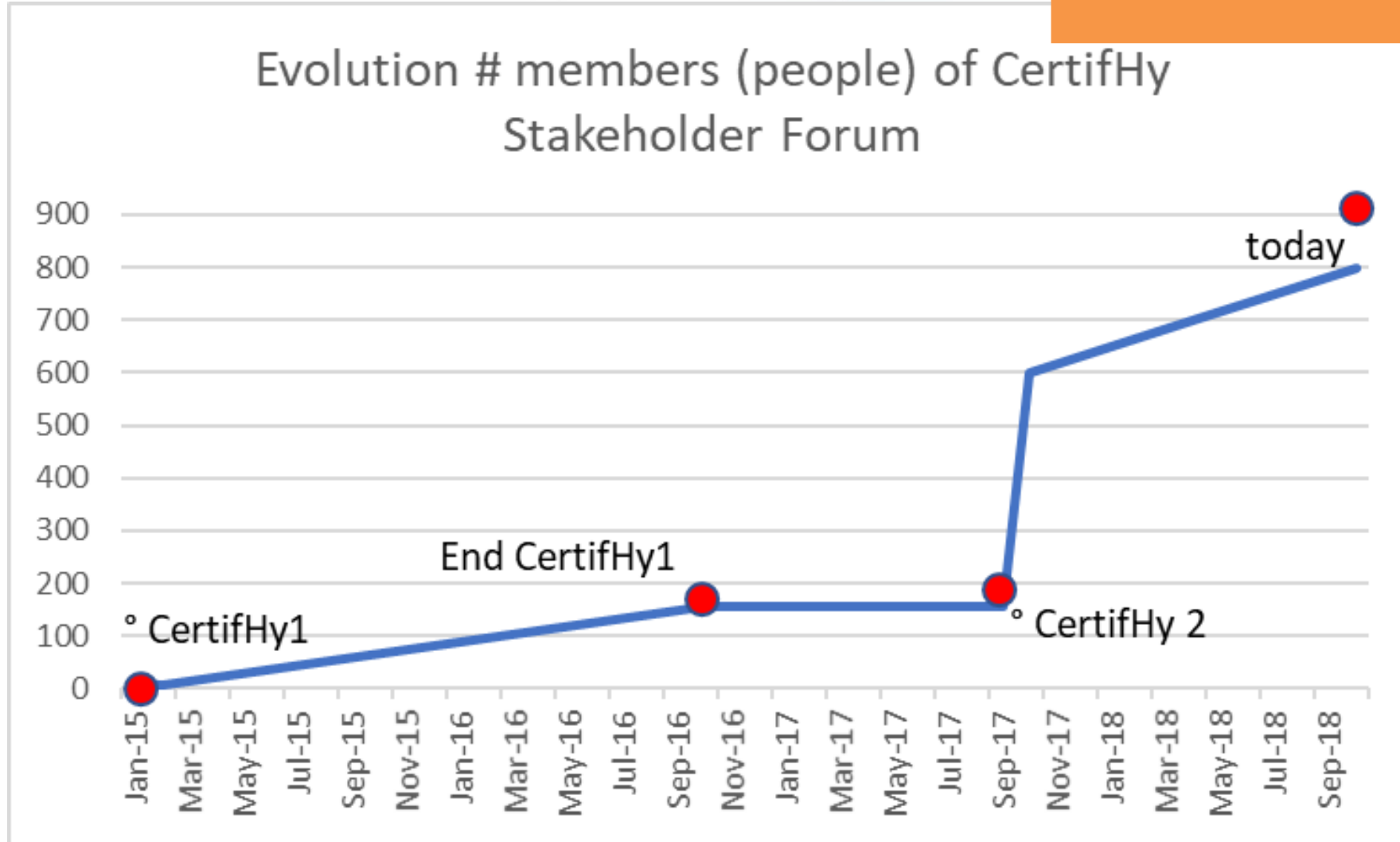
Logos for WG 3 include: Air Liquide, thysenkrupp, Linde, ENGIE, ENERTRAG, HYGRO, Hyer, Bischoff & Ditzel Energy GmbH, Statkraft, enovos, WaterofNet, Q8, Verbund, TOYOTA, GROUP MACHIELS, Shell, ACT, equinor, colruyt, SOLENOO POWER, H2U, WIND TO GAS Südermarsch, GROUPE BPCE, BMW GROUP, ARENA INNOVATION, HZH Energy Pty. Ltd., DAIMLER, SILAREN, ERGOSUP, NOW, PITPOINT CLEAN FUELS, GRTgaz, EMEC, hydrogenious, METI, ECOFYS, ABERDEEN CITY COUNCIL, I-REC STANDARD, and EUROPEAN HYDROGEN ASSOCIATION.

## WG 4: Regulatory framework

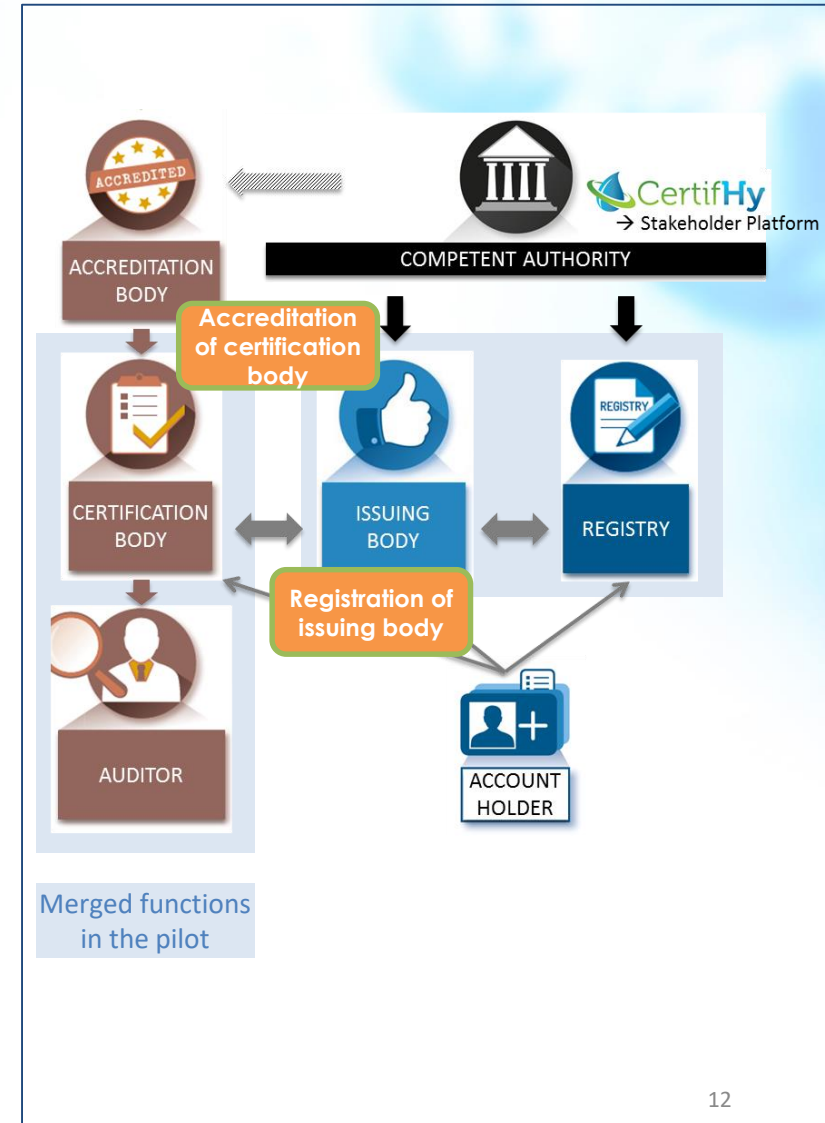
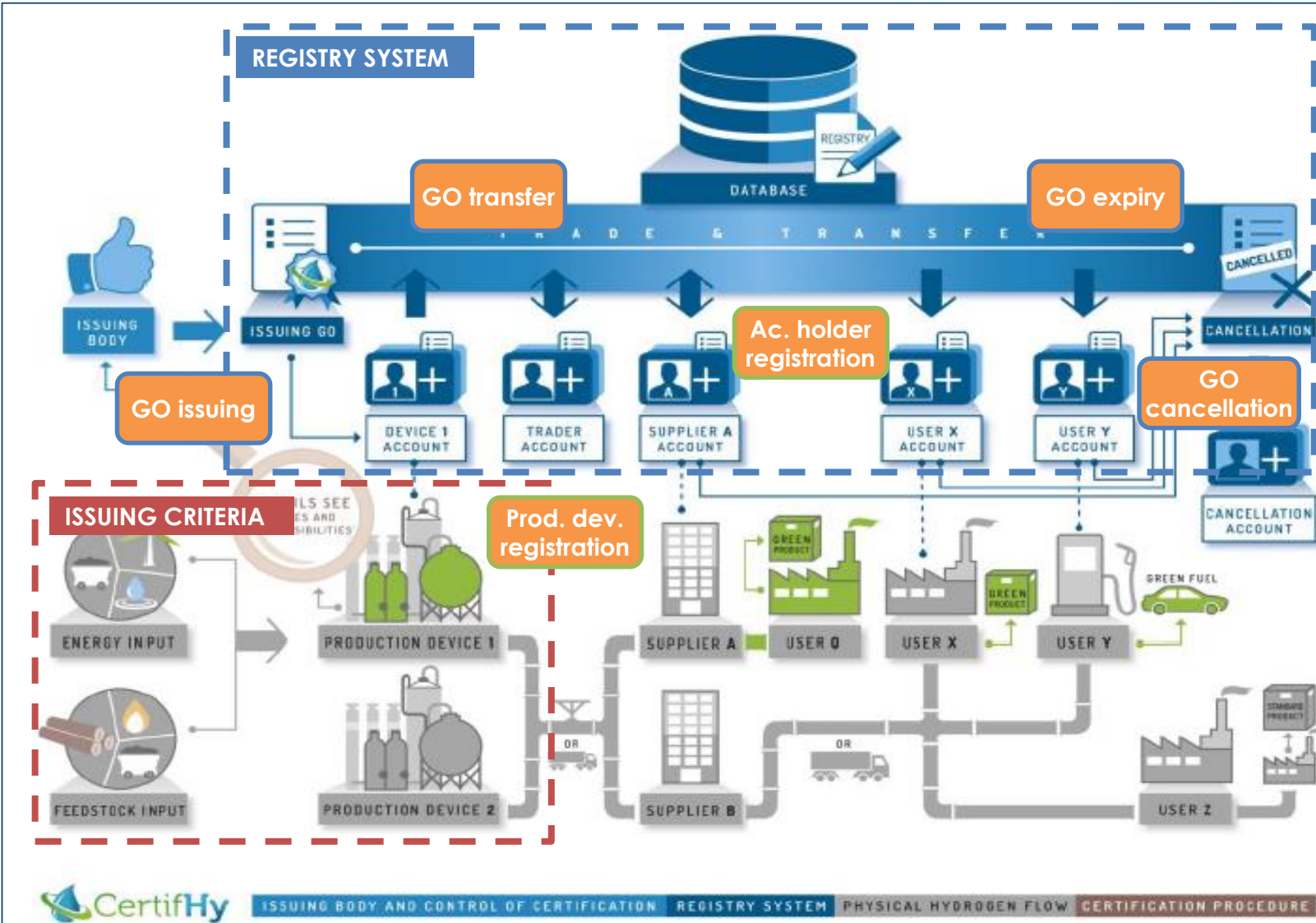


Logos for WG 4 include: Air Liquide, Linde, ENGIE, OMV, EDF, Shell, H2U, HYDROGENICS, GreenGas, Mitsubishi Hitachi Power Systems, Wind Europe, colruyt, Hyer, AIB, WaterofNet, I-REC STAND, NWBA, ICSI, NEN, NOW, GRTgaz, EMEC, Hydrogen Europe, and GERG.

+ 100 PEOPLE in 2018



## SCHEME DESIGN & PROCEDURES





SMR of NG/biomethane with CCU - Port Jérôme (France)

1

**AIR LIQUIDE**

GO volume	TBD
Total - Market av.	TBD

Electrolyser from on-site + Wind Power - Halle (Belgium)

2

**colruyt**

GO volume	12 t/y - 0%
Total - Market av.	

Chlor Alkali Electrolyser for offshore Dutch Wind - Botlek (Netherlands)

3

**AIR PRODUCTS**

**Nouryon**

GO volume	100 t/y - 50%
Total - Market av.	

Electrolyser for renewable electricity supplied by the grid - Falkenhagen (Germany)

4

**uni per**

GO volume	Up to 38 t/y - 10%
Total - Market av.	

## Content

The screenshot displays the CMO.grexel web application interface. At the top, there is a navigation bar with links for Home, EECS-GO, Reports, Users, Plants, My Page, and Support. The user is logged in as 'Supplier 1: anttik@grexel.com'. The main content area is divided into several sections:

- Welcome to CMO.grexel anttik@grexel.com:** A table showing account holder details for 'Supplier 1', including Email, Mobile Number, and Client certificate expiry date (2019-01-23).
- Pending Tasks:** A section indicating 'No pending tasks available.'
- Registry announcements:** A table with columns for Title and Modified date, showing a welcome message from 2018-01-23.
- Search Criteria:** A sidebar with various filters including Period Start (2017-12-23), Account, Transaction Number, Trading Schemes (CertifHy-Green, CertifHy-LowCarbon), Production Device, Fuel, and Technology (Anaerobic digestion, Biogas technologies, Gasification).
- Account Statement:** A detailed view of the account for 'Supplier 1', including:
  - Default Account - 643002406900001296:** Name of Account Holder (Supplier 1), Address (00580, Helsinki, Finland), Member code (97XX36RM1S), and Account Status (Active - Public account).
  - Certificates:** A summary table showing opening and closing balances as of 2017-12-23 and 2018-01-23, with a difference of 190.
  - Transaction History:** A table with columns for Transaction Date, Transaction Type, Transaction Number, Account From, Account To, and Volume. It shows two transactions: one on 2018-01-23 at 11:08:47 with a volume of -10, and another on 2018-01-23 at 10:55:38 with a volume of 200. A 'Total' row shows a volume of 190.

### Key issues



Identifying a diversity of pilot users

### Next steps



Start issuing and trading GOs.

Register at the following address:

<https://grexel.kayako.com/Knowledgebase/Article/View/26/9/how-to-open-a-certifhy-account-in-cmogrexel>

## Questions which are being raised wrt RED II

- 1) Definition of green hydrogen not mentioned in RED II;
- 2) The purpose of GOs - in RED II, it is limited to proving or showing a final customer that a given share or quantity of energy is produced from renewable energy;
- 3) CertifHy scope of applications is larger than RED II, more applications & includes low carbon hydrogen
- 4) MS could implement non-unified GO rules as provisions for GOs are not explicit and/or mandatory;
- 5) Biofuels, biomass fuels and bioliquids must use a mass balance approach. This raises issues of compatibility with CertifHy's book-and-claim approach for bio-based hydrogen for transport;
- 6) Possibly no GOs issued to RES-E producers receiving financial support (e.g. FIT/FIP)
- 7) Conditions for counting electricity from the grid as fully renewable (implementing act to be adopted by December 2021).

## Next steps

- Continue monitoring RED II evolutions
- Examine links between CertifHy GO and other GO schemes
- Review other upcoming legislation (Gas Directive, State Aid, Implementing Act...)

2014 2016 2017 2018/9 2020s..

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# Q&A

Info on GOs: [CertifHy@hinicio.com](mailto:CertifHy@hinicio.com)

Video of CertifHy: <http://www.certifhy.eu/info-centre/videos.html>