Hydrogen happens now

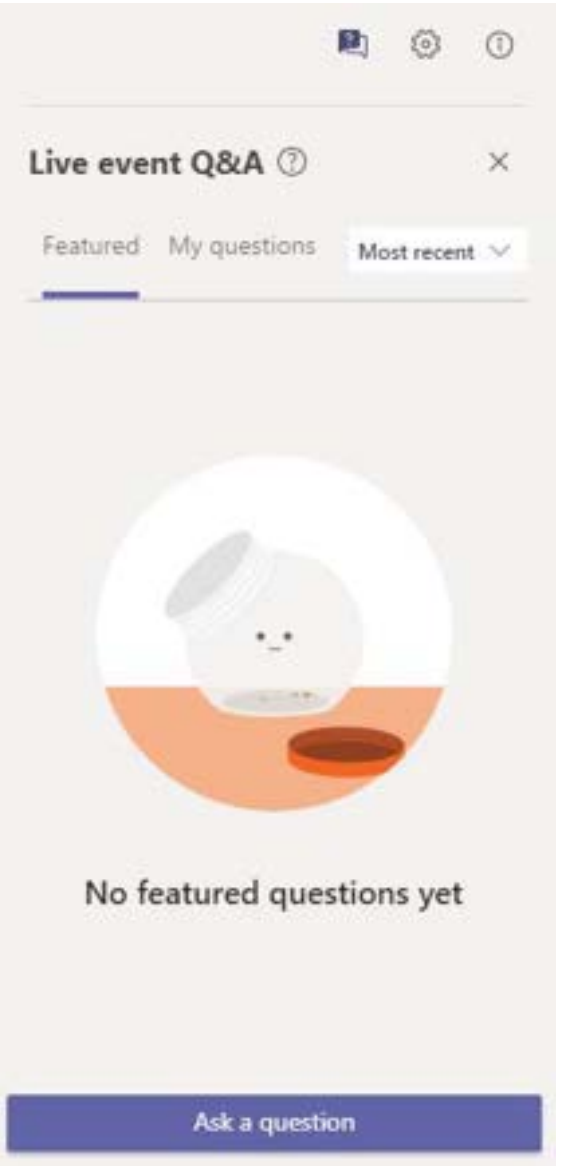
17 June 2021
MS Teams Live Event

Agenda

Time CET	Topic	Speaker
11:00 - 11:05am	Welcome, Introduction & Housekeeping	Ms. Jekaterina Boening
11.05 – 11:15am	Women in Green Hydrogen: Introduction	Ms. Charlotte Hussy
11:15 – 11:30am	Keynote by Dena: Exploring Hydrogen	Ms. Katharina Sailer
11:30- 11:45am	Keynote by TÜV SÜD: Certification systems on Hydrogen	Ms. Paula-Maria Auer-Saupe
11:45am – 1:00pm	Panel discussion: Hydrogen and its role in reaching Europe´s decarbonisation targets	Ms. Katharina Sailer Ms. Paula-Maria Auer-Saupe Dr. Katherina Kocher Ms. Carina Krastel Ms. Korinna Joerling

Before we begin…

- Everyone is on “mute” during the event to reduce background noise.
- Please send in any questions/ issues through the **Q&A** function (symbol top right). If you like a specific panellist to answer, please indicate this. Questions will be answered at the end of the session.
- The session will be recorded and made available later.



Meet the Panelist

Ms. Jekaterina Boening
Women in Green Hydrogen
Senior Policy Manager T&E Germany

Ms. Katharina Sailer
Expert for Renewable Gases and Energy Statistics
Deutsche Energie-Agentur GmbH (dena)

Ms. Paula-Maria Auer-Saupe
Business Line Manager – Climate Action Certification
TÜV SÜD Energietechnik GmbH

Ms. Carina Krastel
Commercial Director at EGHAC
EIT InnoEnergy

Dr. Katharina Kocher
Senior Hydrogen Expert
TÜV SÜD Landesgesellschaft Österreich GmbH

Ms. Korinna Joerling
Senior Consultant, Energy
Guidehouse

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Women in Green Hydrogen

Promoting diversity in Green Hydrogen

Connect.

Empower.

Change.

OUR NETWORK

Women in Green Hydrogen

1403

members in the **Linkedin group**

738

Newsletter subscribers

407

profiles on the **Expert Database**

3

Networking Events celebrated

WHAT WE DO

Our main activities

Women in Green Hydrogen

Connect

Networking meetings and discourse formats

Conference side events

Social network groups

Empower

Mentorship program

Job and internship boards

Early speaking opportunities

Change

Gender balanced panels

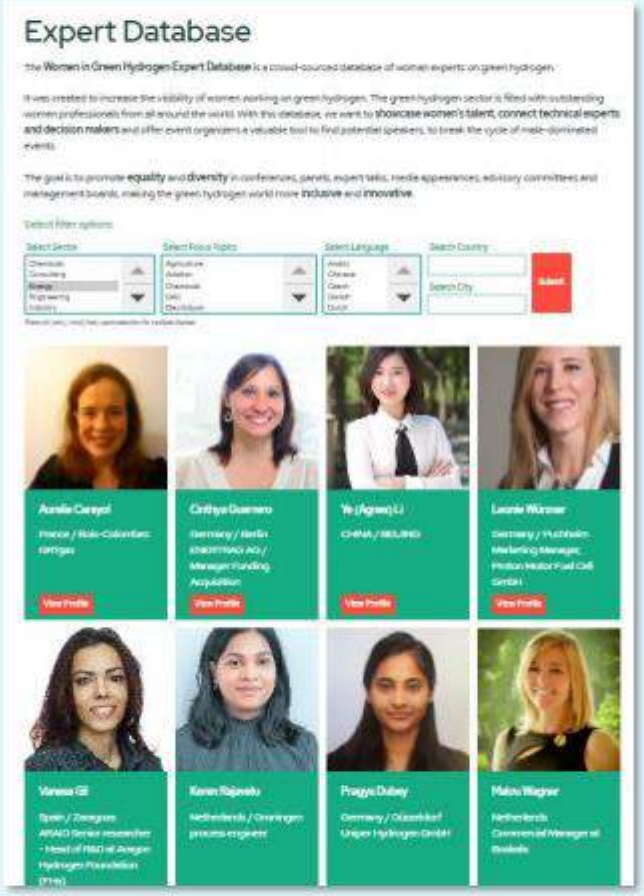
Increasing visibility with expert database & social media posts

Presence in committees


Women in Green
Hydrogen

WiGH expert database

Women in Green Hydrogen



Ginika Okoroafor

Engineering | Chemicals | Electrolysis | Industry | Plant / system engeneering | Renewable energy

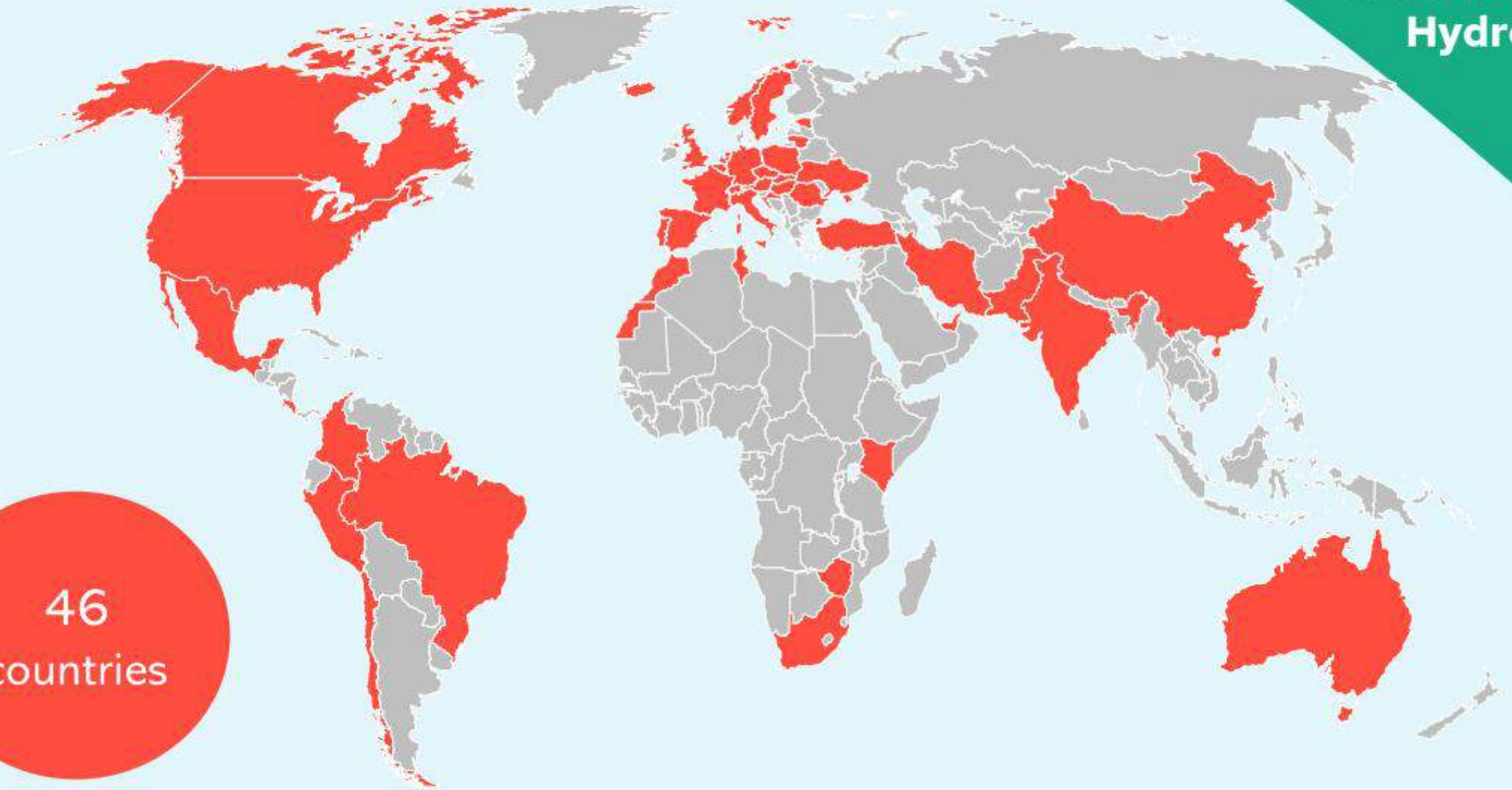
Short description	Green hydrogen researcher and Greentech enthusiast.
Quote	Creating our own path in the energy transition is the best way to drive the inclusion.
Company / Position	London South Bank University UK
Sector	Engineering
Based in	United Kingdom / London
Languages	English
Short Bio	Ginika is an experienced chemist with interest in electrochemical power generation and storage solutions. She holds a Bachelor degree in Chemistry, Masters degree in Renewable Energy Development and currently enrolled in a PhD in Chemical Process and Energy Engineering. Ginika's research work is focused on Green hydrogen production and energy conversion using hydrogen-oxygen steam power generation.
Focus Topics	Chemicals, Electrolysis, Industry, Plant / system engeneering, Renewable energy

Selected conferences, presentations and speaches

Speaker at the 5th Annual Conference on Marine Energy and Maritime Hydrogen Norway. 14-15 October 2020. https://maritimehydrogen.no/?fbclid=IwAR1ltkQbq9dnTwcss0RC9qP0xGdW90I3QOhbZqAdxqVh4qEWLG8pyUOaBDo

THE WiGH EXPERT DATABASE

Women in Green Hydrogen



46
countries

Network and discourse

Women in Green Hydrogen

Regular networking events

- Ranging topics to discuss and learn
- Mix of virtual and physical formats
- Insightful inputs from women of the network

LinkedIn Group - a safe space to exchange, learn and inspire

- Learnings, insights, and success stories
- Community Q&A
- Personal introduction
- Feedback

Promoting diversity in Green Hydrogen

Women in Green Hydrogen

Mentoring Program

Visibility

Women in Green Hydrogen

Partnerships

Women in Green Hydrogen

For events, panels and talks, for media coverage, support, strategic alliances…

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Federal Ministry for the Environment, Nature and Nuclear Safety

RLI Reiner Lemoine Institut

WHTC 2021 World Hydrogen Technologies Convention
Digital | June 20–24, 2021
together with f-cell HFC

eit InnoEnergy Knowledge Innovation Community

Enapter

Guidehouse

Energy Partnership Chile-Alemania

GWNET Global Women's Network for the Energy Transition

world hydrogen leaders

中德能源与能效合作 Energiepartnerschaft DEUTSCHLAND - CHINA

Resilient Group

WZB Wissenschaftszentrum Berlin für Sozialforschung

sec Sustainable Energy Council

TÜV SÜD

f-cell STUTTGART Sept. 14+15, 2021

NOW NOW-GMBH.DE

Women Mobilize Women

dena Deutsche Energie-Agentur

Women in Green Hydrogen

Connect With Us

LinkedIn

Become a member of our LinkedIn group!

Website

Find us on https://women-in-green-hydrogen.net/

Network

Stay updated by subscribing to our mailing list!

Twitter

Follow us on Twitter!

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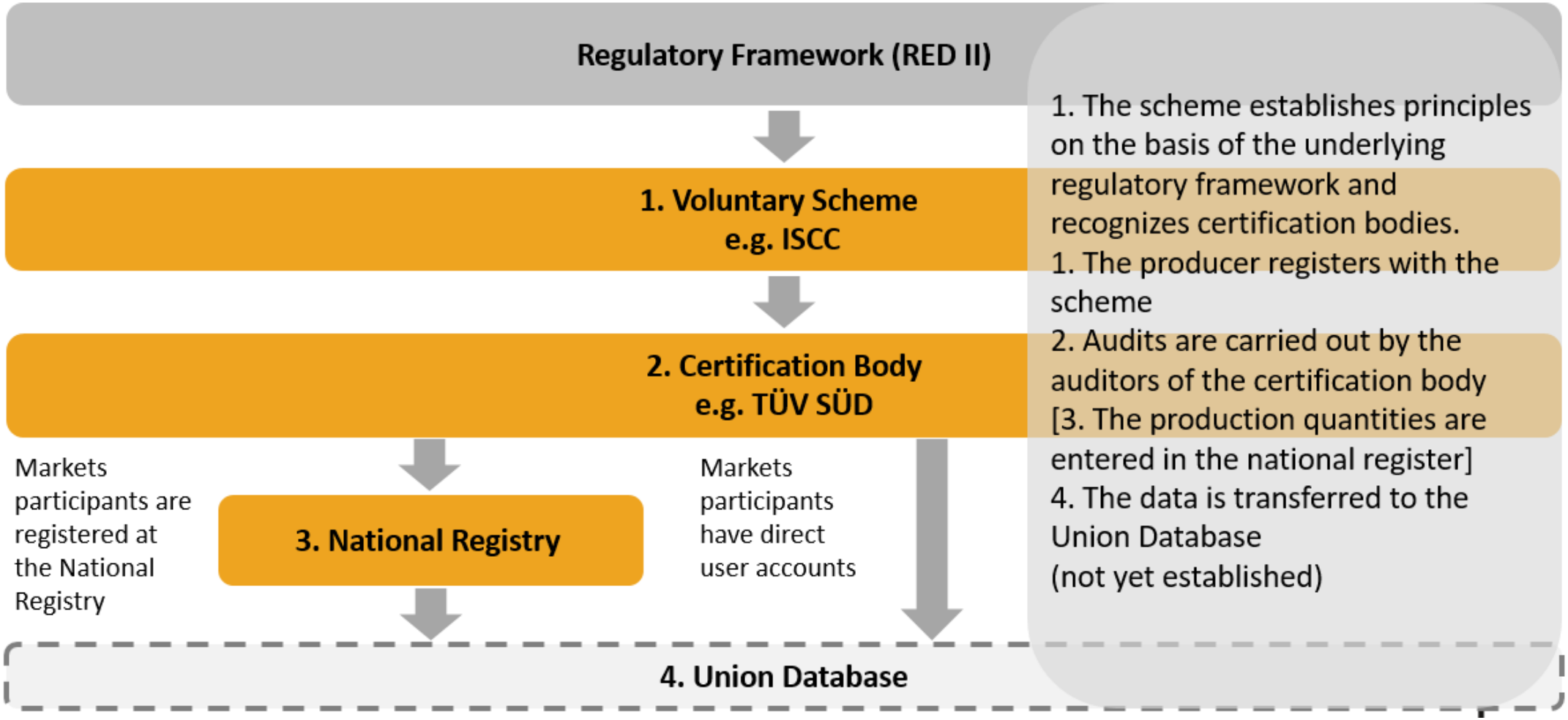
Deutsche Energie-Agentur

Katharina Sailer, 17.06.2021, Berlin

SUSTAINABILITY REQUIREMENTS FOR GREEN HYDROGEN

COMPETENT BODIES OF THE CERTIFICATION PROCESS



dena
Deutsche Energie-Agentur

REGULATORY FRAMEWORK

Renewable Energy Directive (RED II)

- Regulates the renewable transport market in the EU

Delegated Act (Art 27), pending

- Sets sustainability criteria for electricity being used for H2 production

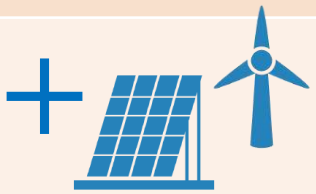
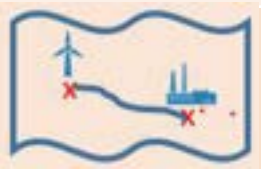
Delegated Act (Art. 28), pending

- GHG calculation methodology
- Eligible carbon sources

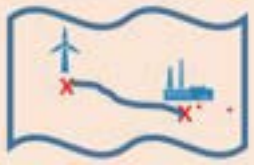
Union Database

- Aim to prevent double counting of certificates within the EU
- Implementation is planned in two phases:
  - **Phase 1:** Low risk value chains
  - **Phase 2:** High risk value chains

(PRELIMINARY) RENEWABLE ELECTRICITY CRITERIA

	Criteria	RED II Reference	Delegated Act
	**Renewability**	RED II Art 27	100% renewable electricity, PPA
	Additional renewable energy has been used (**Additionality**)	RED II Art 27 (3)	Unsubsidized or major refurbished installations which are implemented 12 months before the electrolyzer
	**Geographical Correlation**	RED II Art 27 (3)	Same bidding zone, or neighbouring countries when there is no grid congestion
	**Temporal Correlation**	RED II Art 27 (3)	15 min, OR Higher RE-share in the respective bidding zone compared to the country‘s average two yrs prior

GERMAN RENEWABLE ENERGY ACT (EEG)/1/2

	Criteria	EEG VO Reference	Delegated Act
	**Renewability**	§12i (1), 1 §12i (2), 1	100% renewable electricity **Indirect connection:** Cancelled GOs; Coupling with electricity supply when produced and consumed in Germany.
	Additional renewable energy has been used (**Additionality**)	§12i (1), 3	(Currently) not subsidized
	**Geographical Correlation**	§12i (1), 2	100% RE (85% produced in Germany, 15% in country which is physically connected with Germany)
	**Temporal Correlation**	§12i (2),2	15 min (direct connection)

GERMAN RENEWABLE ENERGY ACT (EEG) 1/2

System serviceability §12i (1)

- Limitation to 6000 full utilisation hours/year

→ Aim is to only consume electricity when it is the cheapest (since supply exceeds demand)

FUNDING PROGRAMME: H2 GLOBAL (1/2)

The special-purpose company ("Hint.Co") will, establish contracts with hydrogen or PtX producers

- Developed by GIZ
- Funding according to the CfD principle
- Fixed prices for 10 yrs
- Tenders (Dec. 2021), max. EUR 15 Mio. per applicant and project

Funding requirements

Permanent establishment or branch in Germany at the time of payment of the grant

Country of implementation: States outside the EU and EFTA

Systems must be operated for at least 3 years after commissioning.

Project implementation not possible without funding

Proof of the pre-development status of the project (e.g. preliminary studies, availability of land, permits etc.)

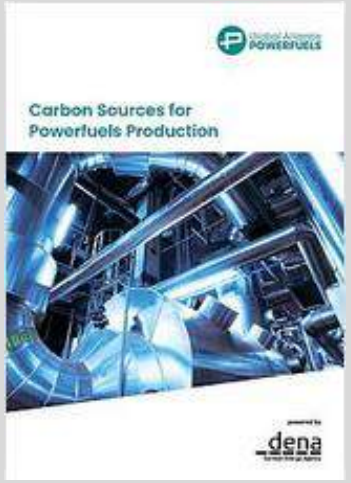
FUNDING PROGRAMME: H2 GLOBAL (2/2)

Sustainabiliy requirements

- Renewable electricity: similar to del. Act RED II, Art 27
- Sustainable carbon sources
- Sustainable water consumption, incl. potential water competition
- No risk for land use change
- Worker’s rights according to ILO standard

DENA ACTIVITIES REGARDING HYDROGEN CERTIFICATION

STUDIES



PLATFORMS AND ALLIANCES

Global Alliance POWERFUELS

Strategieplattform Power to Gas

REGATRACE D4.1. Report

dena Deutsche Energie-Agentur

THANK YOU

Katharina Sailer
sailer@dena.de
www.dena.de

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Mehr Wert.
Mehr Vertrauen.

Add value.
Inspire trust.

Certification systems on Hydrogen

Paula Auer-Saupe

Business Line Manager Climate Action Certification
TÜV SÜD Energietechnik GmbH

17.06.2021 Women in Green Hydrogen

Agenda

1. Certification of Hydrogen - a necessity?
2. Colour theory of hydrogen
3. Functioning of a product certification system
4. Existing certification systems
5. Further development for certification systems

Certification of hydrogen – a necessity

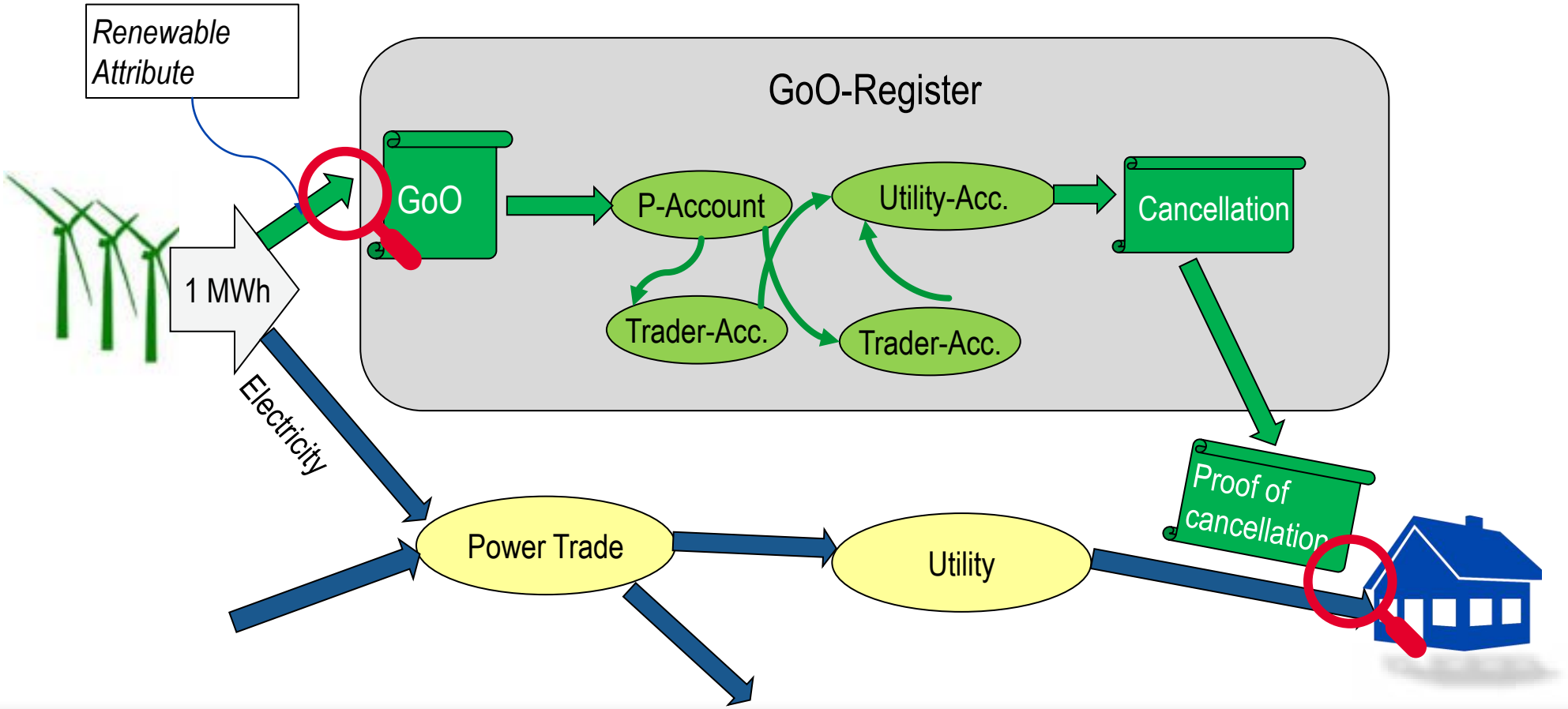
- In a purely renewable world – **NO!**
- But in the short, medium term – at least until 2050 – **YES!**
  - Produced hydrogen should contribute significantly to climate protection
    → produced H_2 must emit remarkable less greenhouse gases than conventionally produced H_2
    → considering the whole value chain
  - Certification gives clear criteria for industry and investors as to which H_2 technologies are suitable and sustainable for the future
  - Double or multiple sales CO_2 reduced hydrogen must be prevented.

Colour theory of hydrogen, German and EU Hydrogen Strategy

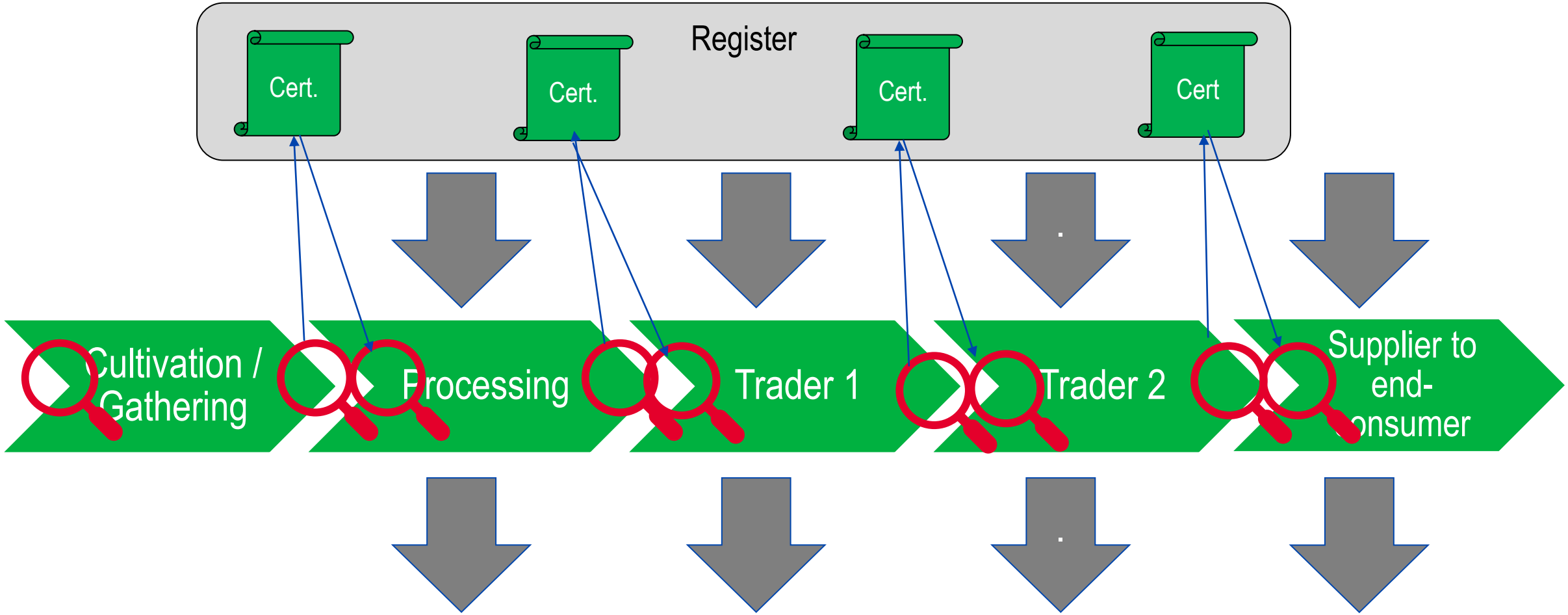
German	Grey Hydrogen, fossil, conventional	Blue Hydrogen, fossil + CCS	Turquoise Hydrogen, fossil, pyrolytic + CCS	Green Hydrogen, renewable
EU	Fossil-based hydrogen	**Low carbon + Fossil-based hydrogen with CCS**		Renewable Hydrogen

Functioning of a product certification system, Book & Claim (B&C)

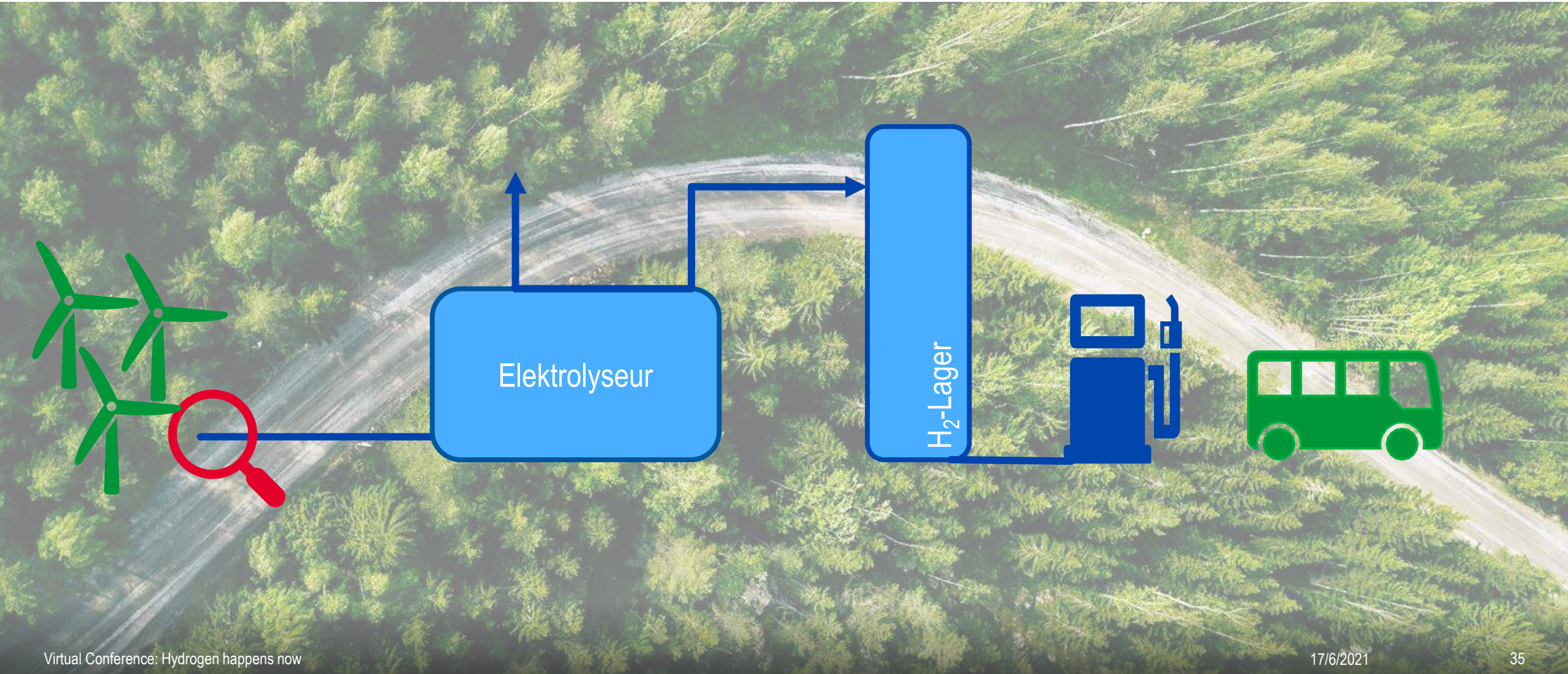
- **Guarantee-of-Origin-System (GoO) – Electricity from renewable energy**



Functioning of a product certification system, Mass Balance



Direct Production and Supply on-site (dedicated)



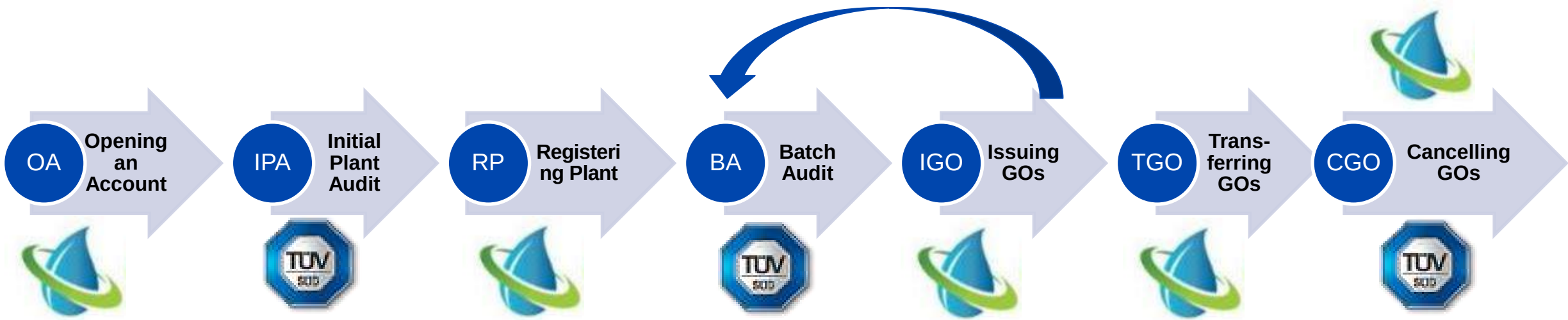
Existing certification systems, e.g. for Water-Electrolysis

dena → > 80 % renewable → dena → GHG-Reduction, no requirement → dena → 1 Certificate / MWh Biogas from Hydrogen MB and B&C → dena biogasregister

100 % renewable → > 60 % GHG-Reduction → 1 GoO / MWh Book&Claim → CertifHy GO registry

100 % renewable + Additionality Criteria for electricity supply → >75 % GHG-Reduction **incl.** Emissions related to compression, liquefication and transportation → 1 GoO / MWh B&C or MB → CertifHy GO registry

Certification Process CertifHy and TÜV SÜD certification GreenHydrogen



Certification of green hydrogen offers the following benefits:

- using CertifHy-Register prevents any doubts regarding double marketing
- using TÜV SÜD certification shows high quality and serious efforts on climate protection and on promoting renewable energy
- benefit from our long-standing experience in certification services for energy from renewable sources
- improved transparency and credibility, 100 per cent impartiality according to our TÜV SÜD claim “Add value - Inspire trust”
- powerful advertising effect when using the TÜV SÜD certification mark for GreenHydrogen, thanks to its renowned brand

Further development for certification systems

- RED II (90), additional requirements for RFNBOs*, to be ruled in delegated acts

(under construction)

  - temporal correlation (simultaneous supply)
  - Local or geographic correlation (e.g. considering grid congestion)
  - Further additionalities, e.g. certain proportion from new installations,

    promotional fund, dedicated production

- CertifHy III, RED II consistent system besides a voluntary system
- RED II Artikel 19, EU-wide GoO-System für gases (Bio-Methane, synth. Methane, Hydrogen)
- Demand for further definition of blue, turquoise …. hydrogen and further certification criteria

* RFNBO = Renewable Fuels of non biological origin

Thank you for your attention!

Paula Auer-Saupe

TÜV SÜD Energietechnik GmbH
International and Special Projects

Telefon 0711 7005-864
Paula.auer-saupe@tuvsud.com

Mehr Wert.
Mehr Vertrauen.

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Panel Discussion

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