

Kim Lakeit, 27.09.2022, WindEnergy Hamburg

GLOBAL REGULATIONS AND STANDARDS FOR RENEWABLE HYDROGEN

PRODUCT REQUIREMENTS FOR TRADED HYDROGEN

Technical Specifications

Purity Level

Pressure and
Temperature

Market Specifications

Price

Quantity
and timing

Sustainability Specifications

GHG
Emissions

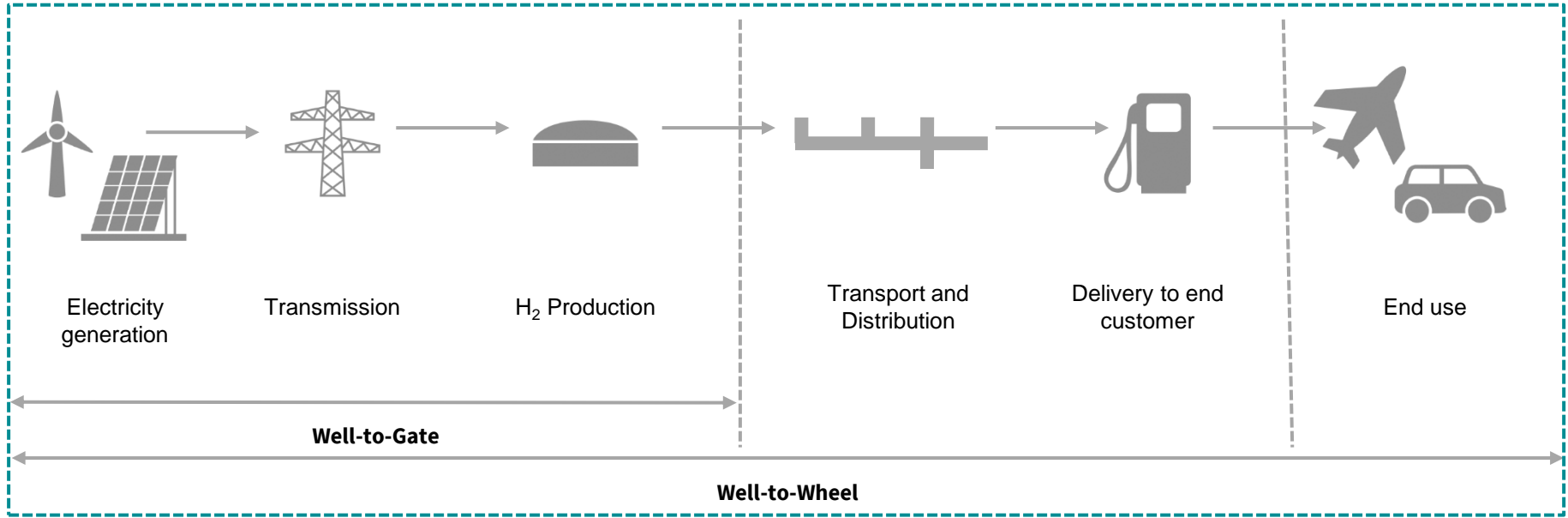
Electricity
sources

Water demand

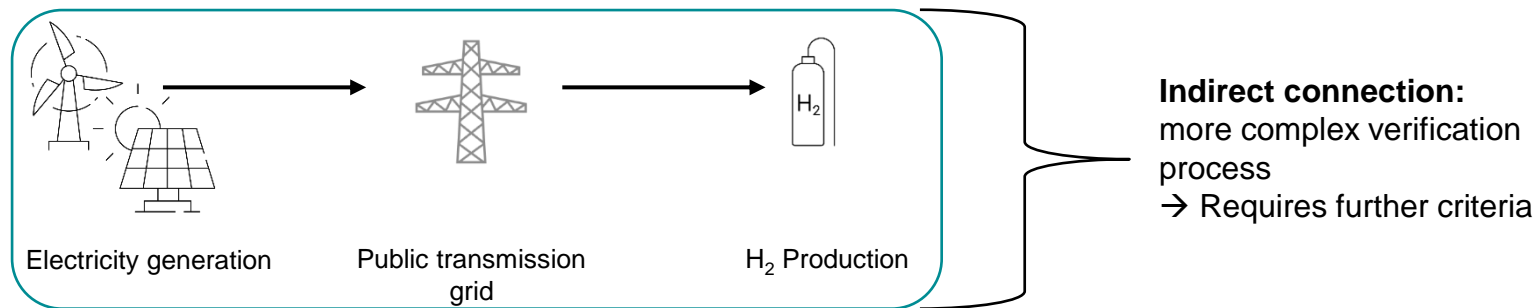
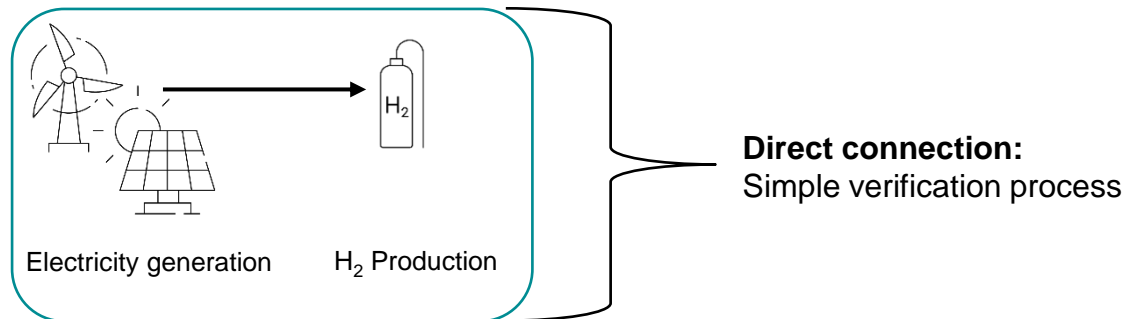
Social and
Governance

SUSTAINABILITY REQUIREMENT FOR RENEWABLE HYDROGEN

SYSTEM BOUNDARIES



SUSTAINABILITY REQUIREMENT FOR RENEWABLE HYDROGEN ELECTRICITY SOURCES



WHY HARMONISE STANDARDS FOR RENEWABLE HYDROGEN?

Problem



Hypothesis for solution

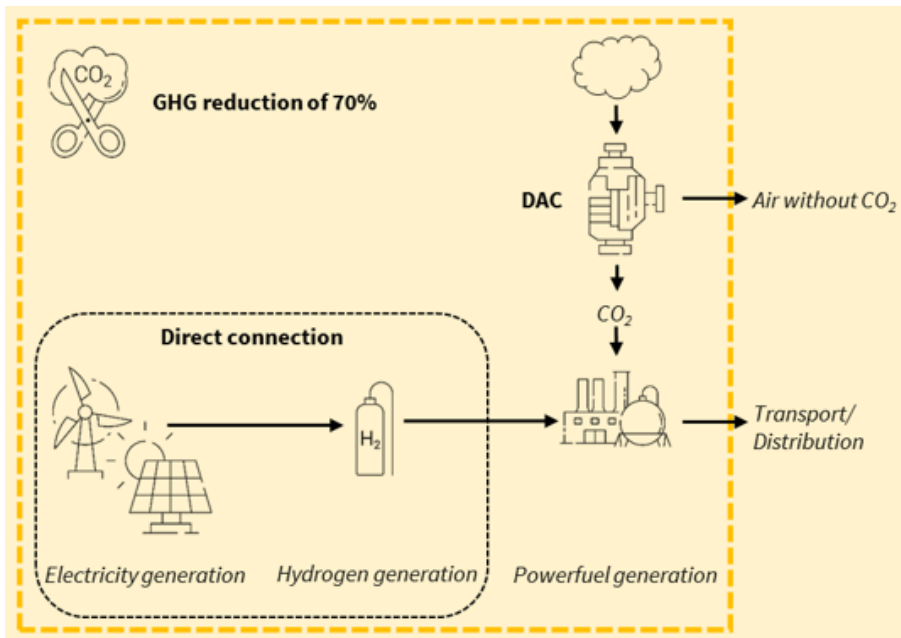


POTENTIAL FOR HARMONISATION

| | Schemes | | | | | | | Funding Programme | Regulations | | |
|-------------------------|---------------|--------------|----------------|------------------------------|----------------------------------|------------------------------------|---|-------------------|---------------|-----------------------|---------------|
| Regulation/ standard | ISCC PLUS | CertifHy | TÜV Süd CMS 70 | Certification Scheme (Japan) | Zero Carbon Certification Scheme | China Hydrogen Alliance's Standard | dena Biogas-register | H2Global | LCFS | RED II | RTFO |
| Market | EU | EU | DE | JP | AU | CN | DE | EU | US/CA | EU | UK |
| Purpose | Voluntary | | | | | n/a | Based on the national framework to get state benefits granted | | | | |
| Renewable electricity | + | + | + | + | + | + | + | + | + | + | + |
| Tracking models | MB | B&C | MB; B&C | B&C | MB | n/a | MB | n/a | B&C | MB | MB |
| GHG emissions | Well-to-Wheel | Well-to-Gate | Well-to-Wheel | Well-to-Gate | Well-to-Gate | Well-to-Wheel | According to demand | Well-to-Wheel | Well-to-Wheel | Well-to-Wheel | Well-to-Wheel |
| Eligible carbon sources | + | - | Out of Scope | n/a | + | Out of Scope | + | + | + | Pending Delegated Act | + |
| Land use | + | - | - | - | - | - | - | + | + | - | - |
| Water consumption | +/- | - | - | - | +/- | - | - | +/- | +/- | +/- | - |
| Social impact | + | - | - | - | - | - | - | + | + | - | - |

B&C= Book & Claim MB= Mass Balance

IMPLICATIONS FOR PROJECT DEVELOPMENT



A plant concept with the largest global offtake market:

- ✓ **Direct connection** between the renewable power source and the electrolyser
- ✓ **GHG reduction of 70%** compared to a fossil baseline
- ✓ **Carbon source: Atmospheric (DAC)**
- ✓ Proof for **mass balance** provided along the value chain

OUTLOOK

- A **harmonised global certification scheme seems hard to reach**, because some standards would need to give up on the most ambitious requirements
- There is already a wide range of systems in place, and **alignment** with these offers great opportunities for countries that are currently developing their standards.
- To enable global hydrogen trade, additional standards are necessary, e.g. in contract design and pricing. However, a common understanding of sustainability requirements must be the **initial step**, as technical and economic criteria depend on them or build on them.

DENA ACTIVITIES REGARDING HYDROGEN CERTIFICATION

STUDIES



PLATFORMS AND ALLIANCES



Clean Energy Certification
System for efuels



THANK YOU

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