



## Certification of Low Carbon Hydrogen



# TÜV SÜD at a glance



**15,900+**

Technical experts



**~160**

Years of safety, security & sustainability



**1,000+**

Locations worldwide



**670,000**

Certificates



**~28,000**

TÜV SÜD employees



**€3.1**

Billion in annual revenue



**100%**

Independent & impartial

TÜV SÜD global experts are committed to helping you manage risks and access global markets through a comprehensive portfolio of technical solutions

# Driving your success across the whole business cycle in all sectors



Testing and product certification



Auditing and system certification



Inspection

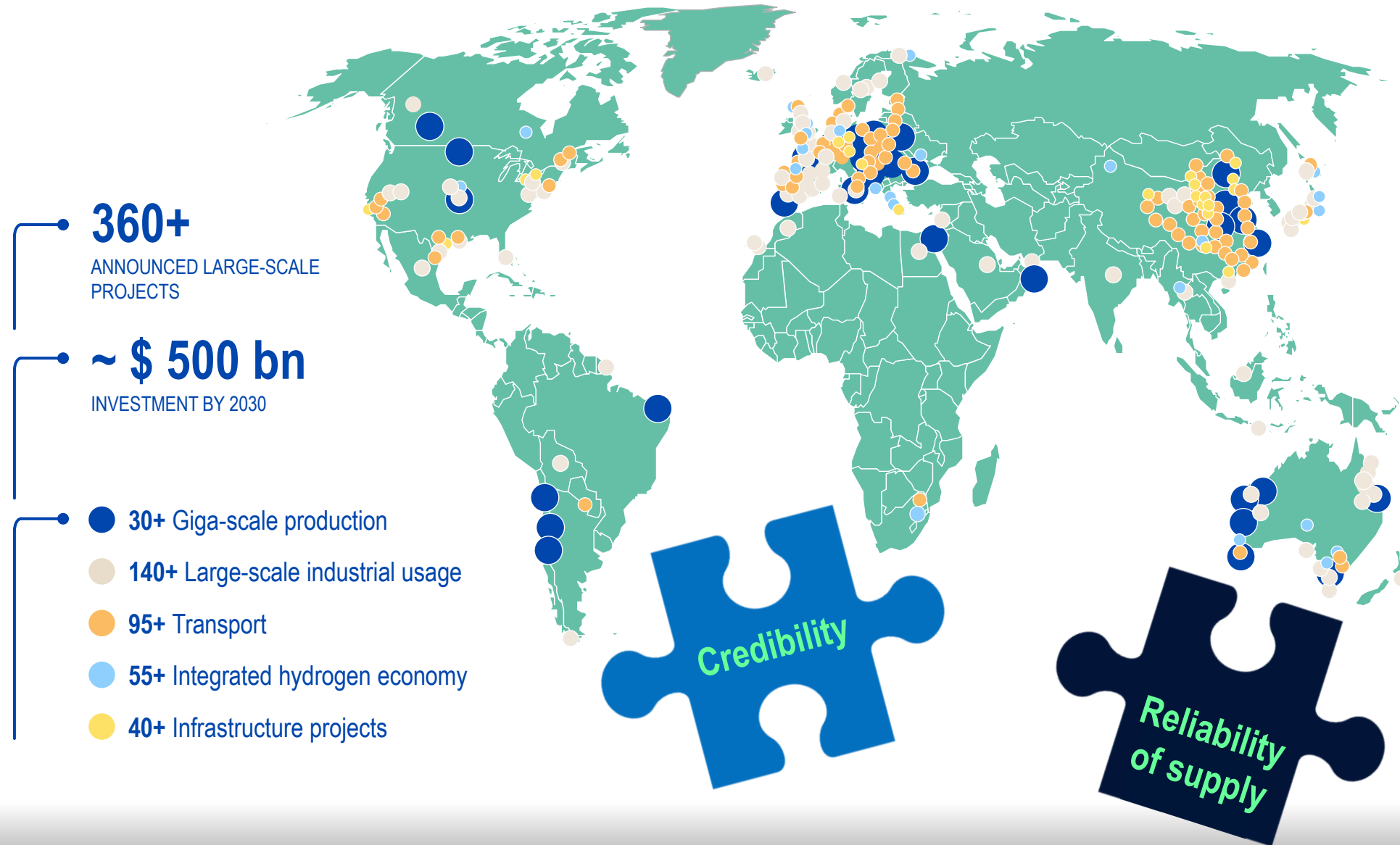


Advisory and training

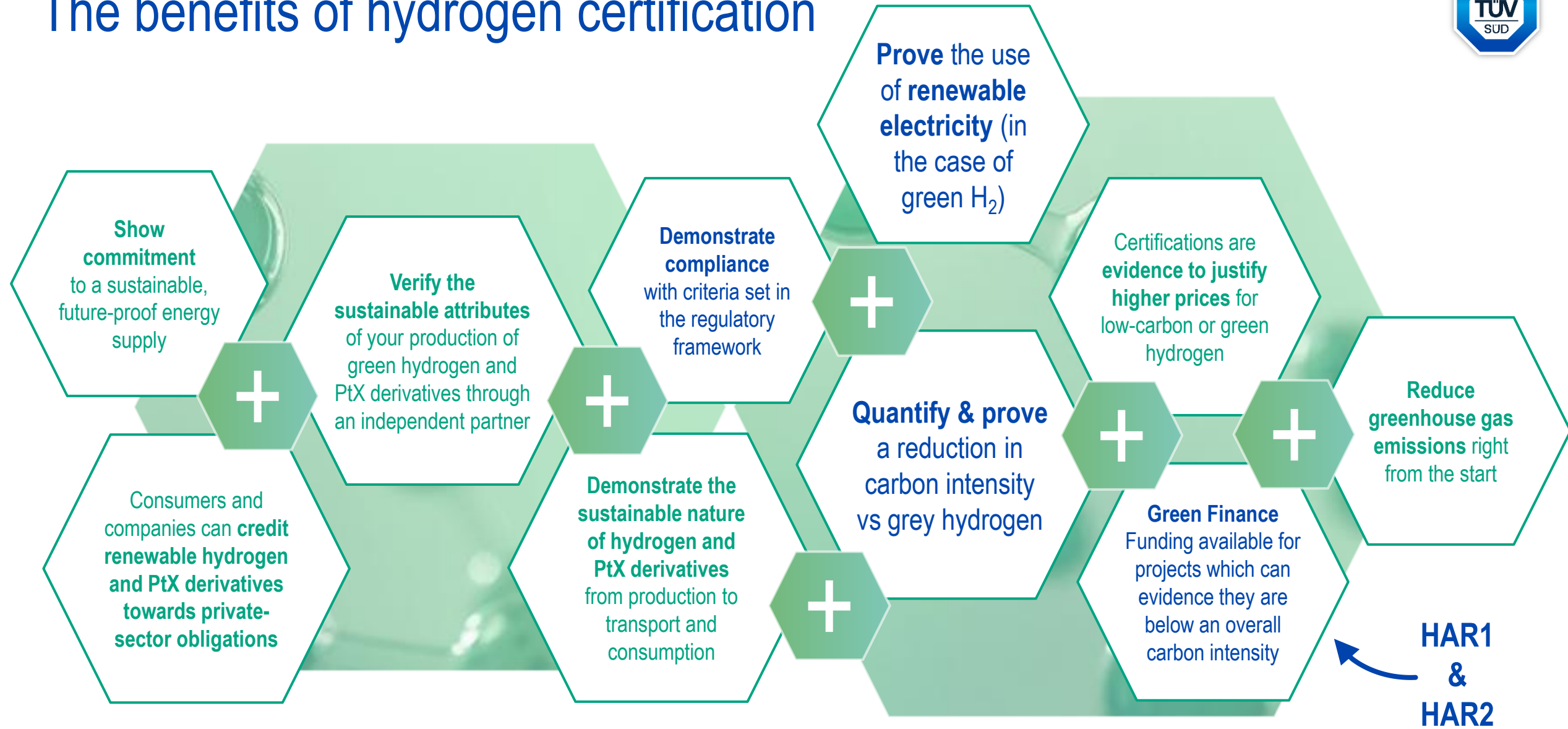


Verification and validation

# A global hydrogen market is developing ...



# The benefits of hydrogen certification

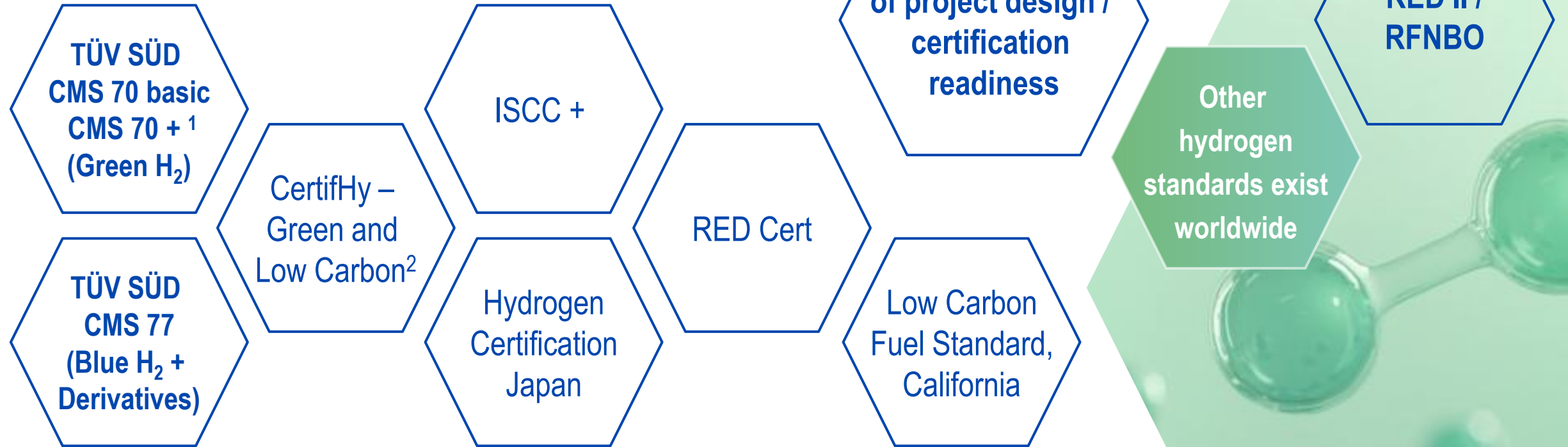


# Hydrogen certification by TÜV SÜD



Today, more than 11 hydrogen regulations/standards are assessed regarding their commonalities, differences, and potential for harmonisation by TÜV SÜD

We can certify according to all relevant standards:



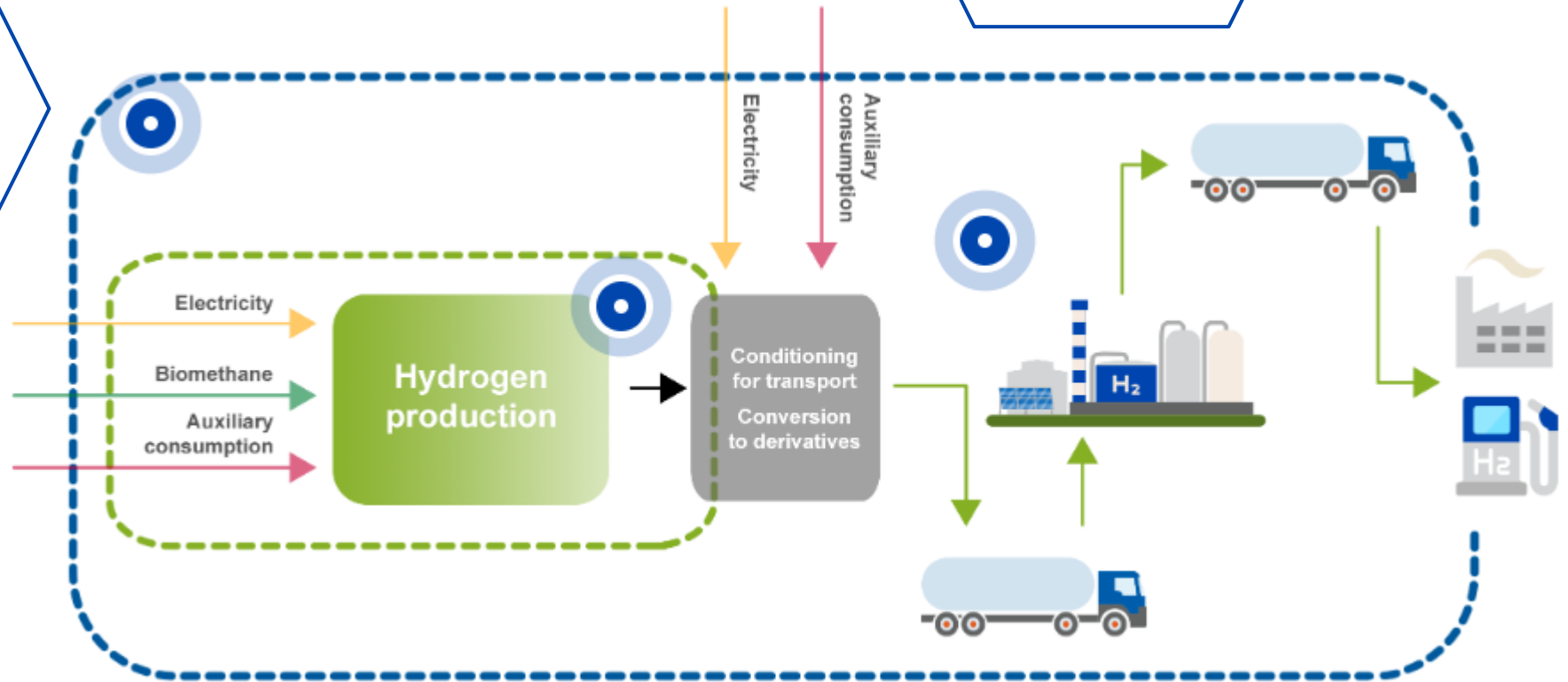
<sup>1</sup> CMS 70 + has extra 'additionality' requirements: new power; temporal correlation

<sup>2</sup> TÜV SÜD as only certification body part of consortium

# Which scheme to choose?

Depends on the geographic location of the hydrogen production and the target market

But schemes have different requirements



# Differing requirements ...



Carbon intensity threshold varies, e.g.:

CMS 70 = 28.2 gCO<sub>2</sub>e/MJ<sub>LHV</sub>

UK LCHS = 20.0 gCO<sub>2</sub>e/MJ<sub>LHV</sub>

CertifHy = 36.4 gCO<sub>2</sub>e/MJ<sub>LHV</sub>

✗  
Not  
Harmonised

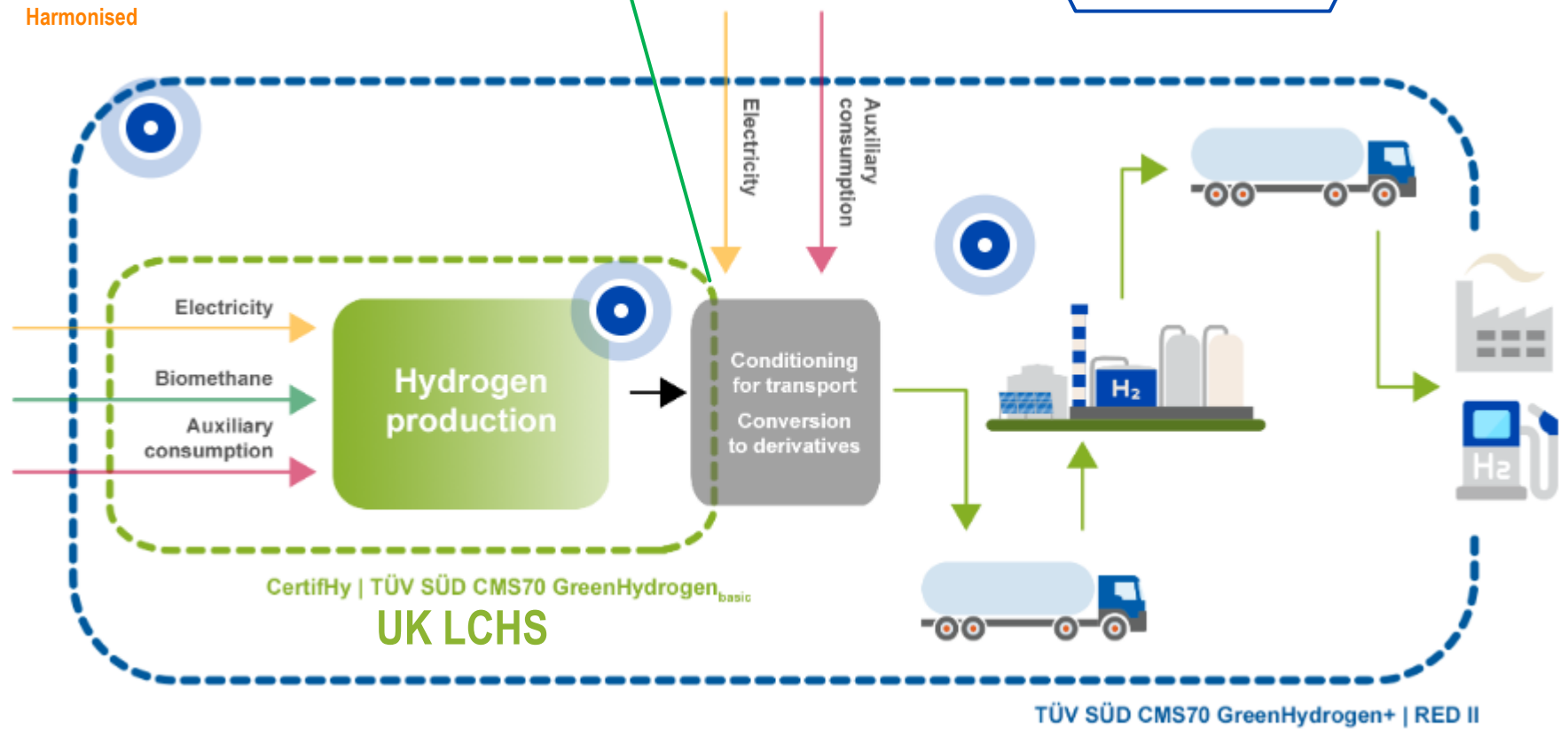
Purity > 99.9 %vol  
Pressure > 3 MPa  
✓  
Harmonised

Different  
schemes have  
different system  
boundaries

✗  
Not  
Harmonised

Different  
eligible  
production  
pathways

✗  
Not  
Harmonised



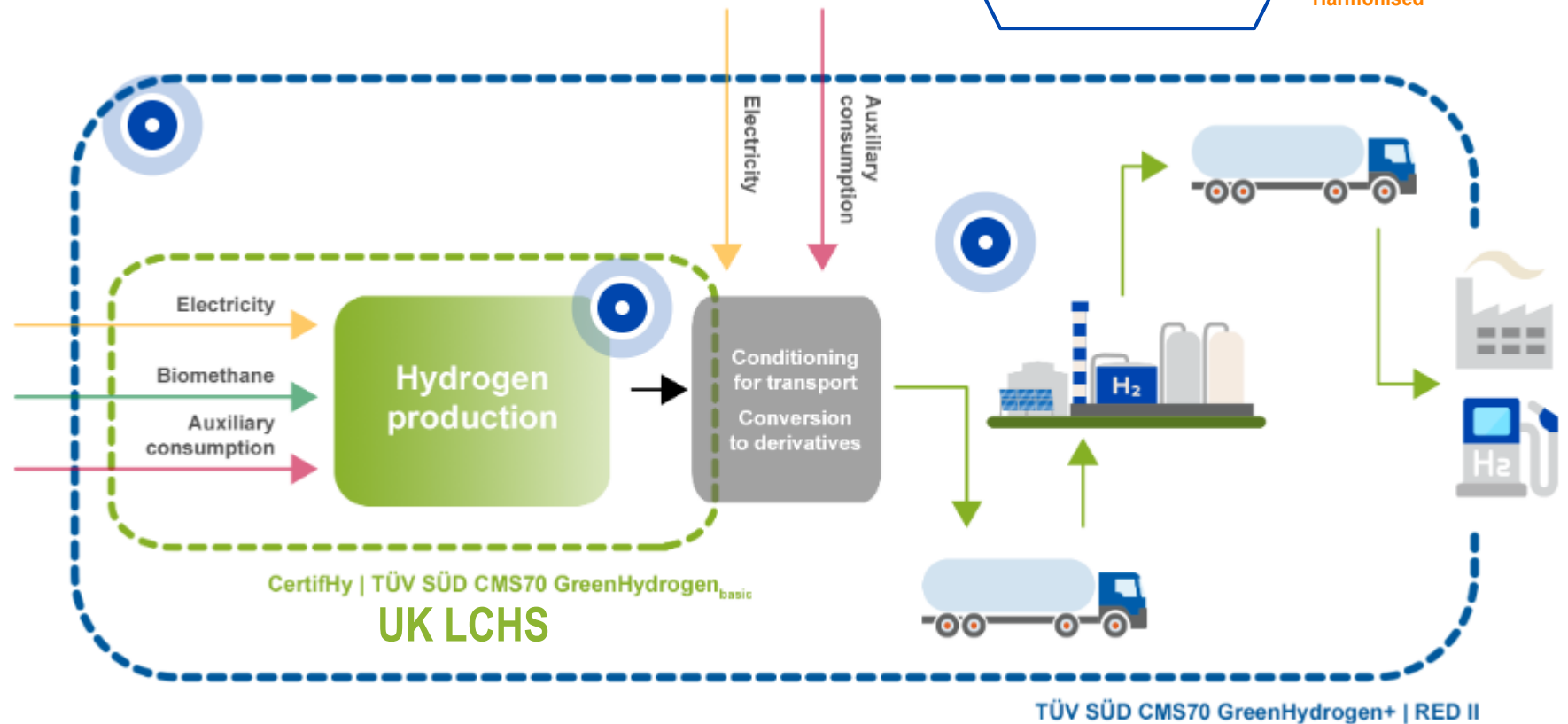


# Differing requirements ...

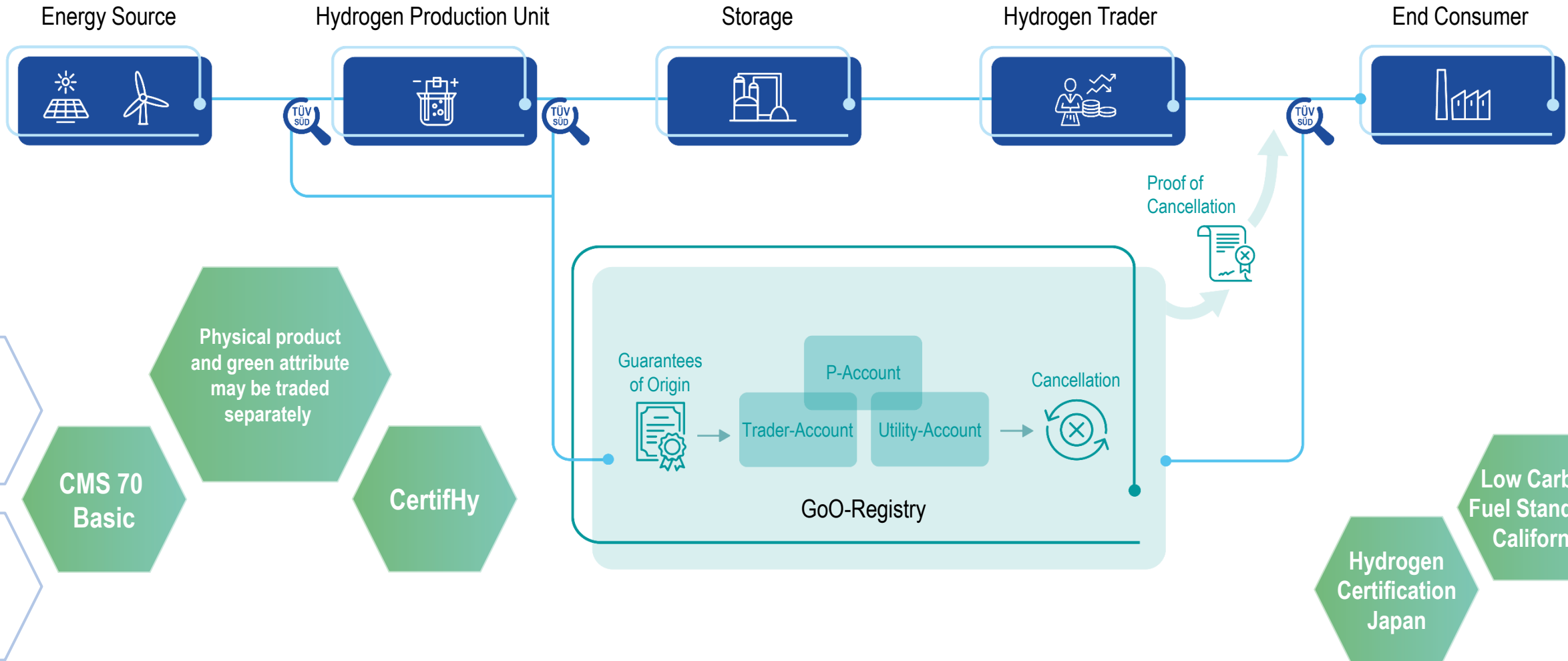


e.g. UK LCHS:

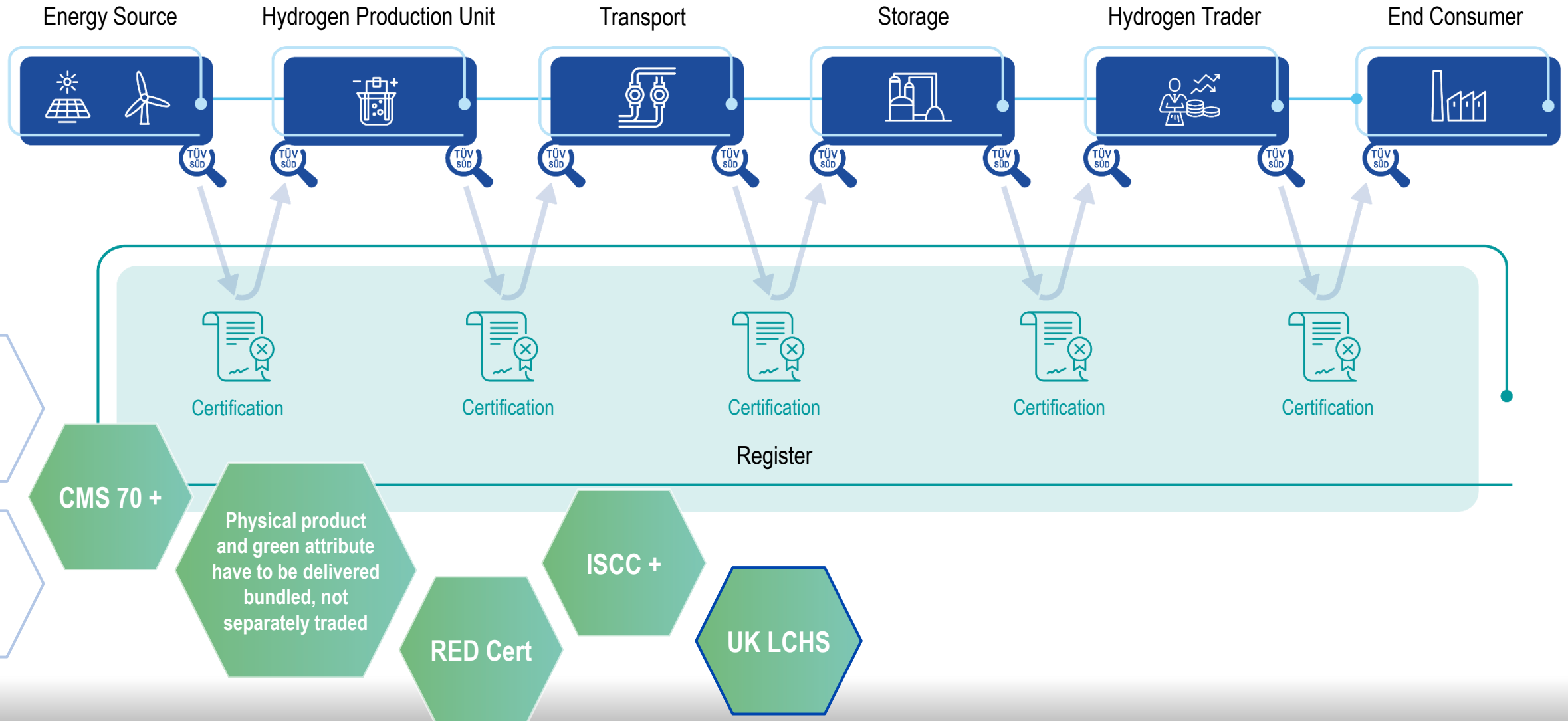
- Electrolysis
- Fossil gas reforming with CCS
- Biogenic gas reforming
- Biomass gasification
- Waste gasification
- Gas splitting producing solid carbon



# Book & Claim approach



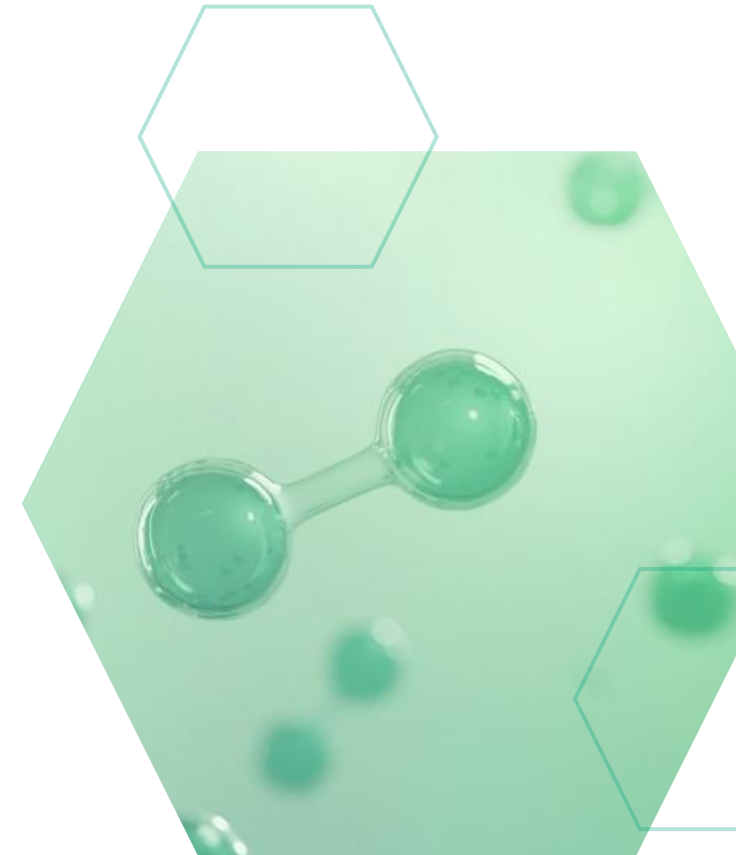
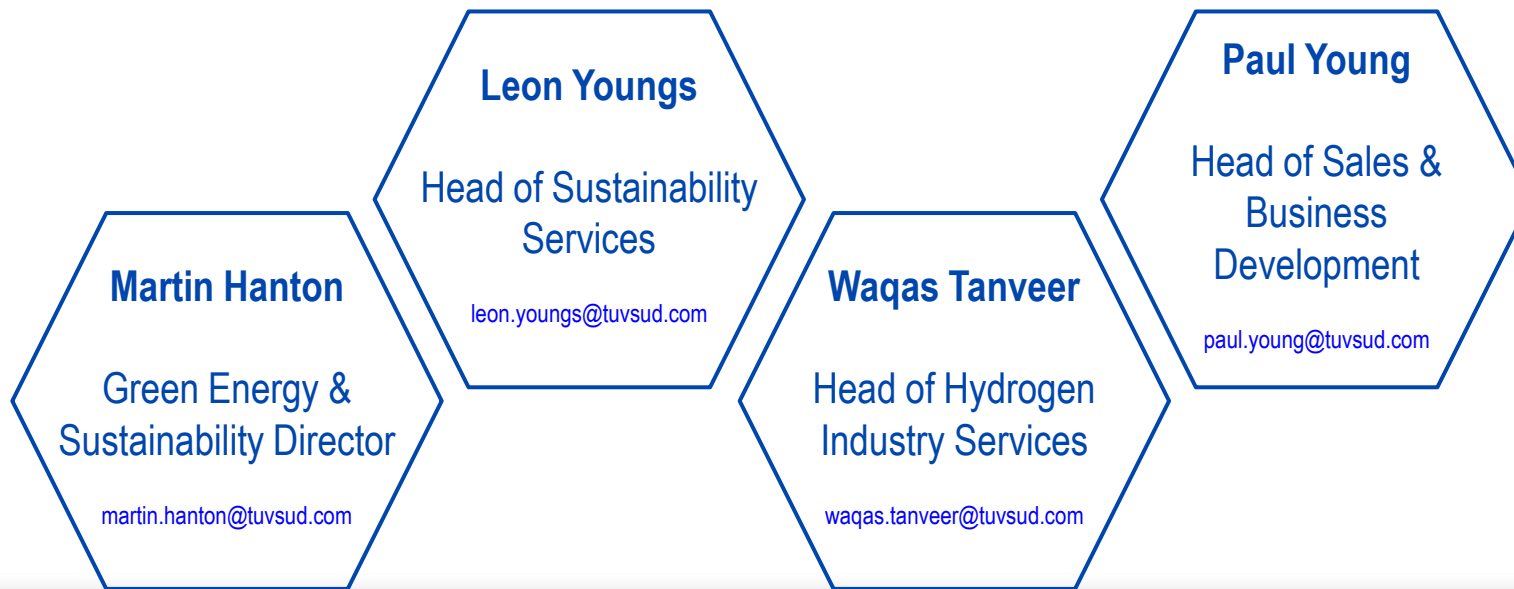
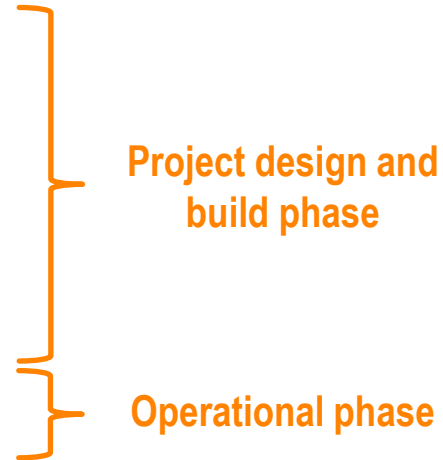
# Mass Balance approach



# TÜV SÜD Services and Contacts



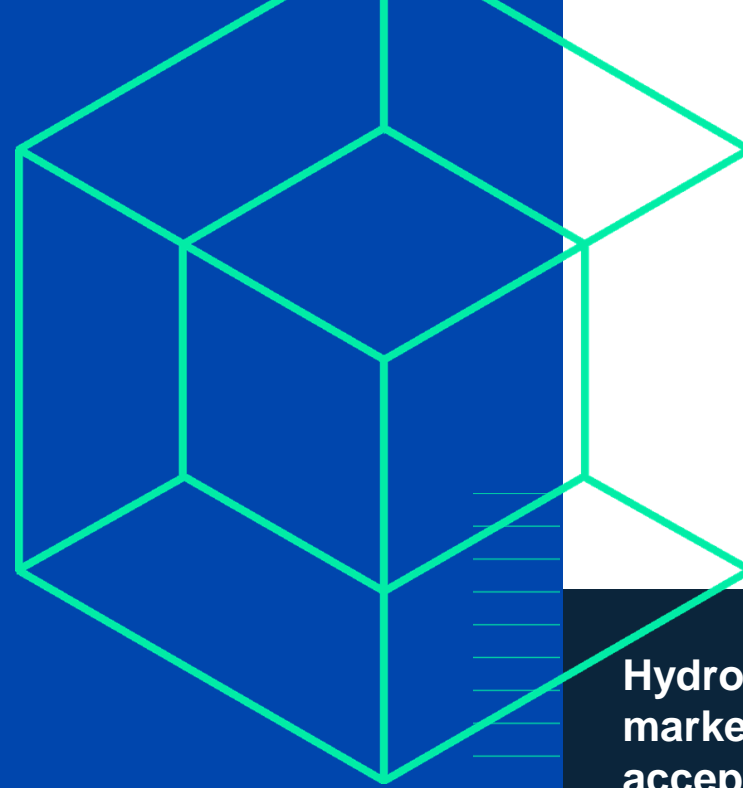
- ✓ **Advisory on scheme selection**
- ✓ **Advisory on project design / design reviews, for *likely* scheme compliance**
- ✓ **Independent assessment and review for funding applications, e.g. HAR and Hydrogen Emissions Calculator**
- ✓ **Annual assessment audits and certification**





Thank you

Any questions?



**Hydrogen certification for  
market and consumer  
acceptance**

Martin Hanton

E-Mail: [Martin.Hanton@tuvsud.com](mailto:Martin.Hanton@tuvsud.com)

**Follow us on:**



[tuvsud.com](https://www.tuvsud.com)

[info@tuvsud.com](mailto:info@tuvsud.com)