




**BUREAU
VERITAS**


CARBON EMISSION ASSOCIATED WITH GREEN HYDROGEN PRODUCTION


ICGH 2023
PANEL DISCUSSION

BUREAU VERITAS – BRINGING TRUST TO HYDROGEN INDUSTRY

GLOBAL LEADER IN TIC SERVICES

 **CREATED IN 1828**
Present in 140+ countries globally
100+ years in the energy industry

 **EXPERTISE & TECHNICAL KNOWLEDGE**
Testing, Inspection & Certification
Technical and Regulatory services

 **BUSINESS TO BUSINESS TO SOCIETY**
Our Mission : "Shaping a World of Trust"
Quality, Safety, Sustainability & Asset Performance

CENTERS OF EXPERTISE RENEWABLE ENERGIES & HYDROGEN




Your reliable global partner providing local assistance in 140+ countries

CONTRIBUTING TO HYDROGEN ECOSYSTEM

Hydrogen Council

- Bureau Veritas is a member of the Hydrogen Council since 2020.
- Co-chair of the Certification task team under Sustainability Program

 **Technical Committee of ISO in charge of all normalisation aspects pertaining to Hydrogen**

- Part of ISO TC197 WG 34 related to safety requirements for H2.
- Contribution to New revision of ISO 22734 kick off July 2021

BUREAU VERITAS HYDROGEN REFERENCES



BUREAU VERITAS POSITIONING ON HYDROGEN: BRINGING TRUST AND TRANSPARENCY

With our long-standing experience in the energy industry, especially in risk & safety management and quality assurance, our overarching role is to bring trust to the hydrogen energy industry.

FOR HYDROGEN AND DERIVATIVES ALONG THE VALUE CHAIN

As an independent third party:

- | Certification of production assets / site
- | Label for produced molecule
- | Certification of Electrolysers
- | Independent testing & measurement

As a technical expertise provider:

- | Owner's engineer
- | Technical & Regulatory services
- | Permitting support
- | Risk & safety management

Ammonia NH_3

EMISSIONS ASSOCIATED WITH GREEN H2 PRODUCTION - CHALLENGES

Green H2 : Tradeable & Decarbonized energy vector enabling Sustainable energy transition

- ❑ **No global criteria for Green / Renewable / Low Carbon H2 - Challenges with mis-labelling**
 - Need common definition of minimum emission saving threshold vs fossil fuel comparators
- ❑ **Lack of common emission accounting standards for ‘apples to apples’ comparison**
 - Address multiple pathways for H2 production with combinations for input, output & co-products
- ❑ **Local regulations emerging impacting cross-border trading**
 - No current harmonization of regulations globally ... Building a global consensus is taking time
- ❑ **Emission savings should not be the only KPI for Green H2 production**
 - Sustainability and overall environmental impact to be assessed together with emission savings

Need for Certification Scheme addressing “Green” H2 & derivatives production

- Address trust & visibility for developers, investors & off-takers to ramp-up investments & capacities

A CERTIFICATION PROCESS IN 3 STEPS

BV RENEWABLE H₂ / NH₃ CERTIFICATION SCHEME

1

At Design Stage

CERTIFICATE

Certificate of Conformity
- no surveillance activities -

LCA

Safety

ESG

Purely remote
assessment
based on
documents

2

At Operational Stage

CERTIFICATE

3 years validity period
- with annual surveillance audits -

LCA

Safety

ESG

Combined
remote &
on-site
assessment

BV RE H₂ / NH₃ QUANTITY LABEL

3

At Operational Stage

LABEL

1 year validity
- with quarterly remote audits -

Remote audit
of Renewables
input vs. H₂
output

Remark:

Valid BV certificate of operational plant as
prerequisite

Asset life cycle – Renewable H₂/NH₃ Certificate plant based

Renewable H₂/NH₃ Label quantity based

Regulatory Compliance will be assessed in combination with BV scheme either to local and/or to end-market regulation



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