

## The International Partnership for Hydrogen and Fuel Cells in the Economy (IPHE)

**IPHE Secretariat** 

## **IPHE: a Global Government-to-Government Partnership** to Accelerate Hydrogen and Fuel Cell Deployments









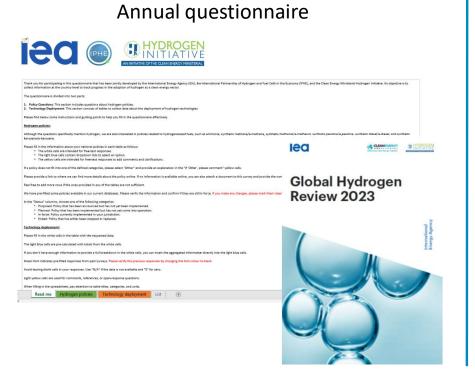
September 2024

www.iphe.net

## **IPHE Practical Actions: Monitor**



Monitor information at the country level to track progress in the adoption of hydrogen as a clean energy vector



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Data accessible @ www.iphe.net

Semestrial Country updates

## **IPHE Practical Actions: Enable**



## Enable and foster international collaboration and a landscape coordination process





















IEA Technology Collaboration Programme
Advanced Fuel Cells

































## **IPHE Practical Actions**



## Provide accurate factual and unbiased information to policy-makers

## **Working Groups**

- Regulations, Codes, Standards & Safety
  - Task Forces: Maritime & Bulk Storage
- Education & Outreach
  - Early Career Network
  - Diversity, Equity, Inclusion, Accessibility

#### **Task Forces**

- **❖** H<sub>2</sub> Environmental Impact Assessment
- ♣ H₂ Certification Mechanisms
- ❖ H<sub>2</sub> Trade Rules
- ❖ H<sub>2</sub> Skills



Dol on mutual recognition of H2 certificates at COP28

## Task Force on **Hydrogen Certification Mechanisms**

## Scope

To provide a deeper understanding of certification mechanisms [schemes], as well as a sound basis to support reaching consensus on implementing interoperable certification mechanisms across regions/countries for clean hydrogen

## **Approach**

1. Review the existing clean hydrogen certification initiatives across the world and the criterions they are using, such as GHG footprint, sustainability and just transition; <u>Hydrogen Certification 101</u> (July 2023)

2. Proposal for a minimum information embedded in a clean hydrogen certificate across the entire chain

value.

COP 28 H2 Ministerial Meeting



September 2024

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## Task Force on Hydrogen Environmental Impact Assessment

#### Issue: Facilitate a Global Market in Hydrogen

 Trade of Hydrogen needs common internationally agreed Standards to quantify the Environmental Impacts for: Production Methods; Conditioning & Carriers; and, Transportation

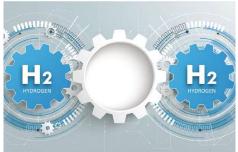
#### **Scope** (IPHE is not a Standardization Body)

- Develop a mutually agreed methodology framework for determining the GHG emissions associated with a unit of H<sub>2</sub> production.
- Assess the impact of atmospheric H<sub>2</sub> on climate change

#### **Output: 'Quantification Methodology' Working Paper Version 3**

 Published <u>Methodology for Determining the GHG Emissions Associated with the</u> Production of Hydrogen Working Paper Version 3 July 2023 Methodology for Determining
the Greenhouse Gas
Emissions Associated With
the Production of Hydrogen

A Working Paper Prepared by the









## Task Force on Hydrogen Environmental Impact Assessment

#### Objective: a Sustainable Global Market in Hydrogen

The HEIA TF aims to provide a deeper understanding of hydrogen in the atmosphere and its impact on climate change. It further aims to provide a sound basis for understanding the impact of increased use of hydrogen in the economy on climate change.

#### **Activities**

- Develop a common understanding of terminology
- Current atmospheric budget of hydrogen
- Estimate of future atmospheric hydrogen levels due to increased use of hydrogen and Assessment of the impact of increased hydrogen use in the economy on climate change
- Current policies, regulations, standards and large-scale funding opportunities requiring monitoring, measurement and reporting of hydrogen emissions
- Current methodologies and technologies for detection, quantification, and mitigation of hydrogen emissions



INTERNATIONAL PARTNERSHIP FOR HYDROGEN AND FUEL CELLS IN THE ECONOMY

May 2024

Impact of Atmospheric Hydrogen on Climate Change

ydrogen (H<sub>2</sub>) has an important role to play in the transition to a clean energy economy, particularly in reducing greenhouse gas (GHG) emissions, in achieving global climate objectives and the transition to a et zero economy, as well as supporting energy security and resilience and providing economic benefits

of GHGs like methane (CH<sub>4</sub>). Therefore, additional anthropogenic releases of hydrogen into the

er to maximize hydrogen's positive potential, it is crucial to manage H<sub>2</sub> emissions, which can the climate change mitigation potential of using clean hydrogen in its main applications.

ing historical lessons from methane (CH4) emissions and being proactive and transparent in essing the issue early, the benefits of hydrogen can be maximized while minimizing the econom environmental drawbacks associated with emissions. This position paper examines the topic and discusses potential measures to minimize climate impacts.

Measures to be taken to maximize the Climate Benefits

As mentioned at COP 28, transitioning away from fossil fuels in general and reducing hydrogen emis

By adopting proactive measures, the global community can maximize the benefits of hydrogen while llaborative approach to tackling the challenge of H<sub>2</sub> emissions, involving industry, government:

- Reduce current major sources of H2 in the atmosphere—in particular, reduce emis methane (CH<sub>4</sub>)from all sources, Methane is not only a potent GHG in itself, but is also the single largest source of hydrogen in the atmosphere;
- Improve performance of containment technologies: Develop and implen H. production, storage and transport technologies to work towards eliminating releases (such as boil-off, venting and purging) and unintentional emissions (such as leakage); Develop and improve monitoring, measurement, and detection techniques and guidance:
- Establish standard hydrogen loss detection and monitoring systems to identify and quantify sources of releases to promote equipment design improvements to minimize losses;

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Business-as-Usual is not sufficient given energy, climate and societal drivers

Crucial for governments to facilitate efficient and effective international hydrogen markets

- Standards, Codes, Mechanisms for Mutual Recognition of GHG Measurement approaches;
- Mitigate financial risks and technical risks through innovative mechanisms;
- Analyze and understand full supply chain and, as appropriate, address challenges using mechanisms reflecting national, regional and international circumstances.

Crucial for gov'ts to facilitate efficient and effective international collaborations and coordination beyond IPHE members.



## Thank you

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International Partnership for Hydrogen and Fuel Cells in the Economy

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## **IPHE Practical Actions: Share**



## Share Information, Policies, Developments at Bi-Annual Steering Committee Meetings

















## Working Group on Education & Outreach

**Early Career Network** 

#### **Membership**

Membership is open to undergraduate and graduate students, postdocs, and early-career professionals from all IPHE member countries and beyond.

#### **Objectives**

- Opportunities for leadership and career development for members
- Connecting with other young professionals interested in hydrogen
- Becoming a part of a network of members and professionals in the field
- +500 members from 40 countries, increased nearly 100% since 2022
- Establishing a social community of young professionals to meet regularly

**Diversity, Equity, Inclusion, Accessibility** 



Creating a hydrogen and fuel cell economy that reflects the diversity of our global society and ensures equal opportunities for all.





















#### Task Force on Trade Rules

#### **Issue: Facilitate Global Trade in Hydrogen**

#### Scope of the H2TR TF

- Published the International Trade Rules for Hydrogen and its Carriers: Information and Issues for Consideration Discussion Paper February 2022
- How can trade policies facilitate international trade?
- Provide inputs for the International Hydrogen trade Forum ministerial meeting

#### Work on (in collaboration with WTO Secretariat):

- Gathering information for deciding on the scope of the system to be included in our overview (the so-called system boundaries).
- Mapping exercise, asking the IPHE member to provide information on their 1) tariff or tax preferential policies and 2) government support and procurement policies to stimulate the production, importation and/or exportation of (low-emission) hydrogen, ammonia and methanol.

International Trade Rules for Hydrogen and its Carriers: Information and Issues for Consideration























## Task Force on Hydrogen Skills

#### Scope

To enable countries to streamline hydrogen skills development efforts through knowledge sharing to develop a database of hydrogen value chain skills and training, and to propose recommendations, in particular for new adopters, for building the foundation of a sustainable hydrogen workforce.

## **Approach**

- 1. Data collection and collation of existing completed skills needs studies by member countries;
- 2. Presentation of database and initial analysis to government, industry and training institution stakeholders.























## How to become an IPHE member



#### **Applying countries need to demonstrate:**

- 1. A substantial, long-term resource commitment to hydrogen and fuel cell technology research and development activities;
- 2. A well-defined vision and national strategy to advance technology deployment and infrastructure development; and
- 3. A commitment reflected in policies and strategies that effectively advance private sector development of hydrogen and fuel cells in the economy.

Members also commit to actively participate in the Steering Committee meetings and in at least one or more of the Working Groups or Task Forces. Please see the IPHE Terms of Reference at <u>About the IPHE</u>.

To trigger the process, the Ministry responsible for the hydrogen and fuel cells should contact the IPHE Secretariat at: <a href="mailto:secretariat@iphe.net">secretariat@iphe.net</a>

