

## Certification for facilitating international trade of green hydrogen Webinar

Tuesday, 31 January 2023, 09:30-13:00 CET

### SUMMARY



#### Welcoming statement

There is already significant focus and high interest on green hydrogen given its role as a key decarbonising energy vector and as a catalyst for international trade and economic growth. The creation of sustainable hydrogen markets requires globally recognised definitions, standards and certification mechanisms that align countries' interests and needs, both at country and international level.

This is the first low-carbon hydrogen webinar in a series organised by the OECD Clean Energy Finance and Investment Mobilisation ([CEFIM](#)) programme throughout the year, with the aim to feed the dialogue and create a basis to develop working relationships with various organisations working on hydrogen and across the OECD. This will support CEFIM's hydrogen strategy to participate in the international governance through a co-ordinated cross-directorate collaboration to integrate policy areas into the hydrogen industry.

#### Presentation of OECD's Working Paper: Green hydrogen opportunities for emerging and developing economies

The OECD working paper "[Green hydrogen opportunities for emerging and developing economies: Identifying success factors for market development and building enabling conditions](#)" addresses the value chain of green hydrogen in developing national strategies, stressing the importance of adopting a vertical approach that integrates all value chain. Indeed, hydrogen production from electricity can be used as such or converted into various products such as steel, chemicals, and fertilisers for use in multiple sectors, ranging from transport to heavy industry.

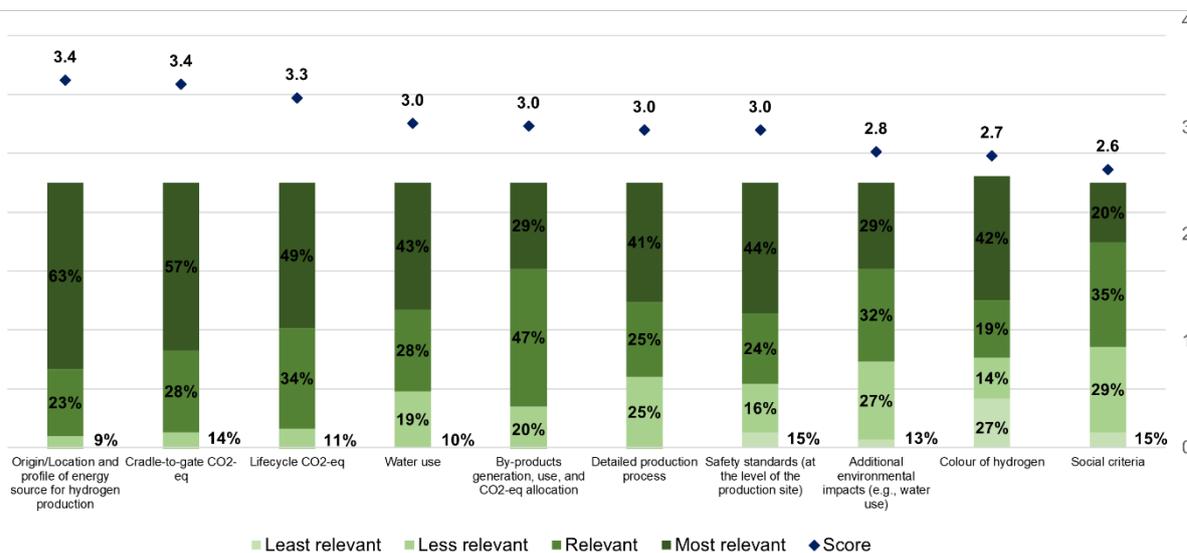
Current case studies show the need to develop enabling policy and financial conditions and build vertically integrated partnerships to create a sustainable market for low-carbon hydrogen. This includes building a coherent certification framework and tracking mechanisms. There are multiple measures that policy makers can implement to facilitate the development of these schemes. A first step is to work on common definitions and standards and understand the existing initiatives.

## Session 1: Challenges and considerations for hydrogen certification

- *What are the current challenges around developing certification systems for hydrogen?*
- *What are best practices and main limitations in the currently available hydrogen certification systems?*
- *What are the main considerations that should be considered in developing certification schemes for hydrogen?*
- *How would green hydrogen certification impact the certification of its derivatives, such as e-fuels, green steel or green ammonia?*

- There is a **lack of consensus on the definition of hydrogen**. Different concepts and criteria have been developed across countries, depending on priorities, interests and market needs. In many countries, there are still discussions on how to define and categorise hydrogen to implement a regulatory framework for domestic markets. These challenges are further pronounced when the complexity of the value chain is considered, including the multiple products and markets where hydrogen can be used.
- There is also fragmentation of definitions in the different sectors across hydrogen value chains. Different definitions emerge in the fertiliser industry, the power sector, the steel sector and the chemicals industry, making it challenging to track green hydrogen and its derivatives.
- The fragmentation of definitions has led to **multiple initiatives** to certify green hydrogen, including various criteria such as the emissions profile, water and land use, or broader environmental, social and governance (ESG) performance (*Figure 1 shows some of the key components to consider in hydrogen certification*).
- Nonetheless, there are **still discrepancies between these standards**. For example, emissions can be measured using different scope and boundaries, and only some standards are covering emissions from transportation of green hydrogen. The divergence of criteria and calculation methodologies can make it challenging to align standards.
- As a result, there is a **wide range of available certification mechanisms**, which can come as mandatory or voluntary schemes. This can potentially lead to confusion in compliance with various certification mechanisms and slow down project development. Countries, such as the Republic of Korea, are building regulatory frameworks that provide clarity on how to classify and certify clean hydrogen production.
- **Adopting a holistic approach that integrates the whole hydrogen value chain** can help for an interoperable certification scheme with cross-sectoral standards. This can accelerate the certification of other green hydrogen derivatives, including green ammonia and green steel.
- **International standardisation** can be used to create robust certification frameworks and governance accountability. For example, ISO standards provide qualified international certification for greenhouse gas emissions. Moving forward, more research and work has to be done to build **robust international control organisms and governance**.

Figure 1. Poll result - key considerations for hydrogen certification



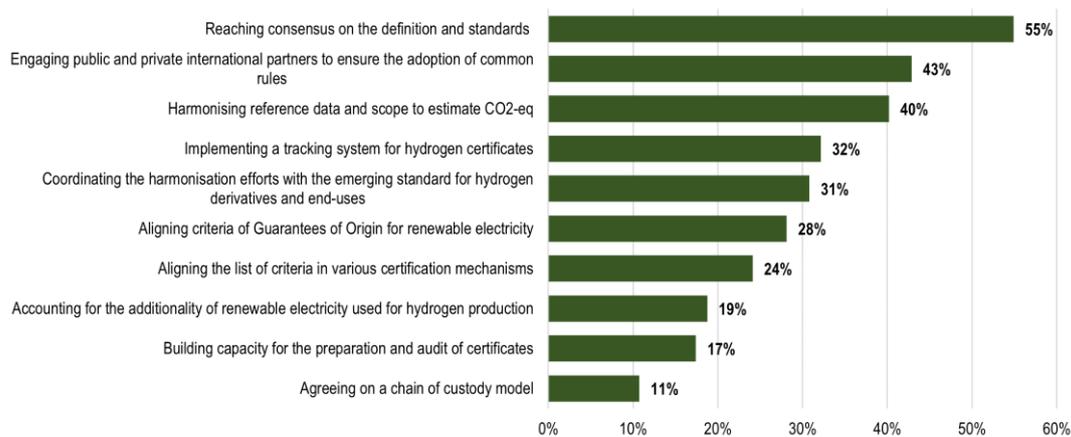
Note: Participants were asked to rate the importance of ten criteria, according to their relevance for embedding them in hydrogen certification mechanisms. The blue marker displays the average grade given by participants in a ranking scale between 1 and 4 (from least to most relevant). The green stacked bars show the percentage of participants who gave the grade to the given criteria.

## Session 2: International harmonisation and interoperability

- *What strategies should be followed for international harmonisation of certification systems?*
- *What are the minimum and “nice-to-have” criteria that should be included in hydrogen certificates? Can divergences on these criteria impact international harmonisation?*
- *What are suggestions and solutions to enhance and expand current certification systems?*

- The harmonisation of certification schemes for low-carbon hydrogen remains a key challenge. Facilitating their **compatibility is fundamental to incentivise off-take and investment**.
- One way to reach harmonisation is by **setting a common set of basic standards/principles that guide all schemes and developing a common methodology to verify their compliance**. Using internationally recognised requirements across the value chain, for instance those developed by the International Organisation for Standardisation (ISO), can be a useful tool to build such standards and principles.
- **Transparency** helps countries harmonise their different national certification schemes. For instance, the Government of Australia’s proposed Guarantee of Origin (GO) scheme for hydrogen provides a wide variety of lifecycle information, including emissions intensity, badge production, electricity input and breakdown on emissions across the lifecycle, and ensures full accessibility to the public.
- **Life cycle approaches** for methodology and tracking mechanisms are becoming more important in the hydrogen industry. For example, power system and grid connection settings of hydrogen are used to provide information on electricity generation to producers and consumers.
- Moving forward, the **involvement of domestic and international stakeholders in certification processes** will be needed to create robust tracking schemes and interoperable markets.

Figure 2. Poll result – challenges for harmonisation and interoperability



Note: Participants were asked to choose the main three challenges within a list of ten items. The horizontal axis displays the percentage of participants who selected a given item.

### Session 3: Stakeholder roles

- *Who are the key stakeholders in developing hydrogen certification systems, both at national and international levels?*
- *What are their specific roles for the development, enforcement, monitoring, reporting and verification of certificates?*
- *How can the governance and institutional capacity around hydrogen certification be developed and strengthened?*

- There is an **increasing number of stakeholders involved in hydrogen certification development**, from international organisations to national certification agencies, governments, industry and academia.
- **Collaboration between exporting and importing countries** can help foster market growth by providing information about risks and challenges and avoiding overregulation and overcomplex standards.
- **International collaboration between public and private actors in the industry can help design definitions, develop standards, and find a common methodology for hydrogen certification.** There are multiple initiatives, such as the IPHE Hydrogen Certification Mechanisms Task Force, that work to foster multistakeholder discussions and consensus across countries.

### Concluding remarks and wrap-up

- The complexity of the hydrogen industry requires flexible and adaptable schemes that understand and adapt to the versatility of the sector.
- A life cycle approach based on internationally-recognised methodologies is needed to create robust definitions and certification schemes that operate across markets.
- Transparency, full disclosure of information and data accessibility can help create robust and trustworthy tracking schemes and certification development.
- International collaboration and involvement of all stakeholders are required to create a sustainable trading market and a robust governance framework for green hydrogen.