Green Hydrogen Organisation

GH2 Green Hydrogen Standard Fact Sheet

The Green Hydrogen Organisation (GH2) invites Green Hydrogen producers to submit their projects for accreditation and certification. GH2 is the only globally recognised system for green hydrogen accreditation and certification. Green Hydrogen projects that meet the Green Hydrogen Standard ("the standard") will be licensed to use the label "GH2 Green Hydrogen" and will be eligible to obtain and trade GH2 certificates of origin for green hydrogen and derivatives such as green ammonia.

The GH2 Board launched this Standard in May 2022. This brief overview summarises the Standard, which is free to download here: **gh2.org/our-initiatives/gh2-green-hydrogen-standard**

GH2's definition of Green Hydrogen

Green hydrogen is hydrogen produced through the electrolysis of water with 100% or near 100% renewable energy with close to zero greenhouse gas emissions (<=1 kg CO_2e per kg H2 taken as an average over a 12-month period).

GH2's definition is based on the technologies that are the leading candidates for scaling up green hydrogen production: hydropower, wind, solar, geothermal, tidal, wave and other ocean energy sources.[1] The Standard refers to "near 100% renewable energy". There is some flexibility (e.g., for backup systems) so long as the maximum greenhouse gas emissions threshold is not exceeded.

Validating "close to zero" emissions of <1 kg CO_2e per kg H_2

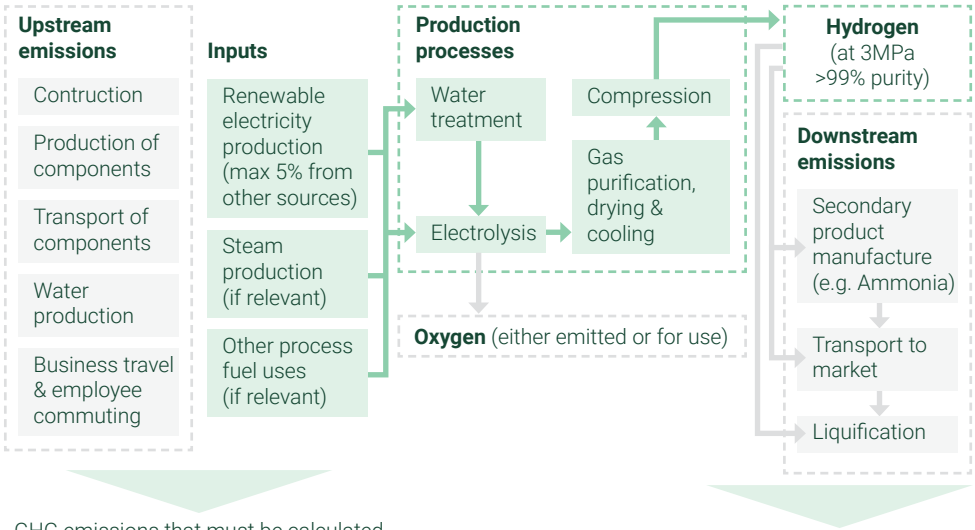
The production of renewable electricity can involve some greenhouse gas emissions. In certain circumstances, there may be some greenhouse gas emissions associated with electrolysis and associated processes (such as water treatment / desalination). Accordingly, GH2 refers to "close to zero greenhouse gas emissions". The Standard requires that projects operate at <=1 kg CO_2e per kg H_2 (taken as an average over a 12-month period).[2]

The <=1 kg CO_2e per kg H_2 threshold is considerably lower than the thresholds proposed by other so-called "clean hydrogen" or "low carbon hydrogen" standards, which have significantly higher emissions threshold to accommodate hydrogen production based on fossil fuels. Green hydrogen is the only option aligned with a 1.5-degree pathway[3].

What GHG emissions are included?

It includes "scope 1" emissions from production, including water treatment and desalination and "scope 2" emissions from on-site or purchased renewable electricity. The Standard builds on the methodology proposed by the International Partnership for Hydrogen and Fuel Cells in the Economy (IPHE).

It is expected that project operators report on the emissions associated with the delivery of hydrogen and its derivatives. The standard also encourages project operators to report on the embodied emissions associated with green hydrogen production.



What other aspects are covered in the Green Hydrogen Standard?

The Standard requires that the environmental, social and governance consequences of green hydrogen production are addressed and requires that the development opportunities and impacts of green hydrogen production are considered. Key questions include:

- Are the social and environmental impacts of new projects fully considered?
- Does the project comply with international human rights standards and are human rights promoted where the energy is produced?
- Has a good faith effort to engage key stakeholders and communities actively been made?
- Have key stakeholders and communities been provided with the information and potential opportunities to engage that they see as most relevant and needed?

These issues are vital considerations for investors, customers, consumers and the communities that host green hydrogen projects.

What are the steps to be certified?

Project operators seeking GH2 accreditation should undertake the necessary preparatory work to demonstrate their project's adherence to the Green Hydrogen Standard.

step 1	**Green Hydrogen Project Development**	The **project developer** ensures compliance with the GH2 Standard.
step 2	**Independent Assurance**	The project developer engages an **Independent Assurance Provider** accredited by GH2.
step 3	**Consultation and public comment**	The Independent Assurance Provider consults stakeholders and prepares an assessment. A draft report is made available for public comment.
step 4	**Green Hydrogen Project Accreditation**	The final report is submitted to **GH2's Accreditation Body.** Projects that meet the Standard are licensed to use the label "GH2 Green Hydrogen" and will be eligible to obtain and trade GH2 certificates of origin.
step 5	**Green Hydrogen Production Certification**	**The GH2 Registry** issues, tracks and cancels GH2 Green Hydrogen Guarantee of Origin certificates.
step 6	**Review and Renewal**	Accreditation is reviewed annually. The Accreditation body undertakes spot checks and may recommend refinements to the Standard.

Project operators then engage an Independent Assurance Provider accredited by GH2 to review the project. The Independent Assurance Provider consults the project operator and other stakeholders and prepares an assessment.

Projects that meet the Standard and have agreements and/or licenses with GH2 will be certified to use the label "GH2 Green Hydrogen" (under license) and will be eligible to obtain and trade GH2 certificates of origin for green hydrogen and derivatives such as green ammonia.

How does the Standard relate with national standards?

GH2 is working with national governments to encourage alignment with international best practice, including the Standard's definition of green hydrogen. GH2 is applying to become a voluntary scheme under the EU's revised Renewable Energy Directive. To avoid duplication, demonstrating adherence to credible and comprehensive national requirements shall be deemed sufficient to meet GH2's accreditation and certification requirements.

For more information, contact Sam Bartlett, Director for the Green Hydrogen Standard and CEO Roundtable at **sam.bartlett@gh2.org**

About GH2

The Green Hydrogen Organisation (GH2) is a not profit foundation under Swiss law. In addition to its office in Geneva it is present in London, Perth, and Sydney. The mission of GH2 is to dramatically accelerate the production and utilisation of green hydrogen across a range of sectors globally. It will push to rapidly decarbonise industries like steel, cement, fertilisers, shipping and aviation that have so far made limited progress reducing their emissions.

Sources:

1. GH2 notes that some countries have determined that there is a role for nuclear energy and biomass to accelerate the shift from more polluting activities, such as coal generation. However, nuclear power and biomass raise some specific environmental and safety related issues which this Standard is not designed to address. GH2 welcomes if the Green Hydrogen Standard inspires further rules and standards also for nuclear and other forms of energy production with close to zero emissions.
2. The GH2 Board will review the performance of GH2 accredited projects on an annual basis, with the expectation that the boundaries of the emissions assessment framework can be widened, and that the emissions thresholds will be lowered in accordance with emerging best practice.
3. https://racetozero.unfccc.int/un-climate-champions-launch-guiding-principles-for-climate-aligned-hydrogen/