



Clean Hydrogen Partnership



Hydrogen H₂

**Study on accelerating the deployment
of Guarantees of Origin Schemes for
Hydrogen and for the design of a
Voluntary Scheme for compliance with
RED II targets**

Yearly Interim Report Phase 3

Clean Hydrogen Partnership

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About the Clean Hydrogen Partnership

[The Clean Hydrogen Partnership](#) – the successor of the Fuel Cells and Hydrogen Joint Undertaking (FCH JU) – aims to strengthen and integrate European Union research and innovation capacity to accelerate the development and improvement of advanced clean hydrogen applications ready for market, across energy, transport, building, and industrial end-uses, while strengthening the competitiveness of the Union clean hydrogen value chain. The three members of the partnership are the European Commission, fuel cell and hydrogen industries represented by Hydrogen Europe, and the research community represented by Hydrogen Europe Research.

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CONTENTS

1. Abstract: Certification is crucial for the development of the renewable and low-carbon hydrogen market	3
2. What did CertifHy 3 achieve in 2021?	4
3. What's next for 2022?	9
4. Further information	11

1. Abstract:

Certification is crucial for the development of the renewable and low-carbon hydrogen market

In a context where the uses, as well as the means of production of hydrogen, are multiple, certification brings crucial answers to the actors on the whole value chain: what are the environmental attributes of the produced and consumed hydrogen? Does the hydrogen meet specific criteria?

In this respect, two certification systems are being developed in Europe:

- The guarantee of origin mechanism (RED2 art. 19), which is dedicated to consumer disclosure in the voluntary market
- RED2 compliance for the use of renewable fuels of non-biological origin (RFNBO) such as hydrogen, ammonia, or methanol in the transport sector

These certification schemes will allow producers to capture the premium value of hydrogen produced according to certain quality and traceability standards, determined by the European Commission and the Member States.



This publication summarises the results and main outcomes after the first year following the CLEAN HYDROGEN PARTNERSHIP financed project CertifHy ('CertifHy 3'). The first phase ran from 2014 and 2016, while the second phase was executed between October 2017 and June 2019. The third phase has started in October 2020.



The objective of the study is to build upon the previous phases (CertifHy 1, CertifHy 2) to facilitate the development of a harmonized H₂ Guarantees of Origin market and to prepare the development of an EU Voluntary Scheme for hydrogen as a RED2 compliant fuel (RFNBO).

The publication also provides an outlook of the next year of operation for the CertifHy 3 project.

2. What did CertifHy 3 achieve in 2021?

Since October 2020, CertifHy 3 has mainly progressed on three workstreams:

1. **Facilitating the EU-wide roll-out of an efficient and harmonized H₂ Guarantees of Origin** market by closely cooperating with the Association of Issuing Bodies (AIB) and future EU Issuing Bodies as well as preparing the development of a new version of the CertifHy® Guarantees of Origin scheme to better address the need of the H₂ industry.
2. Working towards the establishment of an EU Voluntary Scheme recognized by the European Commission for the **certification of hydrogen as a renewable fuel of non-biological origin (RFNBO)**, which will be another key driver to the development of the clean hydrogen market.
3. Constantly **promoting the CertifHy scheme while relaunching the CertifHy Stakeholder Platform and the Working Groups** to co-construct the CertifHy schemes with 900+ individuals from 100+ companies all involved in the hydrogen industry in Europe and internationally.

Facilitating the EU-wide roll out of an efficient and harmonized H₂ Guarantees of Origin

CertifHy has become an **observing member of the AIB** through its consortium leader Hinicio, while also taking a board position within the AIB. As such, CertifHy has capitalized on the expertise built since 2014 to contribute to the update of the AIB EECS Rules, and effectively working towards the **harmonization of the H₂ GO market in Europe** by working directly with future Issuing Bodies.

In practice, CertifHy has been a **member of the AIB Gas Scheme** Group since October 2020. The Gas Scheme Group is responsible for developing the specific section of the EECS Rules regarding gas & hydrogen. It is also providing guidance to Issuing Bodies on the implementation of their future GO scheme for hydrogen and helps them towards the **establishment of their Domain Protocol**.

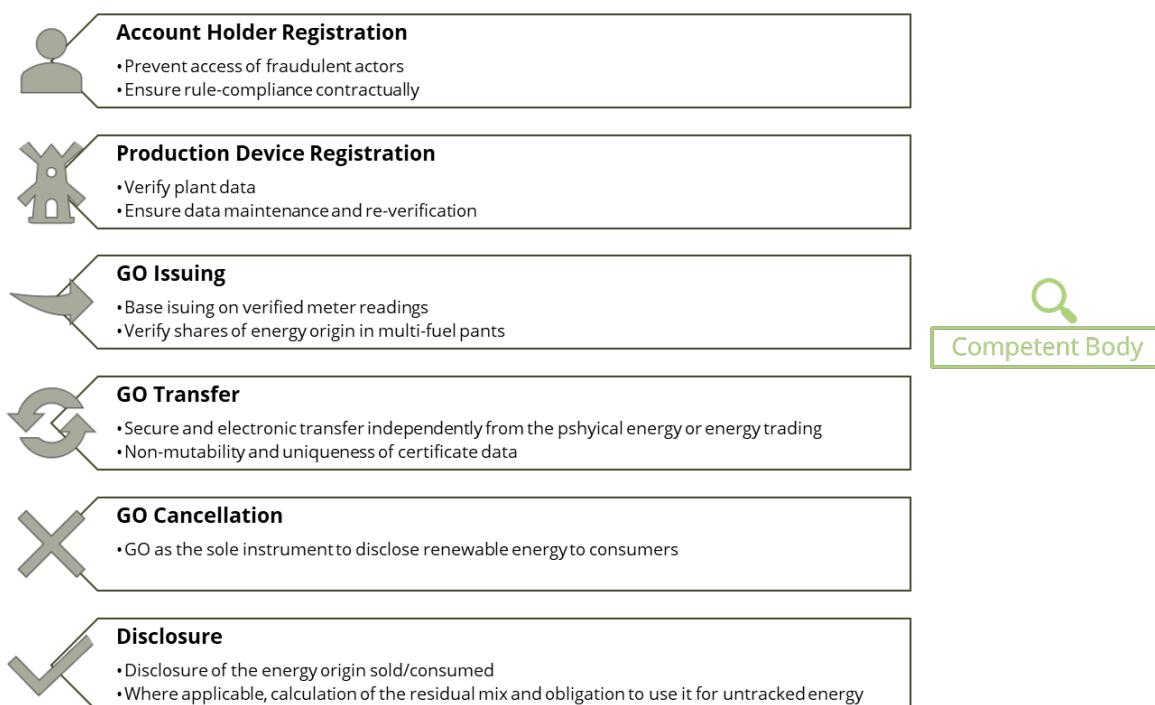
The Domain Protocol template has been updated to include gaseous energy carriers. This template forms the basis for elaborating the rules and practicalities in every Domain's GO

scheme and for showing compliance with the EECS Rules. After filling in a Domain Protocol Template and sending it to the AIB secretariat as an application to an EECS Scheme, the Domain scheme undergoes a thorough review before getting accepted as an EECS Scheme member. With the updated domain protocol template, it is easy to apply to the EECS Gas Scheme and to structure rules like those of an electricity GO scheme, yet while indicating peculiarities. **This was a crucial step up to implementing the EECS Gas Scheme and starting to transfer GOs for hydrogen over the AIB hub.**

CertifHy has engaged in the update of its CertifHy® GO scheme to be **recognized by the AIB as an EECS compliant** Non-Governmental Certificates scheme. This evolution will facilitate the **uptake of renewable and low-carbon hydrogen** in countries where a National GO scheme is not yet available while aligning CertifHy GOs with the **state-of-the-art standard in Europe**.

To that extent, CertifHy has collaborated with the AIB on **clarifying its framework for non-governmental certificates**. Particularly for the case where the non-governmental certificate (NGC) scheme would be operated outside AIB, criteria must be set to ensure reliability, consistency, operability. This is highly relevant to CertifHy as it will seek recognition by the AIB as an NGC scheme, operated outside of the AIB.

While it does not change the technical essence of the CertifHy scheme with regards to the quality of hydrogen, carbon footprinting, and renewability, the alignment with the EECS Rules will strengthen CertifHy on several dimensions related to the administration of the scheme and its operations.



Source: AIB

CertifHy GOs will only be available in Member States who have not yet implemented a National H2 GO scheme. CertifHy 3 has therefore also **collaborated with future H2 GO Issuing Bodies in the Member States** to assist them in the implementation of their scheme with great results so far.

Vertogas, appointed as H2 GO Issuing Body in the Netherlands, has adopted the CertifHy scheme for renewable and low-carbon H2, regarding renewability and GHG footprint methodology. Harmonized calculation of GHG emissions is especially important to avoid any market distortion. In the absence of any well-established international standard for GHG footprint assessment, CertifHy has provided guidance through its work with the CertifHy stakeholder platform.

In practice, Vertogas will issue H2 GOs under its national scheme but will refer to the CertifHy methodology. **Certification Bodies accepted under the CertifHy scheme** will be able to perform audits on production devices and production batches for the issuance of H2 GOs in the Netherlands as well.

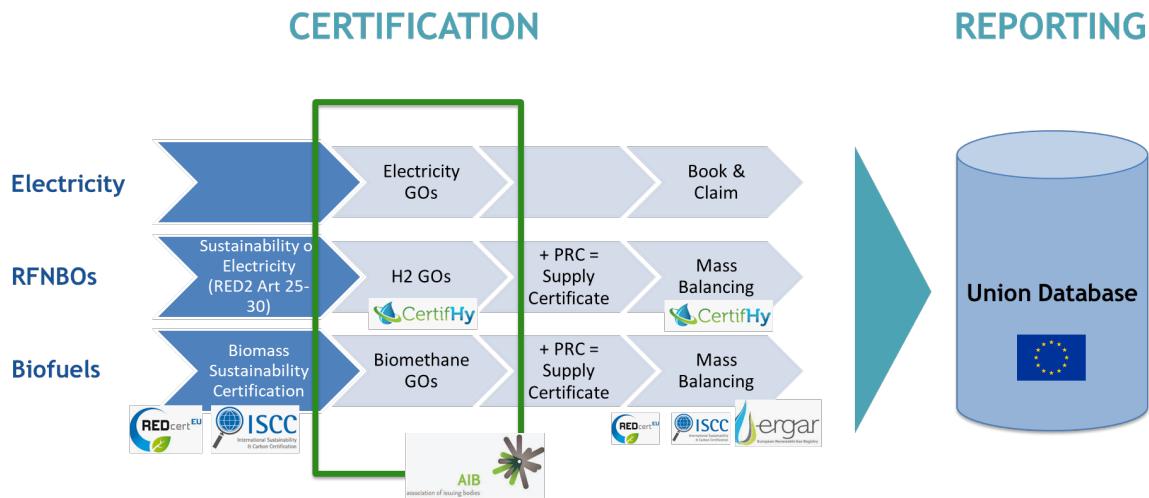
Certification of hydrogen as a renewable fuel of non-biological origin (RFNBO)

CertifHy 3 has set up the building blocks for **developing a future EU Voluntary Scheme recognized by the European Commission to provide RFNBO certificates** to hydrogen producers and fuel suppliers, working towards the 14% renewable fuels target by 2030 set by the revised Renewable Energy Directive (RED2).

In practice, CertifHy 3 has developed an **architecture to accommodate the complex framework for hydrogen certification**, considering not only RFNBO certificates but also GOs as well as the future Union Database.

This architecture will evolve in the future but already introduces very important principles:

- **H2 GOs and RFNBO certificates should and can be interlinked** to facilitate the tracking of fuels in the future Union Database (as introduced in the FitFor55 package in July 2021) and to avoid administrative burden for economic operators.
- **EU Voluntary Schemes will be key actors to help economic operators with the reporting of fuel consignments in the Union Database.** As such, the EU Voluntary scheme should provide expertise from their respective sectors (biofuels, RFNBOs, etc.) and become the gateway between economic operators and the Union Database.



During the next year, CertifHy 3 will continue to develop a template for the application of an RFNBO focused EU Voluntary Scheme.

Promotion of the CertifHy scheme and Stakeholder Platform

CertifHy 3 has recently released its brand new certifhy.EU website (<https://www.certifhy.eu>) where all actors in the hydrogen value chain will easily find all the information, they need regarding hydrogen certification and the CertifHy schemes.

The primary goal is to create a more **valuable, user-friendly, and responsive platform for all stakeholders**. CertifHy 3 is now ready to go live with CertifHy® GO certification for labelled green or low carbon hydrogen. **Market participants can now issue, trade, and use CertifHy® GOs** to meet their environmental objectives and positively impact their corporate GHG emissions reporting.

CertifHy 3 has also restarted its Stakeholder Platform to co-construct the CertifHy schemes with the hydrogen industry.

Steering Group						
	<ul style="list-style-type: none"> Takes decisions regarding platform governance and organization Endorses the important scheme decisions Convenes plenary sessions Working group chairs and co-chair Various DG's of the EC will be re-invited as in CertifHy 2 to become Observer 					
Role	Stakeholder Platform	WG1: GO scheme and procedures	WG2: GO issuing (Producers)	WG3: GO commercialization and use (Users)	WG4: Regulatory Framework	WG5: Issuing Bodies (IBs)
Composition	<ul style="list-style-type: none"> All pertinent stakeholders 	<ul style="list-style-type: none"> GO Scheme experts (including industry) Standardization experts 	<ul style="list-style-type: none"> Operators of H2 production sites 	<ul style="list-style-type: none"> All actors involved with the distribution and the use of GOs (fleet operators, industrials from the automotive, steel, glass, etc. sectors, industrial gas companies,..) 	<ul style="list-style-type: none"> Public affairs experts of the stakeholder group Representatives of the Commission 	<ul style="list-style-type: none"> Competent Issuing Bodies from Member States

Working Group 1 takes care of the CertifHy scheme documents and procedures, which define the way of working under the CertifHy scheme for issuing, transferring, and canceling GOs and certificates. WG1 will be also responsible for the development of the RFNBO EU Voluntary Scheme. The short-term focus is set on updating the CertifHy GO scheme to reach alignment with the AIB EECS Rules, therefore allowing the application of CertifHy as an EECS compliant Non-Governmental Certificate scheme.

Working Group 2 is focused on hydrogen production questions for GO issuance and will continue to establish rules on allocation methods of renewable and non-renewable energy inputs, GHG accounting rules, etc. for new hydrogen production pathways. Four case studies have been launched since the beginning of CertifHy 3 with the first outcomes expected by the end of 2021:

- 1. Hydrogen production by high-temperature electrolysis (SOEC)**
Sponsor: MULTIPLHY project involving Sunfire, Engie, Neste
Specific topic: Footprint of the used steam depending on its origin
- 2. Hydrogen and Carbon Monoxide co-production by steam reforming of natural gas (HyCO)**
Sponsor: Air Liquide
Specific topic: Co-production of H2, CO, and steam
- 3. By-product Hydrogen from a chloralkali process**
Sponsor: Nobian (part of Nouryon)
Specific topic: Share of energy input allocated to the used by-product H2

4. Hydrogen from waste

Sponsor: Concord Blue

Specific topic: consideration of different types of waste inputs in a combination of energy inputs

Working Group 3 is representing H2 users and will focus on facilitating the development of an H2 GO market by building business cases, defining adequate products and labels, preparing template contracts for the trade of H2 GOs. WG3 will also focus on exploring imports and export use cases for H2 GOs outside of Europe.

WG4 is representing policy or scheme experts and will focus on new regulation assessment (what is the impact of upcoming regulations for CertifHy and the hydrogen certification landscape?) and consultations on the development of the CertifHy schemes. National legislation and new potential uses for hydrogen certificates will also be further analysed within WG4.

While the existing Working Groups 1 through 4 have been reactivated, a newly created Working Group 5 dedicated to future Issuing Bodies will soon be launched and will focus on **providing operational insights on how to successfully operate an H2 GO Issuing Body**.

3. What's next for 2022?

CertifHy 3 will continue to focus on the development and promotion of its hydrogen certification schemes while facilitating the rollout of harmonized H2 GO schemes in Europe.

Regarding Guarantees of Origin, CertifHy 3 plans to release a **new version of the CertifHy® GO scheme by Q2 2022**, after endorsement by the CertifHy Stakeholder platform. The next step will be to **apply for recognition as an EECS compliant non-Governmental certificates scheme**. Moreover, CertifHy will set up specific governance to accept new **Certification Bodies under the CertifHy scheme**. TÜV SÜD will also deliver a training to that extent.

On the topic of RFNBOs, CertifHy 3 **will follow up on the future adoption of EU Delegated Acts** which will define the criteria to be met for hydrogen and e-fuels to contribute towards the 14% target of renewable fuels by 2030. Especially, **GHG calculation methodology and electricity consumption criteria** (additionality, temporal & geographical correlation) will have an important impact on certification and the development of the RFNBO market at large.

When the market conditions will be clarified, CertifHy 3 plans to develop and present the **first version of its scheme for RFNBO certification to the CertifHy Stakeholder platform by Q3 2022**. In the meantime, CertifHy 3 will contribute to the **design of the future Union Database** as a hydrogen expert to facilitate the inclusion of the hydrogen supply chain in the system.

Finally, CertifHy 3 plans to organise its **first plenary session in Q2 2022**. This event should mark the adoption and release of the new CertifHy® GO scheme, contributing towards the acceleration of the renewable and low-carbon hydrogen market.

Therefore, we invite industry stakeholders to join the CertifHy Stakeholder platform to participate in the development of a crucial building block for the hydrogen industry. Registration takes place on the following link:

https://docs.google.com/forms/d/e/1FAIpQLSf0DGhKZ52X9DZHzfGBqB9jwC0tDRAwi_H6_92kHLjRQWKgg/viewform

4. Further information

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