

SPOTLIGHT ON HYDROGEN

FRIEND OR FOE?

The simplest, lightest and most plentiful element in the universe, hydrogen quickly rose on the political agenda as an easy way to decarbonise energy systems.

Unfortunately, it is rather far from being a clean solution. The catch lies in a technicality - hydrogen is not a primary energy source but an energy *carrier*, and so it needs to be obtained from actual energy sources. Production pathways are many, including steam reforming or electrolysis. According to the International Energy Agency, 98% of hydrogen produced globally comes from dirty fossil fuels, such as natural gas and coal, and only 2% from electricity.

The problems do not end with the production phase: the final use of hydrogen also determines its sustainability. In the transport sector, for instance, hydrogen can be used directly in fuel cells, or indirectly in the form of synthetic fuels. The latter requires very energy-intensive processes, as well as chemical compounds, the most common of which is CO₂. As a result, through carbon capture, storage and utilisation (CCU) emissions are produced rather than offset.

In addition, it is yet to be determined whether hydrogen contributes to decarbonisation when it is blended with natural gas, such as methane. While its proponents see it as a way of “greening” the gas sector, fossil natural gas is still used, bringing about direct and indirect emissions.

Is there any potential in hydrogen at all? Yes, as long as it is green. This can happen if it is produced from the excess renewable electricity that would otherwise be curtailed, and if it is then used in sectors where direct renewable electrification is not possible, such as heavy industrial processes.



Hydrogen will represent 6% of total final energy consumption globally by 2050 [IRENA, 2019]. In its 2050 long-term decarbonisation strategy, the EU also foresees a significant hydrogen share increase. It is time to make sure that hydrogen is sourced from renewables.

ECOS WORKS TO...

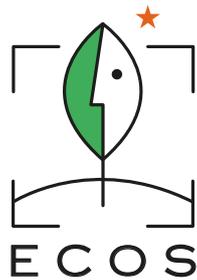
- Make sure that international and European standards support clean renewable options for hydrogen, with a science-based terminology and a robust certification scheme system;
- Ensure that the European Commission asks the European Standardisation Organisations to develop standards which fully support EU climate objectives;
- Make sure that ambitious EU climate objectives are not undermined by the use of fossil energy sources through hydrogen production or its blending with natural gas.

IN AN IDEAL WORLD...

Hydrogen would complement renewable energy, energy efficiency and flexibility measures to help decarbonise sectors that are difficult to electrify and serve as long-term energy storage for renewables.

It would be produced following the cleanest non-fossil pathway and would never be used to support a continued use of dirty fossil energy sources, such as natural gas or coal, or to justify expansion of fossil energy infrastructure, such as gas pipelines.





ECOS is the only environmental organisation worldwide specialised in standardisation.

We are an international network of members sharing a vision of a clean and healthy environment where people live in respect of the planet and its natural resources, preserving them for future generations. ECOS aims to influence the development of ambitious standardisation, legislation and political strategies to promote the transition to a clean and circular economy that respects planetary boundaries.

ECOS promotes and defends environmental interests in the development of standards at European and international level, as well as in the development of technical environmental product policies. Thanks to nearly 20 years of experience and a strong network of members and experts, our role in these processes is highly valued and widely recognised.

The green line to standards



Where to find us?

ECOS
Mundo-B, rue d'Edimbourg 26
1050 Brussels, Belgium

Tel: +32 (0)2 894 46 68
info@ecostandard.org
www.ecostandard.org

 @ECOS_Standard
 ECOS-EU



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