

Europe's pioneering project eGHOST will develop reference guidelines for the eco-design of hydrogen technologies.

- The international consortium, led by the Madrid-based research institute IMDEA Energy, will define eco-design principles and improve the understanding of hydrogen systems as a sustainable investment.
- eGHOST guides a sustainable design that minimises the economic, environmental and social impacts of hydrogen systems throughout their life cycle

The European Commission considers green hydrogen essential to reach its commitment to carbon neutrality and circular economy by 2050. To achieve this, Europe aims to accelerate the use of hydrogen-based technologies as a sustainable solution that contributes to decarbonising all economic sectors. However, the deployment of hydrogen in Europe still faces important challenges. Although green hydrogen is an energy vector produced from renewable energy sources, it is essential to ensure its sustainability by establishing eco-design guidelines that minimise its economic, social and environmental impact along its life cycle. That is, from the design itself to the production, use and end-of-life of hydrogen technologies. Eco-design is thus a key requirement for the circular economy.

In this context, the pioneering project eGHOST will define eco-design guidelines and criteria for two reference products: solid oxide electrolyzers for hydrogen production, and proton-exchange membrane fuel cells for hydrogen use. These products are attracting increasing interest due to their versatility and multiple applications, such as hydrogen cars.

The eGHOST project – whose kick-off meeting was held on 21 January 2021 – will improve the understanding of hydrogen systems as a sustainable investment according to

the EU taxonomy by incorporating a triple-impact decision-making approach that includes environmental, social and economic life-cycle aspects. The lessons learned will be integrated into the eGHOST White Book, a guidance and reference document for any future hydrogen technology eco-design project.

The three-year eGHOST project is composed of a multidisciplinary consortium of international partners with recognised expertise in the fields of energy, hydrogen technologies and advanced analysis of energy systems. IMDEA Energy (Spain) coordinates the consortium, which also includes CEA (France), the University of Ljubljana (Slovenia), the Aragon Hydrogen Foundation (Spain), SYMBIO (France), and the Institute of Applied Energy (Japan).

eGHOST has received almost €1 million of funding from the Fuel Cells and Hydrogen 2 Joint Undertaking, the European Union's Horizon 2020 research and innovation programme, Hydrogen Europe and Hydrogen Europe Research. The Fuel Cells and Hydrogen Joint Undertaking is a European public-private initiative promoting research, technology development and demonstration of hydrogen and fuel cell technologies in Europe since 2008.

About IMDEA Energy (Project's Coordinator)

IMDEA Energy is a research institute of excellence, located in the Community of Madrid. Its ultimate goal is to produce outstanding scientific and technological contributions for a sustainable energy system, with a focus on issues that concern renewable energy and clean energy technologies.

Accordingly, IMDEA Energy aims to strengthen the R&D activities on energy topics by bringing together top-level researchers, providing them with excellent infrastructures and resources, and promoting their close collaboration with the industrial sector.

Link for further information: <https://www.energy.imdea.org/>

About the Fuel Cells and Hydrogen Joint Undertaking - FCH JU

The Fuel Cells and Hydrogen Joint Undertaking (FCH JU) is a public-private initiative promoting research, technology development and demonstration of hydrogen and fuel cell technologies in Europe since 2008. It aims to accelerate the market introduction of these technologies, given their enormous potential to help achieve a carbon-free energy system.

The FCH JU is the result of a long-standing cooperation between the European Commission, Hydrogen Europe, representing companies and industries in the sector, and Hydrogen Europe Research, representing the scientific community.

More information on the project partners:

- IMDEA Energy (Spain): www.energy.imdea.org/
- CEA (France): <https://www.cea.fr/>
- University of Ljubljana (Slovenia): <https://www.uni-lj.si/university/>
- FHa (Spain): <https://hidrogenoaragon.org/en/>
- SYMBIO (France): <https://www.symbio.com/>
- IAE (Japan): <https://www.iae.or.jp/e/>

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Links:

LinkedIn: <https://www.linkedin.com/company/eghost-project/>

Twitter: <https://twitter.com/eGHOSTProject>

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Sustainable Development Goals Addressed by eGHOST:

