

HYPEF

PROMOTING AN ENVIRONMENTALLY-RESPONSIBLE HYDROGEN ECONOMY BY ENABLING PRODUCT ENVIRONMENTAL FOOTPRINT STUDIES



Project ID	101137575
PRR 2024	Pillar 5 – Cross-cutting
Call topic	HORIZON-JTI-CLEANH2-2023-05-01: Product environmental footprint pilot for a set of FCH product categories
Project total costs	EUR 1 499 431.25
Clean H ₂ JU max. contribution	EUR 1 499 431.25
Project period	1.1.2024–31.12.2026
Coordinator	Fundación IMDEA Energía, Spain
Beneficiaries	Advanced Energy Technologies AE Ereunas & Anaptyxis Ylikon & Proiontonananeosimon Pigon Energieas & Synafon Symvouleftikon y Piresion, Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile, Ecoinnovazione SRL, Engie, Europäisches Institut für Energieforschung EDF-KIT EWIV, Hexagon Purus GmbH, Istituto di Studi per l'Integrazione dei Sistemi SCRL

<https://www.hypef.eu/>

PROJECT TARGETS

Target source	Parameter	Target	Target achieved?
Project's own objectives	Set of policy recommendations based on the interplay between FCH PEFCRs and RCS	1	
	Sets of drafted FCH PEFCRs	3	
	Life-cycle environmental profiles calculated for FCH products	12	
	List of FCH product categories	1	
	LCIs ready for implementation in the LCDN	12	

PROJECT AND GENERAL OBJECTIVES

Fuel cell and hydrogen (FCH) systems are increasingly considered in energy and climate policies, roadmaps and plans all over the world. In order to avoid past criticalities, such as those leading to a climate emergency situation, sustainability criteria are being progressively implemented in these initiatives – for example, by promoting low-carbon, renewable hydrogen in Europe. In this regard, science-based criteria and procedures are required to guarantee the environmental suitability of FCH products, reporting their life-cycle environmental profile according to the principles of transparency, traceability, reproducibility and consistency for comparability. While these principles are aligned with those of the general methodological guidance for product environmental footprint (PEF) studies, further specification is required to effectively implement them when addressing FCH products. Therefore, the HYPEF project aspires to support and promote the establishment of an environmentally responsible hydrogen economy by developing and testing the first product environmental footprint category rules (PEFCRs) specific to FCH products, while paving the way for subsequent related initiatives in the FCH sector.

NON-QUANTITATIVE OBJECTIVES

HYPEF advancements are expected to have a very large international impact, as they will

enable the running of similar PEF initiatives dealing with FCH product categories other than those addressed in HYPEF.

PROGRESS AND MAIN ACHIEVEMENTS

The interdisciplinary approach behind HYPEF has led to crucial advancements regarding (i) the first development and application of well-accepted PEFCRs tailored to three pre-selected FCH product categories (electrolysers for hydrogen production, tanks for hydrogen storage and fuel cells for hydrogen stationary use), (ii) increased high-quality data availability for consistent environmental assessment and benchmarking of FCH products and (iii) the first PEF-oriented policy recommendations regarding the official qualification of an FCH product as an environmentally responsible investment.

FUTURE STEPS AND PLANS

Current scientific efforts are focused on preparing the ground for FCH-PEFCRs by analysing relevant existing (PEF) category rules and exploring FCH systems for product categorisation. During the first year of the project, scientific efforts will also address the definition and selection of FCH product categories, the definition and screening PEF of the three representative products, and the set-up and management of the FCH-PEFCRs development process.