

HYPEF

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



Project ID	101137575
PRR 2025	Pillar 5 - Cross-cutting
Call Topic	HORIZON-JTI-CLEANH ₂ -2023-05-01
Project Total Costs	1 499 431.25
Clean H ₂ JU Max. Contribution	1 499 431.25
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Coordinator Beneficiary	Fundacion IMDEA Energia, ES
Beneficiaries	ECOINNOVAZIONE SRL, ADVANCED ENERGY TECHNOLOGIES AE EREUNAS and ANAPTYXIS YLIKON and PROIONTONANANEOSIMON PIGON ENERGEIAS and SYNAFON SYMVOULEFTIKON Y PIRESION, EIFER EUROPAISCHES INSTITUT FUR ENERGIEFORSCHUNG EDF KIT EWIV, HEXAGON PURUS GMBH, ISTITUTO DI STUDI PER L'INTEGRAZIONE DEI SISTEMI (I.S.I.S) - SOCIETA' COOPERATIVA, ENGIE, AGENZIA NAZIONALE PER LE NUOVE TECNOLOGIE, L'ENERGIA E LO SVILUPPO ECONOMICO SOSTENIBILE

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

PROJECT TARGETS

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

PROJECT AND GENERAL OBJECTIVES

Fuel cells 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. Hence, 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 similar future PEF initiatives dealing with FCH product categories other than those addressed in HyPEF.

PROGRESS, MAIN ACHIEVEMENTS AND RESULTS

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

FUTURE STEPS AND PLANS

HyPEF started in January 2024. During the first year of the project, scientific efforts focused on preparing the ground for FCH-PEFCRs by analysing relevant existing product environmental footprint (PEF) category rules (CRs) and exploring FCH systems for product categorisation. Moreover, the HyPEF Advisory Working Group and the Stakeholder Platform were set up. HyPEF efforts also address the definition and screening of the PEF for three representative products, and the management of the FCH-PEFCRs development process.