

SH2E

SUSTAINABILITY ASSESSMENT OF HARMONISED HYDROGEN ENERGY SYSTEMS: GUIDELINES FOR LIFE CYCLE SUSTAINABILITY ASSESSMENT AND PROSPECTIVE BENCHMARKING



SH₂E

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| Project ID: | 101007163 |
| PRD 2023: | Panel 5 – cross-cutting |
| Call topic: | FCH-04-5-2020: Guidelines for life cycle sustainability assessment (LCSA) of fuel cell and hydrogen systems |
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| Clean H₂ JU max. contribution: | EUR 1 997 616.25 |
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| Coordinator: | Fundación IMDEA Energía, Spain |
| Beneficiaries: | Commissariat à l'énergie atomique et aux énergies alternatives, Forschungszentrum Jülich GmbH, Fundación para el Desarrollo de las Nuevas Tecnologías del Hidrógeno en Aragón, Greendelta GmbH, Symbio, Institute of Applied Energy |

<https://sh2e.eu/>

PROJECT AND OBJECTIVES

The goal of SH2E is to provide a harmonised (i.e. methodologically consistent) multidimensional framework for the life cycle sustainability assessment (LCSA) of fuel cell and hydrogen (FCH) systems. To that end, SH2E will develop and demonstrate specific guidelines for the environmental, economic and social life cycle assessment and benchmarking of FCH systems, while addressing their consistent integration into robust FCH LCSA guidelines. The aim is for these guidelines to be globally accepted as the reference document for LCSA of FCH systems and to set the basis for future standardisation.

NON-QUANTITATIVE OBJECTIVES

- SH2E aims to contribute to FCH systems' sustainability. The development of harmonised guidelines will contribute to assessing the sustainability of FCH systems.
- The project aims to contribute to social acceptance. Better knowledge of FCH sys-

tems' social and environmental impacts will contribute to their acceptance.

- It aims to contribute to standardisation. Harmonised guidelines will pave the way for a standard.

PROGRESS AND MAIN ACHIEVEMENTS

- SH2E reviewed the existing guidelines.
- It reviewed case studies and projects.
- Environmental life cycle assessment guidelines were issued.
- Life cycle cost assessment guidelines were issued.

FUTURE STEPS AND PLANS

- Social life cycle assessment guidelines will be issued in mid 2023.
- LCSA guidelines will be issued at the end of 2023.
- The software tool for performing FCH life cycle studies will be issued in month 36.