EU HYDROGEN RESEARCH DAYS
15-16 NOVEMBER
eGHOST
Establishing Eco-design Guidelines for Hydrogen Systems and Technologies

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Project Overview

- Call year: 2020
- Call topic: FCH-04-3-2020 — Development of eco-design guidelines for FCH products
- Project dates: 1\textsuperscript{st} Jan 2021 — 31\textsuperscript{st} May 2024
- % stage of implementation 01/11/2023: 85 %
- Total project budget: 1,133,541.25 €
- Clean Hydrogen Partnership max. contribution: 998,991.25 €
- Other financial contribution: 134,550.00 €
- Partners: CEA, UL, FHa, SYMBIO France, IAE, IME
First milestone in the eco-design of FCH products.

To provide robust eco-design guidelines for FCH products at different levels of development.

Towards sustainable-by-design FCH products.

Specific guidelines for two different products: PEMFC stack and SOE stack.

https://www.youtube.com/watch?v=3AmJgzlHVk0
Guidelines for SbD PEMFC stacks

Achievement to-date

- Base case
- Product concepts:
  - Realistic product concept
  - Optimistic product concept
  - Disruptive product concept
Guidelines for SbD SOE stacks

Achievement to-date

- Base case
- Realistic product concept
- Optimistic product concept

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<th>Achievement</th>
<th>Percentage</th>
<th>Base case</th>
<th>Realistic product concept</th>
<th>Optimistic product concept</th>
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<td>25%</td>
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Diagram showing the breakdown of the system into cell, stack, module, and system components.
Guidelines for SbD SOE stacks

Achievement to-date

- Base case
- Realistic product concept
- Optimistic product concept

Impact relative to base case:
- Ionising radiation 36%
- Material resources 29%
- Eutrophication, terrestrial 19%
- Ionising radiation 4%
Guidelines for SbD SOE stacks

Achievement to-date

- Base case
- Realistic product concept
- Optimistic product concept

![Graph showing costs for different cases](image-url)
Guidelines for SbD SOE stacks

Achievement to-date

- Base case
- Realistic product concept
- Optimistic product concept
Ecodesign Directive context

Achievement to-date

- Reference documentation for a preparatory study according to the Ecodesign Directive
- PEMFC stack case study
Ecodesign Directive context

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https://doi.org/10.1039/D2SE01486F
Risks and challenges:
- Involvement of key actors when generating ideas for product concepts
- Widespread use → upcoming dissemination events (EHEC2024, URJC Summer School, etc.)

Next steps:
- Final SbD guidelines for PEMFC stack
- Final SbD guidelines for SOE stack
- Final general SbD guidelines for FCH products
Exploitation Plan/Expected Impact

**Exploitation**

- Supporting use as reference documentation for subsequent protocols and/or standards
- Exploitation plan (May 2024)

**Impact**

- Sustainable energy solutions through increased circularity and eco-efficiency, and reduced material criticality
- Supporting decision-making processes when it comes to designing and providing FCH products that reliably qualify as sustainable energy solutions