



**Making an impact
on the clean
energy transition**

**MARKET
UPTAKE**

SAFETY FIRST FOR HYDROGEN FUEL CELL TECHNOLOGY



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Supporting safety standards

Public distrust can arise around any new technology, and hydrogen fuel cells are no exception. Addressing these concerns through the development of safety measures, rigorous testing procedures, research and education are key to developing hydrogen's central role in the transition towards a low-carbon, low-emission future. These challenges are being tackled by FCH JU projects, complemented by several initiatives such as the industry-led Regulations, Codes and Standards Strategy Coordination Group, the cooperation with the Joint Research Centre of the European Commission, or the European Hydrogen Safety Panel, among others.

FCH JU projects like PRESHLY, which is conducting pre-normative research on liquid hydrogen aimed at cost-efficient safer design and developing international performance-based standards. HySEA, which sought to facilitate the safe introduction of hydrogen energy systems by introducing harmonised venting requirements for enclosures and containers. Other projects, such as HyResponse, KnowHY and NET-Tools, focus on education and awareness – from training first responders and technicians working with hydrogen to providing e-learning tools for students and professionals.

Maximising awareness

These FCH JU initiatives, alongside cooperation with international bodies, are helping to maximise the safety of fuel cell hydrogen technology, not least through the development of rigorous research-led standards and the training of relevant professionals. And by conveying important safety information to all concerned – whether they are workers, firefighters, researchers or students – and broadening awareness of the safety of the technology, these efforts are helping to build public and industry support for the wider deployment of hydrogen fuel cells.

Hydrogen fuel cell technology must be safe if it is to be used commercially. From drafting safety standards and training technicians to raising public awareness, FCH JU projects have been instrumental in ensuring the safety and acceptance of this clean energy solution.



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KEY ACHIEVEMENTS

30+

Cross-cutting projects addressing safety aspects directly or indirectly

200+

completed vented deflagration tests in HySEA

70+

firefighters trained in HyResponse from about 15 countries, 21 international observers

EUROPEAN HYDROGEN SAFETY PANEL

set up to manage and promote a hydrogen safety culture

IMPACT

EN 14994

European standard for gas explosion venting protective systems to be extended based on HySEA results

EUROPEAN EMERGENCY RESPONSE GUIDE

1 200+

technicians trained using KnowHy e-learning tools

ENSURING SAFETY AND BUILDING TRUST

The commercial deployment of hydrogen fuel cell technology must go hand in hand with the introduction of rigorous safety standards as well as education and training, which in turn helps to raise public awareness and trust in the technology.

KNOWLEDGE SHARED, EDUCATION GAINED

Bringing together a diverse array of stakeholders, including research and educational institutions, standards bodies and professionals, FCH JU projects generate and share knowledge about hydrogen fuel cell safety and support the development of international standards, while expanding access to education and training related to the technology. **The goal?** To ensure the commercial deployment of hydrogen fuel cells meets rigorous safety standards, while raising public awareness. **Key results?** The safe introduction and scale-up of hydrogen as an energy carrier, aligned with European scientific-technological interests and decarbonisation strategies. Education and training related to hydrogen fuel cell technology is critical for the current and future workforce as well as for furthering commercial implementation.



www.fch.europa.eu/page/fch-ju-projects

<http://www.hysea.eu/>
<https://preslhy.eu/>
<http://www.hyresponse.eu/>
<https://knowhy.eu/>

<https://www.fch.europa.eu/page/european-hydrogen-safety-panel>



**FUEL CELLS AND HYDROGEN
JOINT UNDERTAKING**

A partnership dedicated to clean energy and transport in Europe

