



FUEL CELLS AND HYDROGEN
JOINT UNDERTAKING

The European Hydrogen Safety Panel EHSP

Chair and task force leaders
Iñaki AZKARATE
Stuart HAWKSWORTH
Thomas JORDAN
Trygve SKJOLD
Jennifer WEN

Contact:
EHSP@fch.europa.eu
Website:

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

Programme Review Days 2019

Brussels, 19-20 November 2019

Background

European Hydrogen Safety Panel (EHSP)



A sort of „timeline“

- In 2006 and 2009 NoE HySafe was suggesting an activity for **sharing lessons learned and hydrogen safety experience across project boundaries** and to **maintain this expertise eventually even beyond program terms**.
- In 2014 the International Association for Hydrogen Safety HySafe proposed the installation of a safety panel to the Executive Director and Governing Board of the FCH JU.
- After several discussions about formal aspects, terms of reference, vision, mission, mandates, etc. the European Hydrogen Safety Panel was launched by the FCH 2 JU in 2017.



Vision

European Hydrogen Safety Panel (EHSP)



Reflecting the FCH 2 JU vision

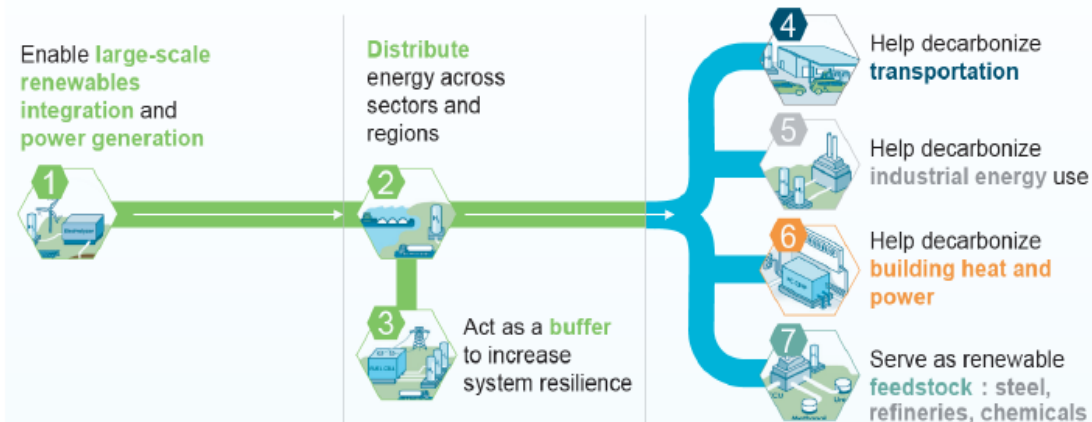
- Hydrogen plays a key role in the Energy System constituting a **safe** and sustainable Energy Carrier.
- Hydrogen is an enabler of the Energy Transition towards a decarbonized system.

Hydrogen enables the decarbonization of all major sectors in the economy



Hydrogen can enable a full renewable energy system, providing the sector integration needed for the energy system transition and decarbonize energy end uses

Enable the renewable energy system → Decarbonize end uses



SOURCE: Hydrogen Council

Projections for Europe indicate that 5 million vehicles and 13 million households could be using hydrogen by 2030, while a further 600kt of hydrogen could be used to provide high grade heat for industrial uses. In this scenario, hydrogen would be abating 80Mt CO₂ and account for an accumulated overall investment of \$62B (52B€) and 850,000 new jobs.



Mission, Objectives and Corresponding Activities

European Hydrogen Safety Panel (EHSP)



To assist the FCH 2 JU both at programme and at project level

- **in assuring that hydrogen safety is adequately managed, and**
- **to promote and disseminate hydrogen safety culture**



**Activities structured in
4 Task Forces**



**TF1
Project
level**



**TF2
Program
level**



**TF3
Data
Collection**



**TF4
Public
Outreach**



FCH Tech. – key issues will directly impact safety

- **Quantitative growth across “established” applications** in mature markets will **increase the demand for hydrogen**, and hence increase the number and size of refuelling stations.
- **Qualitative change**, new applications building on the success of established applications. 50-100 kg H₂ for trucks, 200-500 kg for rail, and potentially tons of hydrogen for marine.
- **The inevitable consequence** of this increase in consumption will be the requirement for an **increasingly large and competent workforce** [...] technicians, engineers, manufacturers, regulatory authorities etc. on a **very steep hydrogen learning curve**.



EHSP ROLE: to provide **independent safety expertise, objective information, education and training** in different forms for various groups of stakeholders; and support the anticipated upscaling of hydrogen energy application.

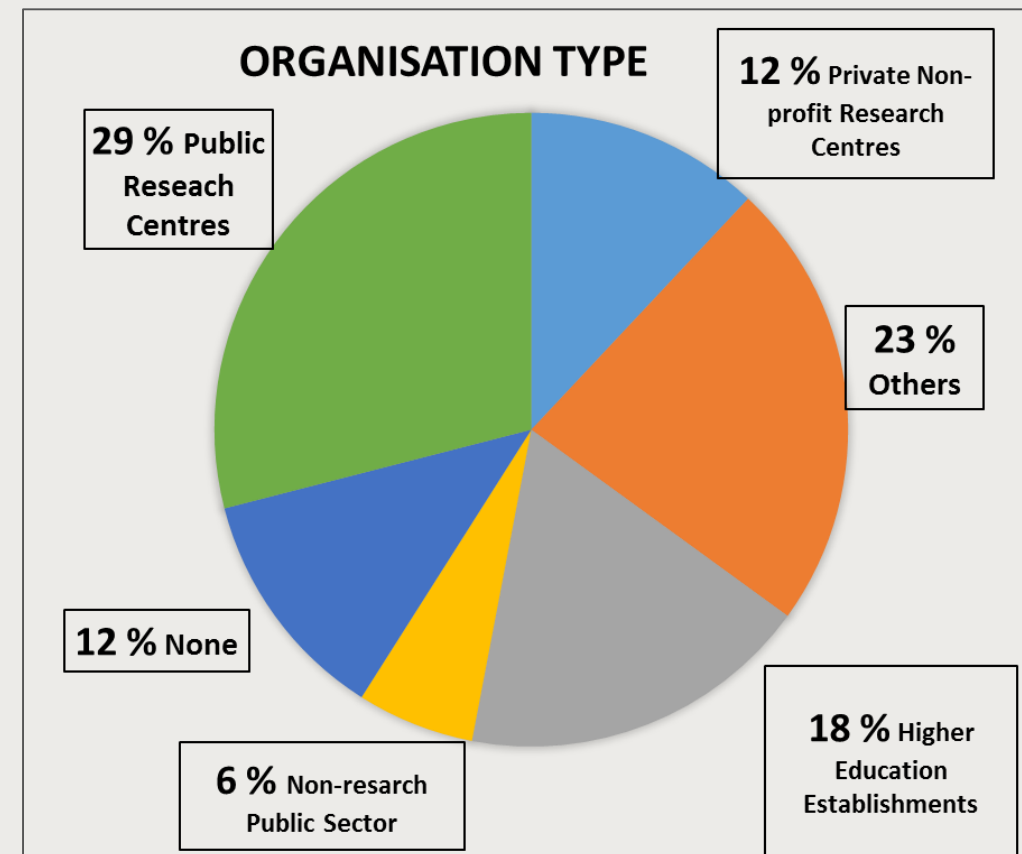
Current EHSP Members – the Pool of Experts

European Hydrogen Safety Panel (EHSP)



**The actual Panel (2019)
consists of a Pool of**

- **16 experts**
- **from 9 countries**



Current EHSP Members – the Pool of Experts

European Hydrogen Safety Panel (EHSP)



Inaki Azkarate



Marco Carcassi



Joachim Grune



Stuart Hawksworth



Thomas Jordan



Georg Wilfried Mair



Vladimir Molkov



Ernst-Arndt Reinecke



Pratap Sathiah



Ulrich Schmidchen



Etienne Studer



Skjold Trygve



Tom Van Esbroeck



Elena Vyazmina



Jennifer Wen



Jianjun Xiao



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2019 outcomes: Safety Planning Guidance Document

Products and Services of the EHSP

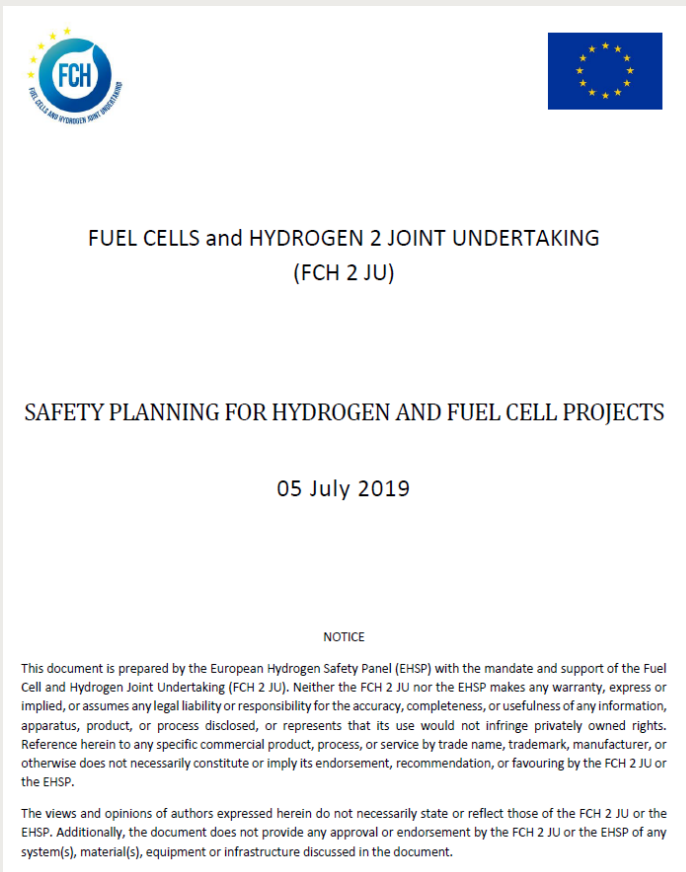


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Simple template for safety planning in FCH JU projects available! (approved by application)



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

2019 outcomes: Assessment and lessons learnt from HIAD 2.0

Products and Services of the EHSP



FUEL CELLS and HYDROGEN 2 JOINT UNDERTAKING
(FCH 2 JU)

Assessment and lessons learnt from HIAD 2.0 –
Hydrogen Incidents and Accidents Database

20 September 2019

NOTICE

This document is prepared by the European Hydrogen Safety Panel (EHSP) with the mandate and support of the Fuel Cell and Hydrogen Joint Undertaking (FCH 2 JU). Neither the FCH 2 JU nor the EHSP makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favouring by the FCH 2 JU or the EHSP.

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JOINT RESEARCH CENTRE
HIAD - Event Selection
European Commission / EU Science Hub / ODIN / HIAD / Event Selection

SELECT

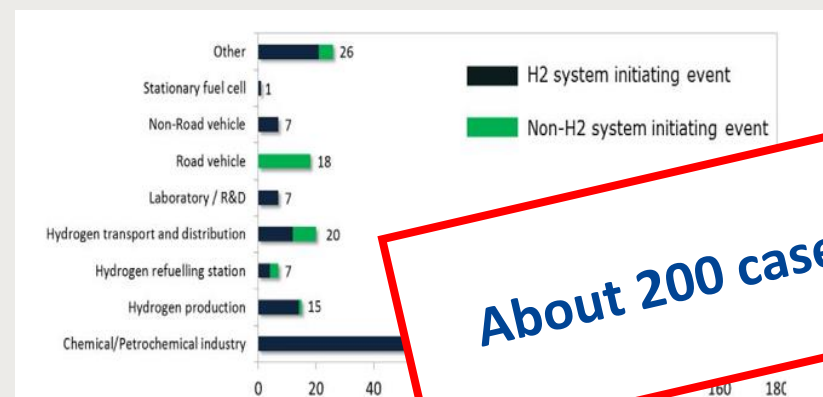
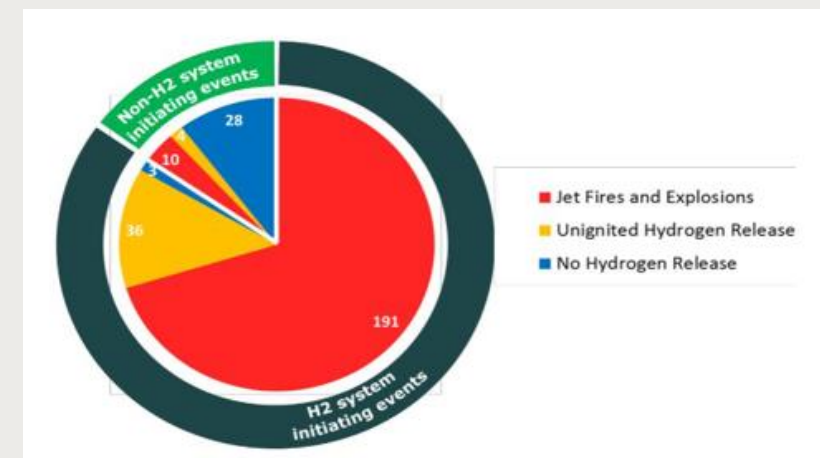
Event classification: Hydrogen system initiating event, Non-Hydrogen system initiating event, False positive

Physical Consequences: Jet Fires and Explosions, No Hydrogen Release, Unignited Hydrogen Release

Application: Chemical/Petrochemical industry, Hydrogen production, Hydrogen refuelling station, Hydrogen transport and distribution, Laboratory / R&D, Non-Road vehicle

CURRENT EVENT COUNT: 272

ADVANCED SELECTION, RESET SELECTION, GENERATE REPORT



About 200 cases added to HIAD 2.0!



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

Ongoing and Planned Activities

Products and Services of the EHSP



- Safety Planning → Safety Management.
- Identification of “critical” projects.
- Assist in development and review of safety plans.
- Assist in emergency response.
- Further expansion of HIAD 2.0 and preparation of statistical evaluation.
- Provide updates, lessons learnt, incident/accident case interpretations and further compiled news via EHSP website.

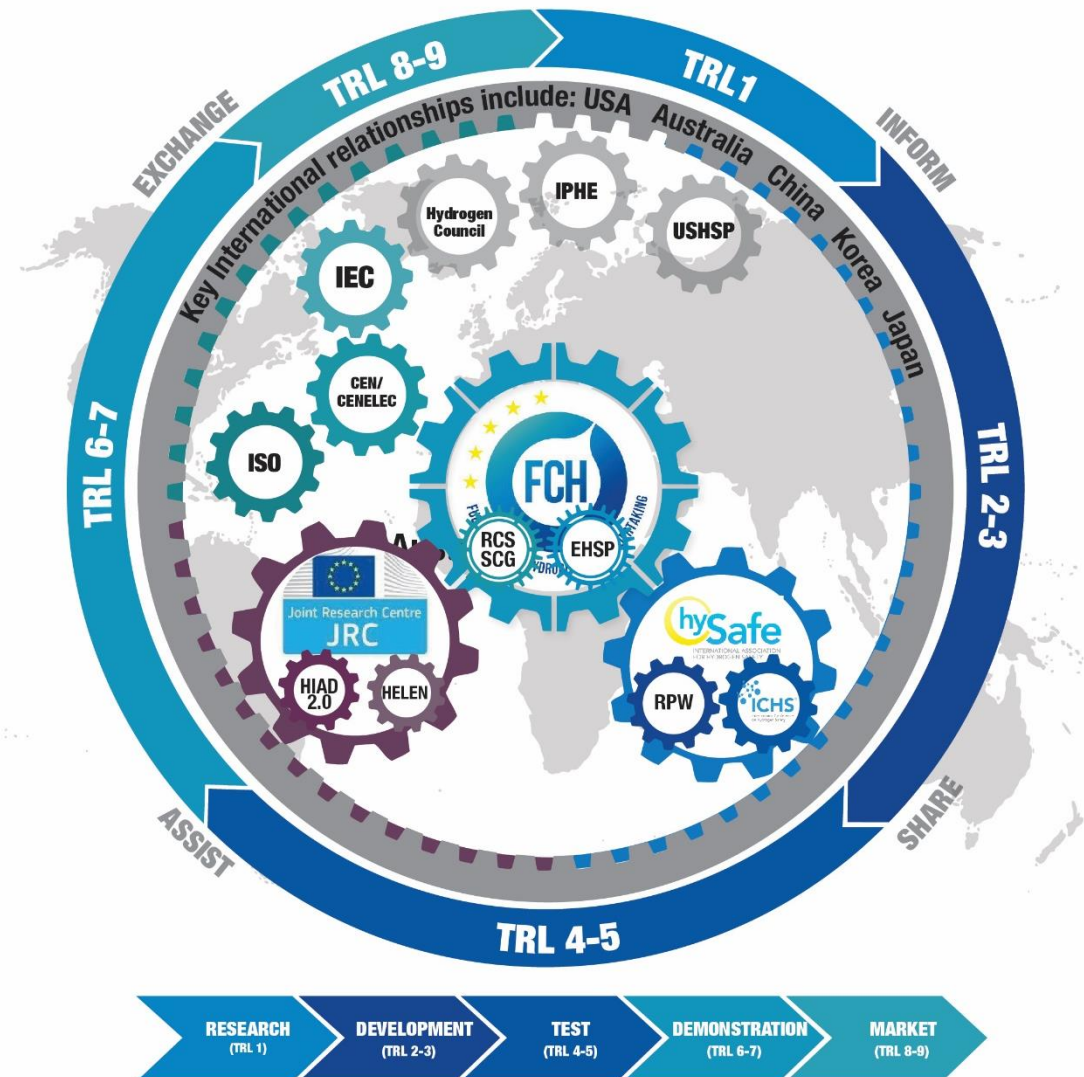


EHSP in the „Big Picture“

International relations for strategic orientation



- Ensure appropriate engagement for hydrogen safety at program level.
- Identify and prioritise gaps with respect to hydrogen safety in close cooperation with RCS SCG, JRC and HySafe.
- Share information and coordinate with similar international activities.
- Support demonstrations of safety.
- Ensure safe implementation and operations for a broader roll-out.



The EHSP: An essential, open and free resource

Call for expression of interest open



The screenshot shows the FCH website header with the logo and navigation links: ABOUT US, INITIATIVES (highlighted), PROJECTS, STAKEHOLDER FORUM, PROGRAMME REVIEW, CALLS FOR PROPOSALS & PROCUREMENTS, NEWS, EVENTS & MEDIA, and AWARDS 2018. Below the header, the breadcrumb trail reads: Home » Initiatives » European Hydrogen Safety Panel. The main content area is titled 'CALL FOR EXPRESSION OF INTEREST' and includes a 'Call for expression' section with a description of the call, a list of additional documents (Notice of call, Legal entity templates, Financial identification, Registration Form, Privacy statement), and an 'Instructions for applications' section. A red callout box with a white background and a red border is overlaid on the right side of the page, containing the text: 'Interest in participating? Call for expressions of interest open!'.

CALL FOR EXPRESSION OF INTEREST

Call for expression

Call for expressions of interest to set up a list of independent experts to assist the Fuel Cells and Hydrogen 2 Joint Undertaking for tasks in relation to the European Hydrogen Safety Panel.

The complete details of the call, including all information and objectives of the call, detailed eligibility requirements, and what and how to submit an application can be found here (hyperlink to our internal document that we have prepared for the call available [here](#))

Additional documents available for this call:

- Notice of call for expression of interest – publication number 2017/S 17-408483
- [Legal entity templates](#)
- [Financial identification](#)
- [Registration Form](#)
- [Privacy statement](#)

Instructions for applications

Candidates meeting the eligibility criteria contained in the full [Call for Expressions of Interest](#) are requested to submit their applications electronically



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

As a conclusion the EHSP would like to express our strong commitment in supporting Hydrogen Community.

With our activities, we can help Research Projects and, in general, all stakeholders to take into consideration Safety matters.

(free of charge for them!)



The European Hydrogen Safety Panel EHSP



**Thanks you for your
attention!**