



**FUEL CELLS AND HYDROGEN**  
JOINT UNDERTAKING

**The European  
Hydrogen Safety Panel  
EHSP**

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**Programme Review Days 2019**

Brussels, 19-20 November 2019

# Background

European Hydrogen Safety Panel (EHSP)



## A brief 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

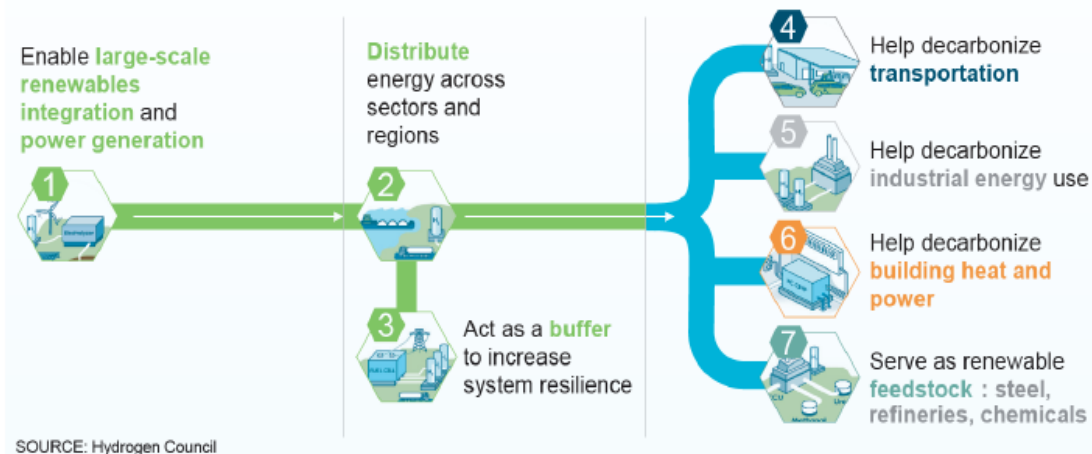
- Hydrogen is an enabler of the Energy Transition towards a decarbonized system.
- Hydrogen plays a key role in the Energy System constituting a **safe** and sustainable Energy Carrier.

### 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



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 CO<sub>2</sub> and account for an accumulated overall investment of \$62B (52B€) and 850,000 new jobs.



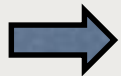
# From Vision to the Strategic EHSP Role

European Hydrogen Safety Panel (EHSP)



## FC and H2 technology developments having a direct impact on safety:

- **Quantitative growth across “established” applications** in mature markets **increases the demand for hydrogen**, and hence increases the number and size of H2 supply units, i.e. HFS
- **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 maritime)



**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 application.



# Mission, Objectives and Corresponding Activities

European Hydrogen Safety Panel (EHSP)



**The EHSP assists the FCH 2 JU both at programme and at project level**

- in **assuring that hydrogen safety is adequately managed**, and
- in **promoting and disseminating the required hydrogen safety culture**



Activities structured in  
**4 Task Forces**



**TF1**  
Project  
level



**TF2**  
Program  
level



**TF3**  
Data  
Collection



**TF4**  
Public  
Outreach



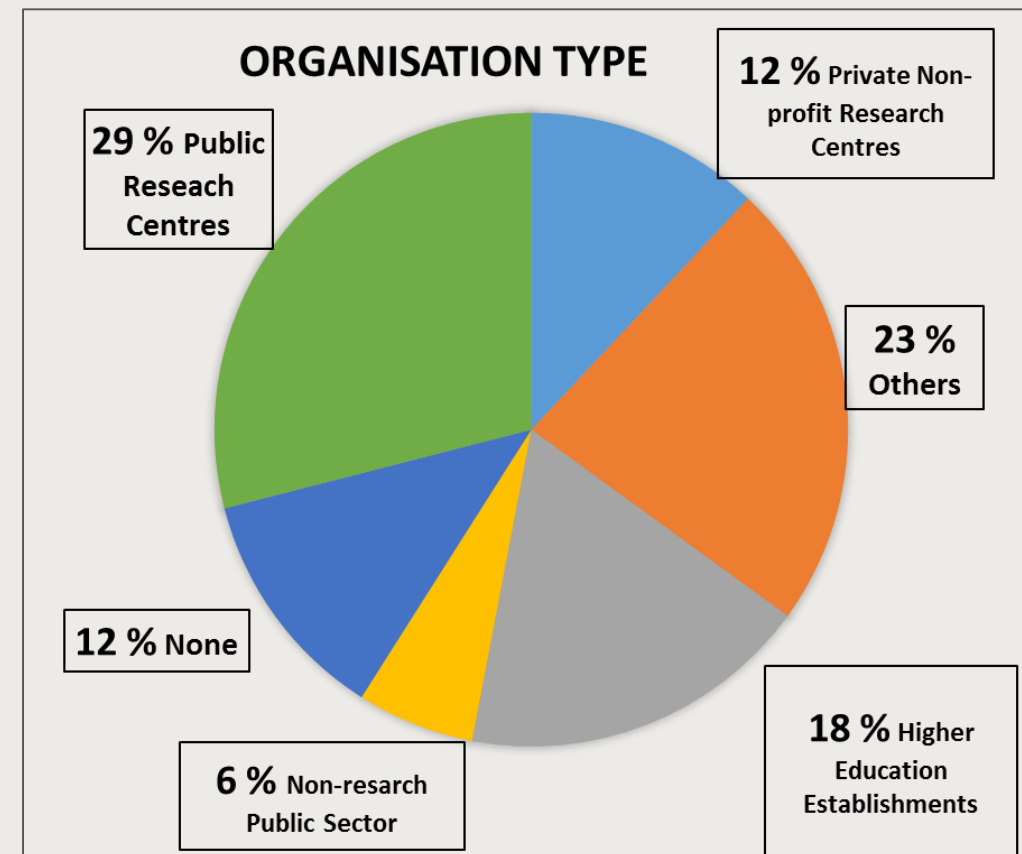
# Current EHSP Members – the Pool of Experts

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



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

# 2019 outcomes: Safety Planning Guidance Document

Products and Services of the EHSP



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

SAFETY PLANNING FOR HYDROGEN AND FUEL CELL PROJECTS

05 July 2019

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







# 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

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JOINT RESEARCH CENTRE  
HIAD - Event Selection

European Commission / EU Science Hub / ODIN / HIAD / Event Selection

SELECT

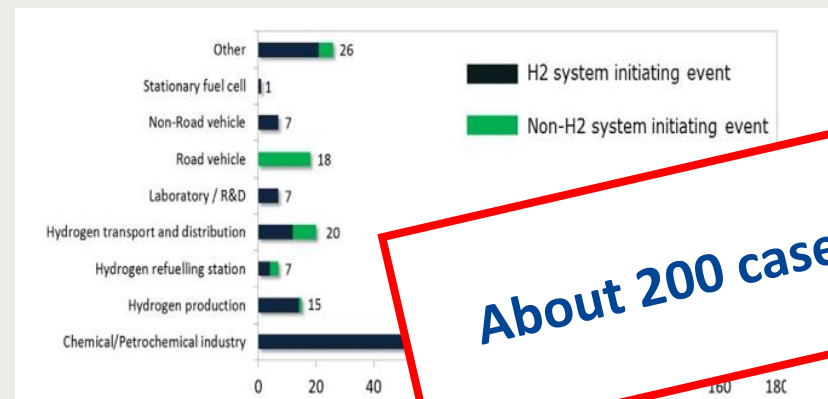
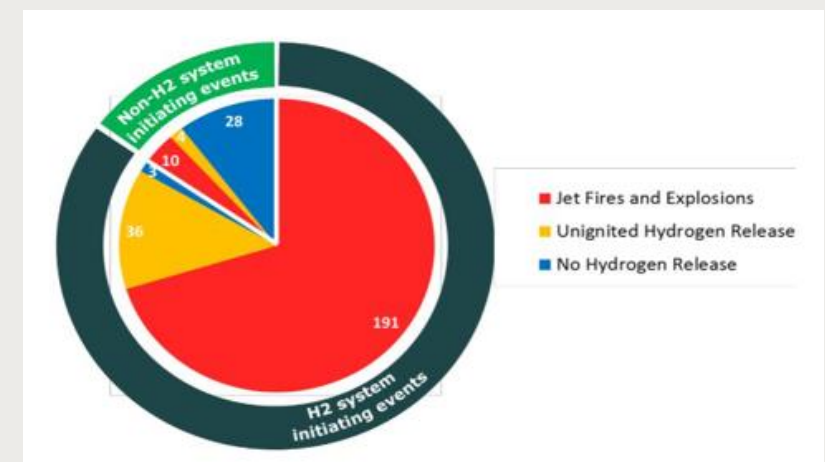
Event classification: Hydrogen system initiating event, Non-Hydrogen system initiating event, False positive

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.

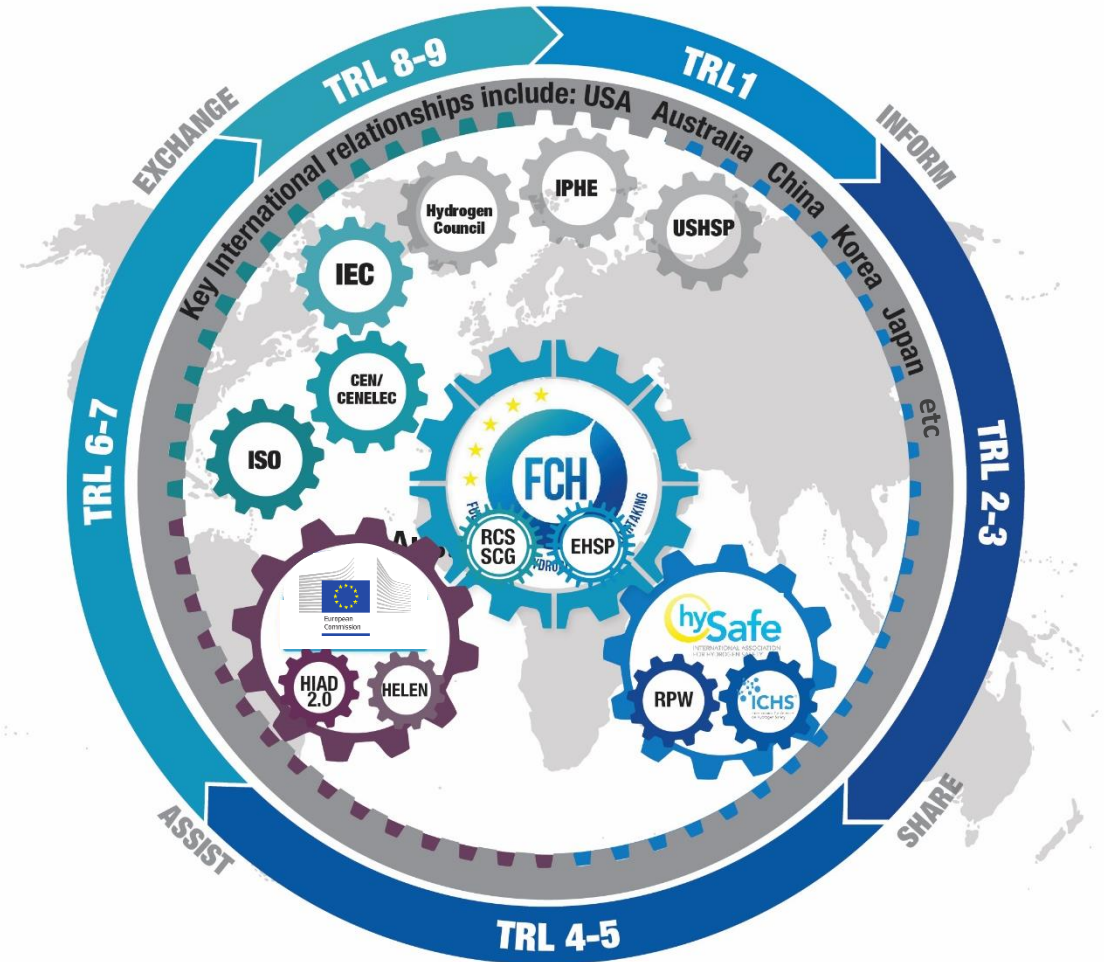


# EHSP in the „Big Picture“

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 menu. The main content area is titled "CALL FOR EXPRESSION OF INTEREST" under the "EUROPEAN HYDROGEN SAFETY PANEL" section. The text includes a call for expressions of interest to set up a list of independent experts, details of the call, and a list of additional documents available for the call.

**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 17-408165
- [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

**Interest in participating?  
Call for expressions of interest open!**



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

# The EHSP: Value of the EHSP role



**In conclusion, the members of the EHSP would like to express a strong commitment towards supporting the Hydrogen Community.**

**With our expertise, we can help research projects, and in principle all stakeholders, to address matters related to hydrogen safety, free of charge!**





**The European  
Hydrogen Safety Panel  
thanks you  
for your attention!**