

# HyResponder European Hydrogen Train the Trainer programme for Responders

Dr Síle Brennan

Ulster University

<https://hyresponder.eu/>

[sl.brennan@ulster.ac.uk](mailto:sl.brennan@ulster.ac.uk)

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# Project Overview

- Call year: 2019
- Call topic: FCH-04-1-2019 - Training of Responders
- Project dates: 1<sup>st</sup> January 2020 - 31<sup>st</sup> May 2023
- % stage of implementation 01/11/2023: 100 %
- Total project budget: 1M €
- Clean Hydrogen Partnership max. contribution: 1M€
- Partners: 16 Partners from 10 countries encompassing Fire and Rescue Services and Associations, Academia, Industry, and Virtual Reality experts

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# Partners

-  Air Liquide  Air Liquide creative oxygen
-  CEA 
-  CRISE  Crisis Simulation Engineering
-  CTIF 
-  ENSOSP  The French Academy for Fire, Rescue and Crisis Operations
-  Persee  Smarter energies



# HyResponder objectives

- Develop updated, **operational, virtual reality, and educational training** for trainers of responders to reflect the state-of-the-art in hydrogen safety.
- Establish a Pan-European Network of Responder Trainers
- Train trainers from at least **10 European Countries** in hydrogen safety
- Make teaching materials available in **8 languages**
- Support trainers to deliver regional workshops in **10 countries**
- Ensure **sustainability** of the training programme through the availability of **translated materials** on an educational platform
- Update the **European Emergency Response Guide**
- Establish an International Forum of Responders



# Training package for trainers

## Threefold approach represented on HyResponder e-Platform

1. Operational training
  - Unique hand-on training facility at ENSOSP, France
  - Extended within HyResponder to include cryogenic spills
2. Educational training
  - Lectures revised, stratified, trialled, and translated
3. Virtual Reality training (extended)
  - Scenarios extended to include LH2
  - Used to inform training sequences

Training is underpinned by the revised **European emergency response guide**





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# Stratification of teaching materials

Responder led identification of four learning levels across Europe aligned to EQF

Firefighter

Level I

Crew  
commander

Level II

Incident  
commander

Level III

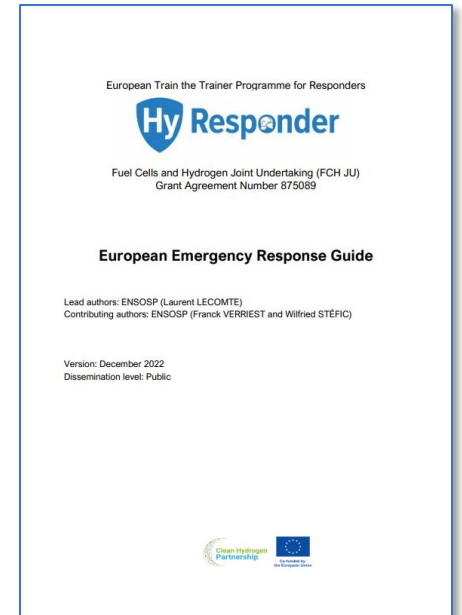
Specialist

Level IV

- Framework used as a basis to stratify the Lectures into up to 4 levels by responders
- Level 1 supports a standardised training framework to support recognition of the training

# Revised EERG

1. HyResponse European Emergency Response Guide updated
2. Guide intended to be used by emergency response personnel, both by front-liners and commanders
3. Revisions include events related to LH2
4. Multiple contributions from the wide consultation



<https://hyresponder.eu/e-platform/european-emergency-response-guide/>

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# Train the Trainer Programme

## Step 1: Train National Leads (2021-2022)

- Virtual training for trainers from 10 partner countries June 2021
- Face to face operational and virtual reality training June 2022 (ENSOSP)
- Unique approach to manage online delivery “training sequences”

## Step 2: Train trainers at a local level (2022-2023)

- Training delivered within 10 countries through a range of formats
- Using materials available in 8 languages

## Step 3: Ensure sustainable training beyond HyResponder (2023-???)

- Plan in place for a standard module but no “one-size fits all”







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# National training activities

- Training took place through **11 activities** in **10 countries**
- Trainers introduced the translated training in **Czech, Dutch, English, French, German, Italian, Norwegian, & Spanish**
- Approach was different from country to country to align to local needs
- **In all regions a plan is in place for beyond HyResponder**

Country	Austria	Norway	Italy
Training lead	Landes Feuerweherschule Tirol	University of South Eastern Norway	Università degli Studi di Roma "La Sapienza"
Language	German	Norwegian	Italian
Format	Two online courses basic knowledge and specialist	Hybrid	Face to face with small operational facility
Impact to date	Over 200 responders enrolled in the basic course	In person and online workshops delivered	Firefighters from across Italy trained
Next steps	800 participants by the end of 2023	Funding for follow up hybrid training	National working group established

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# National training activities

## Hva skjer etter HyResponder workshop?

### H2Konstabel kommer hjem til dere

Som en norsk videreføring av HyResponder har Norges Forskningsråd finansiert videreførings-prosjektets H2Konstabel.

H2Konstabel vil oppsøke kommunale brann og redningsetater som ønsker en innføring i hydrogensikkerhet og en presentasjon av opplæringsmateriell for å begynne eget arbeid med hydrogensikkerhet. Besøket varer en dag og prosjektet dekker materiell, bevertning, reise og opphold (for instruktørene). Deres lokale etat må stille med lokaler og deltagere.

Ønsker du å motta H2Konstabel? Påmelding starter etter Norsk Hydrogen-sikkerhets workshop og sendes per epost.

### Kontaktinfo og spørsmål

André Vagner Gaathaug  
Epost: [andreg@usn.no](mailto:andreg@usn.no)

Web: <https://www.usn.no/english/about/contact-us/employees/andre-vagner-gaathaug>



## NORSK HYDROGEN-SIKKERHETS WORKSHOP

Hy Responder

USN Universitetet i Sørøst-Norge



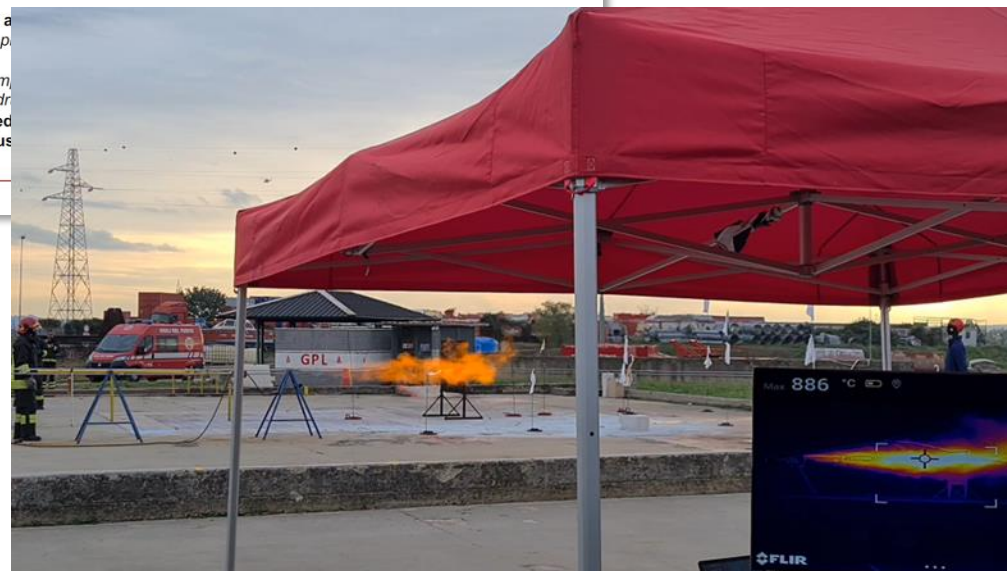
MINISTERO DELL'INTERNO



Hy Responder

Agenda 15 novembre 2022







- Ore 09:00 – 09:20: saluto ai partecipanti e introduzione ai lavori**  
Stefano Marsella, Direttore Centrale per la Prevenzione e la Sicurezza Tecnica  
Michele Mazzaro, CNVVF – Vicario Direttore Centrale per la Prevenzione e la Sicurezza Tecnica
- Ore 09:20 – 09:40: presentazione del Progetto Europeo «HyResponder»** – HySAFER Centre Ulster University  
Sile Brennan, HySAFER Centre – Ulster University
- Ore 09:40 – 09:50: presentazione del Progetto Europeo «HyResponder»** – DICMA Sapienza  
Paola Russo, DICMA Sapienza
- Ore 09:50 – 10:30: introduzione alle tecnologie dell'idrogeno e proprietà rilevanti per la sicurezza**  
Donatella Cirrone, Ulster University
- Ore 10:30 – 10:45: pausa caffè**
- Ore 10:45 – 11:15: presentazione piattaforma e scenari ENSOSP**  
Laurent Lecomte, Franck Verriest, ENSOSP
- Ore 11:15 – 12:00: scenari di incidente e conseguenze: dispersione, jet fires ed esplosioni**  
Donatella Cirrone, Ulster University
- Ore 12:00 – 12:40: casi pratici**  
Jacopo Moretti, CNVVF
- Ore 12:40 – 13:00: stato dell'arte dell'attività svolta dal CNVVF e presentazione dell'attività pomeridiana**  
Michele Mazzaro, CNVVF – Vicario Direttore Centrale per la Prevenzione e la Sicurezza Tecnica
- Ore 13:00 – 14:00: pausa pranzo**
- Ore 14:00 – 15:00: introduzione alle attività**  
Francesco Pilo, CNVVF – illustrazione p  
HYPER – illustrazione elettrolizzatore  
TENARIS – illustrazione serbatoi in com  
GKN – illustrazione stoccaggi tramite idr
- Ore 15:00 – 17:30: attività pratiche ed**
- Ore 17:30 – 18:00: debriefing conclus**



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# Longer term impact examples

Region	Plan
Austria 	Ongoing, sustainable online training modules, by the end of 2023, 800 people will have completed the basic knowledge course
Belgium 	Over 2.1k views of webinar to date, Over the next 5 years training will be built upon further, ultimately targeting up to 16k firefighters across 4 learning levels
Czech Republic 	Plans for operational facility. A national working group is in place to look at how and where the hydrogen training can be embedded and built upon going forward.
France 	The unique facility at ENSOSP being utilised by responders and industry representatives from across Europe. Plans in place, and underway to grow the use of this facility.
Italy 	It is planned that a course will be prepared as one of the standard courses offered to the officers by the National Fire Academy. An Italian working group is in place
Norway 	Operational facility under development. Plans for both online and physical workshops and to start a training program.

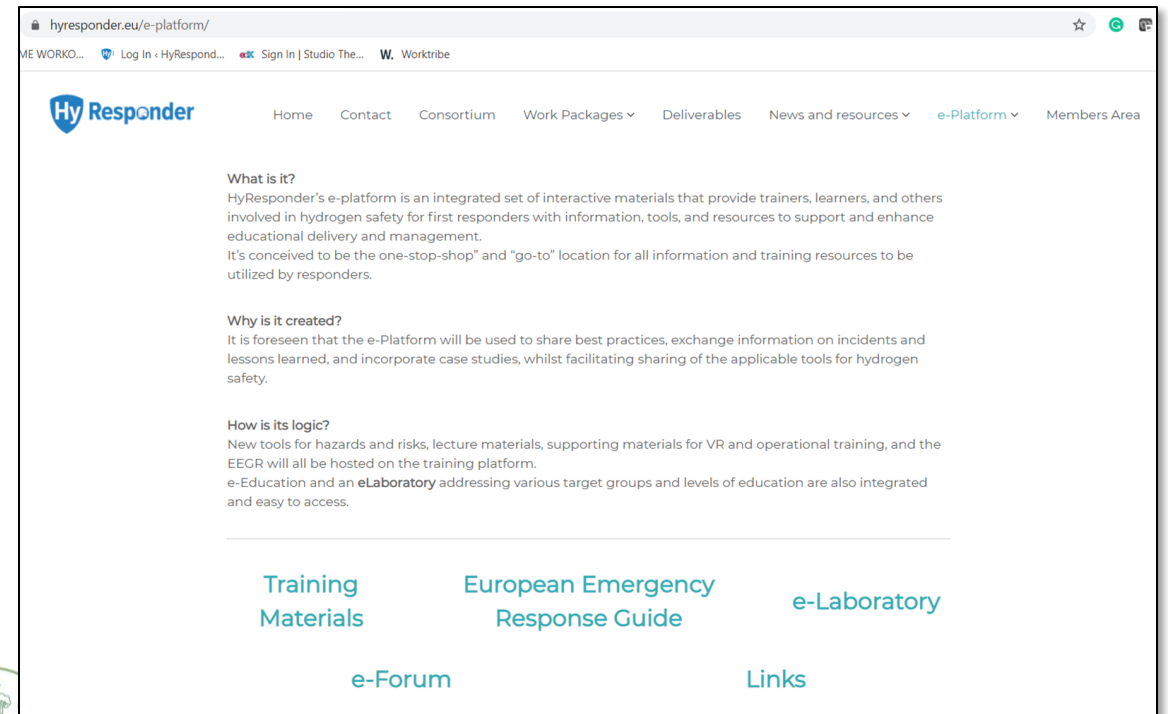
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# HyResponder e-Platform

- Materials for trainers beyond HyResponder
- Stratified lectures
- Training sequences with videos
- Online tools
- EERG
- Translated materials
- <https://hyresponder.eu/e-platform>





# Training Framework

- The International Association of Fire and Rescue Services, CTIF, led development of a framework for recognition of **firefighter level** training.
- Seeks to enable the wide diversity of first responders to seek and secure localised arrangements using HyResponder training outcomes
- Aligns to European Qualification Framework Level 2
- Equivalent to 20 hours of guided study and practice
- The Framework is intended to be flexible and to complement and support local training arrangements.



<https://ctif.org/commissions-and-groups/hyresponder-european-hydrogen-train-trainer-programme-responders>



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# Challenges and lessons learnt

- Pandemic!
- No one size fits all
- Locally adaptable arrangements key to sustainability
- Translation underestimated the scale of the task
- Public forum not supported
- Not all questions addressed yet
- Strong will by all countries to continue the activities





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# Impacts of HyResponder

- e-Platform available to facilitate access to information
- Unique operational training platform available at ENSOSP - sharing expertise
- Online training sequences available to support local training
- Roadmap for standard training package with a defined module at firefighter level
- Stratified training materials available to freely access online across 4 levels
- Translated materials online and freely available in 8 languages
- Trainers from 10 countries trained in Hydrogen Safety
- Responders and trainers in 10 regions trained by HyResponder trainers
- Online tools to support training available to all stakeholders
- Revised EERG available for use globally
- Plans for each region beyond the project





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