

Hydrogen TCP

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Hydrogen TCP Chair

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In a nutshell



33

Members

24 Member Countries
7 Sponsors
European Commission + UNIDO

40+

Tasks

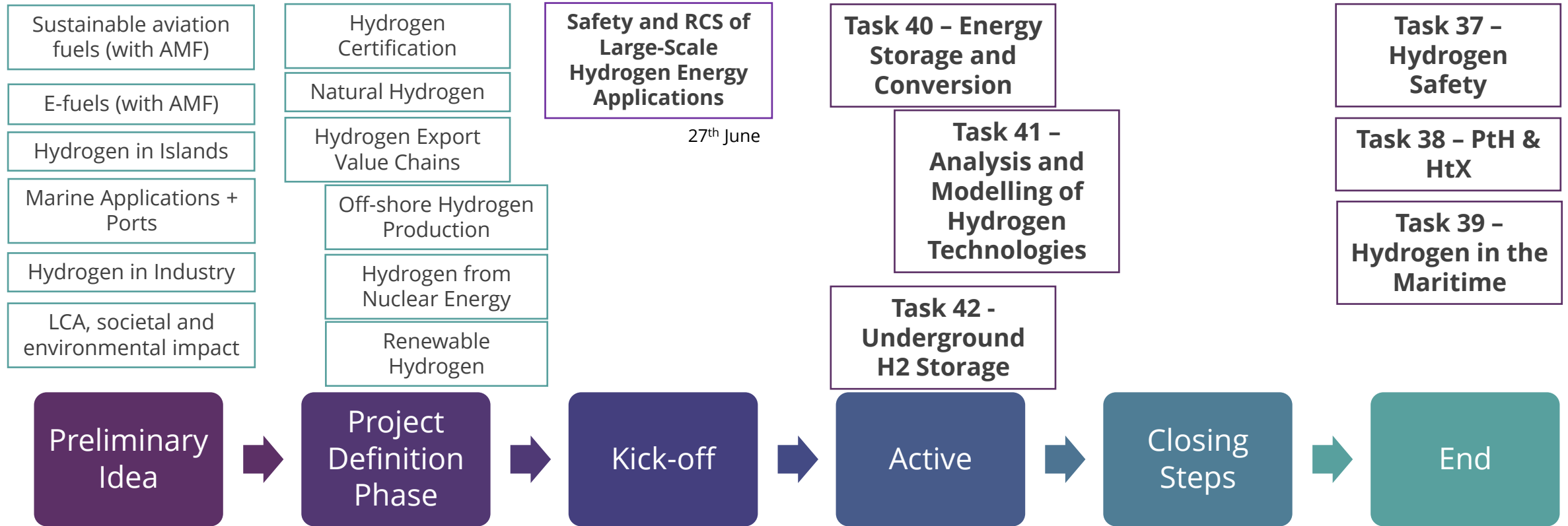
4 Ongoing
39 Finished
≈ 6 in definition

250+

Experts involved

In collaborative research on hydrogen and hydrogen technologies

Task portfolio status (July 2022)



Hydrogen TCP work on safety

All results available at www.ieahydrogen.org
Activities > Closed Tasks !

Goal: to develop and conduct effective risk management techniques, test methodologies and data... to collect information on the effects of component or system failures of hydrogen systems.

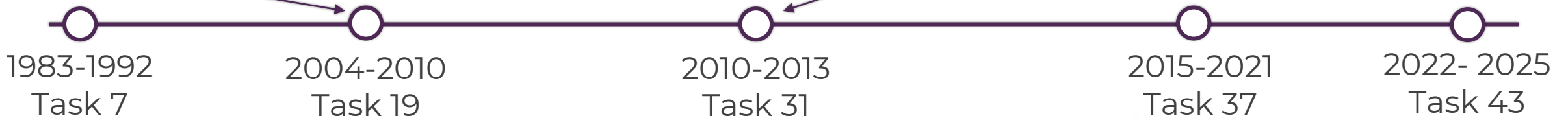
Results:

- Several papers published
- MoU with HySafe
- Main report – Survey of Hydrogen Risk Assessment methods
- White Paper “Knowledge gaps in hydrogen safety”
- Risk Assessment studies of HRS

Goal: to develop and conduct effective risk management techniques, test methodologies and data...

Results:

- White paper “Advancing on Hydrogen Safety Knowledge Base”
- Final Report



Goals:

- Integrated Hazards and RA tool kit.
- Accident Scenario Development → Generic baseline system(s) design and configuration for alpha testing and validation of the integrated tool kit.
- Physical Effects (Pressure, Temperature, Heat Loads, etc.) → Validated engineering predictive models, test data.
- Human Reliability Analysis (HRA) → Identify and quantify human influence on operational safety.
- Materials Compatibility → hydrogen effects on material properties and mechanical strength by developing physics of failure (PoF) models (e.g., embrittlement modeling, tank liner integrity), testing (e.g., hydrogen permeation tests), and material surface characterization (e.g., XRD analysis ...)

Results:

- Several papers published
- Final Report

Hydrogen TCP planned work on safety and certification

Hydrogen Council

Task 43 “Safety and RCS of Large Scale Hydrogen Energy Applications” 2022- 2025

Kicked off 27th June

Focus on...

- Large scale compressed and liquid H₂ energy systems and applications
- Common safety & regulatory attributes of emerging large scale H₂ energy applications
- Developing uniform methodologies via case studies, available PNR and their results’ synthesis and analysis

Develop practical recommendations and solutions to:

- Inform relevant international and national RCS development activities
- Help H₂ industry with market deployment and best practices
- Develop joint products (publications, educational and training materials, conference papers, white papers, reports, new work item proposals for standard development..)

Sub-Task A: Social (Comprehensive) Risk

Key Objective: Estimate the effect of large-scale hydrogen energy applications on society

Sub-Task B: Safety Culture and Management System

Key Objective: Formulate and explain (via case studies) key attributes of safety culture

Sub-Task C: Safety Distance Methodologies

Key Objective: Review available methodologies and develop recommendations

Sub-Task D: Hazardous Areas Methodologies

Key Objective: Review available methodologies and develop recommendations

Sub-Task E: Safety of Operation in Confined Environment

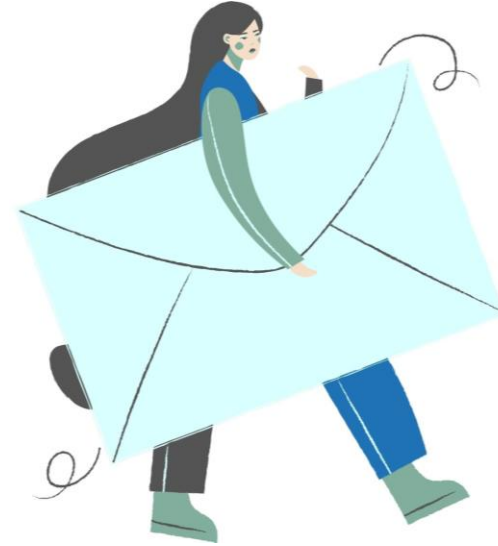
Key Objective: Review available practices and develop recommendations

Sub-Task F: Dissemination

Key Objective: Develop a dissemination plan of Task recommendations



Thank You!



For more information, contact the Technical Secretariat:

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