Hydrogen TCP, the key to international R&D collaboration

Hydrogen in the Energy System Decarbonization, EGRD
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The Hydrogen TCP in a nutshell

Established in 1977 under the auspices of the IEA to pursue international collaborative research in hydrogen

Members
24 Member Countries
6 Sponsors
European Commission + UNIDO

Tasks
3 Ongoing
38 Finished
\( \equiv 10 \) in definition

Experts involved
In collaborative research on hydrogen and hydrogen technologies

Members

Experts involved

Tasks

Members

Experts involved

Tasks

Members

Experts involved

Tasks
Challenges:
- H₂ Safety Concerns

Task Goals:
- Develop H₂ safety integration models and tools
- Management strategies to ensure safe deployment
- Quantitative Risk Assessment
- Consequence analysis

Challenges:
- Need for greener shipping
- Lack of information on the use of H₂ for marine applications

Task Goals:
- Provide knowhow on the use of H₂ in different marine vessels
- Monitor, review and contribute to new concepts, technologies and components
- Network of international experts

Challenges:
- Increasing interest on PtX, lack of consistent information

Task Goals:
- Techno-economic analysis of PtX pathways
- Database of demonstration projects
- Assessment of existing legal frameworks
- Guidelines and recommendations for business developers and policy makers

Task 37
Hydrogen Safety

Successor Task in 2022!

Task 38
Power-to-Hydrogen and Hydrogen-to-X

Closed in July 2021
Joint Workshop with IEA
Check our Blog!

Final Report released in October in the Final Workshop
Check our Blog!

Task 39
Hydrogen in Marine Applications
Hydrogen TCP activities – 2021 (ongoing)

Task 40
Energy storage and conversion based on hydrogen

**Challenges:**
- Energy storage
- H₂ storage Optimization of materials (solid and liquid)

**Task Goals:**
- Develop materials and systems for energy storage and conversion based on H₂
- Develop reversible or regenerative H₂ storage materials

New papers to be published in Spring 2022
(“Progress in Energy” Journal, IOP Publishing)

Task 41
Data and Modelling

**Challenges:**
- Lack of consensus on H₂ data and how to represent H₂ in Energy models

**Task Goals:**
- Data consolidation by developing a robust and updatable database on H₂ parameters
- Develop knowledge of how to best model H₂ in the value chain

New paper “A taxonomy of models for investigating hydrogen energy systems” to be published on “Renewable and Sustainable Energy Reviews” Journal
Hydrogen TCP activities – planned

- New challenges
- New topics of interests for our members

Tasks in Definition

- Underground Hydrogen Storage
- Renewable Hydrogen Production
- Offshore Hydrogen Value Chains
- Hydrogen from Nuclear Energy
- Safety and RCS of Large-Scale Hydrogen Energy Applications
- Hydrogen Export Value Chains
- Hydrogen in the Mining, Mineral Processing, and Resource Sectors

Did you know...?
Experts from member and non-member countries are welcomed to participate in the definition process
Why the Hydrogen TCP will play a key role?

- 40+ years of delivering high-value technical results to the hydrogen community
- >40 successful Tasks
- Historical focus on R&D needs
- Results and findings publicly available on the Hydrogen TCP website
- Capability to mobilize hundreds of experts from around the world for a permanent effort over 3-4 years at a time
- The Hydrogen TCP covers the whole hydrogen value chain, when not alone in collaboration with...
- 2022 strategic activity on TRL Assessment
- The Hydrogen TCP can be the technical/operational branch to other international initiatives who could propose new topics for Tasks for ExCo consideration
Thank You!

For more information, please contact Marina Holgado, Technical Secretariat Coordinator: marina.holgado@ieahydrogen.org