

Hydrogen and other alternative fuels Working Group meeting

16 May 2024

Online

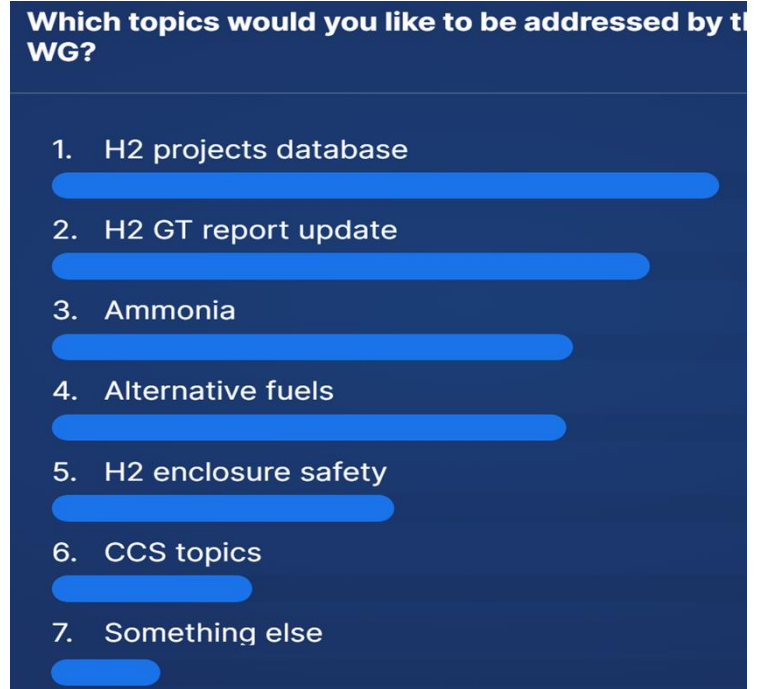
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Summary from the last WG meeting

In-person meeting after AGM in Leiden on 21 March

- Uptakes from the AGM Workshop
 - Interest in hydrogen project database is high
 - H2 report update has a high interest









Summary from the last WG meeting

In-person meeting after AGM in Leiden on 21 March

- Uptakes from the AGM Workshop
 - Interest in hydrogen project database is high
 - H2 report update has a high interest
 - Integration of CCS with the CCGT was identified as possible new topic
 - Exhaust Gas Re-circulation was identified as a new topic

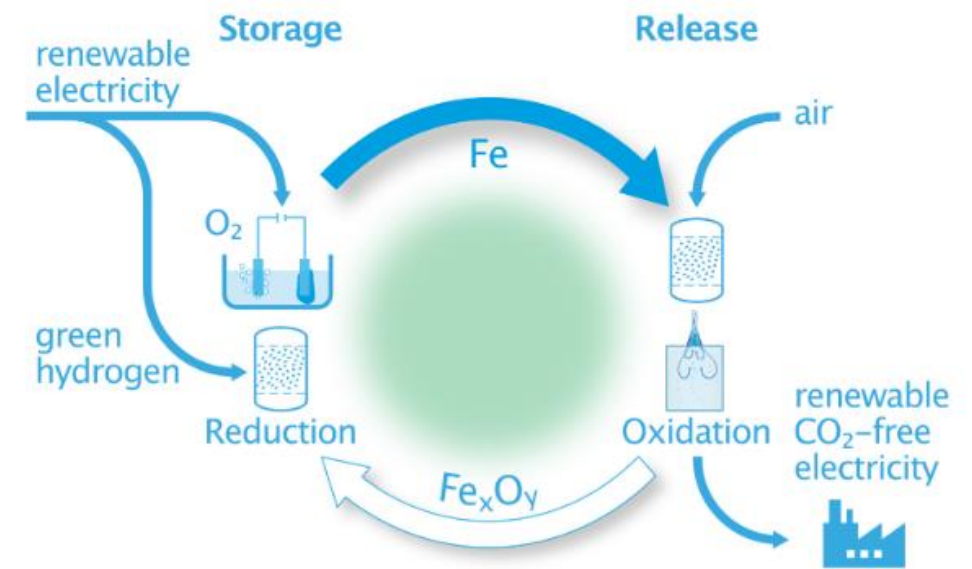
Which topics would you like to see addressed by the CC(U)S Task force? (Pick your 3 priorities)

1. Flexible operation of CCGT with CCS

2. Integration with the CCGT

3. Exhaust Gas Re-circulation (EGR)

4. Presentations and knowledge sharing from commercial CCGT with CCS projects

5. Post-combustion CO2 capture technologies

6. Pump & compressor technologies for CO2 applications


Summary from the last WG meeting

In-person meeting after AGM in Leiden on 21 March

- Potential new activities
 - Iron combustion
 - Potential substitute for coal
 - HVO taskforce
 - Additional timelines for ammonia and alternative fuels



Source; Debiagi et al., Renewable and Sustainable Energy Reviews 165 (2022) 112579

Action points from 21 March 2024

#	AP	Owner	Status
1	Ammonia task force: look for more volunteers, prioritise topics	ETN	Done
2	Add Erika (City University) & Gayathri (NEM) to Ammonia task force	ETN	Done
3	NH3 cracking test information - include in the paper	Peter Jansohn, Prit Harasgama, Egidio Pucci	Ongoing
4	Share list of publications from Syed Mashruk with the NH3 task force	ETN	Done
5	H2 GT report update task force: call for supporting members	Chapter leads	Done
6	GT enclosure: Prit Harasgama to discuss involvement with Chris D.	Prit	Ongoing
7	H2 projects database - share with ETN members	ETN	Ongoing
8	CCS/EGR: Share slido results with Mohammad Mansouri	Peter Kutne	Pending
9	CCS: contact Mohammad if list of post-combustion technologies exist	Peter Kutne	Pending
10	GT Enclosure: NEM expressed interest to join - ETN to contact	ETN	Done
11	Iron combustion: send presentation to Peter Kutne	ETN	Done
12	New taskforce on hydrotreated vegetable oil liquid biofuel to consider?	WG chairs & Jon Runyon	Ongoing
13	New timelines for alternative fuels and ammonia needed	ETN	Pending
14	Plan next WG meeting	ETN	Done

HVO Taskforce Proposal

- Multiple ETN members with recent experience using hydrotreated vegetable oil in existing GTs (e.g., [Uniper](#), [Siemens Energy](#)) and with an interest in HVO new build GTs (e.g., [SSE Thermal](#)).
- Knowledge/experience sharing on key topics:
 - Field trial experience / best practice
 - Conversion projects
 - Long-term operational impacts
 - HVO quality variation / analysis / feedstock variability
 - Premixed/LPP combustion
 - Collaboration for large-scale testing
 - Sustainability / certification
 - Business case / support mechanisms / policy for conversion or new build
 - Use cases: GT, diesel gensets, boilers

Hydrogen projects database

Update

- **Active research** performed with the support of **two PhD students from Cranfield University**
- Close to **40 projects** listed
- Database is now in a **maintenance mode** (no active search)
- ETN members are still **appealed to participate** & provide their public data



This database will be shared with the ETN members after the WG meeting

H2 GT report update taskforce

Update (last meeting held on 8 May)

1. Advantages of Hydrogen Gas Turbines

- Good progress, more volunteers joined to enrich/validate the chapter information

2. Pre-conditions of a Hydrogen Power Plant

- Chapter outline ready, still looking for more country-specific projects

3. Hydrogen Combustion

- Draft ready

4. “Implementation of Hydrogen Gas Turbines”

- Content advances, more volunteers joined to enrich the content

5. Current Capabilities of Hydrogen Gas Turbines

- Collection of information on 100% H2-GT projects/initiatives

GT enclosure

Update

- The proposal of the project was agreed by project partners in March 2024
- NDA/Consortium Agreement to be signed by 31.05.
 - NDA finalised
 - Deadline for comments on Consortium Agreement: 21.05
- Project start date in July 2024

Webinar on CCS

Update

- Webinar agreed with BASF on Thursday, 21 June at 15.00 (CET)
 - Content: BASF solution for CCS-GT.
 - Status: Waiting input from BASF on the necessary material/title for webinar promotion.
- Aim: Webinars on a quarterly basis.

CCS Master Thesis

Update

- CCS Master thesis on technical performance of CCS-GT
 - Recently completed by Simona Calenda (Master student at POLIMI)
 - Shared with the Working Group
- CCS taskforce to draft a pager on a new master thesis
 - Focus on a comparison between 100% hydrogen-gas turbine and CCS-GT (techno-economic evaluation)
 - ETN office in touch with a potential industrial partner for its potential involvement

Ammonia Task Force

Update (last meeting held on 30 April)

- Agreement on the **objective** reached: literature review with ambition to publish (Energy by Elsevier, ETN publication)
- Available **pertinent papers** etc. were **shared** by some task force members and are at everybody's disposal via MS Teams
- Reasonable number of Task Force members expressed their field of expertise/interest, which allows us to **start drafting individual parts** of the paper. Anyway, still open subject remain, see [link](#): anyone?
- Next steps: **individual contributions** (no matter how small) **will be shared** via MS Team for other members' comments

Alternative fuels paper

- Meeting held on 14 May, with the aim of **finalising the structure** of the paper
- **Two main milestones** for the results presentation were set:
 - ETN October workshop (preliminary results)
 - Publication in an open access journal, e.g. Fuels
- **Sandra Richter (DLR) will take the lead** in the preparation of this document

Any other business?

- **Next all-WG meeting** will be planned for the **first half of September 2024**
- It will be **followed** by an in-person meeting in conjunction with the **ETN October workshop in Stuttgart (8-10 October 2024)**



Thank you for your attention