



ConsenCUS: Carbon Capture, Usage and Storage

Dear ConsenCUS community,

This newsletter covers some major steps in the ConsenCUS H2020 project. It only seems a short while ago that, during the CCUS Forum held in Aalborg early November 2023, the recently installed demonstration plant was inaugurated by a very highly respected audience of EU commissioner Kadri Simson, Danish minister for Energy Lars Aagaard and opened by (since recently crowned to) King Frederik of Denmark. And now we are celebrating the fully tested and commissioned demonstration units with the first captured, desorbed and converted CO2 into products! But in between our Technical Team put in a massive effort to overcome all small and larger, anticipated and unanticipated, problems that you can expect when carefully commissioning an innovative electrochemical capture, regeneration and conversion at the scale of ConsenCUS. This is truly a first of a kind electrochemical CO2 capture demonstrator at the scale that hopes to bring CO2 capture with efficient energy use to the market.

The test in Denmark will continue until the end of the month, and then the units will be shipped to the next testing site, that of the OMV Petrom refinery near Ploiesti, Romania. That's why the technical team from Romania, as well as the team from the third site in Greece were invited to Aalborg early February to learn about the integration of the unit on site and discussing the specific points of attention for their site respectively.

Much more about recent ConsenCUS developments can be read in this newsletter. Enjoy!

On behalf of the ConsenCUS team
Dirk Koppert, Project Manager



New pilot plant for carbon capture inaugurated in Aalborg, Denmark

ConsenCUS has inaugurated its innovative electrochemical CO2 capture and conversion demonstration plant in Aalborg, Denmark, at the site of the cement plant of Aalborg Portland. A very special delegation consisting of his royal highness Kronprins Frederik (now King of Denmark), EU-commissioner for Energy, Ms Kadri Simson, and Danish minister of Energy, Climate and Utilities, Mr Lars Aagaard inaugurated the demonstration plant in a dedicated ceremony.

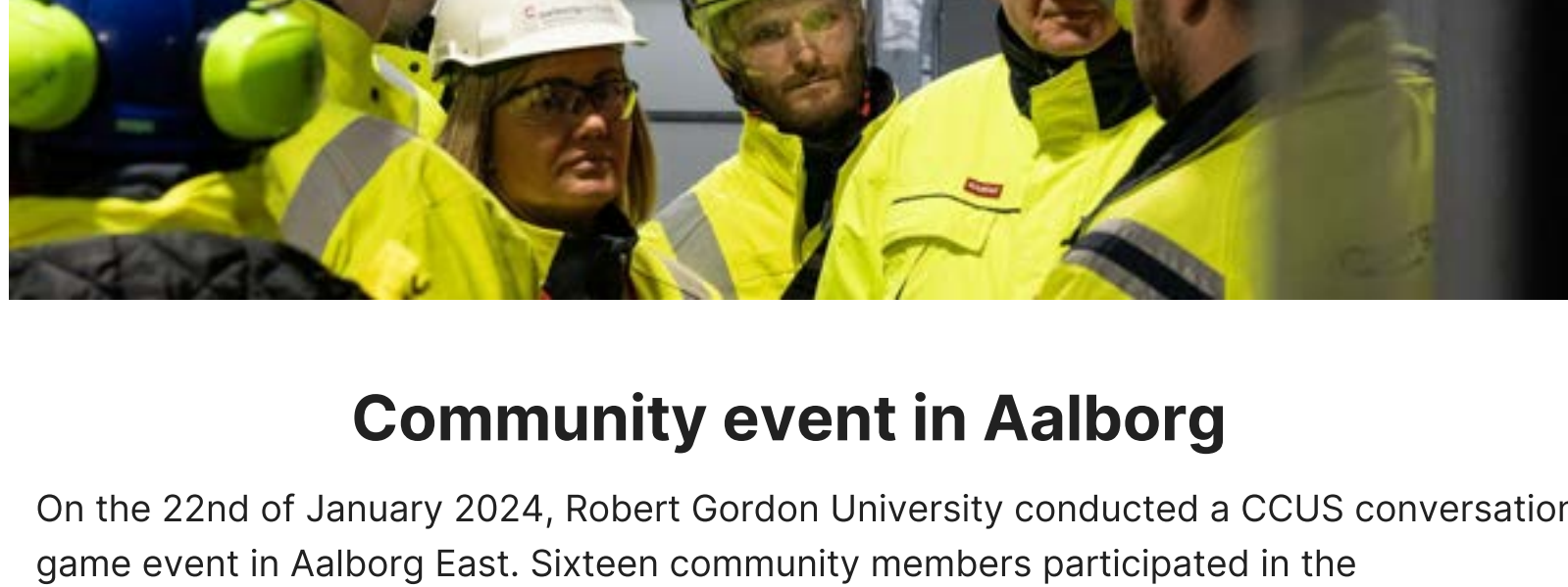
[Read more](#)



Field visit OMV Petrom and Grecian Magnesite at Aalborg Portland

On February 6, the technical teams of OMV Petrom and Grecian Magnesite visited their 'sister' test-site Aalborg Portland. This visit is part of the demonstration campaign preparation that the Romanian and Grecian site are doing. The ConsenCUS demonstration unit is now placed at Aalborg Portland, a cement factory in Denmark. The technical team of Danish Technology University, together with ConsenCUS partners Wetsus, Coval, and their respective contractors, are commissioning the ConsenCUS unit on site. By exchanging learnings and addressing site specific challenges, the ConsenCUS project aims for a smooth transfer and quick up-time for the demonstration phase in Romania and Greece. The ConsenCUS project has chosen three distinct testing environments to fully understand the capabilities of the demonstration plant with different flue gasses and operating conditions.

During a snowy tour at the Aalborg Portland facility, the demonstration unit was inspected and questions could be answered by the operators on site. In the warm meeting-room further discussions and questions could be addressed.



Community event in Aalborg

On the 22nd of January 2024, Robert Gordon University conducted a CCUS conversation game event in Aalborg East. Sixteen community members participated in the conversation game where they could learn and discuss different aspects of CCUS. Most of the participants found the conversation game and topic interesting even if they did not know much about it beforehand. Interested community members also received a free version of the conversation game so they can play it with other community members in the future.

Demoplant breaking news: Formate is produced

This month, the ConsenCUS team had the pleasure of the **first CO2 capture** from Aalborg Portland with the electrochemical CO2 capture plant.

"The custom built electrochemical stacks have never been used for this application at this scale before. The final technical obstacles were addressed on-site by a crack team consisting of WETSUS post doc Sara Vallejo Castaño, DTU Process engineers István Györfi and Magor Demeter and AMMONGAS head engineer Tim Nærvig", says **Uffe Bihlet**, project manager at DTU.

A lot of challenges were both faced and handled by many people in order to start absorbing CO2 in one module and regenerate the solvent in another module. Now that we have successfully proven that the system functions, specific demonstration targets can be addressed.

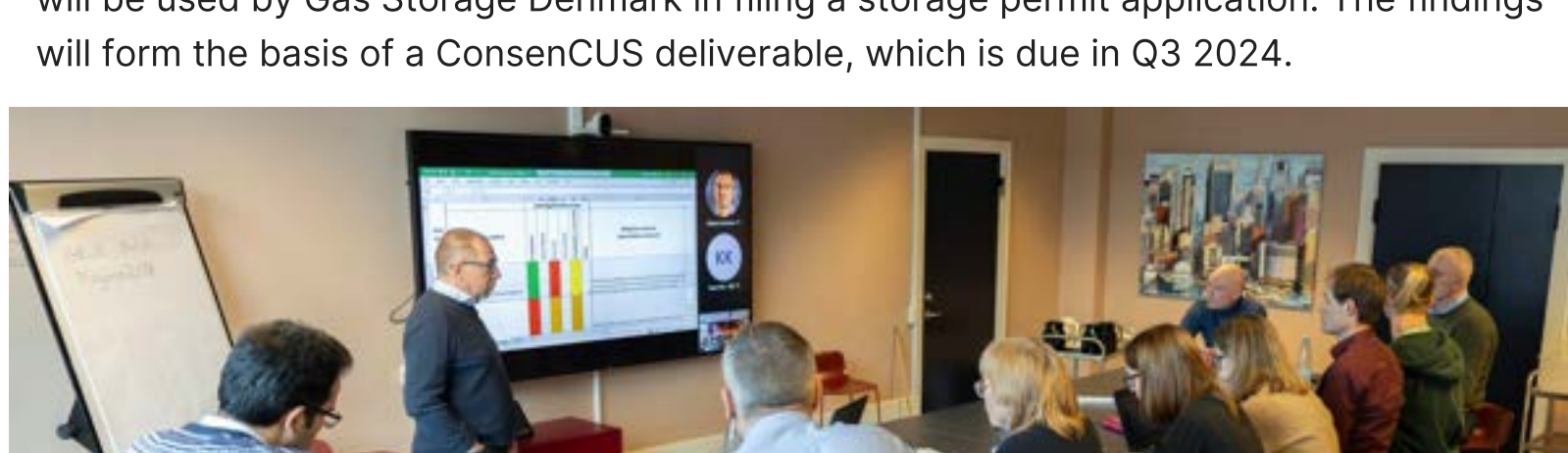


ConsenCUS co-host of 2nd LCA for CCUS Workshop

On March 7, project manager of ConsenCUS Dirk Koppert of New Energy Coalition, co-hosted the **second LCA to CCUS workshop** with sister project ACCSESS (managed by SINTEF from Norway).

All Horizon funded projects that are related to CCUS and the production of alternative fuels with Carbon are joining every year together with the managing authority CINEA. One of the recurring topics is that of doing Life Cycle Assessment research. All projects engage in this topic, and in the workshop the aim was to provide key-note learnings, engage a lively debate and learn from each other's works.

Inspired by key-notes from Nils Thonemann (Leiden University), Samantha Eleanor Tanzer (Delft University) and Andre Bardon (ETH Zurich), the project had a full day of engaging in the latest insights and LCA work and GEUS has joined forces in a brainstorming workshop, which was held on March 4-5 at GEUS. The final risk register will be used by Gas Storage Denmark in filing a storage permit application. The findings will form the basis of a ConsenCUS deliverable, which is due in Q3 2024.



Although not all deliverables are public, those who are will be uploaded to our webpage. Feel free to click through the latest reports ConsenCUS delivered.

Deliverable 5.1 Permits for the erection of the modularized demonstration plant at the demonstration sites



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