



SELECTIVE ELECTROCHEMICAL REDUCTION OF CO₂ TO HIGH VALUE CHEMICALS

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Project Coordinator: Dr. Brian Seger - DTU

DELIVERABLE REPORT

9.5 - STAKEHOLDERS ENGAGEMENT MEETING (SEM)		
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DISSEMINATION LEVEL		
PU	<i>Public</i>	X
PP	<i>Restricted to other programme participants (including the Commission Services)</i>	
RE	<i>Restricted to a group specified by the consortium (including the Commission Services)</i>	
CO	<i>Confidential, only for members of the consortium (including the Commission Services)</i>	
NATURE OF THE DELIVERABLE		
R	<i>Report</i>	
P	<i>Prototype</i>	
D	<i>Demonstrator</i>	
O	<i>Other – Stakeholder Engagement Meeting</i>	X

SUMMARY	
Keywords	Dissemination; Stakeholders; Symposium
Abstract	<p>This deliverable reports on the SELECTCO2 Stakeholder Engagement Meeting held March 14th and 15th 2022 in Delft, Netherlands. The event was attended by SELECTCO2 members, as well as our Advisory Boards, members of the TU Delft e-Refinery Institute, external academic members, and participant from industry.</p> <p>The SEM was originally scheduled to be held January 24th and 25th in Delft, but was postponed due to the high case numbers of the Covid-19 Omicron variant that resulted in a locked down.</p>
Public abstract for confidential deliverables	

REVISIONS			
Version	Date	Changed by	Comments
0.1	24-03-2022	Tom Burdyny	



REPORT ON THE STAKEHOLDER ENGAGEMENT MEETING

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1 PREPARATION OF THE EVENT

The Stakeholder Engagement Meeting (SEM) was aligned with the SELECTCO2 3rd Annual Meeting taking place in Delft, Netherlands. A 2-day event was planned in conjunction with the Delft University of Technology e-Refinery Institute, which SELECTCO2 Work Package 4 leader Thomas Burdyny is also a participating member. Thomas Burdyny then acted as the 2-day Symposium Chair with support from the e-Refinery Institute, helping to organize logistics and the presentation schedules. Importantly, the SEM incorporated ample time for discussions with academic, public and industrial stakeholders through networking sessions on both days.

While originally scheduled to take place January 24th and 25th 2022, the meeting was delayed until March 14th and 15th due to lockdowns in place as a result of rising Covid-19 Omicron variants in participating countries. All Covid-19 regulations (e.g. 1.5 m distancing, proof of negative tests) were removed in the Netherlands as of February 25th, which then allowed for the event to proceed as planned. However, due to the uncertainty regarding the 1.5 m social distancing in the lead up to the event, attendance was curtailed slightly in case the venue capacity would have been reached.

2 EVENT SUMMARY

The program of the 2-day symposium is provided in Annex, and the event was attended by an approximate 120 separate individuals over March 14th and 15th, as determined by registration. The program included presentations discussing research and industrial activities across a wide variety of technical backgrounds and Technology Readiness Levels (TRL) for electrochemical technologies. These discussions then provided a nice extension beyond the TRL 3-4 range of the SELECTCO2 project, providing future perspectives for the direction of the technology beyond the project scope. Topics included paired electrolysis possibilities, application of machine learning to integrating electrolyzers with electrical grids, and thermal implications occurring within electrolyzer devices, among others.

Beyond the presentations the e-Refinery Institute at TU Delft also arranged a poster session to highlight the broad range of activities occurring at TU Delft. These included 1-minute pitches by the poster presenters. Of the 15 posters, 2 were contributed by SELECTCO2 members, specifically highlighting the ethylene production work in Work Package 4.

The SEM also planned in extensive time for discussion and networking amongst the attendees that included a number of academic, public and industrial stakeholders with an interest in the technology and advancements developed within the SELECTCO2 consortium. In total 5 hours of open networking was scheduled into the event which extends beyond a typical conference and symposium setting. This allowed for conversations with much more depth and brainstorming than has been possible in the past 2 years due to Covid-19.

On the second day of the event on March 15th, an afternoon lab tour was also attended by 25 participants. The lab tours included the Process & Energy labs of Ruud Kortlever and Wiebren de Jong, the New Electrical Sustainable Power Lab, The Green Village at TU Delft which tests new energy technologies in real world settings, and lab tour of Thomas Burdyny, David Vermaas and Ludovic Jourdin's research lab. Here Thomas Burdyny's group presented the setups, cells and configurations developed in WP1 and WP4 of the SELECTCO2 project.

Finally, the event gave SELECTCO2 members an opportunity to debrief about the project and the SEM on both March 14th and March 15th after the official events. These activities included the in-person Advisory Board members from The Air Company and Twelve.

The following sets of images were taken from the event and characterize the SEM and the venue.



Figure 1: The SEM registration desk with the 2nd Edition of the SELECTCO2 newsletter available for attendees.



Figure 2: The initial Symposium presentation by Thomas Burdyny from TUD providing the scope of electrochemical technologies currently undergoing intense academic and research development. Among them are the CO₂ electrolysis routes defined by the SELECTCO₂ project.



Figure 3: Picture of the Stakeholder Engagement Meeting attendees on March 14th, 2022.



Figure 4: Lab tours of TU Delft facilities for electrochemical characterization on March 15th, 2022.



Figure 5: Presentation of cells utilized in the SELECTCO2 project during lab tours following the Stakeholder Engagement Meeting on March 15th, 2022.

3 CONCLUSIONS AND FUTURE WORK

Overall, the Stakeholder Engagement Meeting coupled with the TU Delft e-Refinery Symposium and the 3rd Annual SELECTCO2 Meeting was very well-received by all internal and external attendees. The scheduled talks provided scope and opportunities for SELECTCO2 technologies to be utilized at not only different Technology Readiness Levels, but the social implications if these technologies were expanded to global scales. Further the networking discussions were ample and gave the chance to communicate with academic and industrial peers after long travel restrictions the past two years.

4 ANNEX: SEM AGENDA



e-Refinery Symposium on March 14th and 15th Agenda

Day 1: March 14

09:30	10:00	Arrival and Coffee
10:00	10:10	Symposium opening (Theun Baller)
10:10	10:30	Introduction by the e-Refinery Institute (Bernard Dam)
10:30	10:55	Electrochemical Reactions of interest (Tom Burdyny)
10:55	11:20	Future of Electrochemical Reactions of interest (Ruud Kortlever)
11:20	11:45	Challenges and Opportunities for Indirect Electrochemical Routes (Wiebren de Jong)
11:45	12:00	Poster Session Teaser + Research Showcase
12:00	13:30	Lunch and Poster Session
13:30	14:00	Material and Catalyst Opportunities for Electrochemical Reactions (Atsushi Urakawa)
14:00	14:25	Electrochemical Engineering as a Core Skillset of the Energy Transition (Tom Burdyny)
14:25	14:50	AI for System Integration of Electrochemical Devices (Jochen Cremer)
14:50	15:45	Break and Networking
15:45	16:10	Upstream and Downstream Integration and Considerations (David Vermaas)
16:10	16:35	Electrolysis Integration, Processes and Techno-economics (Mar Pérez-Fortes)
16:35	16:45	Closing Session
16:45	17:30	Networking and Drinks
17:30	20:00	Dinner provided at venue
20:30	22:00	SELECTCO2 Group Discussion about Stakeholder Engagement Meeting

Day 2: March 15

08:30	09:00	Arrival and Coffee
09:00	09:25	Overview of activities in the Sustainable Chemistry Industry (Peter Wolfs)
09:25	09:50	Electrolyzer Thermal Implications and Modelling
09:50	10:15	Product Separation (Monique van der Veen)
10:15	10:45	Coffee Break
10:45	11:10	Design and Control of Intermittent Electrolyzer Operation (Ruud van Ommen)
11:10	11:40	Energy Transition in Aviation (Arvind Gangoli Rao)
11:40	11:50	Official program closing final comments
11:50	13:00	Lunch
13:00	17:00	Guided Lab Tours for non-project attendees
13:00	17:00	Internal project update meeting (SELECTCO2)
17:30	20:30	SELECTCO2 Meeting wrap-up discussion and dinner

Location:

Theater de Veste
Asvest 1a
2611 PK DELFT
<https://www.theaterdeveste.nl/>