



KEROGREEN Newsletter

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Editorial



Dear Reader,

The KEROGREEN project is entering its final stage of system integration, where individual elements are linked together into a self-contained unit, processing air-captured CO₂ into a refined Fischer-Tropsch syncrude from which aviation-grade synthetic paraffinic kerosene is obtained after further isomerisation and distillation. Powered by renewable electricity, it takes aim at the climate culprit head-on.

Individual elements of the process chain are of dissimilar technology at widely varying Technology Readiness Levels (TRL). The project objective for the integrated system is TRL4 – Technology validated in lab. All but one of the modules have reached the necessary performance for integration or beyond, including the CO₂-splitting plasma reactor, the CO purifier, the sorption-enhanced Water-Gas-Shift syngas reactor, the Fischer-Tropsch hydrocarbon synthesis reactor and the Hydro-Cracking kerosene optimiser. These units have been moved to the KIT site for system integration.

The novel oxygen separator, designed to separate oxygen from the outlet gas stream of the plasma reactor, upscaling the lab-scale experiment to system level has proven to be a challenge. Hence, the decision was made that upscaling the oxygen separator will be subject of future research. Considering current kerosene consumption of 5 Mbbbl/day (-30PJ/dy, -340GW), upscaling sustainable aviation fuel will be the major challenge for decades to come. We are only at the beginning.

The integrated container-sized system will be presented at the final KEROGREEN event on 27 September 2022 at KIT-IMVT, Karlsruhe, Germany. You are welcome to register. For more information have a look at our [website!](#)

Yours sincerely Adelbert Goede,
on behalf of the KEROGREEN consortium

Talking to our Dutch partners Stefan Welzel and Michail Tsampas (DIFFER), as well as Leonardo Roses (HyGear)

What are their specific roles and individual achievements? Which benefits are expected from the project for both partners? What are future plans? Answers to these questions and others can be found in the partner's interviews ([DIFFER](#) / [HyGear](#)).

Save-the-date! KEROGREEN final event, 27 September 2022, KIT (Germany)

KEROGREEN is currently organising the [project final event](#) to be held at KIT end of September. Beside presentation of the project achievements, including the on-site demonstration of the KEROGREEN integrated system, participants will have the opportunity to exchange on current challenges in the sustainable aviation fuel synthesis with invited keynote speakers, as well as visit the Energy Lab 2.0 of KIT. Remote participation is also possible.

News and events

End of June, partners met in Germany to coordinate the final activities and to discuss possible exploitation strategies for project results. System integration and final tests are currently under progress. All partners are now finalizing open tasks and reports !

The KEROGREEN [winter school](#) on "Future directions in research on Power-to-X for sustainable chemicals & fuels", held online in February was a real success. Around 75 participants from 9 different countries attended the event, following the 27 talks from both young and experienced researchers! Highlight of the event was the EERA PhD contest, won by Tabea Stadler (KIT-IMVT).

Complete overview of news and past & upcoming events [here](#). Also have a look at our [publications list](#).

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