

EU and Japan jointly invest EUR 10,7 million for breakthrough research on advanced biofuels and alternative renewable fuels

Background



On 5 May 2020, a topic within the call for proposals on “Building a low-carbon, climate resilient future: secure, clean and efficient energy” was published under the [2018-2020 Horizon 2020 work programme](#), with a deadline of 1 September 2020.

The topic targeted on International cooperation with Japan for Research and Innovation on advanced biofuels and alternative renewable fuels (LC-SC3-RES-25-2020).

The 3 selected projects will start on 1 May 2021.

The topic implementation is managed by the European Climate, Infrastructure and Environment Executive Agency (CINEA), under the responsibility of DG Research and Innovation.

The focus of the proposals was to foster the development of disruptive catalytic technologies and linked lab-scale components/systems with significantly improved performance for conversion efficiency and specific marginal cost reduction for obtaining low-cost bioenergy carriers, non-food/feed based advanced biofuels and alternative renewable fuels (excluding hydrogen) and maximising GHG abatement. International cooperation with Japan involving at least one Japanese beneficiary was an eligibility criterion.

CINEA received 30 project proposals by the deadline, requesting EUR 105.13 million (29 of the projects also applied to the Japan Science and Technology Agency - JST). All proposals were eligible and were evaluated by a panel of independent experts from the EU and Japan.

More than 85% of applying proposals succeeded the evaluation, satisfactorily addressing all the aspects of the call. Thus, the outcome of the call is successful and contributes to the expected impacts in the work programme.

3 proposals with an EU requested budget of over EUR 9.5 million were proposed for funding

LC-SC3-RES-25-2020	Number of submitted proposals	Number of evaluated proposals	Proposals below threshold		Proposals above threshold		Proposals retained for funding	Requested funding (EUR)
Total	30	30	4	13%	26	87%	3	9 534 508.75

Information on the three selected projects

LAURELIN - “Selective CO₂ conversion to renewable methanol through innovative heterogeneous catalyst systems optimised for advanced hydrogenation technologies” will focus on the optimisation and improvement of CO₂ hydrogenation process, to obtain methanol as renewable fuel. The strategies adopted to achieve the planned objectives are: a) Research and development in disruptive multifunctional catalyst systems and b) New technologies for CO₂ hydrogenation (Magnetic Induction, Non-Thermal Plasma Induction and Microwave technologies). Collaboration with Tokyo Institute of Technology and University of Tokyo will share and increase knowledge on catalyst systems focused on hydrogenation processes, and increase impact by fast future industrial and market deployments.

- **EU participants (6) + 2 UK participants:**
 - AIMPLAS – Asociación de Investigación de Materiales Plásticox y Conexas,
 - Agencia Estatal Consejo Superior de Investigaciones Cientificas,
 - Universidad de Almeria,
 - Fraunhofer Gesellschaft zur Förderung der Angewandten Forschung E.V.,
 - Process Design Centre BV,
 - ALIENOREU SPRL;
 - The University of Manchester,
 - University College London.
- **Japanese participants (2):**
 - Tokyo Institute of Technology
 - National University Corporation the University of Tokyo.
- **Total cost of the project:** EUR 4 853 053.75
- **EU grant amount:** EUR 4,448,838.75
- **JST grant amount :** approx. EUR 400 000.00
- **Duration :** 1 May 2021 – 30 April 2025

4AirCRAFT - “Air Carbon Recycling for Aviation Fuel Technology” will develop a next generation of stable and selective catalysts for the direct CO₂ conversion into liquid fuels for aviation by combining three main reactions into one reactor to increase the CO₂ conversion rate and reduce energy consumption. The catalyst carrier structures will be based on metal-organic frameworks and engineered inorganic scaffolds with hierarchical porosity distribution. Collaboration is with Kokuritsu Daigaku Hojin Hokkaido Daigaku.

- **EU participants (7) + 1 Brazilian participant:**
 - Fundación para el desarrollo de la nuevas tecnologías del hidrogeno en Aragón
 - Helsingin Yliopisto
 - Universität Bielefeld
 - Fundación BCMATERIALS, Basque Centre for Materials, Applications and Nanostructures
 - Università degli Studi di Torino
 - Agencia estatal Consejo Superior de Investigaciones científicas
 - Universiteit Antwerpen
 - Universidade de Sao Paulo
- **Japanese participant (1):** KOKURITSU DAIGAKU HOJIN HOKKAIDO DAIGAKU
- **Total cost of the project:** EUR 2 897 153.75
- **EU grant amount:** EUR 2 239 591.25
- **JST grant amount :** approx. EUR 400 000.00
- **Duration :** 1 May 2021 – 30 April 2024

ORACLE - “Novel routes and catalysts for synthesis for ammonia as alternative renewable fuel” will develop scalable alternative reaction technologies for decentralised production of ammonia as a renewable fuel from N₂ and H₂O. An electro-catalytic, plasma-aided electrocatalytic, as well as electrified thermal catalysis process, will be developed and validated for localised on-site ammonia production with the potential to transform existing large-scale ammonia based production for a non-fossil-based economy. Collaboration is with Osaka Research Institute of Industrial Science and Technology and National Institute of Advanced Industrial Science & Technology.

- **EU participants (6):**
 - Aarhus Universitet
 - Stichting Nederlandse Wetenschappelijk Onderzoek Instituten
 - Institut Jozef Stefan
 - Vlaamse Instelling voor Technologisch Onderzoek N.V.
 - C2CAT B.V.
 - CASALE SA
- **Japanese participants (2):**
 - Osaka Research Institute of Industrial Science and Technology
 - National Institute of Advanced Industrial Science and Technology
- **Total cost of the project (EU side only):** EUR 2 846 078.75
- **EU grant amount:** EUR 2 846 078.75
- **JST grant amount:** approx. EUR 400 000.00
- **Duration :** 1 May 2021 – 30 April 2024