

HORIZON-CL5-2021-D3-02-09: Carbon-negative sustainable biofuel production

Specific conditions	
<i>Expected EU contribution per project</i>	The EU estimates that an EU contribution of around EUR 5.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
<i>Indicative budget</i>	The total indicative budget for the topic is EUR 15.00 million.
<i>Type of Action</i>	Research and Innovation Actions
<i>Technology Readiness Level</i>	Activities are expected to achieve TRL 4-5 by the end of the project – see General Annex B.

Expected Outcome: Reusing or inhibiting biogenic effluent gases from biofuel production in the same process, increases the biomass conversion efficiency and sustainability potential and the overall resource and energy efficiency of the biomass utilization. Improving such integration will contribute to increase the biofuel technology competitiveness and acceptance and advance the European leadership and global role in the area of sustainable biofuels.

Project results are expected to contribute to all of the following expected outcomes:

- Increase bioenergy efficiency and sustainability.
- Increase sustainable biomass resource utilization.
- Generate negative emissions from biofuel production.

Scope: Proposals should develop cost-effective solutions to minimize carbon waste in sustainable biofuel production processes by inhibiting biogenic effluent gas emissions or incorporating biological and/or chemical/other capture of the biogenic effluent gas emissions from the process and use it as appropriate either for separate in-situ downstream synthesis of renewable fuels of biological origin, or integrate it in the sustainable biofuel production through recycling. Proposals should also include an innovative approach for biogenic carbon storage, through for example integrating production of biochar and using it as soil amendment to enhance organic carbon content and functionality of soil, as well as a means to sequester carbon into the soil. Synergies with renewable hydrogen production should be developed by incorporating it as appropriate in the sustainable biofuel production to compensate for

additional needs in hydrogen, increase overall biomass conversion efficiency, minimize the biogenic carbon waste and reduce the fossil carbon footprint of the biofuel production. The overall GHG emissions should be assessed on the basis of a Life Cycle Analysis for proving negative GHG emissions and higher sustainability potential of biofuel production when reusing biogenic effluent gases in-situ, along with addressing socioeconomic aspects.