About

Fuelgae

FUELGAE uses microalgae to capture CO_2 emissions originating from biorefineries and energy-intensive industries and produce Advanced Liquid Fuels (ALFs).

Fuelgae

will contribute to transforming the European energy system on a fossil-free basis by 2050, in sectors such as aviation and shipping, while supporting the EU's goals for energy independence.

Objectives

- Evaluate the FUELGAE solutions to capture CO_2 through microalgae and convert them into Advanced Liquid Fuels (ALFs)
- Develop and validate novel microalgal biomass treatment processes to maximise the production of Advanced Liquid Fuels (ALFs)
- Enhance the circularity of the FUELGAE process by using subproducts to obtain biogas and biochar
- Boost the efficiency of biofuel production with online measurement technologies (PAT) and digital modeling tools
- Assess the overall sustainability and economic viability of FUELGAE innovations

Partners

ANALISIS-DSC PROCESS AND MECHANICAL ENGINEERING

ArcelorMittal

CERTH CENTRE FOR RESEARCH & TECHNOLOGY HELLAS

CSIC

HELLENiQ ENERGY

intecom commercial pathways

RESEARCH CENTER ITENE

persea biotechnology

RTDS GROUP

UNIVERSITY OF OULU

VTT

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Fuelgae

Sustainable On-site and Innovative Technologies for Advanced Transport BioFuels from MicroalGae

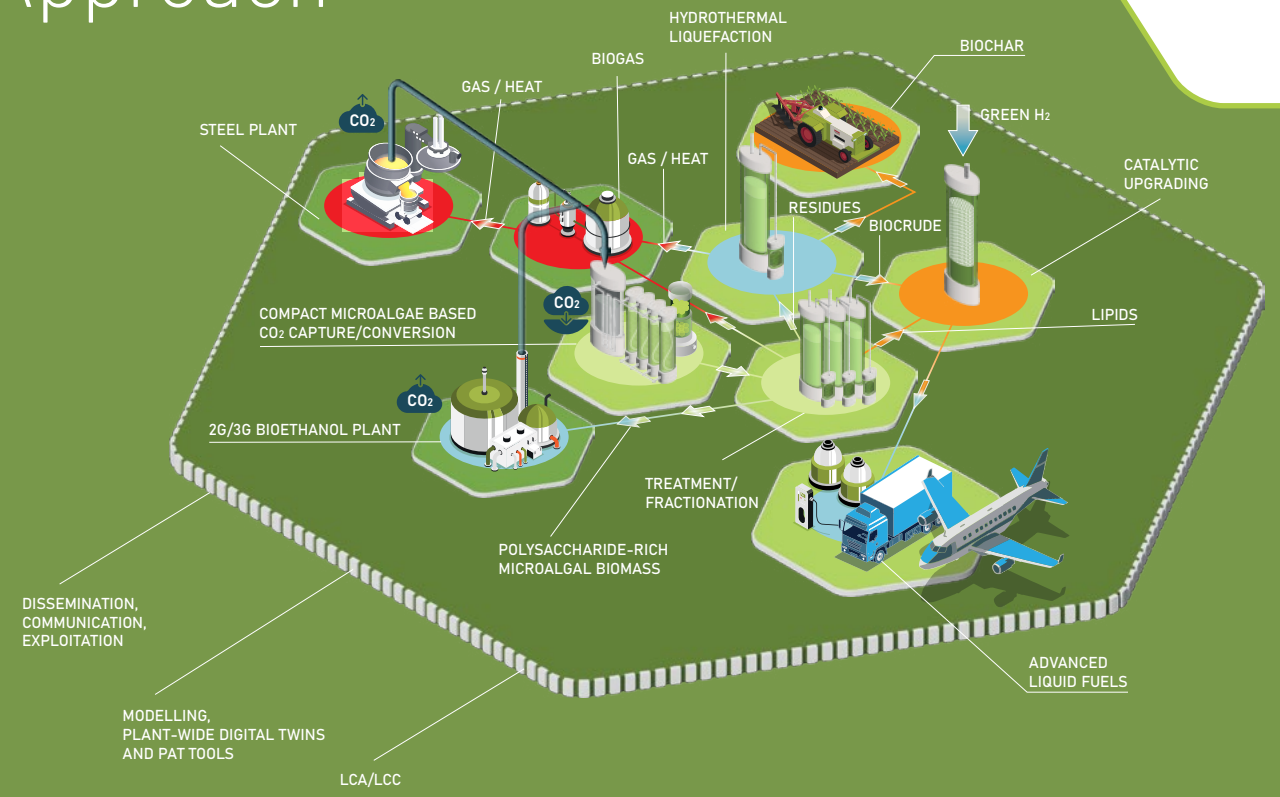
www.fuelgae.eu

Challenges

- The European transport sector must make the transition to sustainable decarbonised solutions
- Microalgae are a promising solution, due to their rapid growth rate and unique ability to capture CO_2, which can be converted into biofuels
- Treatment of microalgal biomass involves high energy consumption and costs
- Stable and versatile catalytic conversion processes for biofuel synthesis

25%
EU´s **CO_2 emissions** caused by **transport industry**

Approach



Solutions

The project aims to develop a novel model for the production of Advanced Liquid Fuels (ALFs) from CO_2 emission streams in two industrial sectors - biorefineries and energy-intensive industries, through a microalgae pilot plant integrated into their infrastructure.

For these purposes, the project will employ hydrotreatment catalytic upgrading, hydrothermal liquefaction, and digestion processes to produce biofuels, biogas, and biochar. Additionally, biochar will be tested as a soil amendment.

Impacts

ECONOMIC:

Increased EU competitiveness in the production of renewable fuels through innovative technologies for circular economy

SOCIETAL:

Sustainable transportion through integration of microalgae-based biofuels

SCIENTIFIC:

New knowledge and technological know-how to strengthen human capital in research and innovation

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Partners

6
Countries

€ 5M
Budget

01/10/2023 - 30/09/2027

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