

Move2LowC Bio-Based Fuels

MOVE2 LOWC



Laboratório Nacional de Energia e Geologia

Research Areas

Biofuels
Biomass for Industry
Biorefineries
Sustainability for Bioenergy

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Project Co-Funded by:



Motivation

The mobilizing project, Move2LowC – Biologically Based Fuels, has as its main objective the production of biofuel for the air and heavy road transport of goods and passengers' sectors. This project will allow the development of a technological rationale, up to TRL 6, and a technological exploration plan that supports the investment in the production of biofuels on a commercial scale.

Objectives

Under this project, and as a way to meet the challenge of decarbonisation, biojetfuel will be produced for the aviation sector in two ways: (1) from the autotrophic production of microalgae, which are then subjected to a hydrothermal liquefaction process producing a bio-oil that is converted into hydrocarbons through hydrodeoxygenation, giving rise to biojetfuel; and (2) through the industrial production of biojetfuel from microbial oils produced by heterotrophic fermentation of hydrolysates from residual biomass of forestry nature. At road transport level, the focus will be on hydrogen-based biofuels (BioH₂) and biomethane (BioCH₄).

The project is divided into 4 technical PPS and 1 management PPS that aim to:

- PPS1. Refining of autotrophic microalgae in biojetfuel using HEFA technology;
- PPS2. Biomass production by fermentation for refining in biojetfuel with HEFA technology;
- PPS3. Production of H₂ from biomethane for urban public transport vehicles;
- PPS4. Biomethane production from atmospheric CO₂ and hydrogen by water electrolysis.

When produced efficiently and sustainably, biomass energy brings numerous environmental, economic and social benefits when compared to fossil fuels. With the growing concern and interest in decarbonising air and road transport, the future involves the development and use of solutions that bring greater positive impact at an environmental, social and economic level.

Partnership

A4F, Algafuel, SA (Coordinator) | Associação **BIOREF** - Laboratório Colaborativo para as Biorrefinarias | Laboratório Nacional de Energia e Geologia – **LNEG** | **APQuímica** - Associação Portuguesa da Química, Petroquímica e Refinação | **SysAdvance** - Sistemas de Engenharia, S.A. | **Dourogás Renovável** - Produtora de Gás Combustível, S.A | Universidade de Trás os Montes e Alto Douro – **UTAD** | Instituto Superior Técnico de Lisboa – **IST** | Faculdade de Engenharia da Universidade do Porto – **UP** | **Petrogal, S.A.** | **Biotrend** - Inovação e Engenharia Em Biotecnologia S.A | Faculdade de Ciências da Universidade de Lisboa – **FCUL** | Universidade Nova de Lisboa – **NOVA** | **HYCHEM** | Instituto Politécnico de Portalegre – **IPP** | Universidade do Minho – **UMINHO** | **Raiz** - Instituto de Investigação da Floresta e Papel | **Redeteca** - Construção de Instalações e Redes de Gás S.A.

Project Duration

28 October 2020 - 30 June 2023

Workplan

