

1. _ introduction

Biofuels are an essential part of the European Union strategy for heightened self-sustaining energy usage and reduction of greenhouse gas emissions. For this reason, an objective has been set for 10% of fuels consumed by the vehicles in Europe to be biofuels by 2020. Biodiesel is the main biofuel currently being produced in the EU.

The key to biodiesel development is its economic and environmental sustainability, and that is the primary focus of the **Integral-B project**.

The **Integral-B** project is focused on joint **biodiesel** and **biogas** production in the same processing unit from used vegetable oils and other by-products from food industry and catering activities, as well as the valorisation of glycerine, a by-product of biodiesel production.

Funds for this project come from the LIFE+ program from the European Union.

6. _ project manager contact information

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Coordinator: **ainia**
centro tecnológico

Partnership:



www.integral-b.com

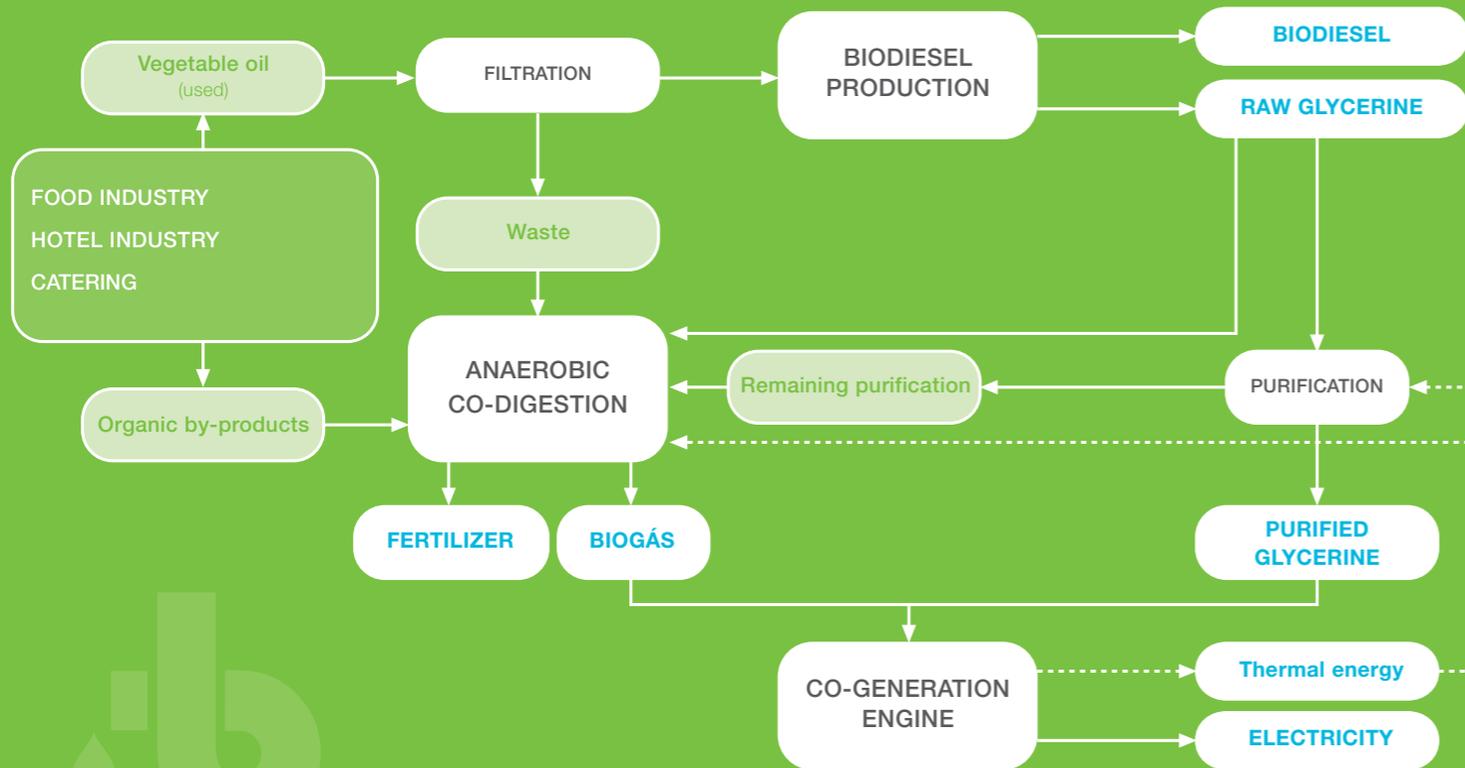
0. _ integral.b

Demonstration of a multi-feedstock sustainable biodiesel production scheme integrating an on-site by-products energy valorisation system

integral.b



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The main advantages of our proposal for **integral.b** are:

- Improved sustainability of biodiesel production plants due to the improvement of energy performance from the process (full by-product valorisation) and the income obtained from price-fixation of glycerine.
- Waste vegetable oils and other organic waste from food industry and catering, which are currently under-utilized, are transformed into energy in the same facility.

Objectives:

The objective of the project is to **demonstrate the increased sustainability** of biodiesel production plants using used vegetable oils. This is achieved by integrating:

- An anaerobic digestion system, transforms process waste and other complementary organic by-products in biogas.
- A modified cogeneration (CHP) engine fuelled with biogas and purified glycerine

Project description:

The project was initiated in January 2009 and is scheduled to last 3 years.

First year: Preliminary tests to proper development of following phases of the project (characterization of by-products such as substrates for biogas production, study of glycerine as fuel for engine, etc.). Design of pilot plants (bio-methanization and CHP)

Second year: construction, set up and integration of pilot plants in the BIONORTE industrial plant. Demonstration tests.

Third year: Demonstration tests. Economic and environmental assessment. Definition of a feasible integrated system

For further information about the project: (www.integral-b.com)

Participants:

The following groups will participate in the project:

- **ainia centro tecnológico (Valencia)** is the project coordinator and is in charge of optimizing the waste biomethanization process and the environmental and economic assessment of the process through a Life Cycle Assessment (LCA)

- **CIDAUT Foundation (Valladolid)** is in charge of glycerine purification and system design, and the construction of a biogas- and purified glycerine- fuelled cogeneration engine (CHP).

- **BIONORTE (Asturias)** is in charge of carrying out the industrial biodiesel production test and coordination of the demonstration tests with the pilot plant, which will be carried out in the biodiesel production facilities.

- **Biogas Fuel Cell (Asturias)** is responsible for the design and construction of the anaerobic digestion pilot plant for biogas production. The plant will be built through BFC wide knowledge on anaerobic digestion process.

