



PROJECT SUMMARY

PROJECT TITLE

BIOVALUE - Advanced Membranes for biogas upgrading and high added value compounds recovery

PROJECT COORDINATOR

Eng. Giuseppe Barbieri
[CNR - National Research Council - Institute on Membrane Technology]

PARTNERS

1. CNR-ITM-National Research Council - Institute on Membrane Technology

Contact: Eng. Giuseppe BARBIERI

Funding programme: Action 1.1.4 POR FESR Calabria 2014/2020: support for collaborative R& D for the development of new sustainable technologies, new products and services

2. Calabria Maceri e Servizi S.p.A.

Contact: Eng. Giuseppe ZANARDI

Funding programme: Action 1.1.4 POR FESR Calabria 2014/2020: support for collaborative R& D for the development of new sustainable technologies, new products and services

3. UNICAL - University of Calabria

Contact: Prof. Massimo MIGLIORI

Funding programme: Action 1.1.4 POR FESR Calabria 2014/2020: support for collaborative R& D for the development of new sustainable technologies, new products and services

4. Membrain s.r.o.

Contact: Dr. Marek BOBÁK

Funding programme: National research programme EPSILON - The programme for the support of applied research and experimental development

5. UCT - University of Chemistry and Technology Prague

Contact: Prof. Juraj KOSEK

Funding programme: National research programme EPSILON - The programme for the support of applied research and experimental development



ABSTRACT OF THE PROJECT

Bio-digester gas streams contain valuable products such as bio-methane and VFA whose recovery has important advantages for the environment protection, energy saving and waste valorization.

BIOVALUE focuses on the development of a membrane-based innovative process for the treatment of biogas produced by a real bio-digester. *Advanced membrane units will valorize the biogas by separating its various components, i.e., bio-methane, VFA, water, etc.* Membrane operations are nano-based key enabling technologies, based on advanced functional materials, capable to selectively separate small molecules. This confers to the membrane a specific functionality that, coupled to its configuration (very thin layer), leads to continuous separations operated in steady state. **BIOVALUE** project will use membranes - advanced nano-structured functional materials - for driving environmental-friendly and little energivorous novel separation processes valorizing waste as required by circular economy dictates.

OBJECTIVES OF THE PROJECT

The objective is to give a robust proof of concept and validation of the new technology in a real industrial environment (**TRL 6**) by designing, building, operating and validating a prototype system based on the novel integrated membrane technology.

BIOVALUE technology will deliver the purification of bio-methane of a grid-grade with inherent recovery of valuable compounds and waste water vapor, at the same time, emission reduction of pollutants and contaminants in the atmosphere, in a much more efficient way when compared to available techniques currently used. The results of **BIOVALUE** project will bridge together industry and academic research in a field (waste valorization, resource efficiency and raw materials recovery, etc.) that is an important part of the challenges defined under Horizon 2020.

WORK PACKAGE

WP1. Coordination and Management [WPL **CNR-ITM** M1-M36]

WP2. Membrane architecture for biogas upgrade [WPL **MemBrain** M1-M36]

WP3. Membrane operations for bio-methane purification at lab-scale [WPL **CNR-ITM** M1-M36]

WP4. System design, modelling and process simulation [WPL **UCT-Prague** M1-M32]

WP5. Industrial specifications, environmental indicators, LCA [WPL **UNICAL** M1-M24]

WP6. Prototype integration and validation [WPL **CalabriaMaceri** M15-M36]

WP7. Dissemination and exploitation [WPL **UNICAL** M1-M36]

CALL: M-ERA.NET Call 2018 | CALL TOPIC: Functional materials

ACRONYM: BIOVALUE

DURATION: 36 months | START DATE: 01 Apr 2019

ESTIMATED PROJECT COST: € 1.296.238



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Funding Organization

