



BioMethER LIFE+ - Biomethane
Emilia-Romagna Regional system

LIFE12 ENV/IT/000308



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Project description:

Background

The transport sector accounts for 19.5% of total European Union greenhouse gas (GHG) emissions (22.9% in Italy). Counter to the general EU trend, GHG emissions from transport have increased by 24% compared to 1990 levels, with road transport responsible for most of the rise. The replacement of fossil fuels with biofuels could be one way of changing this trend. More specifically, the production of biomethane would allow waste to be used as a source of transport fuel. However, currently, waste management represents a cost for public administrations (collection, separation, treatments, storing) and for communities in terms of health and environmental threats. The economic and environmental costs of waste management could thus be offset through the production of biomethane from landfill biogas, or from the organic fraction of municipal solid waste.

Objectives

The project will set up two demonstration plants, at Mancasale and Ravenna, for biomethane production from waste. The plants will treat both biogas from landfill, and biogas from anaerobic digestion of sludge from wastewater treatment. The plants will be connected to the transport fuel system so that the biomethane can be used for vehicle fuel; remaining energy generated by the

plants will be burnt to generate heat or power.

The project will be innovative in that it will combine established technologies (such as anaerobic digestion) with new technologies, in particular the use of a membrane technology to improve the quality of the biomethane, so that it contains more methane and less carbon dioxide than the biogas derived from landfill. This upgrading increases the energy value of gas and consequently the distance that a vehicle can drive with a given volume of gas.

Through its actions, the project will contribute to the reduction of GHG emissions by replacing a portion of fossil fuels – natural gas – with an equal amount from renewable energy sources – residual biomass, and will reduce the environmental impact of waste management. The experience from the project will be promoted as widely as possible within Italy, and the project will also establish a European Biomethane Technical Committee that will exchange information with interested organisations from other countries.

Expected results: The project expects to achieve the following results:

- The pilot plants will treat, respectively, raw biogas with 70% and 55% methane content, and will upgrade it to biomethane with methane content above 90%. Most of the biomethane will be used for vehicle fuel; the remainder will be used for power or heat generation;
- The plants are expected to produce 730 000 m³ biomethane/yr, the use of which will reduce CO₂ emissions by 2 100 tonnes compared to natural gas;
- The production and sale of biomethane will reduce the cost of waste management for public authorities. Anaerobic digestion of municipal solid waste reduces the environmental cost by reducing the bacterial load of the waste and by making it more stable; and
- The project will also produce guidelines to support the regional government of Emilia-Romagna in designing the policy for the development of biomethane, and quantify and qualify the impacts of biomethane production lifecycle.

Results

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Environmental issues addressed:

Themes

Energy - Supply

Climate change Mitigation - Renewable energies

Keywords

use of waste as energy source, biofuel

Natura 2000 sites

Not applicable

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Beneficiaries:

Coordinator	ASTER S.Cons.P.A.
Type of organisation	Development agency
Description	ASTER is a consortium promoting competitiveness and innovation. It involves the Emilia-Romagna regional authority – its main shareholder – CNR (National Research Centre), the Universities of Bologna, Modena and Reggio-Emilia, Parma, Ferrara and the Catholic University of Piacenza, ENEA (National Agency for new Technologies, Energy and sustainable Economic Development), and regional chambers of commerce and business associations. ASTER coordinates and supports the Emilia-Romagna Regional High Tech Network, which includes the regional Energy and Environment Platform. The specific mission of the Platform is to promote sustainable energy and transport.
Partners	Centro Ricerche Produzioni Animali-C.R.P.A. S.p.A., Italy Herambiente S.p.a., Italy IREN RINNOVABILI Srl, Italy Safe SpA, Italy

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Administrative data:

Project reference	LIFE12 ENV/IT/000308
Duration	01-OCT-2013 to 31-MAR -2019
Total budget	3,375,465.00 €
EU contribution	1,529,310.00 €
Project location	Emilia-Romagna(Italia)

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