

INNOVATION FUND

Deploying innovative net-zero technologies for climate neutrality

LuGaZ: Local manUre and agri-food waste treatment for bioGAs and biofertilizers production from Zero waste and circular economy perspective

The Innovation Fund is 100% funded by the EU Emissions Trading System

| Project Factsheet

LuGaZ aims to create a sustainable zero-waste facility that manages organic and non-hazardous wastes generated primarily in the dairy sector value chain, and to create the opportunity for other agri-food industries in the area to manage their residues. The project proposes an ambitious facility that combines a biogas plant with an innovative low scale upgrading system, a liquid treatment of digestate for water recovery at low cost, and a solid treatment for fertiliser production across industrial symbiosis.

Nearly 55,000 tonnes/year of residues will be collected in the facility to generate biogas containing methane which will be captured, cleaned, upgraded, and injected into the natural gas grid. The digestate will be separated into a solid fraction to generate a stabilised organic fertiliser for the primary sector to compensate for the manure sent to the LuGaZ plant, and a liquid fraction which will be treated to recover reusable water in industrial applications. The relative greenhouse gas (GHG) emissions avoidance due to

COORDINATOR

GRUPO LECHE RIO SA

LOCATION

Spain

CATEGORY

Energy intensive industries (EII)

SECTOR

Refineries

AMOUNT OF INNOVATION FUND GRANT

EUR 4,498,527

EXPECTED GHG EMISSIONS AVOIDANCE

51,604 tonnes CO₂ equivalent

STARTING DATE

01 June, 2024

ENTRY INTO OPERATION DATE

31 May, 2028

FINANCIAL CLOSE DATE

31 May, 2026

* Calculated vs. the 2021-2025 ETS benchmark of 6.84 tCO₂e/tH₂, not taking into account additional carbon abatement due to substitution effects in the H₂ end use application, i.e. conservative estimate.

LuGaZ operations during the first 10 years amount to around 85%.

LuGaZ goes beyond the commercial and technological state-of-the-art, bringing to the table a first-of-a-kind combination of waste treatment technologies for the agri-food production value chain:

- OPTIBLENDER: A specialised software for the online control of anaerobic digestion that ensures the stability and quality of the digestate produced through co-digestion mixtures optimisation.
- NIDUP: An upgrading system specifically designed for small-scale applications and is highly competitive due to its low operational costs, capability of coping with high hydrogen sulphite (H₂S) concentrations, and potential to minimise reagents/consumable's needs.
- DEPURGAN/AQUATEC: A low-cost solution for liquid treatment based on an electrocoagulation all-in-one solution.

LuGaZ contributes to achieving European climate neutrality by 2050 by producing high-quality biomethane to be directly injected into the natural gas grid. LuGaZ combines waste management with renewable energy production, which, with biogas and

the reduction of Methane emissions from open manure storage and landfills, helps make treatment affordable and energy efficient. It is also possible to obtain an added value product (fertiliser) and preserve natural resources through water recovery. LuGaZ has a potential to scale-up by increasing the size of individual integrating technologies (higher volumes of agri-food waste streams to be treated), replicating the Zero residue plant in new areas at Galician and Spanish level and applying this throughout in Europe.

LuGaZ's innovative integrated scheme will play an essential role in the dynamisation of the primary sector by creating employment in rural areas, while actively participating in creating an innovative regional model of circular economy based on waste to energy principles. Additionally, it offers a practical waste treatment solution for rural areas, reducing transport costs and carbon footprint.

| Participants

GRUPO LECHE RIO SA	Spain
AGROAMB PRODALT SL	Spain
NORVENTO ENERGIA DISTRIBUIDA PLUS SL	Spain
MEDRAR SMART SOLUTIONS SL	Spain