



INDUSTRIAL PLANT WITH COMBINED ANAEROBIC/AEROBIC TREATMENT OF OFMSW FOR THE PRODUCTION OF BIOMETHANE AND COMPOST - LECCE

Making the most of the EU Recovery and Resilience Facility (RRF) instrument, the project is in line with the increasingly stringent environmental regulations and maximize recovery and recycling rates. The initiative broadly contributes to enhancing the integrated cycle of urban waste.

The plant produces biomethane for the transport sector and compost for agricultural use in compliance with European and national regulations (EU regulation EN:13432 and the new European fertilizer regulation 2019/1009).

The project will include two process lines:

- An aerobic-anaerobic treatment section for the Organic Fraction of the Municipal Solid Waste (OFMSW) that will recover high-quality compost and biomethane;
- A wastewater and leachate treatment section that will reduce sludge to be disposed and recover clarified water.

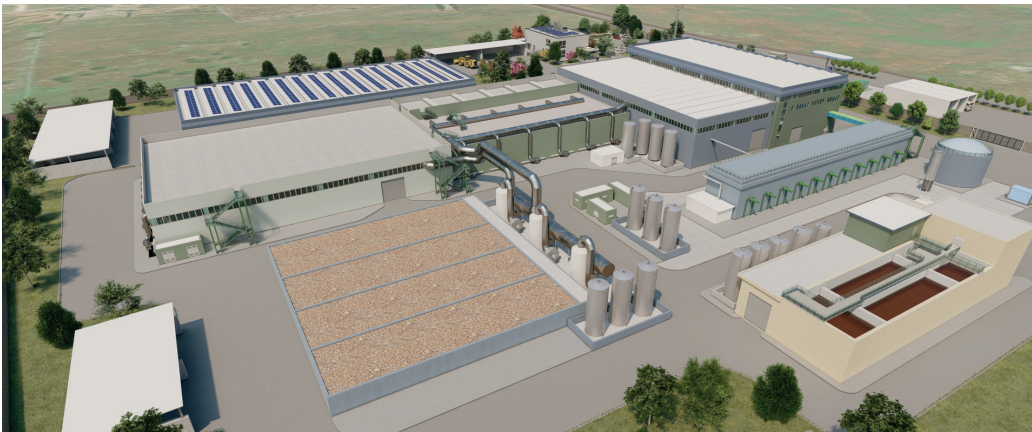
The aerobic-anaerobic process line provides a waste treatment capacity equal to 50.000 t/year, 40.000 t/y of OFMSW, and 10.000 t/y of green waste. The section consists of:

- a) A reception bunker followed by mechanical pre-treatment of incoming waste;
- b) An anaerobic digestion section, where biomass undergoes a biochemical conversion producing biogas and a residual liquid (digestate);
- c) A digestate mechanical dewatering section, with subsequent flocculation and flotation treatment followed by a leachate treatment plant;
- d) A composting section for the aerobic stabilization of the solid digestate, thus obtaining a quality compost;
- e) An up-grading unit of the biogas produced by anaerobic digestion for bio-methane production.

The wastewater and leachate are taken to the WWTP. The permeate/effluent will be suitable for on-site reuse (irrigation, processes need, etc) considerably reducing water consumption.

The WWTP will have a daily treatment capacity of 100 m³/day and includes a MBR (Membrane Bioreactor) treatment section for the oxidation of suspended biomass and the removal of ammonia nitrogen, followed by two units of ultrafiltration and reverse osmosis to ensure a high-quality output. The concentrate is sent to an evaporator for a further volumetric reduction and it will be shipped to duly authorized third-party plants.

Last but not least, an exhausted air treatment system (scrubber, biofilter, and bag filters); will ensure gaseous-effluent compliance with EU and local regulations.



DESIGN DATA

Public client Ager Puglia
Type of service Technical and economic feasibility design
Project cost € 35.286.729,56
Location Lecce (LE)
Total site surface 53.819 m²
Design period December 2021

TECHNICAL DATA

AEROBIC-ANAEROBIC OFMSW SECTION

Treatment capacity: 50.000 t/year
Process duration: 90 days
Anaerobic reactors: 1 of 3.200 m³ each
In-vessel reactor for aerobic stabilization: 7 of 412 m³ each
Maturation phase: 5 turning piles of 673 m³ each
Produced Compost: 7.200 t/year
Produced Biomethane: 410 Sm³/h