

MULTIFUNCTIONAL **WASTE TO ENERGY** PLANT BELLOLAMPO - COMUNE DI PALERMO

The project foresees the revamping of an existing Mechanical Biological Treatment (MBT) plant, as well as the construction of a new section for the treatment and energy recovery of the Organic Fraction of the Municipal Solid Waste (OFMSW) resulting from source separated collection. Added-value products such as biomethane, biofertilizers, Refuse-Derived Fuel (RDF) will be produced as well as ferrous and non-ferrous metals recovered.

The project includes:

- Improvement of the organic fraction treatment resulting from the MBT; Improvement of the organic fraction treatment resulting from the MBT;
- Treatment facility for the OFMSW resulting from source separated collection;
- Biofertilizers and quality compost production from the OFMSW (resulting from source separated collection);
- Biomethane production from OFMSW and MSW.

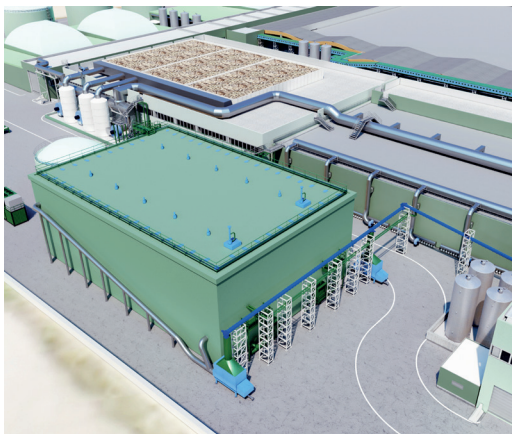
The project integrates the existing facilities with the new industrial structures. The final layout includes:

- A pre-treatment section for the OFMSW resulting from source separated collection; two anaerobic digestors (AD) to process the organic fraction sourced from the MBT section and the inflow of OFMSW resulting from source separated collection;
- A section for the upgrading of biogas resulting from AD to obtain biomethane;
- A facility to feed biomethane into the natural gas grid;
- A bio stabilization section for the digestate generated from the AD of the OFMSW from undifferentiated collection and sewage sludge (existing);
- A bio stabilization for the digestate generated from the AD of the OFMSW resulting from source separated collection to produce high-quality compost.

As a result, two different waste treatments processes will be integrated:

- 1. OF-MBT process.** This will treat the undersized organic fraction material obtained though the existing mechanical pre-treatment facility.
- 2. OFMSW process.** This will treat the OFMSW from source separated collection.

The OF-MBT process scope is the treatment of the OF obtained from the existing MBT facility through a section of dry anaerobic digestion for the production of biogas that will be sent, together with the one obtained by the OFMSW, to the upgrading facility which will capture CO₂, and therefore, obtaining biomethane. Waste coming from AD will be subject to accelerated bio-oxidation at the existing biocells. From this process an inodore outcome with low humidity (less than 50%) is obtained and destined to landfill. The FORSU process aims to obtain through AD the production of biogas and fertilizer and/or quality compost. Again, the biogas, which will be upgraded, can be fed directly in the national grid.



DESIGN DATA

Private client Biowaste CH4 Palermo S.r.l.
Type of service detailed design, executive project, construction supervision, commissioning and operation monitoring
Project cost €51.128.321,75
Location Palermo
Total site surface 40.000 m²
Design period June 2020

TECHNICAL DATA

OFMSW capacity 60.000 t/year
OF-MBT capacity 100.000 t/year
Exhaust air treatment capacity 250.000 m³/h

OFMSW PROCESS

Compost production 14.500 t year
Biogas production 1.100 Sm³/h
Biomethane production 638 Sm³/h

OF-MBT PROCESS

Biogas production 1.230 Sm³/h
Biomethane production 650 Sm³/h
Stabilized organic fraction production 67.300 t/year