



# MULTIFUNCTIONAL WASTE TO ENERGY PLANT - CASTELLANA SICULA

In the context of circular economy and energy recycling, the municipal waste platform is planned in order to produce energy and secondary raw material from MSW.

Thanks to an anaerobic digestion section, the plant is expected to produce biomethane and compost from the OFMSW, and raw material from the residual fraction of MSW. Moreover, in the platform will be executed the pre-processing and the securing of the WEEE (Waste of electric and electronic equipment) and the pre-treatment of the bulky waste.

The plant has a maximum treatment capacity of 42.500 t/year for the OFMSW section and 68.000 t/year for the residual fraction of MSW, 300 t/year for the bulky waste and finally a capacity of 1.500 t/year for the e-Waste.

The Plant activities can be divided as follows:

## A. OFMSW TREATMENT SECTION

- Mechanical pre-treatment;
- Anaerobic digestion – Biogas production - Biomethane up-grading;
- High quality compost production.

## B. MECHANICAL BIOLOGIC TREATMENT SECTION FOR RESIDUAL WASTE OF MSW, BULKY WASTE AND DRY FRACTION OF MSW

- Mechanical separation treatment;
- Anaerobic stabilization – biogas production – Biomethane up-grading;
- RDF production;
- Secondary raw material production (paper, plastic, metals, i.e.);
- Separation and collection of recyclable material from bulky waste;
- Mechanical treatment and volume reduction, with final baling.

## C. PRE-PROCESSING AND SECURING OF E- WASTE

- E-Waste storage;
- Disassembly and waste securing;
- Stockage of dangerous and non-dangerous -compound.

## DESIGN DATA

**Private client** Biowaste CH4 Castellana Sicula S.r.l.  
**Type of service** Definitive design  
**Project cost** € 55.420.465,65  
**Location** Castellana Sicula (PA)  
**Total area** 80.000 m<sup>2</sup>  
**Design period** 2021

## TECHNICAL DATA

### OFMSW TREATMENT SECTION

**Capacity:** 42.500 t/year  
**Process length:** 90 days  
**Anaerobic digester:** 1 of 2.250 m<sup>3</sup>  
**Bio-cells for aerobic stabilization:** 8 of 510 m<sup>3</sup> each  
**Maturation platform:** 2 of 2.700 m<sup>3</sup> each  
**Compost produced:** 14.000 t/year  
**Biomethane produced:** 280 Sm<sup>3</sup>/h  
**Recycled plastics produced:** 3.900 t/year  
**Recycled metals produced:** 300 t/year

### MSW TREATMENT SECTION

**Capacity:** 60.000 t/year  
**Stabilization process length:** 38 days  
**Bio-cells anaerobic:** 9 of 350 m<sup>3</sup> each  
**Biocell for aerobic stabilization:** 5 of 350 m<sup>3</sup> each  
**Post-treatments:** shredding of the RDF and baling  
**Organic fraction stabilized:** 14.600t/year  
**Recycled plastics produced:** 6.300 t/year  
**Recycled metals produced:** 1.100 t/year  
**Biomethane produced:** 180 Sm<sup>3</sup>/h

