

ACEA PINEROLESE

Pinerolo (TO) | Italy

ANAEROBIC DIGESTION PLANT



FIRST OF ITS KIND IN ALL SOUTHERN EUROPE FOR THE COMPLEXITY OF THE SYSTEM AND THE WIDE RANGE OF TECHNOLOGIES EMPLOYED, THE POLO ECOLOGICO INTEGRATO PLANT BUILT BY ACEA REPRESENTS A **COMPLETE AND INTEGRATED SOLUTION** TO THE PROBLEM OF DISPOSAL OF ORGANIC WASTE FROM THE PROVINCE OF TURIN. THE ANAEROBIC TREATMENT PLANT PROCESSING SOURCE SPARATED FOOD WASTE USES A PATENTED AND INNOVATIVE SYSTEM, **THE FLORAWIVA MORE™ AND COW**, AN **ENTSORGA'S PROPRIETARY SOLUTION**.

PLANT DATA

Company	Polo Ecologico Integrato ACEA
Capacity	90.000 t/a (total yearly processing capacity of organic waste)
Treated waste	Source separated organic waste
Final Output	Biogas to steam and power: 10.241.500 Nm3/y (in 2015)
Start up	2002-2003
Plant	Wet Anaerobic Digestion
Population Served	Up to 800,000 (total waste shed served)
Employees	23 (including AD and composting)

COMPANY

ACEA Pinerolese Industriale S.p.A, an Italian multiutility leader in the renewable energy sector, is also **one of the most advanced Italian companies in research and development of innovative technologies for the environment**. In early 2000 Acea patented an innovative system for the anaerobic digestion of food waste. The **Florawiva MORE™** reliably operating at the Ecopark since 2007, is now **exclusively distributed by Entsorga**.

PROJECT

The concept of Polo Ecologico Integrato grew from the idea of **maximizing the value of waste as a "resource" and limiting waste and emissions**, impact on the surroundings and liabilities by integrating **technically and logistically** several process solutions. Building on the concept of integration Acea added to a preexisting composting plant an anaerobic digestion plant capable of processing reliably source separated residential and commercial food waste, providing a **complete seamless solution for the needs of the local community**.

SOLUTION

The plant, uses the patented **Florawiva MORE™** associated with the **Cow aerobic composting**, an innovative system **able to recover biogas from organic waste and, for the first time in Italy, produce biomethane**. Serving an area with approximately **800,000** residents in the Province of Turin, today the Acea integrated Polo Ecologico Integrato represents one of the most effective state of the art solutions for the processing of organic waste.

PROCESS

Anaerobic digestion is the heart of a more articulated system divided into **three main sections**: the first is a **mechanical pre-treatment**, in which the bags are opened and the materials unsuitable for digestion (plastics, iron ...) are discarded. The organic feedstock is then further refined with the **Florawiva MORE™(1)**, which allows eliminating other contaminants and preparing the slurry that will be used as feedstock for the **wet anaerobic digestion(2)**: Anaerobic Digestion is naturally triggered by bacteria in absence of oxygen and under controlled conditions and produces water, **biogas** (especially methane and carbon dioxide) and digestate. The latter is then further processed into an **aerobic composting** facilities with the resulting production of high quality compost.

(1) FLORAWIVA MORE™



(3) Biogas Storage Tank

(2) Biodigester

TECHNOLOGIES USED

Florawiva MORE™ and **Cow**.

FINAL PRODUCT

The final result of the process is **biogas**, a **renewable alternative to natural gas**, rich in methane and upgradeable to pipeline quality RNG. The biogas flow is stored inside a **gasometer** and used to feed a **cogeneration plant** and produce both **heat**, partly used for the operation of the plant and in part for Pinerolo city district heating, and **energy Renewable electricity**, used by the Polo Ecologico and sold on the net. Since 2014 part of the biogas is transformed into **biomethane**, with the intention of putting it on the net and using it for different purposes, from domestic use to motorization.

STRENGTHS

- **Maximizes the recovery of energy** extractable from organic waste
- **Minimizes residues to be sent to landfill**, and the consequent **emission of CO₂** into the atmosphere, in compliance with European standards
- **Reduces the use of fossil fuels**
- **Avoids the release of odors** into the surroundings: the "exhaust process air" is biogas, which is entirely recovered
- **Guarantees total safety**: no odors or particulates are released in the external environment. All operations take place in an enclosed and slightly depressurized environment.
- **Reduces labor costs and H&S risk**: complete plant automation reduces access to waste treatment areas, protecting health and ensuring operator safety.