

## EIP-AGRI practice abstract

### Short title:

Technology for N&P recovery as compost starting from green waste and pre-digested mixed-waste with "ACEA Pinerolese" anaerobic digestion and composting process

### Summary:

ACEA PINEROLESE takes care of treating municipal organic wastes for the production of biogas and digestate (sludge quite stabilized and hygienized). The company serves a user basin of about 1 million of inhabitants for the treatment of organic waste. The current capacity is 60000 t/y of organic waste. The first phase of the process consists of an anaerobic biodigestion (in the absence of oxygen), which allows the recovery of material (compost) with an innovative energy recovery system (biogas). In the future framework, all the biogas is going to be used for biomethane production. Digested organic waste (digestate) is dehydrated and then sent to the composting system, integrated to the facility. The biogas obtained from fermentation is conveyed to a gasometer and temporarily stored. The water used in the process is partly recirculated, while the remaining portion is sent to the wastewater treatment plant, integrated to the facility. The process produces biogas, a natural gas rich in methane. The biogas coming from the plants of the Integrated Environmental District of ACEA, together with the biogas from the landfill and the biogas from the wastewater treatment plant, is stored in a gasometer. The mixture of biogas is sucked from the gas-holder, cooled and sent to 3 Otto cycle engines (the total nominal power is 3 MW). The electricity and the heat produced are used for internal consumption and the excess is transferred to the electric grid and to the district heating, respectively. The enhancement system of biogas for energy purposes developed by ACEA prevents the dispersion of biogas into the atmosphere. Compost is another final product (end-of-waste).

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