

CHP implementation at an agricultural plant

An avus 500plus module upgrades biogas and supplies heat to the digesters at Italy's first agricultural biomethane plant.



The Bagnod Farm is a family-run business with deep roots in the Piedmont region in Italy. Its history began in 1946 in Piverone, in the province of Turin, where the Bagnod family has, over time, built a multifaceted agricultural enterprise that includes livestock farming, crop cultivation, dairy production, food processing, and agritourism. This model has evolved over several generations, fostering a direct

connection between raw materials, the local territory, and product quality.

In addition to agricultural production, the farm has for years been pursuing a strategy focused on harnessing the energy potential of its available resources. Livestock waste, manure, and agricultural biomass can, in fact, be converted into a resource for biogas production through the

process of anaerobic digestion. In this way, the byproducts of agricultural activity are reintegrated into the production cycle in the form of electricity, heat, and — through specific upgrading processes — biomethane.

The 2G avus 500plus CHP unit, with an electrical output of 550 kW and a thermal output of 526 kW, is part of this process. The unit generates electricity from biogas and recovers heat that is useful for the company's operations. Specifically, the thermal energy is used to maintain the temperature of the digesters, helping to ensure the temperature conditions necessary for the biological process.

For an agricultural operation like Bagnod, cogeneration is not an isolated element, but an integral part of a broader production model. Livestock and crops provide the organic matter, the digester produces biogas, the cogeneration unit converts the gas into usable energy, and the recovered heat is fed back into the process, helping to maintain the temperature of the digesters. Energy production thus interacts directly with agricultural activities and contributes to a more efficient management of available resources.

The project takes on even greater significance when viewed within the context of the company's energy transition. In 2024, Bagnod inaugurated Italy's first agricultural biomethane plant in Piverone, funded by PNRR funds: a 400 Smc/h facility built with a total investment of 6 million euros and with an estimated annual production of 3.5 million cubic meters of biomethane, equivalent to the energy needs of approximately 3,500 households. The plant uses sustainable plant biomass and livestock manure from the farm and other local agricultural operations, strengthening the link between local agricultural production and renewable

energy.

The presence of the avus 500plus underscores the role of cogeneration within this supply chain. The biogas is utilized directly on-site, while the heat recovered from the engine is used for a specific technical purpose: maintaining the digesters under the necessary operating conditions. This is particularly important in agricultural facilities, where operational continuity, stability of the biological process, and efficient energy use all impact the plant's overall yield.

With this installation, 2G contributes to the energy path of Azienda Agricola Bagnod by providing technology designed to work continuously in the agricultural sector, where reliability, efficiency, and the ability to enhance biogas are crucial elements. The result is a system that allows the company to integrate energy production into its production cycle, keeping at the center the same logic that drives agricultural activity: to concretely utilize the resources already present in the area.



Azienda Agricola Bagnod

avus 500plus
550 kW electrical
526 kW thermal

