

STABLE, EFFICIENT POWER FOR THE ITALIAN PLASTIC RECYCLING INDUSTRY

with Jenbacher CHP technology

Background

Founded in 1987, Dentis specializes in the recovery and recycling of polyethylene terephthalate (PET) packaging wastes and is one of Italy's biggest PET post-consumer bottle recyclers. At its production site and group headquarters in Sant' Albano Stura (Cuneo), the company produces recycled PET bottle PETALO® flakes and bottle-grade rPET REPETER® pellets, which it provides to Italian and international brand owners. The Dentis Group also has two production sites abroad (Valencia, Spain, and Lille, France) for a total recycling capacity of more than 270,000 tons of post-consumer PET bottles per year.

Plastic recycling is a growing global business. But when Dentis decided to double the size of its recycling plant, it recognized it would not be able to obtain the power it required from the grid. The company turned to INNIO Group for a turnkey solution that could meet its energy needs while reducing costs—and complete the plant during the COVID-19 pandemic.

»The technical flexibility provided by the Jenbacher team, especially regarding our specific electrical connection requirements, played a critical role in our selection process. The Jenbacher engineers were able to identify the right solution for us, and then implement it on time, even during the pandemic.«

Roberto Dentis, DENTIS Recycling Italy S.r.l.

Solution

Working with a third-party company that was building the power island on the site, INNIO Group supplied a complete Jenbacher combined heat and power (CHP) plant, including two J624 engines running on pipeline gas.

INNIO Group's contract with Dentis also included balance-of-plant (BOP) and an 11-year customer service agreement (CSA) with maintenance using Jenbacher technicians.

Commissioning took place on schedule in July 2022.



Results

The timely CHP installation allowed for faster plant expansion, outpacing the infrastructure power grid limitations. The two highly flexible Jenbacher Type 6 engines supply direct power to the plant, meeting 80% of total load demand.

The heat recovery with the CHP system drives business plan profitability by delivering extra heating for the plant, cutting energy costs for the site's existing boilers. In addition, Dentis now has access to the Italian incentivization tariff mechanism ("Certificati Bianchi") thanks to the heat recovery in place, which improves the profitability of the energy system.

Plus, with cogeneration, Dentis has reduced its carbon footprint, lowering its primary energy consumption by around 30% compared to the separate production of heat and electricity.



Key technical data

Installed Engines	2 x J624
Energy Source	Pipeline gas
Electrical Output	8.8 MW
Thermal output	Thermal hot water 90°C: 5.2 MW Thermal steam 11 bar: 2.8 MW
Total efficiency	84%
Emissions*	250 mg/Nm ³
Year of Commissioning	2022

*(according to TA-Luft based on 5% O₂), NO_x



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Customer benefits

- With cogeneration, Dentis has lowered its primary energy consumption by around 30% compared to the separate production of heat and electricity.
- Dentis can access the Italian incentivization tariff mechanism ("Certificati Bianchi") thanks to the heat recovery system.
- The timely CHP installation allowed for faster plant expansion.
- Because Jenbacher engines are "Ready for H₂," the Jenbacher unit can be converted to operate with up to 100% hydrogen. Details on the cost and timeline for a future conversion may vary and need to be clarified individually.



About INNIO Group

INNIO Group is a leading energy solution and service provider that empowers industries and communities to make sustainable energy work today. With its product brands Jenbacher and Waukesha and its digital platform myPlant, INNIO offers innovative solutions for the power generation and compression segments that help industries and communities generate and manage energy sustainably while navigating the fast-changing landscape of traditional and green energy sources. INNIO is individual in scope, but global in scale. With its flexible, scalable, and resilient energy solutions and services, INNIO enables its customers to manage the energy transition along the energy value chain wherever they are in their transition journey.



INNIO is headquartered in Jenbach (Austria), with other primary operations in Waukesha (Wisconsin, U.S.) and Welland (Ontario, Canada). A team of more than 4,000 experts provides life-cycle support to INNIO's more than 55,000 delivered engines globally through a service network in more than 100 countries.

In March 2023, INNIO's ESG rating ranked first out of more than 500 companies worldwide in the machinery industry assessed by Sustainalytics.

For more information, visit the INNIO website at www.innio.com.

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