



RENEWABLE
THERMAL
COLLABORATIVE

Solar Thermal at Birra Peroni Brewery



*Solar thermal field at the Birra Peroni brewery in Bari, Italy
Credit: Antonio Tartaglione*

Project Overview

Birra Peroni, part of the global Asahi Group, commissioned a solar thermal system at its brewery in Bari, Italy in June 2023 as part of its commitment to achieving zero carbon emissions across its brewing facilities by 2030. Partnering with solar thermal provider Absolicon, Birra Peroni deployed a ground-mounted field of Absolicon's patented T160 parabolic trough solar thermal collectors to generate renewable hot water and steam for the brewery's pasteurization process.

The 460 kW solar thermal field has a reflector area of 660 m² and integrates with an on-site heat exchanger and hot water storage tank. This initial installation can produce 349 MWh of hot water or 366 MWh of steam per year, avoiding approximately 50 metric tons of CO₂ emissions annually. Birra Peroni will determine whether to expand the solar thermal field after evaluating data from the one-year pilot period from 2023-2024.

Technology

Birra Peroni opted for parabolic trough solar thermal technology due to its ability to provide the necessary temperatures and pressures for the

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LOCATION
Bari, Italy

INDUSTRY TYPE
Food and beverage

FACILITY TYPE
Brewery

TEMPERATURE
140°C (284°F)

TECHNOLOGY DEPLOYED
Solar thermal (parabolic trough)

EMISSIONS IMPACT
Avoids approximately 50 metric tons of CO₂ emissions annually

brewery's pasteurization process with zero carbon emissions. In beer pasteurization, the product is rapidly heated for a few seconds or minutes, extending its shelf life by killing any microorganisms that could cause spoilage. Absolicon's T160 parabolic trough collectors can generate heat at temperatures up to 160°C and steam pressures up to 8 bar, satisfying the 140°C and 5.3 bar needs of this brewery.

The solar thermal field includes 120 solar collectors installed on the ground outside the brewery and feeds water to a storage tank with a capacity of 30 m³. This configuration allows the solar thermal system to provide hot water and steam to the brewery even during periods of low sunlight. The system meets 50% of the pasteurizer's nighttime heat demand from June through September, supplementing heat from natural gas combustion.



Hot water storage tank and solar central at the Birra Peroni brewery in Bari, Italy. Credit: Antonio Tartaglione

“In line with our long-term sustainability goals, we are committed to zero emissions in our production by 2030. Sustainability performance in our Bari plant is already on the right track and thanks to Absolicon’s technology we took another step towards reaching our environmental goals.”

- Enrico Galasso
Managing Director of Birra Peroni

Installation

Under a heat purchase agreement (HPA), Absolicon was responsible for manufacturing the solar collectors, installing the solar thermal field and associated equipment, and integrating it with the brewery’s operations. The solar thermal system took approximately three months to install and did not require any operational downtime at the brewery. Birra Peroni buys the hot water and steam produced by the system at a set price, reducing the company’s exposure to fuel price volatility and guaranteeing energy savings over the long term.

The installation of the solar thermal field in June 2023 marked the beginning of a one-year pilot period during which Birra Peroni and Absolicon assessed the solar field’s operational capabilities,

reliability, intermittency impacts, and overall output across the varying seasonal conditions in Bari. Birra Peroni will decide whether to expand the solar thermal field based on the evaluation period data, potentially enabling the plant to use a much larger amount of emissions-free heat and reduce its Scope 1 emissions.

Key Outcomes

By providing 349 MWh of hot water per year, this installation reduces the brewery’s use of natural gas for pasteurization, resulting in emissions reductions of approximately 50 metric tons of CO₂ per year. If Birra Peroni decides to expand the system after the evaluation period, the brewery would lower its annual emissions even more.

The HPA ensures that Birra Peroni receives solar heat at a constant price, moving the company towards its sustainability goals while decreasing the financial uncertainty associated with reliance on volatile fossil fuel prices.

This pilot installation illustrated the importance of hot water storage in handling weather- and process-related variations in thermal supply and demand. It also demonstrated that solar hot water performs better than solar steam because it can integrate with the onsite storage tank and operate at lower temperatures. Lastly, the pilot required Birra Peroni to review its manufacturing process to optimize energy consumption, for example, by cleaning heat exchangers to enable higher heat transfer and finetuning temperature setpoints.

Lessons Learned

- **Pilot projects build confidence.** Pilot projects allow companies to gain operational experience and build confidence in new technologies before broader deployment. The one-year evaluation period will enable Birra Peroni to thoroughly vet the solar thermal system's performance across all seasons prior to making a larger commitment.
- **Solar thermal supports food and beverage decarbonization.** Solar thermal is well-suited for food and beverage manufacturing facilities like breweries due to their large heat demands and relatively low temperature requirements.
- **Heat purchase agreements reduce risk.** Financing models like heat purchase agreements can accelerate renewable thermal adoption by eliminating upfront costs and project risk for buyers. This contract structure enables Birra Peroni to simply purchase the solar thermal system's heat output while Absolicon owns, operates, and manages project risk for the system.

Next Steps

- Watch a [video](#) about the solar thermal system at Birra Peroni's brewery in Bari, Italy.
- Use Absolicon's [Field Simulator](#) to estimate energy savings and costs based on the project location, production temperature, and current energy source.
- See more information on the applications and market potential of solar thermal energy in the [RTC's Solar Thermal Action Plan](#) and [Renewable Thermal Vision Report](#).
- Read more [case studies](#) from the RTC to learn how energy users and solutions providers are deploying renewable thermal technologies.
- Find solutions providers through the RTC's [Partner Locator](#).
- Join the RTC to participate in working group meetings, learn from other renewable thermal buyers, and connect with solutions providers. Contact the RTC's Membership Director, Perry Hodgkins Jones (perry@dgardiner.com) to learn more.



The Renewable Thermal Collaborative (RTC) is the global coalition for companies, institutions, and governments committed to scaling up renewable heating and cooling at their facilities. Learn more about our work at www.renewablethermal.org.

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