

California Dairies, Inc.

Location: Tipton, California

Installed: 2005

California Dairies, Inc. is the number one dairy cooperative in the United States. The Tipton facility's production numbers are staggering: processing capacity of seven million pounds of milk per day; 130 million pounds of powdered milk each year, using two evaporator/dryer trains; and two churns produce 18,000 pounds of butter per hour.

Since the plant is located at the end of a long distribution line, California Dairies often experienced voltage sag and production losses. Even a short-term loss of power could incur large product and revenue losses.

California Dairies concluded that they needed a highly reliable power supply to keep their product from spoiling in the event of a power outage. The ample heat demand needed for their processes lends itself nicely to a cogeneration system.



A cogeneration system, with the utility supply for standby, would insure the greatest level of power reliability and plant efficiency.

After installing the cogeneration system, the plant can switch to island mode and maintain full power and operation without using supply from the utility.

A *Centaur*[®] 50 gas turbine generator set was chosen as the centerpiece of the cogeneration system. Adding a heat recovery steam generator (HRSG), switchgear, and a motor control center completed the system. Solar also provided engineering, procurement, and construction services to California Dairies in support of the project.

Waste heat from the *Centaur* 50 is directed to the HRSG to make steam for the plant's evaporator/dryer, as well as heating for the plant. The gas turbine produces 4.6 megawatts of power and the overall plant efficiency exceeds 86% on a lower heating value

basis. This is significantly more efficient than producing steam in a package boiler and purchasing electricity from the local utility. While California Dairies' highest priority was power reliability and reduced product wastage—which alone paid off the plant in short order—the savings on energy was a nice addition to the overall plant benefits.

Solar Turbines Incorporated is a wholly-owned subsidiary of Caterpillar Inc., a world leader in the design, manufacture, installation and operation of power generation equipment.

For more information on this project and how Solar Turbines can provide a sustainable, effective solution to meet your energy needs, contact:

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