



CHP
TECHNICAL ASSISTANCE
PARTNERSHIPS

Taylor Farms

2 MW CHP

with Wind and Solar PV



Site Description

Taylor Farms is a premier processor of salads and healthy fresh foods supplying many of the largest supermarket chains and food service restaurants in the United States. Taylor Farms is headquartered in Salinas, CA, operates twenty-six processing plants throughout the country, and employs more than 20,000 workers. Its fresh cut vegetable processing facility in Gonzales, CA, is able to wash, cut and package over 4 million pounds of fresh vegetables each week. The packaged vegetables are stored in a refrigerated warehouse for a short time until shipped to the retail outlets.

Quick Facts

LOCATION: Gonzales, California
MARKET SECTOR: Food Processing
FACILITY SIZE: 250,000 sq. ft. Processing Plant
PEAK LOAD: 6 megawatts (MW)
EQUIPMENT: One 2 MW natural gas fueled reciprocating engine generator with heat recovery driving a 240-ton aqueous ammonia absorption chiller. The microgrid also includes 1 MW of solar photovoltaics and 1.8 MW of wind.
FUEL: Natural gas
USE OF THERMAL ENERGY: ammonia refrigeration
CHP TOTAL EFFICIENCY (HHV): 75%
***ECONOMICS:** Capital Cost net incentives - \$2.3 million; Annual Cost Savings - \$600,000
**Source: Taylor Farms*
ENVIRONMENTAL BENEFITS: NO_x emissions less than 0.07 lb/MWh
CHP OPERATIONAL HISTORY: CHP system commissioned in 2017

Reasons for CHP

As North America's largest producer of salads and healthy fresh foods, Taylor Farms strives to create a positive long-lasting social and environmental impact through its product, processes and people. Taylor Farms' core pillars are:

- Healthy Environment
- Healthy Business
- Healthy Community

Sustainability initiatives span continuous progress toward Zero Waste Certification, water stewardship, on-farm resource conservation through its growing partners, and renewable and alternative energy.

Taylor Farms has been investing in renewable and alternative energy solutions since 2012 in pursuit of sustainable and reliable energy independence. Their goal is clean, reliable and affordable energy to power operations across North America. Taylor Farms has implemented clean onsite generation technologies including solar, wind, electric-only fuel cells and Combined Heat and Power (CHP) at multiple U.S. facilities. Coupled with efficiency and waste reduction measures, Taylor Farms has reduced greenhouse gas emissions in excess of 210,000 metric tons since 2018, equivalent to taking over 45,000 cars off the road.

CHP Equipment & Microgrid

The modular CHP system at the Gonzales plant was developed and constructed by Concentric Power, an Energy Solution provider focused on food and refrigeration applications. It includes a Caterpillar 2 MW natural gas fueled internal combustion engine generator, an AeriNOx emission control system, a DCL exhaust heat exchanger, and an integrated aqueous ammonia 240-ton absorption chiller.

Recovered heat from the engine exhaust and jacket coolant are used exclusively to drive the absorption chiller which supplies ammonia refrigerant at 18°F to the cold storage room. The total amount of electricity that is displaced from the utility grid by the engine generator and absorption refrigeration unit is 2.3 MW.



(Photo: Courtesy of Concentric Power)

The Gonzales site is also home to a 1.85 MW wind turbine and a 1 MW solar PV array. The CHP controller economically dispatches the CHP system to complement the variable wind and solar power sources. The renewable and CHP generators at the site are currently not capable of running independent of the grid.

CHP Operation

The CHP system is owned by Taylor Farms and is operated and maintained by Concentric Power. A state-of-the-art microgrid controller maximizes the use of onsite renewable resources and dispatches the CHP system for optimal economy. The absorption chiller runs in lockstep with the engine generator and reduces the load on the 2,700-ton electric refrigeration system. The system has provisions for additional CHP and battery storage to be implemented in the near future.

"Plummeting prices for renewables, grid reliability concerns, and escalating retail electricity prices are accelerating the market for dispatchable CHP systems as an anchor for multi-technology intelligent Microgrids."

Brian Curtis, CEO, Concentric Power

Key Takeaways

- CHP can complement variable output renewables and batteries to maximize environmental, economic and resilient performance.
- The system currently offsets over 90% of the facility's power consumption with 10% coming from solar, 18% from wind, and 64% from CHP.
- Upgrades and enhancements are planned to equip both the CHP system and renewables into a microgrid for outage ride-through capabilities adding resilience to the Taylor Farms, Gonzales facility.

For More Information

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Date produced: 2021