



Food Processing



# FuelCell Energy

Ultra-Clean, Efficient, Reliable Power

## Gills Onions Oxnard, CA

**problem:** Gills Onions, the largest onion processor in America, was looking for a way to dispose of 200,000 to 300,000 lbs. per day of onion processing waste in a cost-effective, environmentally sound way. Gills Onions' goal is to achieve zero waste at every level of its operation, improve energy efficiency, reduce costs, and greenhouse gas emissions.

**solution:** Gills Onions found the ideal solution by using an onsite anaerobic digester to produce biogas, which is supplied to the fuel cells to generate 600 kilowatts (kW) of power. FuelCell Energy DFC power plants use methane from Gills Onions' digested onion waste to produce Ultra-Clean electricity. Waste heat from Gills processes accelerates the conversion of onion juice into methane. By product solids are sold as high-value cattle feed.

When the system was installed, it was the first of its kind in the world—and the most efficient. DFC fuel cells are 47% electrically efficient and up to 90% efficient in Combined Heat and Power applications like this one.

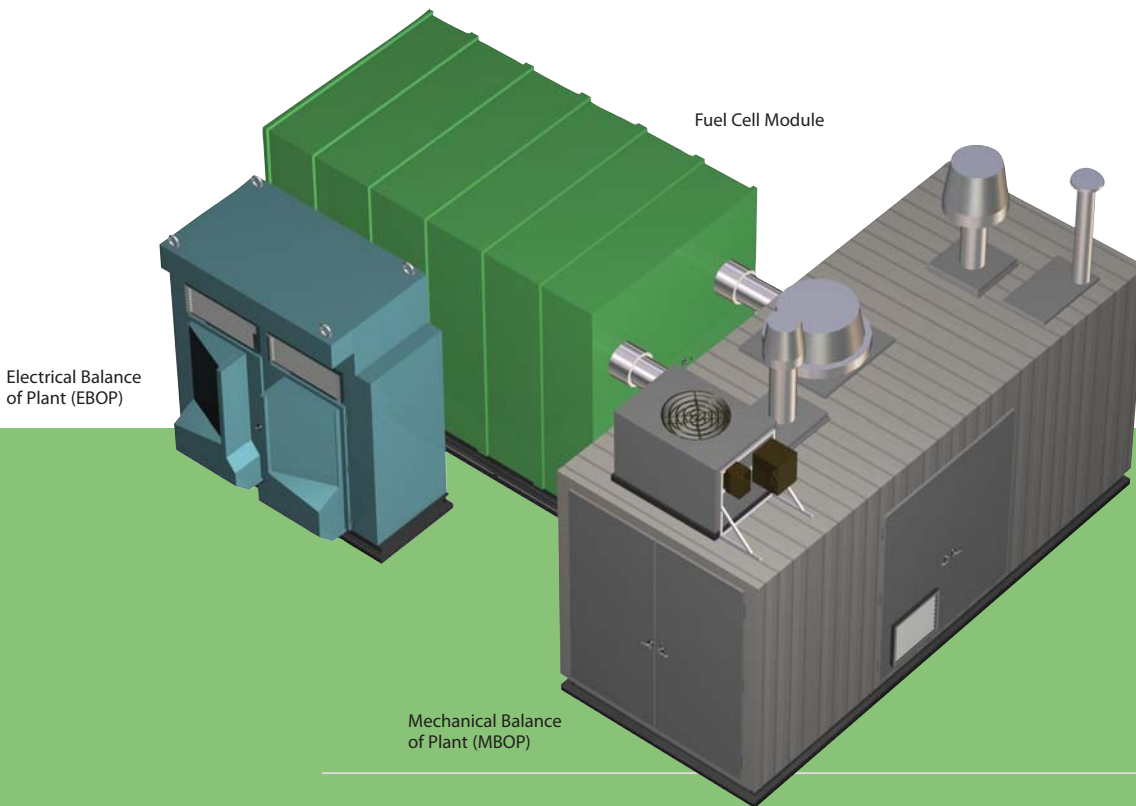
**result:** Gills Onions' 600 kW of Ultra-Clean electricity reduces its dependence on the electric grid and saves an estimated \$700,000 a year.

Additionally, the power plants reduce greenhouse gas emissions by up to 30,000 tons annually, the land required for composting, and the tipping fees Gills Onions pays for waste disposal. It also eliminated the onion composting methane emissions—which are at least 21 times more harmful than Carbon Dioxide.



### About DFC Power Plants

*Direct FuelCell power plants operate on a variety of fuels, including methane from biogas, waste gas from industrial processes, and natural gas.*



Direct FuelCell power plants are comprised of three major functional elements: Electrical Balance of Plant, Mechanical Balance of Plant, and Fuel Cell Modules

FuelCell Energy power plants produce power without combustion and virtually eliminate pollution from nitrous oxides, sulfur oxides, and particulate matter. The DFC power plants' high efficiency deliver energy cost savings and low CO2 emissions.

Conventional power plants are only 33% electrically efficient because much of the energy is lost in generation, transmission, and distribution. Distributed generation such as DFC power plants integrate into the existing power grid at the customer site, eliminating line losses. Because they can operate independently from the grid, DFC power plants provide added security during peak usage times when the grid is most vulnerable. Additionally, DFC power plants' low noise, easy permitting, and easy siting make them a superior choice over other distributed generation choices like turbines and diesel engines.

#### About Gills Onions

Since its beginning 25 years ago, one of the Gills family passions has been to explore new technologies and methods to maximize conservation and efficiency in all areas of its business. From water conservation, green packaging, employee relations, recycling, waste prevention, and efficient land usage to community involvement, Gills Onions has always been an environmentally-conscious pioneer in the fresh produce industry.

#### About FuelCell Energy

FuelCell Energy develops and markets Ultra-Clean power plants that generate electricity with higher efficiency than distributed generation plants of similar size and with virtually no air pollution. For more information on the company, its products, and its world-wide commercial distribution alliances, please visit [www.fuelcellenergy.com](http://www.fuelcellenergy.com).

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