

Fairway Market at Red Hook



- ▶ Combined Heat and Power (CHP)
- ▶ Five-story complex with food market, bakery, apartments, and offices
- ▶ Brooklyn, New York

Speciality Market Saves with On-Site Power Generation

It would have cost more than \$1.5 million to extend adequate electric utility service to an upscale supermarket and residential complex on the Brooklyn waterfront. Instead, the developers decided to generate their own power, help the environment, and reap monetary savings besides.

They installed an energy-efficient combined heat and power (CHP) plant that runs on clean-burning natural gas from National Grid. It generates 1,000 kW of electricity for Fairway Market and the other occupants of a refurbished five-story, pre-Civil War building in Brooklyn's up-and-coming Red Hook neighborhood. The power, supplied by four 250 kW cogeneration units manufactured by Coast Intelligen, Inc., meets 90% of the site's energy needs, with the remainder coming from the electric grid.

"Coast Intelligen was pleased to supply a complete pre-packaged cogeneration solution to the project that will provide many years of reliable operation and should result in dramatic energy savings," says David H. Lesser, President of Coast Intelligen. The company recently relocated its manufacturing operation from the West Coast to West Babylon, New York with the formation of Intelligen Power Systems, LLC, and will operate and maintain this CHP plant as well as the balance of the heating and cooling plant. "Proper operation and maintenance is critical to the success of projects such as this," says Lesser.

Much of the on-site power is used to operate the massive refrigeration system that keeps the 52,000-sq.-ft. specialty food market's frozen and dairy foods fresh. The market has an on-site bakery and offers 800 varieties of cheese, as well as gastronomic delights from all parts of the globe.

In addition to avoiding the cost of upgrading electric service to the Red Hook location, the CHP system saves its owners \$650,000 a year in electric costs.





This Fairway Market – one of four in the tri-state area – occupies the ground floor of a former coffee warehouse on the picturesque waterfront. Shoppers who visit the market’s outdoor café enjoy spectacular views of the Statue of Liberty and Manhattan skyline. Those coming from Manhattan can ride water taxis across the river virtually to the market’s doors.

In addition to the market, the 230,000-sq.-ft. complex includes 45 loft apartments and offices.

Heat, cooling and hot water

By-product heat produced by the generators is captured and used to heat water for space heating and domestic hot water for the complex.



The heat also drives a 300-ton Trane absorption chiller that provides space cooling. By maximizing the natural gas energy impact, the CHP system achieves 85% efficiency, in contrast to 33-35% efficiency at most electric utility generating plants, according to the engineering company Energy Concepts Engineering P.C., of Rochester, New York. Energy Concepts designed the system and supervised construction. Catalytic converters on the cogeneration units were designed to meet strict California emission standards.

In addition to avoiding the cost of upgrading electric service to the Red Hook location, the CHP system saves its owners \$650,000 a year in electric costs. The system is expected to pay for itself in about four years. National Grid assisted the project from the inception. National Grid provided \$250,000 in capital costs for natural

gas piping to meet the gas demands for this once isolated area.

“National Grid is a strong proponent of CHP systems, because they provide our customers with an efficient way of reducing their energy costs and provide environmental benefits as well. We look forward to working with customers like Fairway to develop overall sound energy solutions that also have a positive impact on the communities we serve,” says John Miro, National Grid Director of Business Markets.

“We are pretty environmentally conscious as a business,” says Dan Glickberg, Executive Vice President of Fairway Market, a fourth-generation family-owned business based in New York City. “We’re pretty thrilled that we would see some economic benefit as well.”

Many other benefits

Other advantages of this CHP system include the following:

- **Reduced air pollution:** By using less energy and by using clean natural gas with special emission controls, the system produces fewer overall emissions than conventional processes.
- **Ozone-free air conditioning:** The absorption chiller uses distilled water as a refrigerant.
- **Quieter operation:** Major equipment is confined to a special sound-controlled central plant building.
- **Future flexibility:** Modular power generating and heating units can be added or removed to meet future needs.





The building still receives 10% of its power from the utility because the CHP plant is an induction system, which requires some grid power to operate. As a result, a diesel backup generator was installed to ensure continuity of service in the event of a grid failure. The plant is fully automated and requires minimum manual operation.

“Blackouts are a major problem for any supermarket,” says Glickberg. “It’s not only loss of sales, but potential loss of merchandise.”

Interest in combined heat and power systems is growing, because New York wholesale electric rates have been increasing 10% a year for the past 3 years.

In generating its own power, Fairway Market is also being a good citizen, by reducing demand on the power grid. Due to lower operating costs, Fairway relocated a large portion of its food preparation/processing operation from its Harlem facility to Red Hook.

Ruben S. Brown, President of E Cubed Company, LLC, which provides energy management and policy expertise for the project, reports that New York City’s mayor recently called for 800 MW of new distributed generation in the city by 2030. The city now has 240 MW, plus the 1 MW at the Fairway Market complex in Red Hook.

“Fairway in Red Hook is right on the cutting edge of what public policy is calling for,” says Brown.

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