

# POWER Engineering

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## Distributed Generation: DGenie is Out of the Bottle



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Located in the Chicago suburb of Glenview, the Abt family operates the giant Abt retail appliance outlet, which the family started in downtown Chicago in 1936. While customers shop for state-of-the-art electric appliances, two on-site 825 kW Waukesha Enginators VGF P48GLD engines are providing all of the 350,000 square-foot store's electric energy needs.

The on-site generation is the responsibility of John Brandt, telcom/facilities manager. "Electricity rates are very high in this area," Brandt says. "And without the ability to produce our own, we would be paying around \$45,000 each

month to Commonwealth Edison. We save about a third of this by making our

## Mom and Pop DG

own power from 9 a.m. to 6 p.m. each day, when rates are the highest. For example, we saved \$20,000 in October alone."

The Abt facility buys power at 480V and steps it down with transformers to 110/220. Peak demand charges average around 12 cents/kWh, while off-peak, after 6 p.m., is around 6 cents/kWh and after 10 p.m. and on weekends averages about 3 cents/kWh. The generators allow Abt to base load and peak shave, thus avoiding bulk daytime energy charges and high demand charges. The system is designed to generate 825 kW of power at 4.5 cents/kWh including maintenance costs, based on a natural gas price of 50 cents/therm. The payback period is projected to be 4.3 years.

Utility sags, or brownouts, are frequent but the engine/generator units handle them well, says Brandt. "One is a backup to the

other except during the typical four-month cooling season when both engines are operated at the same time. This works out well since gas prices are traditionally lower during the summer months. The engines run in parallel with the utility and, although Abt could

export electricity to the grid, it would not be economically feasible given the low buy rate from Commonwealth Edison. Although the units currently provide electricity only, Brandt notes that some co-generation may be considered over the long-term.

"There has been a lot of interest from other businesses in the area, so I'm giving tours of my power plant all the time," Brandt says. "The Enginators along with the entire system have been reliable. They are saving us money and I have recommended on-site power generation to others."



Abt's John Brandt is responsible for the family-owned appliance retailer's on-site power supply. Photo courtesy of Waukesha.