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Trying to power profits

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PEEKSKILL - On Aug. 14, 2003, as millions of homes and businesses in the United States and Canada lost their electrical power, Nick Pasquale and a pair of his start-up company's technicians continued their work without realizing the rest of the region was in a blackout.

As soon as the juice stopped flowing into the makeshift laboratory of Gaia Power Technologies Inc. at 8 John Walsh Blvd., one of the company's backup PowerTower units began supplying energy. The lights never flickered. The researchers didn't know electrical power was out until one of them turned on a radio and got no reception.

It was a good sign for the company, which was working to develop and commercialize the PowerTower as a battery-based system that would let people keep running their computers, air conditioners, lights and appliances during power outages.

The blackout - and the numerous large-scale outages that have taken place in the New York metro region since then - was also a great advertisement for Gaia's products.

Bige Doruk, the company's chief executive, said the phones at her company's offices in Peekskill and New York City always ring more during and after blackouts. The calls are from folks who are fed up with the inconvenience and cost of being without power when the electrical distribution system fails and who want to place orders. Some of those customers are calling Gaia for the first time, while others may have asked in the past about buying a PowerTower, she said.

"Everybody's tipping point is different," she said.

During blackouts that took place last summer, the company, which can usually ship a PowerTower to a customer within 48 hours, had about a two-month backlog, she said. Sales got another bump just last week when thunderstorms left about 37,000 Consolidated Edison Inc. customers in Westchester County and Queens without power.

Gaia, which Doruk formed with her husband, Ib Olsen, and Olsen's friend, Pasquale, in 2002, has sold its units into 400 homes and businesses since putting the product on the market early last year. Some of those customers bought more than one unit, said Doruk, 40, a native of Turkey who moved to the United States with her family when she was 16.

The company markets the units as an alternative to noisy, carbon-emitting fuel-powered generators. Doruk would not comment on whether the company is profitable yet but said sales are up significantly over last year.

The company employs 25 people and could grow to 35 by the end of the year, Doruk said.

The units, which look like blue filing cabinets, contain eight to 12 lead acid batteries designed to produce electricity for a period. The units also contain sophisticated power electronics equipment that allow the batteries to be charged and discharged and to interface with the electrical system in the home or business.

A pair of lines protrude from one side of the PowerTower. One connects the unit to the electrical grid so that the unit can recharge itself when it's not in use. The second connects the PowerTower to the circuits in the building that are being backed up.

When a power failure occurs, the PowerTower begins providing its supply within five to 15 one-thousandths of a second, said Matthew Johnson, Gaia's director of business development.

It costs an average of \$10,000 to \$20,000 to purchase a unit and have an electrician install it, Johnson said.

Customers can find an electrician on their own or use one Gaia recommends.

The company's largest system is 11 kilowatts but the company also has a 5.5 kilowatt system. A system can provide power for up to 48 hours but that really depends on how many circuits the owner wants hooked up.

For instance, a homeowner may want enough energy just to keep basic necessities like lights, the refrigerator and air conditioner running. But another customer may want to also keep computers, TVs and stereos running.

Elaine Voss of Pound Ridge decided a couple years ago she was so sick of the blackouts that hit her neighborhood regularly that it was time to think about buying a generator.

The blackouts shut down her refrigerator, causing food to spoil, and made it impossible to cook or shower.

But she said she was turned off by the idea of getting a generator when she learned how noisy they are.

She called a company to inquire about providing her with a battery-based unit, but was dismayed by the company's slow-motion customer service. Then she heard about Gaia and bought a unit for about \$12,000 and paid another \$1,500 for installation, she said.

The unit, which is five feet tall and three feet wide, was installed in her garage. But because it looks like a storage cabinet, visitors to her home never seem to notice it, she said.

The system makes a low humming sound. A person standing more than a few feet away would not hear it.

It provides power to the family room, refrigerator, master bedroom, water pump and furnace, Voss said.

Voss said her neighbors, many of whom have generators for backup power, have endured power outages since she got the 11-kilowatt PowerTower last September, but her power has never gone down - not even momentarily.

She will have to replace the batteries in the unit within seven to 10 years, according to the company.

Voss is the type of customer Doruk, Olsen, who is now the chief technology officer, and Pasquale, an electrical engineer who is no longer with the company, envisioned when they started Gaia.

Doruk, who holds a master's degree in mechanical engineering from Texas A&M and a master's in business administration from Harvard Business School, said she could foresee that an overstressed electrical distribution system and rising demand for electricity - driven by economic expansion and the advent of computers, cell phones and other gadgetry - would lead to outages.

"You had a situation where you knew something was going to break down," she said. "That's what's happening now."

Along with her husband, who spent 13 years working on advanced battery and fuel cell development, Doruk, who worked as a business consultant for Fortune 500 companies, and Pasquale started their company in 2,000 square feet in a warehouse-style building.
