



## Uptime – All the Time

POWERLOGIC Power Management System  
Guards Against Blackout at Hamot Medical Center

On the afternoon of the biggest power failure in the nation's history, Tim Markijohn was driving on Interstate 90 when Hamot Medical Center's power management system sent an alpha-numeric page to his beeper. That day, Aug. 14, 2003, a cascading failure of the power grid serving the northeastern United States and southeastern Canada left many towns and cities in the dark, and caused voltage in many facilities to swing wildly. In addition to paging Markijohn and more than 40 Hamot Medical Center maintenance technicians, the system took first steps to maintain



power, in keeping with requirements of the National Fire Protection Association (NFPA) and the federal Joint Commission on Accreditation of Healthcare Organizations (JCAHO). Having sensed multiple voltage sags, transfer switches in the power management system switched loads to backup power generators. The three diesel-powered generators began cycling on and off as the sags continued intermittently, putting substantial strain on the 1,000-horsepower units.

While the power management system was doing its job, so were Markijohn and Hamot's Hospital Emergency Incident Command Structure (HEICS). According to a well-practiced plan, after the second power "bump," the HEICS team assembled in its pre-determined command center and began assessing damages. Team members went from floor to floor and room to room to check electrical equipment and reset ventilators and the flows on calibrated equipment critical to patient care.

While patient care was never compromised at the 1 million-square-foot facility, each voltage sag briefly interrupted power to computers and radiology equipment such as Magnetic Resonance Imaging (MRI) and CATSCAN units. Though such equipment was not performing optimally during the voltage sags, the medical center suffered no long-term equipment failures.

Simultaneously, the HEICS team contacted Markijohn and reported power fluctuation updates to him during his 15-minute drive back to the campus. Based on those reports, Markijohn determined that utility power was too unstable, and decided to shift power from the utility feed to the generators. On his return to the medical center, Markijohn dispatched maintenance technicians to the facility's 32 transfer switches. They manually activated the switches, locking in the emergency power supply.



“The HEICS team contacted a short list of predetermined electrical contractors, who were held in reserve to provide emergency maintenance,” notes Tim McQuone, director of emergency and trauma services for Hamot Medical Center, and the hospital’s designated incident commander. “At that point, we were not aware of the situation outside, so we responded based on a response plan that we practice every month.”

By 6:00 p.m., Hamot Medical Center had transferred completely to generator power, which provided an emergency load equivalent to three-quarters of the normal facility power supply. That load covered all life-sustaining, critical equipment and emergency lighting.

Throughout the evening, the city of Erie maintained power. At approximately 9:00 p.m. the utility company, First Energy, notified McQuone that it believed that power was stable enough to transfer back to the utility feed. But based on his experience and data from the power management system, Markijohn opted to continue running the generators for another several hours to assure utility service reliability. That decision proved especially prudent at about 10:00 p.m., when another local hospital encountered unstable power, and considered evacuating. The evacuation was never activated but if it had, those patients would have been moved to Hamot, which is the only regional trauma center serving a 13-county area in northwest Pennsylvania. By approximately 8:00 a.m. on Aug. 15, Hamot Medical Center transferred back to its utility feed with no damage to patient care and no long-term damage to equipment.

#### **Practical, yet Powerful**

The key to power system improvement hinges on facility managers’ ability to record the electromagnetic phenomena that can cause disruptions in facilities. To do that, they need a power monitoring system with an easy-to-use software platform for instant retrieval and analysis of data. And by connecting monitors to an entire energy system, the user can identify the patterns of consumption that will help them control costs.

Markijohn said he based his recommendation to invest in a power management system on its ability to provide practical capabilities, such as:

- Monitoring and evaluating the quality of power from the utility.
- Identifying voltage sags, which can cause critical damage to patient care and equipment.
- Measuring electrical load.
- Using transfer switches to avoid overloads.
- Comparing power bills to actual power usage to detect discrepancies.
- Ensuring patient safety and satisfaction.

Selected for Hamot Medical Center was the Square D® PowerLogic system from Palatine, IL-based Schneider Electric. The PowerLogic system includes 50 power management devices in the hospital and the campus uses 20 power monitors installed at service entrances, emergency power sources, branch feeders, and critical loads, as well as 37 circuit monitors.