

## Gatekeeper's success studied

PJM kept the lights on in the region amid a massive blackout. "This will be in textbooks," an executive said.

By Akweli Parker  
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Through a combination of vigilance, automation and luck, PJM Interconnection L.L.C. did the electrical equivalent of raising the drawbridge before last week's blackout could inflict damage on Philadelphia and points south.

"For us on the engineering staff, this is a lifetime event," Robert O. Hinkel, general manager of integration and coordination for PJM, said in an interview yesterday. "This will be in textbooks."

U.S. Department of Energy investigators arrived at PJM yesterday to learn what its system experienced before the blackout hit.



VICKI VALERIO / Inquirer

"All of the people in the control room knew this was a significant event," PJM general manager Robert O. Hinkel said of last Thursday's blackout. But there was no panic.

PJM, the electric-grid operator for all or parts of seven states and Washington, D.C., has its headquarters in a squat, two-story office-park building in Valley Forge obscured by trees and shrubbery. The emphasis, especially post-9/11, is on not sticking out.

Inside its nerve center, a high-security control room, the vibe is equally unassuming. Polo-shirted operators keep tabs on several banks of computer screens, consoles and maps, mindful that every move, phone conversation and computer keystroke is being recorded - for analysis in the event of another major power failure.

"They're looking at tens of thousands of pieces of data," Hinkel said.

Besides watching the last 10 to 30 seconds of grid activity on their computer screens, the six to 12 operators in the PJM control room at any given time stay alert for big events like those last Thursday. It is often boring work, interspersed with flurries of excitement.

Shortly after 4 p.m. last Thursday, a bell sounded in the PJM control room, and on the billboard-size diagram of the PJM grid, operators saw lights flashing in the upper left and upper right corners.

The flashing areas represented problems in northwestern Pennsylvania and northern New Jersey, locales adjacent to the cascading power shutdown that was enveloping the Northeast.

Automatically, PJM's relays detached its system from the New York and Midwest grids, which were taking the brunt of the outage.

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But, he said, there was no sense of panic.

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PJM's technicians called utilities and the operators of other grids to make sure PJM's monitors were providing an accurate picture of the situation - and they were. PJM then began offering to send reserve electricity to the more seriously affected grids, particularly neighboring New York's, so they could restore power as quickly as possible.

"Our operators were able to tell them, 'I have a source for you,' " Hinkel said.

The company's grid lost about 7 percent of its power in the outage, blacking out several counties in its territory in northwestern Pennsylvania and northern New Jersey. But the majority of the 25 million people in PJM's territory in Pennsylvania, New Jersey, and parts of other nearby states were unscathed.

"What saved them was the actions that were taken up to this event," said Chika Nwankpa, a professor of computer and electrical engineering at Drexel University.

Besides controlling the region's power flows and running its wholesale electricity market, PJM plans for new transmission lines, trains employees constantly, and consults with member utilities about keeping their equipment up to date.

"It's all about their ongoing practices as far as maintenance, planning," Nwankpa said.

In the aftermath of the outage, Hinkel is leading PJM's staff in gathering "more information than anyone in the world will want to see, with the exception of engineers."

"We could always improve," Hinkel said of PJM's performance. "We did lose load."

John Hanger, president of Citizens for Pennsylvania's Future and a former Pennsylvania utility commissioner, is an occasional critic of PJM, but he praised it for the way it has coordinated reliability issues in its territory.

Hanger ventured that if PJM had oversight over power lines in Ohio that were suspected of having a role in the outage, "this event would not have occurred, because all the information would have been under one roof."

"One of the crazy things is, the first signs of a problem happened almost four hours before," Hanger said.

Instead, information on those electrical irregularities was spread out among several control areas, hampering communication, wasting precious time, and complicating the process of assigning responsibility, Hanger said.

"With PJM, we know where the buck stops, it's on [PJM chief executive officer] Phil Harris' desk," he said.

PJM, which is expanding its jurisdiction to Chicago by year's end, also is trying to expand deeper into the south. It currently oversees the grid and operates the wholesale electricity market in all or parts of Pennsylvania, New Jersey, Delaware, Virginia, West Virginia, Maryland, Ohio, and Washington, D.C.

Harris is a member of the joint U.S.-Canada task force that is investigating the cause of the blackout.

The first meeting of the task force, headed by U.S. Energy Secretary Spencer Abraham and his Canadian counterpart Herb Dhaliwal, was held yesterday in Detroit.

"It's important, obviously, that we withhold judgment until all the facts are in," Abraham said during a stop in Ohio before the meeting.

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