



Mitch Lappin, a building superintendent at the offices of the Natural Resources Defense Council on West 20th Street, with one of the 2,236 backup generators that were counted in New York City.

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## Relieving the Power Grid, Dirtying the Air

By ANTHONY DePALMA

It is supposed to be a win-win deal for New York, saving the city energy and money. By agreeing to switch on a number of backup generators at its sewage treatment plants on hot summer days when power use is at its peak, the city gets a break on electricity rates from the New York Power Authority.

But this routine use of backup generators during nonemergency conditions may have contributed to the spill of 231 million gallons of raw sewage into the Hudson River during the 2003 blackout.

The generator at the North River plant in Harlem had been switched on for several hours before the blackout as part of the power reduction program. By the time of the blackout — when it was most needed — the machine had overheated and shut down, according to documents filed by federal prosecutors in New York. In February, a federal judge ordered the city's Department of Environmental Protection, which runs the plant and another in Brooklyn that also malfunctioned, to submit to at least three years of federal oversight for violating clean water laws.

The generator failure spotlights what some see as a serious flaw in the state's policy to reduce demand on the power grid and prevent brownouts.

To cut peak demand, the policy allows the state's utilities to encourage the nonemergency use of extremely dirty, diesel-powered generators during the hottest, smoggiest days, creating a health risk for people with respiratory diseases.

The debate over this trade-off — reliable power at the cost of dirtier air — has become heated in Albany as regulators consider tighter controls on diesel generators.

A survey released in 2003 by the Northeast States for Coordinated Air Use Management, an association of eight state air quality management offices, found 2,236 emergency generators in New York City, with a combined generating capacity of 1,320 megawatts, although not all are used in the load-reduction programs. In an average year, those machines produce an estimated 8,850 tons of nitrogen oxides, which contribute to smog, and 295 tons of the small particulate matter that causes respiratory problems.

These largely unfiltered diesel engines can be run in nonemergencies for no more than 15 days a year, but the author of the report, Praveen Amar, the air use management association's director of science and policy, said in an interview that they were up to 200 times as dirty as conventional power plants. Running just 10 one-megawatt diesel generators for an hour on a hot summer day produces the same amount of harmful emissions as a 1,000-megawatt power plant, which is large enough to supply electricity to one million people.

Deciding what to do about these generators has stymied Gov. George E. Pataki's administration for several years. Health care advocates and environmentalists oppose a state policy that ends up increasing air pollution, even if it decreases the chance of a power system failure.

They have urged the administration to restrict the use of backup generators to the most extreme situations unless they have been outfitted with expensive filters or replaced by newer, cleaner models.

The state Department of Environmental Conservation is now working on a draft regulation that would limit the number of generators that could participate in the program to a total capacity of just over 270 megawatts for New York City. It would also apply tougher emissions standards for nitrogen oxides and particulate matter.

A department spokesman said the new standards would reduce harmful emissions from the generators by 50 percent or more.

Businesses, however, worry that the cost of retrofitting the machines with filters could exceed \$100,000 on a large generator, and few want to foot that expense when new regulations could limit their use. State regulations now limit the operation of most generators to 500 hours a year.

Michael B. Gordon, president of Consumer Powerline, a privately operated company that manages the electricity consumption of dozens of New York City's largest businesses, said load regulating programs, if managed properly, can bolster the system's reliability without harming the environment. Starting the generators regularly ensures that they are working properly, he said.

But Ashok Gupta, director of the air and energy program of the Natural Resources Defense Council, said the new rules being considered by the state ought to be as restrictive as possible. "The position of the environmental community has always been, 'No, you can't run these emergency generators for economic purposes,' " Mr. Gupta said.

Across New York State, more than 2,300 big electricity customers have signed contracts to curtail their use of energy from the power grid on demand, with many relying on diesel generators when ordered to disconnect from the grid. They also apply more straightforward methods, like turning out lights.

The customers are paid for every kilowatt of electricity they save. Besides the power authority, other electricity suppliers in the state offer incentives to customers who reduce power consumption and switch to generators on peak days.

As demand for electricity has grown and the grid system has become less reliable, these load-reducing programs have expanded. A New York City energy task force has recommended that Mayor Michael R. Bloomberg's administration substantially increase the use of emergency generators and lobby the state to exempt emergency generators from air emissions limits.

Power companies say that reducing demand on peak days obviates the need to build more power plants. And they contend that expanding generator use to nonemergencies would create further energy savings.

Every summer for the last five years, the city has participated in the Peak Load Management program, or P.L.M., enlisting some of its biggest energy users, including the City University of New York and the Metropolitan Transit Authority, to help meet energy reduction orders. In return, the city has received \$40 for each kilowatt saved.

A major part of the city's strategy has been to switch on emergency backup generators at 9 of the city's 14 municipal wastewater treatment plants. As the largest municipal participant, the city's Department of Environmental Protection was contracted to reduce, on demand, 17 megawatts of electricity. It managed to exceed that target by 7 megawatts, earning \$1 million in price reductions.

Early on Aug. 14, 2003, the power authority asked the city to cut its power use because of high temperatures, without suspecting that there would be multistate blackout later that day.

The city responded by unplugging the North River plant from the grid and gearing up its lone functioning backup generator. By the time the blackout started in New York City just after 4 p.m., the generator had already been running for several hours. (A second generator, a backup for the backup, had been inoperable for nearly a year.)

An investigation found that the working generator, which had not been hooked up to the air-conditioning, got so hot it shut itself down. The sewage backed up, creating a fetid pool 40 feet deep inside the plant. Eventually a diver had to jump into the muck and manually operate a valve. Meanwhile, the wastewater poured, untreated, into the river.

"Some witnesses have voiced the opinion that the generator would not have overheated and failed had it not been in use for the P.L.M. program — and already heated up —when utility power failed," the United States attorney's office said in a legal document filed in federal court in January. City officials do not deny the prosecutors' contention that running the generator contributed to its failure, which led to the violation of clean water laws.

The city's use of the polluting generators also violated clean air laws, according to the United States attorney's office, because the operating permit issued by state environmental officials did not allow the generators to be used in the absence of an emergency.

The state power authority, however, defends its peak load program, saying that it is an effective way to protect the overburdened grid. Michael Saltzman, a spokesman for the authority, said the city was responsible for making sure that its backup generators have the proper permits and are operating effectively.

Mr. Saltzman said the authority recognized that the use of the generators adds to air pollution in New York City. The agency, he said, tries to offset that effect by helping to pay for a cleaner type of diesel fuel that is used in the city's school buses.