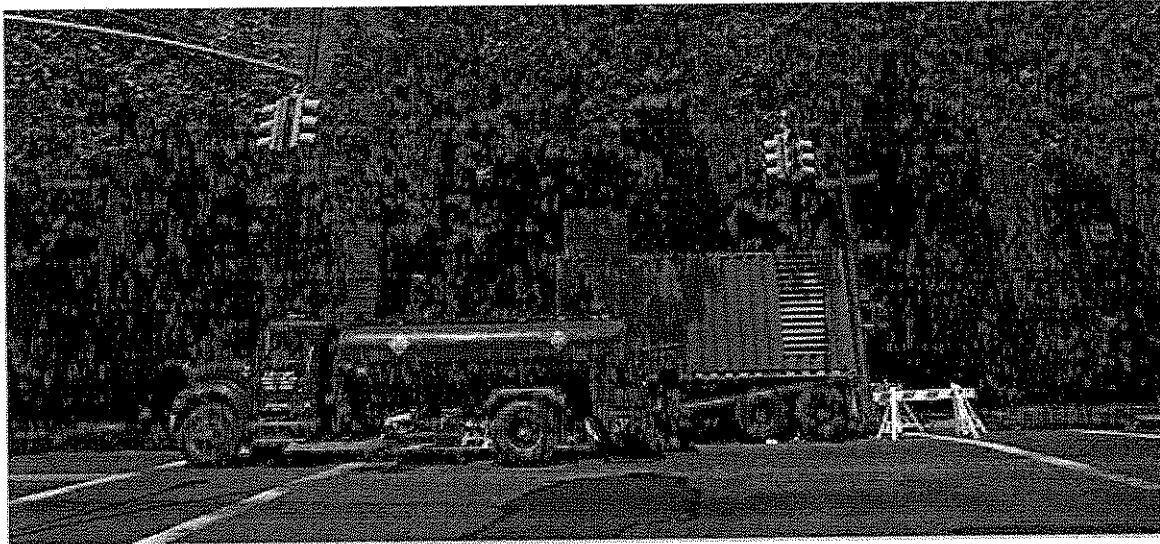


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In Heat Waves, Generators Double as Saviors and Polluters



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A 500-kilowatt generator being filled by a diesel fuel truck at an apartment building in Sunnyside, Queens.

By RICHARD PÉREZ-PEÑA
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As searing heat stretched the New York metropolitan region's electric grid to its limits last week, utilities and elected officials appealed for less power use, and it seemed to work. Industry officials reported that residents and businesses had curbed demand substantially, helping the system avoid major problems.

But it was not all about raised thermostats, doused lights and workers sent home early. Part of the apparent drop in power use was, in fact, no drop at all — just a shift to another, much dirtier source of electricity.

Hundreds of businesses and government agencies fired up diesel generators that produce much more pollution per watt of power output than power plants do. Air quality tends to be poorer in excessively hot weather, anyway, and the generators helped make it even more unhealthy for people across the metropolitan area to go outside and exercise, or even breathe the air for any length of time.

And that use of relatively small, very localized power sources — known as “distributed generation” — has become more common in recent years with the number of backup generators increasing sharply. Power companies and government agencies have encouraged their use in emergencies, which have become more frequent as surging demand tests the ability of power plants to produce enough electricity and the capacity of the wires to deliver it.

“You’ve got this tug of war between keeping the lights on, which is essential, and trying to limit the really serious environmental impacts when you go to distributed generation,” said Richard M. Kessel, chairman of the Long Island Power Authority.

“You want to have the emergency backup in your back pocket, and try to put yourself in a position where you don’t have to reach for it,” he said. “And you never, never want to have to use it on a regular basis.”

No one knows exactly how much backup power was used in the metropolitan area during the recent heat wave, but it probably topped 1,000 megawatts at its peak — more than enough to power Buffalo and its suburbs. In a 2003 study, a consortium of eight Northeast states found more than 2,200 diesel generators just in New York City, with a capacity of 1,320 megawatts — and several times that many generators in the surrounding region. One megawatt is enough to power about 1,000 homes.

The Department of Environmental Protection in New York City says it used up to 400 megawatts of generator power last week just at its sewage treatment plants, and there were also generators running at many other city facilities, like the Rikers Island jail and City Hall.

Big commercial power users in the city and Long Island that are in a program that provides financial incentives to rely less on the grid in a power crisis drew up to 235 megawatts from their generators at the height of the heat wave, according to the New York Independent System Operator, the agency that manages the state’s power markets. And there were many other diesel generators working that were not part of the program.

Dozens of hospitals, colleges and office buildings in the city turned to generators after Con Edison and Mayor Michael R. Bloomberg appealed for relief for the city’s fraying electrical system. Con Edison used generators to keep much of northwest Queens lit as crews repaired damaged power lines from the recent outage there, and it even used generators at its headquarters building in Greenwich Village during part of the heat wave. When much of downtown Stamford, Conn., lost electricity, several of the

affected buildings powered up their generators.

Some buildings use generators that run on natural gas, which is a much cleaner fuel, but the great majority of them burn diesel.

Power plants built since 1970 are subject to stringent pollution controls. But rules for backup generators are far less strict, and, in most cases, there are no pollution restrictions for diesel generators not used more than 500 hours a year. The Pataki administration proposed new pollution rules several years ago, but they have not been put into effect.

Studies have shown that for each watt of power output, diesel generators produce up to 20 times as much particulate pollution, or soot, as the most advanced, natural gas-fired power plants, and up to 200 times as much nitrogen oxides, precursors to ozone, or smog. They even emit several times as much pollutants per watt of power output as the average power plants that burn oil or coal.

“This is pretty much the dirtiest source of electricity you can find,” said Peter Iwanowicz, director of environmental health for the American Lung Association of New York State.

The federal government uses a measurement called the Air Quality Index to assess the level of pollution. A reading up to 50 is considered good, while 51 to 100 means there is a moderate health concern for people who are prone to be very sensitive to pollution, like those with severe asthma. An index reading of 101 to 150 means a significant risk to people with heart or lung disease, and even healthy people are warned to limit outdoor exertion. Any number above 150 means the air is unhealthy for everyone.

On the three worst days of the heat wave, Aug. 1-3, the Air Quality Index readings for ozone reached 99, 106 and 84 in New York City, and 146, 149 and 131 on Long Island, according to the State Department of Environmental Conservation. The soot levels hit 104, 106 and 94 in the city, and 92, 113 and 95 on Long Island.

“Those are pretty unusual levels, though they weren’t unusual a few decades ago,” said George D. Thurston, associate professor of environmental medicine at New York University School of Medicine. “When these pollutants are high, you see more hospital visits for respiratory conditions, a lot more people having asthma attacks, more heart attacks in people who already have heart problems, and more cardiac deaths.”

Government officials, power industry executives and environmentalists agree that the solution is a combination of new power plants, new transmission lines from other regions, more conservation and more use of renewable sources such as wind power. But they disagree on the details and on how much emphasis to give each element.

For now, emergency generators are widely seen as a necessary evil. Without them, the risk of a blackout would be higher in periods of extraordinary heat. And a blackout would mean even more generators running and, to make matters worse, sewage spills from treatment plants because they would not have enough power to function properly.

“We haven’t invested nearly enough in efficiency and conservation, as well as new plants and power lines, so in a crisis like last week, you make the best of a set of bad choices,” said Ashok Gupta, director of the air and energy program for the Natural Resources Defense Council. “You can’t suddenly ask people just to sacrifice when it’s very, very hot because we haven’t done all the things we should have for years.”

Mr. Kessel pointed to the toll of at least 30 people around the region who died as a result of the heat wave. “If the power goes out in a heat wave,” he said, “that number goes a lot higher.”