The Aging City

by Mike Muller and Joshua Brustein
Monday, July 31, 2006 12:00 AM

The recent blackout in Queens didn't just cause Astoria to go dark, said lifelong resident George Stelios; it sent it back in time.

"I felt like a caveman!" said Stelios, the owner of Teddy's Florist on 31st Street. "I couldn't get on the phone ... and I couldn't get online."

Even when Stelios and his neighbors can use their state-of-the-art phones and computers, however, those machines have to rely on electricity provided by a system stuck in the past. Some of the equipment is over 70 years old; experts say that any equipment over 50 years old is prone to breakdown . The failure to maintain and improve the aging infrastructure is being cited as a cause of the recent blackout -- and reason to fear that there may be more in the future.

And the electrical grid isn't the only part of the city's infrastructure whose age has become an issue.

Much of the city's infrastructure "was designed 100 years ago, when the city was a fraction of what it is now," said Kate Asher, author of The Works: Anatomy of a City . "It really seemed to have lived up to the task of expanding to accommodate twice the number of people, three times the number of people."

But how long can it be expected to do that?

--New York City relies on two tunnels from upstate, one dating from 1917, the other from 1936, for all of its drinking water . A third tunnel is under construction, slated for completion in 2020. Until then, "a disaster could happen at any moment, a disaster of epic proportions, or they will

get the tunnel built in time. Nobody knows," Jeff Jones of Environmental Advocates has said.

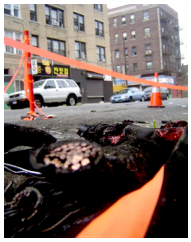
--Many of the city's road and bridges are outmoded or in poor repair. A report card on city infrastructure by the American Society of Civil Engineers found that third of the city's bridges were "structurally deficient" or "functionally obsolete."

--And it's not just the older technologies that suffer. New York lags far behind many other cities in providing wireless Internet access , and in poor neighborhoods the cost of DSL or high-speed service can be prohibitive.

Dealing with such problems can be extremely costly. In 1998, the city comptroller released a report finding that bringing the city's infrastructure to "a systematic state of good repair" would cost **at least $90 billion** . This figure included improving parks and schools but not electricity, which is owned by a private utility. Nonetheless it gives some sense of the magnitude of the problem.

Until a crisis occurs, however, buying new equipment and fixing old one machinery lacks the political allure of launching innovative programs, constructing new buildings or slashing taxes. Infrastructure improvement rarely inspires a sense of public urgency. And so many experts fear that officials will not be able to find either the money or the political will to confront what most consider a serious problem.

ELECTRICITY



Power in Northwestern Queens and Westchester failed on July 17, the blackout coming in the midst of the summer's first heat wave. Demand for power was soaring because of the heat but officials are saying demand was not the cause of the blackout. Consolidated Edison, the private company that operates the city's electrical system, said it had enough energy to power the city, even on sweltering weekdays.

In fact, the mayor's Energy Policy Task Force had released a report just weeks before saying that the city would not need to increase its energy supply until 2012 (previous estimates had predicted a need for more power in 2008).

It's not a supply problem," a Con Ed spokesperson told the Daily News. "It's an isolated equipment problem."

The trouble in Queens seemed to stem from the electrical distribution system. Consisting of 91,000 miles of underground electric cables, it is the largest electrical distribution system in the world . Con Ed operates it, although the state sets customers rates, requires certain reliability standards, and dictates public disclosure rules.

This is not the first time that shortcomings in the distribution system have caused problems. In 1999, as many as 200,000 people in the northern Manhattan neighborhoods of Washington Heights and Inwood lost power for more than 19 hours. The Public Service Commission, the state agency that regulates utilities, put much of the blame on aging or inadequate equipment.

"Six years later, an estimated 100,000 residents in Queens were plunged into darkness for nearly identical reasons -- inadequately maintained feeder cables that were vulnerable to heat and power overloads, an inability to identify equipment that was likely to fail, a failure to comprehend the magnitude of the problem, inadequate communication with the public, and a failure to restore power promptly," said Attorney General Eliot Spitzer in a recent statement. He asked why such problems were not fixed when they were identified before.

Much of the equipment that Con Ed uses is far older than industry standards deem reliable. In Brooklyn one paper-insulated cable is 78 years old. "Anything over 50 years becomes highly susceptible to breakdowns," said Pat Impollonia, an energy conservation engineer at Cornell University.

Con Edison has acknowledged that it uses outmoded equipment in a recent report to the state. It has invested billions over the last ten years to upgrade the system, and recently committed to

putting $5.3 billion more into cables, substations, transformers, and other such equipment in the next three years.

"We have to make sure that the company's energy infrastructure is sufficiently strong and flexible so that it can supply future energy needs, " Con Ed chairman Kevin Burke, said in May.

But accomplishing that will be neither quick nor cheap. The Independent Review Board that Con Ed set up to investigate the 1999 power outage said, "Given Con Ed's size it will take years to realize a significant benefit system-wide from changing equipment."

And what will compel the utility to make such an investment? As a utility Con Ed is regulated by the state. If the state agrees, it can spend money on improvements and pass some of that along to its customers in the form of higher rates.

Some critics think the state needs to be more vigilant. The New York Times reported that William Flynn, chairman of the Public Service Commission admitted that "he did not know how closely his agency had scrutinized Consolidated Edison reports that listed numerous breakdowns in the utility's electrical network in western Queens in recent years."

"These reports seem to be crying out for an overhaul of the network, and yet it wasn't being done," Gerald A. Norlander, executive director of the Public Utility Law Project , a nonprofit group in Albany that represents low-income energy users, told the newspaper. "One has to ask why."

Some think the city must play a more active role as well. "Because Con Ed doesn't face competitive pressures to do what's best for New York City, it's the mayor who must ensure that the company does so, or New York's growth suffers," wrote Nicole Gelinas in City Journal .

Others insist that, despite the summer's conventional wisdom, the problem is not only that the equipment is old but that we do indeed need more power plants. "We need a lot more electric capacity and transmission network upgrades," Matthew C. Cordaro, a former utility chief

executive , and a member of the New York Affordable Reliable Electricity Alliance wrote in Newsday. "We need an aggressive energy plan that will maintain the operations of current plants, and we need to build new plants and transmission lines throughout the region so we can maintain our status as a first-class location with growth potential.."

In the coming months, the City Council and others will investigate what caused the problem in Queens, and will no doubt come up with suggestions on how to fix it.

It is far too early to know what they will discover. But one thing is virtually certain: As Gerry Cauley, vice president of the North American Electric Reliability Council told USA Today, "There is a need to spend more."

SEWERS AND WATER POLLUTION

The last time the city suffered a major blackout - in August 2003 - the backup generators at several sewage plants didn't work, and some 30 million gallons of raw sewage was dumped into the East River.

It doesn't take a blackout for this to happen, however; untreated sewage ends up in the city's waterways almost every time it rains. This is the result of an overburdened network of pipes that handle both rainwater and sewage. In dry weather, the mixture flowing through the city sewage system is treated and released. But rain can quickly fill the pipes beyond capacity; in some areas it takes as little as 0.1 inches to do so. When this happens, sewage is dumped without being treated.

A total of 27 billion gallons of rainwater mixed with sewage enters the city's waterways each

year through these so-called combined sewage overflows. Overflows contribute to the notorious smells of the Flushing River, Newtown Creek and the Gowanus Canal, and regularly result in city beach closings. In 2003, the swimming leg of the New York City Triathlon was called off because there was too much sewage in the Hudson after a night of rain.

Some cities have two separate systems for rainwater and sewage, but everyone agrees that completely replacing New York's system would be prohibitively expensive. There is disagreement, however, about how best to reduce the impact sewage overflows have on the local environment.

New York City is now working to get a permit from the state that will allow it to continue operating its sewer system. The city's Department of Environmental Protection is spending $2.1 billion on various improvements to the system, centered around the construction of two huge storage tanks -- one in Flushing and one in Jamaica Bay -- that will hold excess rainwater until storms end and the excess can be run back through the treatment system.

The city says this will reduce sewage overflows, but critics are skeptical. They say that the city must be more aggressive and broaden its thinking beyond the sewer system itself.

Alternatives to More Sewers

The estimated costs of building enough new tanks and pipes to eliminate the overflow problem is tens of billions of dollars, but environmental advocates say there is a cheaper way.

"There's never been an attempt [by the city] to capture the incredible amount of storm water that runs into the system," said Basil Seggos of Riverkeeper, an environmental group.

Because most of New York's surface area is covered in concrete or other impervious materials, almost all of the rain that falls on the city runs off and ends up in its sewers. Environmentalists suggest ways to ensure that more of it would be absorbed directly into the ground. Such ideas include

- installing so-called permeable pavement or green roofs
- encouraging private property owners to disconnect downspouts that flow into gutters

- simply planting more trees

The effect, say proponents of such strategies, will be less rainwater in the city's sewers, and less sewage in its rivers.

Such techniques seem to save money, said Franco Montalto of eDesign Dynamics, an environmental consulting firm.

Montalto, whose clients include governments, private developers, and non-profit groups, is studying the economic feasibility of these techniques as a way to reduce combined sewage overflows. His initial results indicate that cities can reduce the need for new infrastructure -- or eliminate it altogether -- by using strategies that cost much less.

The Department of Environmental Protection hired Montalto to study the economic feasibility of using such strategies to keep combined sewage overflows out of the Gowanus Canal, but then cancelled the contract, saying it was pursuing other projects instead.

Riverkeeper and the Natural Resources Defense Council, another environmental group, say they are considering legal action if the city doesn't do far beyond what is currently planned. They agree with Montalto that alternative strategies could be the answer. But all feel as though the city is reluctant to change its thinking.

"It's easier to build large static infrastructure, even if it costs more," said Montalto. "Engineers can design big pipes and big tanks. It's much more complex to think about changing behavior or construction practices."

SUBWAYS

When the lights went out in Queens during July's heat wave, subway service in some of the borough sputtered to a halt as well. As Con Ed grappled with service problems, it asked the Metropolitan Transportation Authority to reduce its electricity use. Overall the electricity problems created service disruptions on the V,W, R, E and F lines.

The subway system is the city's largest user of electricity, relying on power to run the trains, operate signals, and light stations and tunnels. According to one estimate, the subway system uses as much power every year as the entire city of Buffalo. So any problems created by Con Edison's aging equipment pose challenges for the subway system as well.

But the subway system also has its own aging problems. This became glaringly apparent on January 23, 2005 when a fire blazed in a signal relay room at the Chambers Street station in lower Manhattan. At first, transit officials said the A and C lines would be affected for up to five years. In fact, service was fully restored after about nine days. But the incident underscored the subway system's vulnerability because of its age. While many control rooms had been modernized in the past two decades to improve their resistance to fires, the one at Chambers Street had not, allowing the fire to cause extensive damage.

The system showed the most acute signs of wear and tear in the 1970s and 1980s when track fires, delays and other breakdowns seemed a daily occurrence. No one denies that things have improved since then. After all, the Metropolitan Transportation Authority spent some $26 billion to repair and improve the system. But problems remain. Fixing them can prove difficult.

Some cars on the system date back to the 1970s. Although the MTA has ordered 660 new cars, Alstom, the French company producing 400 of them, has run into repeated problems that have delayed delivery.

In September 2004, heavy rains poured into the subway system, canceling 1,156 trains during the morning commute and generally creating chaos. The MTA blamed "an act of God," but a report issued by the agency's inspector general this year said the deity had a lot of help. The report said the authority had failed to maintain valves and drains and needed more pumps to remove water from stations and tracks.

The MTA relies on a technology developed in 1872 to tell it where trains are at any given time. By being more precise about a train's location, newer technologies, such as those used in San Francisco and Washington D.C., allow trains to run closer together. This could go a long way toward making New York's most crowded lines more tolerable.

Stations may be the least up-to-date part of the system as any passenger knows who has stood on a sweltering platform. In some ways, delaying modernization to stations makes sense, as a form of triage, said Jeffrey Zupan of the Regional Plan Association stations do not affect operations. But he noted that stations are among the most visible parts of the system.

To help bring the subways up to date the Metropolitan Transportation Authority has adopted an $11.3 billion capital program for New York City Transit. This includes about $1.8 billion for signals and communications, $1.8 billion for subway cars, and $1.7 billion for stations.

To help improve the subways (and New York's roads), state voters approved a transportation bond act last year
. And the MTA
announced
recently that it was expecting a $711 million surplus this year. But, on the down side, the authority has said it faces a deficit of $905 million in 2008.

And a recent report (in pdf format) by the Citizens Budget Commission said the system is already in a precarious state, having run deficits in 13 of the last 14 years. To cope, the report says, the agency has shifted routine maintenance to its capital budget. This means that debt costs will rise, the watchdog group says, and that capital funds are not being spent to modernize, improve and maintain the subways.

At the same time, the city and state have shifted an increasing share of operating costs to passengers and away from government subsidies . If this trend continues, further fare hikes -- always politically unpopular -- could be needed to keep the system in good order

"The solution is more money," Zupan said, and politicians caught up in anti-tax rhetoric have been reluctant to provide what is needed.

Money is not the only obstacle. Efforts to automate trains on the L line -- having them stop automatically and so eliminating conductors -- have stumbled due partly to union opposition and reluctance among some transit authority managers. Politics also plays a role. Some have charged that Alstom, the company that has repeatedly missed deadlines for new subway cars, got the contract partly because it hired former New York Senator Alfonse D'Amato to press its case.

But most of all, many believe, having a modern subway system depends on political will. Experts agree that the MTA began spending money in the 1980s because the problems in the subway had gotten too bad for politicians to ignore. Even a crisis far short of that, advocates say, can threaten the subway's reliability and, with it, the economic health of the city.

But spending taxpayer dollars to upgrade a system - to replace aging equipment invisible to most riders - can be a hard political sell. "The problem is that the least sexy stuff you do in this business is state-of-good-repair stuff," David Gunn, a former MTA executive told New York magazine. "No politician wants to cut a ribbon on a rebuilt toilet."

Gail Robinson contributed to this article. Â