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Cellphone Failures Cause Many to Question Systems

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As cellular telephone carriers labored to restore service yesterday, voices of concern were raised in Washington and elsewhere about the continued fragility of the nation's wireless networks even as the public grows more dependent upon them.

Cellular service remained spotty throughout much of the Northeast and parts of the Midwest yesterday, despite the restoration of electrical power in many of the areas affected by Thursday's blackout, as heavy usage and continued problems at some transmitter stations continued to tax the system.

Service in New York City, which had been especially hard hit by power losses and high calling volume, had returned to normal by yesterday afternoon as power was restored across most of the city, according to local cellular carriers.

But the industry has drawn criticism for its networks' performance after the blackout, particularly in comparison to the land-line telephone system, which generally stayed in service.

An aide to Representative Billy Tauzin, Republican of Louisiana and chairman of the House Commerce Committee, said yesterday that Mr. Tauzin wanted an investigation. "The big question we want answered is why there aren't better

backup systems," the aide, Ken Johnson, said.

After coming under fire for its massive service failures in the hours after the Sept. 11, 2001, terrorist attack, the cellular industry, which is only partly regulated, had promised to upgrade its networks to better handle emergencies. Jane Briesemeister, a senior policy analyst for Consumers Union, said the service disruptions during the blackout proved that cellular companies required more public oversight.

"It appears they didn't fulfill their promises," she said. "The industry markets cellphones as good for emergencies."

Assessments yesterday indicated that the number of cellular transmitters that failed was greater than industry officials had estimated late Thursday, in part because electrical power remained off longer than many had expected. Cell sites, which are essentially radio receiving and transmitting stations, generally have backup batteries that last only several hours before they need to be recharged.

"The cellular network is designed for power outages of minimal duration," said Michael Grossi, a principal at Adventis, a Boston-based management consulting firm that works for mobile telephone providers.

"The system isn't fragile," he said. "But it has an Achilles' heel."

The land-line telephone system has a primary advantage over wireless ones because its network of wires can carry a small electrical power current along with conversations. As a result, many fewer, centrally located backup generators can keep the wired network operating. But if the electric utility system fails with the cellular network each cell site needs its own source of backup power. While batteries can work for short blackouts, industry analysts say it may not be economically feasible to have backup generators for every one of the hundreds of cell sites necessary for a city the size of New York.

Mr. Grossi said that the same economic limits meant that cellular networks are not built to sustain the huge spikes in

traffic that can occur during emergencies. [Verizon](#) Wireless said its network experienced four times ordinary call volume on Thursday in Manhattan, while [Sprint PCS](#) in Manhattan had three times the normal call volume.

During events like the blackout, Mr. Grossi said, the antennas at the various cell sites are unable to accept the sudden traffic surge, which he compared to a highway on-ramp becoming jammed with automobiles. Nor is various other equipment in the network built to sustain such bursts of activity, he said.

"The system isn't designed for that kind of wear and tear, or that radical of an event," Mr. Grossi said. It simply would not be cost effective for wireless carriers to gird the networks against such anomalies.

And yet, Mr. Grossi said, in light of the public's increasing reliance on the wireless networks, the companies need to find more effective power backup for their systems.

"With more and more people moving from wire line to wireless, there is probably a greater need to have more redundant systems," he said.

Over the past several years, a small but growing number of people have completely given up their land lines in favor of using cellular phones exclusively. That trend is expected to continue, according to the Yankee Group, a telecommunications consulting company in Boston, which estimates that nearly 3 percent of telephone users have made wireless phones their primary telephone.

Andrea Linskey, a spokeswoman for Verizon Wireless, said that a number of cell sites ran out of battery power during the blackout, predominately in Manhattan and Detroit, although she declined to say how many. She said that the company deployed generators in some instances to revive dead sites.

Sprint PCS said that it, like Verizon, had backup batteries at each cell site, but when those batteries expired, so did the sites. Dan Wilinsky, a Sprint PCS spokesman, said that the company had sent trucks with mobile generators to various cell sites to revive them. But even with a generator on the

scene, once a site is dead it can take several hours to recharge the batteries.

Customers of the wireless carriers T-Mobile and Cingular were also affected in the blackout areas — particularly in New York City and other parts of the Northeast, where Cingular uses T-Mobile's network.

But users of Cingular's wireless Mobitex network, which transmits data to BlackBerry's and other hand-held devices, were well served during the blackout. Federal Express, which uses the network to track packages in the United States, said it did not experience any problems.

The Mobitex network is based on pager technology and has greater backup capabilities.