LESSONS LEARNED FROM THE

blackout

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— Lewis Milford

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The Lesson Hidden In the Blackout

By Lewis Milford, president of the Clean Energy Group, a grantee of The Pew Charitable Trusts.

Cancer and AIDS researchers at Columbia University are trying to figure out what crucial material they may have lost when some of their backup generators didn't work during last week's power blackout.

This sad state of affairs should prompt the rest of us to confront a simple truth: Our 19th-century electricity system is not suited for 21st-century needs. If we are to prevent similar critical failures in the future, we must look now for smarter energy solutions.

Some companies already have a head start. The First National Bank of Omaha has stopped using electricity from the grid—the interconnected system from which almost everyone gets electricity—as its primary power source. It is now producing its own energy and is using the grid only as a backup. First National, the largest privately held bank in the country, runs the seventh-largest credit card processing operation. The bank needs to be able to crunch large amounts of data 24 hours a day, seven days a week.

That's why the bank has purchased its own system of four fuel cells, which, like batteries, create energy through a chemical process instead of by burning fossil fuels. They are so clean that they are exempt from most air pollution rules.

The bankers aren't doing this because they are environmental activists. The real value of the fuel cell system is that it's nearly 100 percent reliable.

The bank competes with other companies for credit card business. The more time its computers can keep running, the more credit card transactions it can process—and the more business it can attract. Fuel cells can run almost all the time without interruption, allowing computers to operate constantly without crippling breakdowns.

According to industry statistics, a typical bank of corporate computers experiences nearly 300 power interruptions of one kind or another each year. American businesses lose an estimated $26 billion a year from these failures. And in cases like the damage to the research materials at Columbia, there is no way to put a price on potential losses to science and public health.

These problems will only get worse. The growing number of desktop computers and data centers running the Internet will increase the demand for high-quality power sources. As a result, computer-grade energy may soon add up to nearly 10 percent of demand for electricity, a figure that will only increase with greater Internet activity.

Most companies spend billions on back-up power systems, batteries or diesel generators to keep their computers running smoothly. These systems are necessary because the regular power system can be quite unreliable. But such stopgap measures can't supply the guaranteed power that computers or other sensitive electric loads need. The New York power blackout proved that. Columbia University's emergency backup generators weren't adequate.

First National Bank of Omaha isn't the only company that should turn to fuel-cell technology. Airports, post offices, telecommunications businesses, computer chip manufacturers—virtually any company or critical city service that needs reliable electric service could benefit from using fuel cells.

Just last week, before the Columbia lab shutdown, Harvard Medical School began a comprehensive investigation to see if fuel cells could power its teaching and laboratory sites. The Pew Charitable Trusts has given my organization a grant to help Harvard create a model for the entire health care industry.

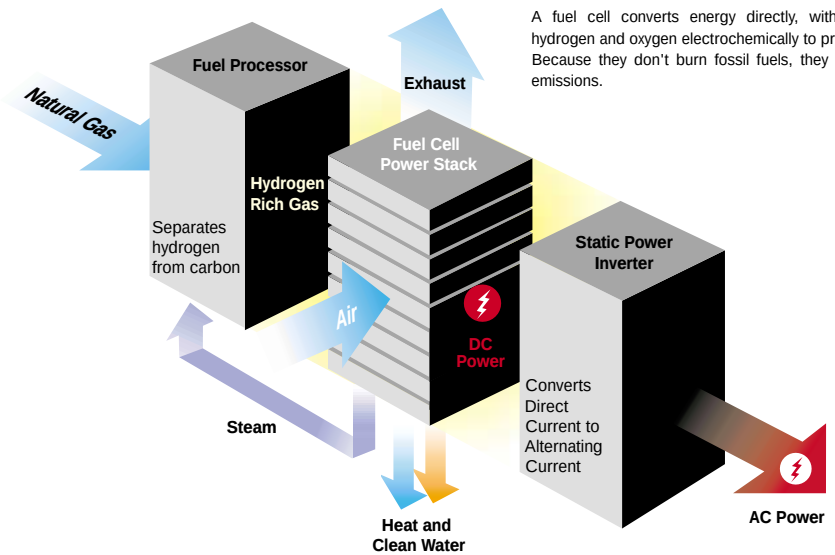
But the Harvard initiative covers only health care. We need to broaden the use of fuel cells in every industry that needs computer-grade power. This would start to replace our outmoded electric system, and would also reduce energy-related pollution, including greenhouse gases. Fuel cells are one of the cleanest energy technologies available.

If money or political will or some other excuse is standing in the way of this effort, ask yourself this question: What's the price of losing a cure for cancer because an outmoded diesel generator failed to work?

Lewis Milford is the president of the Clean Energy Group.

How does a fuel cell work?

A fuel cell converts energy directly, without combustion, by combining hydrogen and oxygen electrochemically to produce water, electricity and heat. Because they don't burn fossil fuels, they produce extremely low pollutant emissions.



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Lessons From the Blackout

Last week's blackout in northern Manhattan and power shortages in New Jersey provided timely reminders that the New York metropolitan region's power supply is not inexhaustible. On the contrary, a robust economy, combined with the increasingly widespread use of computers, fax machines and other high-tech devices, has created an appetite for electricity that could someday exceed the region's capacity to generate it. One answer is to build more power plants and transmission capacity. But that should be only one element in a broader strategy that seeks as well to conserve energy and exploit newer, more efficient technologies.

Most of the post-blackout criticism has focused on Consolidated Edison and its delivery problems uptown. Though Con Ed has one of the lowest rates of power failure in the industry, it clearly needs to upgrade old feeder cables like those that failed in Washington Heights and Inwood. But pressure must also be brought to bear on Albany. Inspired by utility deregulation, Gov. George Pataki has opened New York's doors to new power plants that can deliver electricity more efficiently, and there are now six applications before the state to build or expand plants. Yet because of a bizarre legislative foul-up, there is no state agency authorized to grant siting permits. Until that regulatory catch is resolved, nothing will happen.

Even then it will take several years to build new plants, which means that other strategies must be explored. One such strategy, familiar but vital, is energy conservation. Consumers should be encouraged to buy air-conditioners and other appliances that do more but consume less power, through incentive programs offered by the utilities. In the early 1990's power companies spent $300 million statewide on conservation programs, a figure that has dwindled to $66 million. Albany can revive the program. Meanwhile, businesses should take advantage of new efficiencies in equipment and building design, and Congress should think about targeted tax credits.

A parallel strategy would involve the aggressive application of newer technologies, chiefly the ''on-site" generation of power from photovoltaics and fuel cells. Such devices, attached to buildings and homes, will reduce the burden on utilities like Con Ed and, equally important, provide a reliable source of power during emergencies. For example, the blackout may have damaged or delayed hundreds of experiments that medical researchers from Columbia University were conducting at laboratories in Washington Heights. Reliable on-site power could have provided a margin of safety.

Although the long-term solution will involve building new plants and upgrading transmission lines, as well as replacing unreliable components of the existing system, energy efficiency and on-site power are of major importance. They are also environmentally desirable. Conservation, by definition, produces no pollution, indeed reduces it. Fuel cells are also relatively clean sources of power.

The blackout inconvenienced many New Yorkers. But it may also have forced the city, the state and industry to think creatively about how to address the needs of all New Yorkers.