The Federal Reserve Board

Testimony of Governor Mark W. Olson

Power outages and the financial system

Before the Subcommittee on Oversight and Investigations of the Committee on Financial Services, U.S. House of Representatives
October 20, 2003

Introduction

Chairwoman Kelly, Ranking Member Gutierrez, and members of the Subcommittee, thank you for the opportunity to discuss the impact of the power outage experienced by several states on August 14 and 15, and the impact of Hurricane Isabel, which struck areas of the east coast--primarily the District of Columbia, Virginia, North Carolina and Maryland--on September 18 and 19. The Federal Reserve and the financial system, more generally, weathered the power outage with few difficulties and critical operations were largely unaffected. Markets and consumers remained calm. Hurricane Isabel did not have a noticeable effect on the operation of the financial system, although affected areas did experience a loss of power with collateral effects similar to the power outage.

Let me begin by emphasizing that it is no accident that the financial sector performed well in responding to the outages. Throughout its history, the banking industry has had many experiences with disruptions to normal business operations and has learned from experience the need to provide, maintain, and test appropriate backup facilities. This understanding has been enhanced by the preparations leading up to the year 2000 concerns about the resilience of our technology infrastructure and by the industry's response to the terrible tragedy of September 11, 2001. From these experiences, the industry has learned some lessons about providing sufficient backup for power and the likely collateral effects of experiences such as the recent outage. Moreover, because financial institutions rely on power to run mission critical information systems, events such as the power outage also underscore the need for institutions to integrate the risk of a wide-scale disruption into their enterprise-wide risk management strategies. Indeed, evaluating an institution's emergency preparedness is an important component of the Fed's bank examination procedures.

Impact on Financial Markets and Depository Institutions

The August 14 power outage occurred just after the close of most U.S. securities and futures markets. A rapid switch to backup power enabled market utilities to complete end-of-day processing and settlement activities without any material disruptions. Uncertainty was minimized when the markets announced early Thursday evening that they would open on Friday. With only one exception, the markets were able to open and close smoothly on Friday. Also, some financial institutions in Manhattan closed early on Friday to accommodate the limited availability of public transportation. Otherwise, the markets, clearing and settlement organizations and market participants were well prepared to operate on backup power at their offices or from more remote backup sites. In terms of market volatility, there was some limited--and understandable--volatility in energy-related futures contracts and securities prices on Friday.

The financial system did not experience any widespread or cascading liquidity dislocations, in large part because payment and settlement systems operated normally. The outage disrupted the federal funds market because most of the volume in that market typically takes place late in the day, and the market tightened considerably on Thursday afternoon. As a result, a small number of banking organizations had to turn to the Federal Reserve's discount window for overnight funds, and the Federal Reserve extended a larger volume of discount window loans on Thursday than is usual. The federal funds rate was volatile again on August 15, and borrowing remained somewhat elevated. Conditions in the federal funds market returned to normal after the weekend.

I note that, if the outage or collateral effects had rendered a Federal Reserve Bank inoperable, which it did not, the Federal Reserve has robust contingency arrangements in place under which another Federal Reserve Bank would have handled loan requests by depository institutions in the affected District.

Most depository institutions had backup power at their main offices, larger branches, data centers and operations facilities. As a result, the business of banking largely proceeded without interruption, although retail banking (taking deposits, making loans and dispensing cash) was disrupted at affected branch offices. It was also necessary to close some retail branches whose security monitoring systems were impacted by the outage in order to assure the security of cash, other assets, and personnel. Most ATMs in the affected areas stopped working, although a few had backup batteries that enabled them to function for a short period. Shortly after the power went out, the Comptroller of the Currency signed an order authorizing national banks, at their discretion, to close. Governors in a number of affected states made similar proclamations for state-chartered depository institutions. Probably not more than a few dozen depository institutions, predominantly small, regional and community organizations and foreign banking organizations, had to close all operations. In many instances, critical personnel spent Thursday night in their offices to assure continuity of operations on Friday. A number of organizations required only critical staff to report to the office on Friday due to limited availability of public transportation.

I must say that we are extremely proud that the financial markets and banking organizations were able to meet the various operational challenges of the outage without any systemic effects or loss of confidence in our financial system.

Impact on Consumer Confidence
The outage, which lasted less than 48 hours for most of the affected areas, had no discernable effects on consumer confidence. Consumers were patient and able to cope with the situation, including the temporary loss of access to local branches and ATM machines. There was no sense of panic and there were no unusual currency demands. We believe the public acted calmly in large part because the government was quickly able to determine and announce that the outage was not an act of terrorism. Moreover, consumers have access to a broad range of retail financial services that are highly redundant and substitutable. For example, even though consumers could not withdraw cash from ATMs, they still could use checks. In many cases, they also were able to access bank call centers to effect transactions and obtain information. Electronic payments--deposits of paychecks and consumer transfers of money, such as mortgage payments--were not disrupted.

Impact on Federal Reserve Facilities and Operations
The Federal Reserve System has always placed a high priority on business continuity planning for its operations and services. The robust resilience that has been established was demonstrated during the August power outage and Hurricane Isabel. Throughout both of

these recent events, the Federal Reserve was able to continue critical operations, provide services without interruption, and respond to market needs.

The August power outage affected Federal Reserve Bank offices in New York City; East Rutherford, New Jersey; Utica, New York; Cleveland; and Detroit. Despite the loss of utility power, these offices were able to continue operations without disruption using backup generators. Some of the affected offices heightened security as a precaution, but no incidents occurred. All Reserve Bank financial services operated normally during the outage, and for some services, the Reserve Banks extended their operating hours to meet the needs of depository institutions. For example, the Fedwire funds transfer service, our large dollar payment system, continued operations without interruption on the first day of the outage and opened on time the next day. The Fedwire funds transfer closing time was extended on both Thursday and Friday to accommodate Fedwire participants that were experiencing outage-related problems and late exchanges of fed funds. Similarly, the Fedwire securities service was unaffected on the first day of the power outage, and it opened normally the next day. The closing time for the securities service was extended on Friday to accommodate participants affected by outage-related connectivity problems.

In general, although extensions of Fedwire closing times were required as a result of the power outage, there were no widespread problems among Fedwire participants. Most Fedwire participants in affected areas shifted quickly to backup power and were able to connect to Fedwire and continue processing transactions. A few participants, particularly some foreign banking organizations, experienced connectivity or processing problems. The Reserve Banks provided support to these organizations through their normal telephone-based, off-line processing service.

Federal Reserve Bank check processing centers in the affected areas operated on backup power, allowing check processing to proceed without interruption. The volume of check processing was slightly lower than normal on Thursday. Reserve Banks' inventories of currency were sufficient to meet depository institution demand during and after the outage. Consumers did not seek to withdraw unusually large amounts of cash during the outage--apparently continuing to use the normal mix of retail payment methods, including check and debit or credit cards at merchants that had backup power or were outside of the affected area. The Federal Reserve was not asked to provide currency outside of normal operating hours (after hours or weekend), but was prepared to provide extra cash shipments to depository institutions, if necessary. The Federal Reserve's Automated Clearinghouse retail electronic payment system was unaffected by the blackout.

There was no notable increase in the use of Federal Reserve intraday credit on the days of the power outage. Average System aggregate and peak intraday credit extensions were within reasonable levels. In addition, there was no notable increase in either the size or number of overnight overdrafts by banks across the Federal Reserve System.

Regarding the Board of Governors, we believe that a power failure in Washington, D.C., similar to the August outage, would have only a minimal impact on the Board. We recently completed upgrades to our backup electrical service to provide 100 percent of the power requirements for the Board's two main buildings. The Board also maintains adequate supplies of water to maintain operations. Priority contracts to deliver additional fuel and water are in place. By yearend, backup generators will be installed to provide hot water and heat in the event the Board's steam service is disrupted. In the event of a wide-scale power outage, our biggest challenge would be transportation. If the Metro or if traffic lights and street lights were out, it is likely that we would ask only emergency and critical staff to come to the Board's offices. Many of our professional staff can "dial-in" to the Board via their personal computers and work from home. In addition, the Board is reserving accommodations at hotels that have emergency power systems for Board members and our most senior staff to assure that they can get to the Board's offices in the event of a significant transportation disruption. Finally, the Board has established a number of business resumption and information technology backup sites within and well outside of Washington, D.C., that could be activated if necessary.

During Hurricane Isabel, the federal government was closed on Thursday, September 18, and Friday, September 19, to assure the safety of employees and accommodate the closure of public transportation systems. Emergency and critical employees were able to report to the Board during those days and over the weekend. Although much of the Washington, D.C., area lost power for as long as eight days, the Board was not affected and our critical business functions continued to operate.

Agency Coordination
The federal financial agencies have had a great deal of experience in coordinating their activities during various financial crises, natural disasters causing infrastructure disruptions, and terrorist attacks. None of the agencies experienced operational problems from the outage. On Thursday afternoon, the agencies immediately activated crisis communication protocols. The Federal Banking Information Infrastructure Committee, made up of the federal and state financial regulators and a representative from the Homeland Security Council, held periodic conference calls throughout the day. The Federal Financial Institutions Examination Council, made up of the federal regulators of depository institutions, also held a series of calls regarding the status of supervised institutions. Each of the agencies followed internal crisis communication protocols across their organizations. As in the past, the ability of the agencies to share information and coordinate activities assured a consistent and cohesive response.

Lessons Learned
The Federal Reserve's and the financial sector's performance during the outage was very good, in part because power outages seem to occur periodically, and we have worked hard to prepare for them by establishing emergency backup power sources. However, lessons learned and opportunities for improvement flow from every event. The August outage is no exception.

One of the key lessons learned is that unexpected disruptions tend not to be limited to a firm's internal operations or facilities--the proverbial fire in the data center. In this era of unprecedented demand on the critical infrastructure and the increased threat of terrorist and cyber attacks, financial firms must plan how to recover critical operations and service customers in the event of a wide-scale disruption that affects a cross section of the industry as well as the critical infrastructure and the accessibility of key staff.

The importance of sharing timely and accurate information is a principle that is underscored every time we have an experience that disrupts any part of the nation's critical infrastructure and affects the public. This includes careful coordination of messages between federal and state authorities about steps being taken to protect the public and resolve the problem. As I mentioned earlier, we believe that the government's announcement within hours after the event that the outage was not a terrorist act made a significant difference in how the public responded to the disruption. Similarly, Thursday's announcements that the New York Stock

Exchange and NASDAQ were operating and would open on time on Friday did much to calm investors and markets here and around the globe. Financial firms and markets were forthright in advising stakeholders about their operational status and steps being taken to recover affected operations to meet customer needs.

Another area where we learned important lessons pertains to the adequacy of backup strategies for loss of power. For example, the sole use of batteries as backup proved wholly inadequate, particularly for aspects of the critical infrastructure, such as telecommunications switches. In most cases, banking organizations had provided for sufficient backup power to continue critical operations, such as payments, call centers, data processing and key management activities. Many had established backup power for key geographically dispersed retail branches. In other cases, firms learned that rented office space did not have anything more than emergency lighting for evacuation purposes. Others found that they had not provided backup power for in-house telecommunications systems, so while the telecommunications systems leading into and out of their building worked, their voice and data telecommunications systems did not. We understand that some key telecommunications facilities had not arranged for all of the critical functions at central office switch locations to have necessary backup power. We also learned that many cell phone towers are located on buildings that did not have emergency backup power. Some firms that were able to switch over to generators found it difficult to arrange for additional fuel because of transportation issues and because of competing demands and delivery priorities. This may suggest that the ability of some financial firms and the critical infrastructure to continue to provide backup power to critical operations might have degraded somewhat if the outage had extended through the weekend and into the next business week. I would like to recognize the important efforts of the Office of Emergency Management for New York City in working closely with key critical infrastructure providers and market utilities to respond to unanticipated backup needs and manage transportation issues.

The power outage also emphasized the interdependencies across the critical infrastructure and the cascading impacts that occur when one component falters. The effects on transportation in Manhattan--with rapid transit systems down and rail stations closed in the city--prevented key staff at financial institutions from traveling to their offices and made it difficult to obtain fuel deliveries for generators. In Detroit and other cities, problems with water supplies necessitated the closure of buildings, even those with backup power. Access to potable water also was limited in a number of locations where pumping and sanitation stations did not have backup power or did not have sufficient backup power to operate at full capacity. The failure of steam generators in New York City caused a number of organizations to shut down. Most importantly, we saw a number of instances where telecommunications services were affected by insufficient backup power. Some of these instances were within the control of the affected financial firm, but many others were under the control of the telecommunications providers.

Conclusion

The lessons learned from the power outage emphasize the importance of preparing for a wide-scale disruption. They also emphasize the need for a sound and resilient critical infrastructure because of the significant collateral effects that can flow from a disruption in one component, in this case electric power. The Federal Reserve and the financial sector performed well during the outage. Nevertheless, we are encouraging financial firms and critical infrastructure providers to review their own lessons learned and, where appropriate, to take additional steps to achieve better resilience from the effects of a future power outage.

Thank you for the opportunity to discuss the effects of the power outage and Hurricane Isabel. I would be pleased to answer any questions you may have.

Return to top

2003 Testimony
