

**STATEMENT OF  
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U.S. DEPARTMENT OF ENERGY**

**BEFORE THE  
  
COMMITTEE ON ENERGY AND NATURAL RESOURCES  
UNITED STATES SENATE**

**APRIL 26, 2012**

Chairman Bingaman, Ranking Member Murkowski, thank you for the opportunity to appear before you today to discuss the Department of Energy's (DOE) role in managing weather related electrical outages. DOE plays a vital role, in coordination other Federal agencies and industry to prepare for and recover from such electric power outages. Given the recent increase of severe weather incidents, including the recent tornadoes in Texas and the Midwest, and the approach of the 2012 hurricane season, this discussion is especially timely and important.

**DOE'S ROLE, RESPONSIBILITIES AND AUTHORITIES**

The mission of the Office of Electricity Delivery and Energy Reliability (OE) is to lead national efforts to modernize the electric grid, enhance the security and reliability of the Nation's energy infrastructure, and facilitate recovery from disruptions to the energy supply. As the Sector-specific Agency for Energy, under the Department of Homeland Security's National Infrastructure Protection Plan (NIPP), the DOE's Office of Electricity Delivery and Energy Reliability (OE) is responsible for collaborating with Federal, State and local governments, and the private sector to protect against and mitigate threats on the energy infrastructure, be they natural disasters, deliberate attacks, or human error. OE performs the functions required under DOE's authorities and Presidential Policy Directive (PPD) – 8, National Preparedness, which is aimed at strengthening the security and resilience of the United States through systematic preparation for the threats that pose the greatest risk to the security of the Nation, including acts of terrorism, cyber attacks, pandemics, and catastrophic natural disasters. In addition, DOE is the lead agency for the National Response Framework's Emergency Support Function 12 (ESF-12), Energy, when activated by the Federal Emergency Management Agency (FEMA), under the Robert T. Stafford Disaster Relief and Emergency Assistance Act.

In the event of an emergency, OE stands up its Emergency Response Center and has a team of responders that specialize in energy infrastructure who can be quickly activated and deployed to the location of an event. OE personnel then coordinate with deployed personnel, other DOE offices, and Federal, State and local agencies in responding to the emergency. OE provides situational awareness and facilitates the restoration of energy systems. In addition, OE may provide technical expertise to utility companies, conduct field assessments, and assist

government and private-sector stakeholders to overcome challenges in restoring the energy system.

## REPORTING ON ENERGY EMERGENCY SITUATIONS

Reporting on emergency events plays a crucial role in helping other government agencies and industry prepare for and recover from energy outages resulting from these events. Reporting also allows the public to remain informed of the situation and plan accordingly.

OE takes great care in providing timely, accurate reports and situational assessments. When a major energy outage occurs, there is often a surge of information. Because the situation changes rapidly during these events, there are sometimes conflicting outage reports and incomplete information on damage status. In such cases, we must review and sift through large amounts of data and information to make certain that reported information is relevant, trustworthy, and accurate.

Through years of working closely with our Federal, State, local, and private partners in response to energy emergencies, OE has established proven procedures for evaluating and reporting outage data and situational assessments. OE maintains a team of trained staff at our DOE headquarters and field offices, which are prepared to assist in situational assessment, response, and reporting for any event. Procedures have been established for data collection, quality control, and reporting. These procedures are implemented for sudden events including unexpected severe weather (e.g., tornadoes, earthquakes, floods) as well as events such as hurricanes where we have the opportunity to pre-position staff and develop a timeline for data collection and reporting.

OE personnel use a standardized process for data collection, assessment, quality control, and reporting. The process is documented and repeatable and uses data sources that are fully referenced. As a result, we are able to provide high quality reports quickly and efficiently.

OE obtains data from a number of resources. Data on electrical outages are received through the OE-417 Form, "The Electric Emergency Incident and Disturbance Report," which provides timely information to DOE when utilities experience electrical incidents. We also collect information on damage to the infrastructure directly from energy companies such as utilities whenever possible. Many energy companies, including larger utility companies, now provide real-time outage information on their websites. We also use an in-house software tool which allows us to monitor the Nation's energy infrastructure in near real-time and create geospatial maps of the Nation's energy assets and systems that combine data from numerous sources into a single geographic information system (GIS). This system is known as the Environment for Analysis of Geo-Located Energy Information (EAGLE-I).

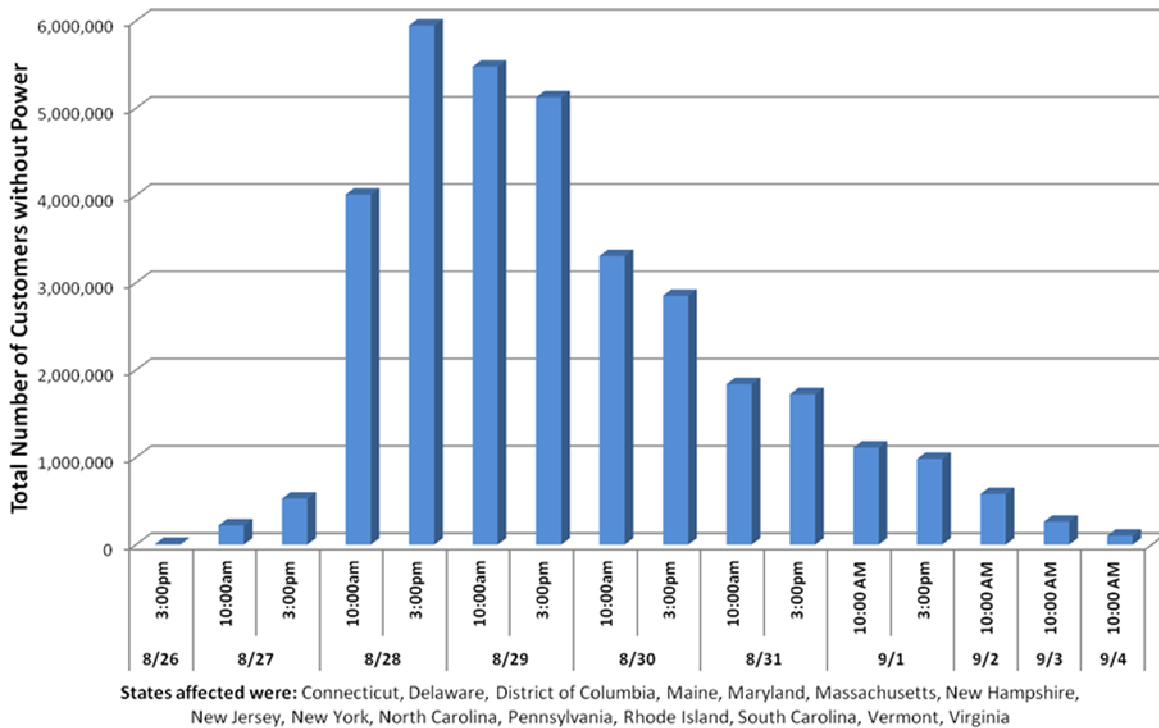
We also gather data and information from trained ESF-12 staff that have been deployed to the field, to FEMA, and to other locations during emergency events. These ESF-12 responders provide situational assessments and facilitate clear and consistent communication with other deployed responders. They also help to provide subject matter expertise to aid in restoration activities and identify where the Federal government can engage in restoration efforts if and when appropriate.

OE reviews all of the collected information, determines what information is relevant and appropriate to report, and evaluates the quality of the data source, and the date and time it was generated. If we identify discrepancies, we resolve them by investigating the discrepancy and determining which information is correct and current.

OE provides a situational assessment that includes State-by-State outage totals, the number and percent of customers without power, the scope of the damage within each State, utility restoration efforts, when restoration is expected to occur, whether any critical assets have been damaged, what response measures are being reported by ESF-12 teams, and what is being implemented by the energy companies. This information is then compiled into Situation Reports that are time-stamped and include references to all data sources. The Situation Reports are then made available to the public online ([http://www.oe.netl.doe.gov/emergency\\_sit\\_rpt.aspx](http://www.oe.netl.doe.gov/emergency_sit_rpt.aspx)). The Situation Reports provide a snapshot of a given point in time, and are shared with Federal agencies responsible for making critical emergency response decisions. OE considers these reports as the Federal Government's official report on the scope of the damage and status of restoration at a specific point in time. These situational assessments facilitate decision making surrounding Federal response efforts and provide a much needed national perspective to State and local government as well as the private sector.

We recognize that actual outage numbers can change moment-to-moment during a given weather event. As a storm system moves through an area, the number of customers without power can change rapidly. Following a storm, as utility crews work to restore power, outage numbers will continue to change hour-to-hour as repairs are made. Figure 1 below is an example of customer power outages reported during Hurricane Irene and shows the rate of restoration over a nine-day period. As seen in the Figure, the majority of customers had their power restored within 3 days.

**Figure 1. Customer Power Outages from Hurricane Irene (2011)**



**Source:** DOE Situation Reports

Situation Reports provide a common frame of reference on the severity, scope, and location of the impact. These situation assessments combined with our subject matter experts support decision making on when and if there is an appropriate role for Federal involvement in the restoration process. For example, the Situation Reports are used by FEMA and the U.S. Army Corp of Engineers to help determine where supplies of water, ice, food and generators should be delivered.

Because the energy sector focuses on their specific service territories during outage events, and States and local governments focus on their specific jurisdictions, OE’s Situation Reports are a definitive source for obtaining a nationwide perspective on the outage, looking at the entire affected region and energy infrastructure as a system. The Situation Reports are considered a “one-stop” shop for energy infrastructure information.

Because OE understands the energy infrastructure, we are often called upon to help evaluate if requests for temporary waivers of certain regulations are warranted. The most frequent types of requests are to temporarily suspend Clean Air Act fuel requirements, use of foreign flagged vessels under the Jones Act, and to allow the interconnection of one utility to another under Section 202(c) and (d) of the Federal Power Act. We work closely with and provide the

necessary due diligence to assist Federal agencies with evaluations of the severity and duration of the event and work with them to determine if waiver requests are justified.

DOE staff maintain constant communication with our Federal partners such as the Department of Homeland Security, including FEMA; Department of Transportation; Department of Defense; and the Environmental Protection Agency; State agencies in the affected area; and the energy companies impacted by the event.

OE provides a common frame of reference on the location, scope and potential duration of an event. This common frame of reference is critical for determining appropriate response measures. It enables us to communicate the presence of any critical infrastructure assets so they can be established as a priority in the restoration effort. It also gives those leading the response efforts sound information to determine where the application of Federal resources can facilitate a faster restoration.

### ONGOING EFFORTS

DOE is very aware that the private sector owns and operates the vast majority of our Nation's energy assets. OE works closely with the owners and operators of the energy infrastructure, as well as State and local governments. Throughout the year, OE collaborates with these organizations to prepare for energy emergencies resulting from both weather-related and manmade emergencies. OE conducts workshops and tabletop exercises, provides resources and support for energy assurance planning, and facilitates relationship building across these organizations. The communications channels that these activities have fostered have proven to be invaluable when major outages occur.

We regularly evaluate our procedures to identify opportunities for improvement. On an ongoing basis, OE gathers information from public sources such as media outlets and creates a summary of public information about current energy issues. To help stakeholders stay current on energy infrastructure events, OE publishes the Energy Assurance Daily (EAD) to report on developments affecting energy systems, flows, and markets. The EAD is available to the public online (<http://www.oe.netl.doe.gov/ead.aspx>).

In an effort to continue improving communication and sharing of information, DOE works with industry groups such as the Edison Electric Institute, to emphasize the importance of providing timely, accurate, and consistent data by their members companies that is crucial during recovery and restoration periods. OE encourages industry to use terminology that is understandable to the response community and to the general public. We also stress the importance of company websites in providing continually updated information on those customers without power, locations and restoration times. I would also like to highlight the follow-up that OE has done with private sector companies to ascertain the improvements they have made over the past several years, particularly since the 2005 and 2008 hurricane seasons. An OE report titled "Hardening and Resiliency: U.S. Energy Industry Response to Recent Hurricane Seasons,"<sup>1</sup>

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<sup>1</sup> The report, "Hardening and Resiliency: U.S. Energy Industry Response to Recent Hurricane Seasons" is available at <http://www.oe.netl.doe.gov/docs/HR-Report-final-081710.pdf>

notes that industry has undertaken numerous actions to harden their energy systems by replacing wooden poles with concrete or steel, strengthening poles with guy wires, elevating substations and control rooms, and improving their vegetation management practices and supply logistics. In addition, companies have taken innovative approaches to deploy sensors such as Phasor Measurement Units to determine the health of their systems. Companies are also making investments by installing composite poles, using infrared thermography to scan and identify problems on their transmission lines, and integrating smart grid technology.

Advanced smart grid technologies can reduce restoration time significantly. For example, the Electric Power Board (EPB) of Chattanooga, a Recovery Act Smart Grid Investment Grant recipient, is installing automated feeder switches, fiber communications, and sensor equipment for distribution circuits that can be used to detect faults and automatically switch to reroute power and restore other customers. In April 2011, severe storms caused power outages for three-fourths of EPB customers – 129,000 residences and businesses. Smart grid technologies installed earlier helped EPB reduce outage time significantly by clearly identifying the location and extent of the damage. EPB was also able to avoid sending repair crews out 250 times. In September of 2011, another storm knocked out power to 59,000 homes and businesses. EPB determined that its smart grid technologies, in that situation, prevented an additional 25,000 customers from losing power.

In April 2011, Alabama suffered significant tornado damage. Southern Company, a Recovery Act Smart Grid Investment Grant recipient that has invested in smart grid technologies that improve outage communication and provide restoration notification during storms, had more than 412,000 customers without power as a result of the severe weather. Between Monday, April 27 and Wednesday, April 29, Alabama Power (a subsidiary of Southern) was able to restore power to over 200,000 of its customers. By the following Monday, May 1, 95 percent of the affected customers had had their power restored. Two days later, on Wednesday, May 3, restoration was nearly complete at 99.9 percent.

## CONCLUSION

Reporting accurate, timely, and actionable information during emergencies is critical to helping Federal, State and local government agencies, the private sector, and the general public be more aware of impacts to the energy infrastructure and helping to minimize the impact of hazards.

As we move into the summer months, this year's hurricane season and beyond, we remain vigilant and focused on our vital roles and responsibilities in reporting quickly and accurately on energy outages, working with our partners on response and restoration efforts, and keeping the American public informed. Although we hope the recent forecast for a light 2012 hurricane season is an accurate one, we are prepared for this year's events and whatever they may bring.

This concludes my statement, Mr. Chairman. I look forward to answering any questions that you and your colleagues may have. Thank you.