



**POWERED**  
*For Patients*<sup>TM</sup>  
Advancing Backup Power & Power Restoration  
for Critical Healthcare Facilities

**Report on Initial August 19, 2014  
Stakeholder Meeting**



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## Executive Summary

Powered for Patients is a newly created public-private partnership established by Disaster Safety Strategies (DSS) to address the critical lessons from Hurricane Sandy and other disasters related to backup power and power restoration for critical healthcare facilities. [www.PoweredforPatients.org](http://www.PoweredforPatients.org)

On August 19, 2014, 50 leaders from government, the electric utility industry, the power generation industry, the healthcare sector and non-profit organizations convened in Washington, D.C. for the inaugural Powered for Patients Stakeholder Meeting. Funding for the meeting was provided by the Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response (ASPR), through a cooperative agreement with the Association for State and Territorial Health Officials (ASTHO). The National Association of County and City Health Officials (NACCHO) also provided significant contributions in the planning and execution of the meeting, along with the National Emergency Management Association (NEMA).

The goal of the day-long meeting was to enable key stakeholders involved in supporting backup power and facilitating power restoration for critical healthcare facilities to better understand the challenges faced by other stakeholders. The meeting also provided a platform for stakeholders to discover opportunities to better safeguard backup power and expedite power restoration through coordinated effort.

This report highlights the Stakeholder Meeting discussions, key findings, open questions to be addressed, proposed solutions to serious challenges and highlights of an attendee survey. It also provides an overview for what the initiative may look like moving forward depending on the resources available to continue the important work of Powered for Patients.

### The Stakeholder Meeting

The Stakeholder Meeting began with a keynote address by Dr. Nicole Lurie, the HHS Assistant Secretary for Preparedness and Response. Dr. Lurie shared her perspective as a federal disaster response leader and a physician, roles that often involve visits to shelters in disaster-impacted areas. She noted how frequently she encounters patients dependent on electric-powered medical devices that often have limited backup battery power. Without access to power, these patients run the risk of becoming critically ill and flooding hospital emergency rooms already strained by the disaster. Dr. Lurie highlighted ASPR's important work on this topic. (See additional details on page 6).

Following Dr. Lurie's remarks and stakeholder introductions, the Stakeholder Meeting explored several key topic areas through moderated discussion, presentations by subject matter experts and open dialogue among the stakeholders. At the end of the meeting, facilitators sought to identify the key takeaways and next steps for the Powered for Patients initiative. The three key topics were:

**Topic # 1** - Understanding Stakeholder Roles, Capabilities and Challenges relating to Backup Power and Power Restoration and Assessing Opportunities to Leverage Capabilities and Overcome Challenges through Public-Private Partnership

**Topic # 2** - Assessing the Value of Enhanced Situational Awareness of Generator Status for Critical Healthcare Facilities on Emergency Response Decision Making

**Topic # 3** - Exploring Opportunities to Expedite Power Restoration for Critical Healthcare Facilities



## Key Stakeholder Meeting Outcomes

Given the broad range of topics discussed, there was consensus that Powered for Patients should tackle a core set of issues moving forward through specific topic-focused workgroups. The expectation is that stakeholders will gravitate to the workgroups of greatest interest where they can make the most meaningful contribution based on areas of responsibility and expertise. (See page 5 for the list of suggested workgroups)

The broad range of topics discussed and single-day format of the meeting also meant that some issues were not addressed as deeply as stakeholders and meeting organizers hoped. This left some stakeholders interested in deeper conversations about important issues and also generated a number of questions that could not be addressed either due to time constraints or because the right expert was not in the room. Answering these questions and advancing deeper discussions will be part of the mission of the proposed workgroups.

One of the key success factors of the Stakeholder Meeting was the report by several delegates via the Post-Meeting Survey of immediate changes made in operations or with existing programs based on what they had learned at the meeting. For example, Deanne Criswell, the Team Leader, National IMAT at FEMA, said “the tools that were identified and shared with the group were very beneficial. I have already incorporated some of these tools into our planning efforts and how we can better identify the needs of the community.”

On the topic of exploring opportunities to expedite power restoration for critical healthcare facilities through enhanced coordination between utilities, healthcare facilities and government, Criswell said. “I learned of new applications being developed that will be very valuable during the initial response. I have already started developing strategies for my team to tap into these tools and gain better situational awareness. A demonstration of this would be beneficial, hearing what others might need and how they would use it.”

Stakeholder Meeting discussion and Post-Meeting Attendee Survey responses helped identify the Powered for Patients priorities considered most important going forward. The top five priorities were:

1. Understanding and enhancing power restoration and prioritization (66%)
2. Enhancing pre-disaster communications and post-disaster coordination between utilities and critical healthcare facilities (62%)
3. Enhancing situational awareness of backup power status for critical healthcare facilities for government officials (58%)
4. Addressing codes and standards relating to backup power for healthcare facilities (50%)
5. Addressing challenges related to fuel shortages following disasters (46%)



In addition to providing feedback on the most critical issues Powered for Patients should address, attendees also helped establish priorities for the types of activities Powered for Patients should undertake in addressing critical issues. The highest ranked activities were:

1. Serve as a resource-sharing platform through which information and programs from other stakeholders and interested parties, journals and other media sources can be provided. (50% very important, 37% important)
2. Convene stakeholders and other partners to raise awareness of and resolve challenges related to backup power and address power restoration issues. (50% very important, 42% important)
3. Participate in national dialogues on backup power and power restoration issues (46% very important, 50% important)
4. Identify and disseminate best practices (46% very important, 46% important)
5. Develop mechanisms such as a website for sharing resources and tools, including technical methods and information (42% very important, 42% important)

### **Powered for Patients Moving Forward: An Emerging Framework for Success**

In assessing the outcome of the Stakeholder Meeting, and analyzing post-meeting survey results, Powered for Patients leaders developed the following suggested workgroups to help advance the most important work identified by stakeholders. (Additional detail on the focus of these workgroups is provided on page 19)

Suggested Workgroups:

1. Power Restoration and Prioritization
2. Situational Awareness
3. At Risk Individuals
4. Emerging Technologies & Codes and Standards
5. Disaster Response Challenges (including fuel shortages and access to fuel)

In addition to proposed workgroups, Powered for Patients leaders also suggest the creation of a Powered for Patients Steering Committee or Leadership Body to help guide the overall work of the organization. Survey respondents indicated their willingness to serve on such a body and follow-up discussions will be held to finalize details on this front.

With a suggested framework in place for Powered for Patients to advance its important work in protecting backup power and expediting power restoration for critical healthcare facilities, the next step is securing the necessary resources to move the initiative forward. On this front, ASTHO has said it expects to be able to devote some additional resources but does not expect to be able to fund the full range of potential activities. Several organizations represented at the Stakeholder Meeting indicated that providing financial support to augment past and future funding is a possibility. At this time, two organizations are seeking approval from their governing bodies for financial appropriations to support the work of Powered for Patients.

Organizations interested in working with Powered for Patients can contact Powered for Patients Project Director Eric Cote at [cote@disastersafetystrategies.com](mailto:cote@disastersafetystrategies.com), or by calling 202-810-0125.



## A Closer Look at the Stakeholder Meeting Discussions and Key Findings

This section of the Stakeholder Meeting report provides readers with a more in-depth overview of the day's presentations, discussions, key observations, critical questions raised, proposed solutions to serious challenges and Post-Meeting Survey results.

### Keynote Address by Dr. Nicole Lurie, HHS Assistant Secretary for Preparedness and Response

Dr. Lurie provided encouraging keynote remarks to the delegates and described her experience as a practicing physician visiting shelters in disaster areas and talking with patients dependent on electric-powered medical devices. She shared a couple of stories that caught her attention during her agency's response to Hurricane Sandy.

One story involved a patient relying on a left ventricular assist device. Dr. Lurie described his plight in driving around for hours looking for a place to plug in.

Dr. Lurie shared another story of a quadriplegic living on the 23<sup>rd</sup> floor of a high rise. The building had lost power and its elevators were not supported by backup power. His friends came to his aid and used Twitter to report how much remaining battery power he had on his ventilator battery. He was able to maintain his equipment for two weeks thanks to people who brought batteries to him.

Dr. Lurie said she wants to scale this type of community-based response to New York City and beyond, noting that it is hospitals that will get hit with surge when these patients decompensate and require hospitalization.

Dr. Lurie described important work by ASPR on several tracks to address the challenges faced by citizens dependent on electric-powered medical devices.

The first is the investigation of technology solutions to enable development of a signaling device that would be attached to medical equipment to send a signal when the device experiences a problem or is at risk of failing.

ASPR recruited a FEMA Innovation Fellow to help develop a prototype signaling device to signal when a piece of equipment is in trouble. ASPR discovered that device manufacturers have their own proprietary software that may complicate efforts to develop and deploy a uniform signaling device. ASPR is now working with NIST (National Institute for Standards and Technology) to explore development of voluntary industry standards that device manufacturers can work with. The Biomedical Advanced Research and Development Authority (BARDA), within the Office of the Assistant Secretary for Preparedness and Response, is now leading this work and is actively seeking to develop a rapid recharge signaling device. BARDA provides an integrated, systematic approach to the development and purchase of the necessary vaccines, drugs, therapies, and diagnostic tools for public health medical emergencies.

On a separate track, Dr. Lurie addressed the challenge she saw after Hurricane Sandy of people coming forward for treatment that were unknown to public health officials and thus represented an unexpected surge in patients.

She also described recent innovative data and mapping pilots her team have conducted, in collaboration with HHS' Centers for Medicare & Medicaid Services, to inform and assist state and local health departments and



community partners in emergency planning for medically vulnerable populations that reside in our communities and rely upon life-sustaining electricity-dependent medical devices. The HHS At-Risk Resiliency Initiative is anticipated to launch in the forthcoming months and will include an open de-identified data map titled the HHS At-Risk Resiliency Interactive Map. The Map will feature a de-identified total of electricity-dependent Medicare beneficiaries at the U.S. territory, state, county, and zip code level and NOAA “real time” weather tracking capabilities to identify populations and areas that may be impacted by severe weather and at risk for prolonged power outages. The Map is envisioned to assist community partners such as hospitals, emergency medical services providers, electric utilities, NGOs, and other stakeholders to better anticipate, plan for, and assist electricity-dependent populations within their communities.

Dr. Lurie’s remarks underscored HHS’s sharp focus on addressing backup power needs for at-risk patients and critical healthcare facilities and helped set the stage for the review of three critical topics that meeting attendees discussed in-depth throughout the morning and mid-afternoon.

### **Topic # 1 – Understanding Stakeholder Roles, Capabilities and Challenges related to Backup Power and Power Restoration and Assessing Opportunities to Leverage Capabilities and Overcome Challenges through Public-Private Partnership**

This discussion topic was led by Steve Curren, Critical Infrastructure Protection Program Manager, Office of the Assistant Secretary for Preparedness and Response (ASPR), U.S. Department of Health and Human Services, and Gerrit Bakker, Senior Director, Public Health Preparedness, Association of State and Territorial Health Officials (ASTHO).

This initial session helped stakeholders understand the challenges facing other stakeholders in ensuring backup power or addressing power restoration. Several delegates remarked at having learned important new information that would result in immediate changes to how they managed existing programs. Key observations shared during this topic discussion included:

1. Accessing fuel to resupply generators, provide gasoline for service vehicles, utility trucks and vehicles of critical personnel is one of the greatest challenges facing a disaster-impacted community. This realization led to a broad discussion about fuel challenges including the importance of having gas stations equipped with backup power. It was noted that Florida requires gas stations along evacuation routes with 16 or more pumps to have backup generators. One stakeholder noted that more stringent guidelines that expand this requirement to more gas stations would be beneficial during a disaster. Another stakeholder stated that compliance with this requirement is low and that enforcement should be reviewed. On the topic of gas stations, officials from the Department of Energy (DOE) provided details on a smartphone app, called Lantern, which uses social media crowd sourcing as a means to determine which gas stations are open after a disaster. DOE also noted that state energy officials help bridge the gap between available fuel and needs.
2. Another DOE official noted that the fuel industry is highly regulated and that there is limited flexibility in how the fuel industry can address post-disaster needs. As an example, the DOE official said existing contracts for propane refueling often prevent a propane supply company from being refueled by a competitor even if the facility’s own refueling source is unable to provide replacement fuel. It was also noted that a critical piece of information to secure about fuel availability after a disaster is the amount



of fuel that is already contracted for versus non-contracted fuel that is available for use on a prioritized basis. Furthermore, it was noted that most assistance is needed for facilities without fuel contracts. DOE also reported that it is very difficult to get company level information about available fuel supplies in real-time. At one point, DOE asked a segment of fuel industry representatives if they wanted a portal to upload their fuel status data but security concerns about where this information would become available made these industry representatives leery of sharing the data. To help address fuel shortages after disaster, DOE works closely with the fuel industry, the U.S. Department of Transportation and the Army Corps of Engineers. Through this coordinated effort, DOE has been able to facilitate waivers on hours-of-service restrictions for truck drivers and enabled fuel trucks to receive priority status to access restricted area.

3. Healthcare facilities that lose backup power due to generator failure could shorten the duration of the outage if they were registered with the Army Corps of Engineers' (USACE) *Emergency Power Facility Assessment Tool (EPFAT)*. The EPFAT tool allows hospitals and other facilities to provide information to the Army Corps of Engineers about current configurations of generators and electrical support systems. This information makes it easier for the Army Corps to understand the technical and facility requirements in the event FEMA approves temporary emergency power support for critical infrastructure during a disaster. It should be noted that USACE support is limited to events that lead to a Stafford Act disaster declaration. However, a facilities' registration with EPFAT provides important value even for disasters that do not lead to a Stafford Act declaration as there are many smaller, more localized outage issues for which the Federal Government is not brought in. In these situations, a facilities' information provided through EPFAT can be shared with local and regional emergency managers who may be able to support a backup power need in the case of a commercial grid outage.
4. Generator service companies face barriers to servicing generators post-disaster including the inability to access restricted areas, insufficient staff to meet surge demand and lack of available fuel for service trucks.
5. Independent generator service companies not affiliated with any one generator manufacturer are often prevented from performing maintenance on these generators. It has been reported in some cases that hospital maintenance staff face similar restrictions on their ability to service generators. A key question related to these restrictions is the ability of these generators to be serviced by their manufacturers' service technicians who will likely be stretched very thin following a disaster.
6. Local zoning regulations sometimes limit the ability of gas stations and other facilities when it comes to installing generators or electrical wiring to enable a quick connection to a portable generator. Other local zoning restrictions limit the size of gas tanks for fuel stations.
7. Consistent and timely preparedness messaging and risk communication must address citizens' personal responsibilities to meet their needs following a disaster.
8. Rules governing backup power for healthcare facilities are changing. Healthcare facilities receiving Medicare and Medicaid funding are required to comply with CMS Conditions of Participation that may for select healthcare facilities include a requirement for generators or back up power plan. There



are also private accreditation organizations, such as the Joint Commission, that have their own requirements relating to backup power. A common thread woven throughout CMS rules and Joint Commission requirements are codes developed and updated by the National Fire Protection Association (NFPA), the recognized code writing body for fire and safety codes for all types of facilities. The backup power requirements for healthcare facilities will likely change when CMS completes their review of comments received on the previously published “Notice for Proposed Rule Making (NPRM) for Medicare and Medicaid Program; Emergency Preparedness Requirements for Medicare and Medicaid Participating Providers and Suppliers” (*Federal Register, December 21, 2014*) and releases the final rule. The CMS notice proposed additional generator requirements for select healthcare facilities that currently have generator requirements (e.g. hospitals, skilled nursing facilities) and proposes back up power plans for others (e.g. dialysis)

Isolated generator failures can occur during an emergency or disaster. During Hurricane Sandy, three hospitals suffered backup generator failures triggering emergency evacuations. A key goal of Powered for Patients is enhancing situational awareness of hospital generator status to facilitate assistance to a facility whose backup power is threatened or lost.

9. Many hospitals in the U.S. are 30 years old or older and their aging infrastructure complicates the ability to properly maintain generators or quickly install a replacement generator. Other challenges include limited funding for improvements and some healthcare facility employees not being as prepared as they need to be to address post-disaster challenges to backup power.
10. A number of dialysis centers are located in rented space within office parks and therefore may not have access generators or plans for backup power. This can potentially impact a facilities ability to rapidly recover and provide care immediately following a disaster.
11. Energy storage technology will be a very important factor for healthcare facilities in the years to come.

## **Topic # 2 – Assessing the Value of Enhanced Situational Awareness of Generator Status for Critical Healthcare Facilities on Emergency Response Decision Making**

This discussion topic was led by V. Scott Fisher, MPH, Senior Director, Preparedness Program, National Association of County and City Health Officials (*NACCHO*) and Eric Cote, President, Disaster Safety Strategies (*DSS*).

To help frame the discussion of increasing situational awareness of hospital generator status, two brief presentations were made to help delegates understand current hospital practices and existing technologies that can facilitate enhanced situational awareness of generator status.

The first presentation was made by Jim Taufer, AEE-CEA & BEP, LEED-GA, Schneider Electric, Energy & Sustainability Services. Schneider Electric is a global specialist in Energy Management focusing on making energy safe, reliable, efficient, productive and green. Schneider Electric provides Critical Power solutions to both the Federal and Private sectors focusing on critical electrical infrastructure reliability, remote monitoring applications, emergency power supply systems, and critical UPS applications.



Key highlights of Taufer's presentation included:

- Remote monitoring of hospital equipment has been going on for years. Much of the impetus for monitoring relates to measuring energy consumption and energy efficiency. A key benefit of monitoring is that it provides an early warning indicator of potential system failures.
- Taufer noted that generator tests are not usually done to simulate the real loads that would be placed on a facility operating without utility power. He also said there are potential gaps in the testing of generator equipment such as circuit breakers and switches, which often don't get tested.

A second presentation was made by Jonathan Flannery, MHSA, CHFM, FASHE, Senior Associate Director of Advocacy, American Society for Healthcare Engineering (ASHE).

Flannery reviewed the results of recent ASHE member surveys that provided insight into current practices around remote monitoring and protocols relating to threats to backup power or failure of backup power systems. (See appendix for copy of Flannery's presentation.) Highlights of Flannery's researching findings included:

- When pre-staging resources is implemented as severe weather is expected, the most common steps taken by hospitals were pre-ordering fuel, pre-disaster coordination with government officials and increased staffing.
- The most common protocols in place when backup power for a hospital is threatened include implementing generator service contracts, implementing contracts for fuel service, notifying emergency management officials and notifying utilities.
- When asked if hospitals would be willing to share, or authorize their vendor to share, remotely monitored generator data with government officials to help enhance their situational awareness of backup power status to enable more informed government decision making around deployment of scarce resources, such as replacement generators and generator fuel, 39% said no, 28% said yes and 32% did not answer the question.

In addition to the two formal presentations, Steve Curren, Critical Infrastructure Protection Program Manager, Office of the Assistant Secretary for Preparedness and Response (ASPR), U.S. Department of Health and Human Services, provided an overview of how enhanced situational awareness would help local, state and federal government meet the needs of facilities impacted by disaster. Curren said there is often a significant lag between the start of an incident or disaster and when the federal government receives accurate hospital status information. Curren said that it is important that all levels of government receive accurate and timely facility status information during a disaster in order to mobilize the appropriate response assets in a timely fashion.

These resources often take hours to days to mobilize, so it is essential that the process can start as early as possible. He also said one of the benefits of shared situational awareness is that it would help avoid the too-frequent issue of redundant calls to a facility from multiple response organizations seeking status updates.



Other notable points made during this topic discussion included:

- Increased situational awareness of hospital generator status could be easily achieved through enhanced communication between key stakeholders. Even greater increases in situational awareness could be realized by tapping existing remote generator monitoring technologies.
- In terms of sharing status information on a critical healthcare facility's generator, it is important that this information be tailored to different audiences. A related issue is defining what generator status information is needed for different levels of government. For example, Bryan Koon, Florida's Director of Emergency Management, noted if a hospital were at risk of losing its backup power in two hours, the appropriate person to notify would be the local emergency manager or public health officials who would be best positioned to help that hospital evacuate patients and address its immediate needs.
- Remote monitoring of hospital generators is increasing, as is the remote monitoring of other critical hospital functions. This increasing trend is seen as a key means of providing enhanced situational awareness of generator status.

### **Topic # 3 – Exploring Opportunities to Expedite Power Restoration for Critical Healthcare Facilities**

This discussion topic was led by Pat Hoffman, Assistant Secretary for the Office of Electricity Delivery and Energy Reliability, U.S. Department of Energy (DOE), and Bryan Koon, Director, Florida Division of Emergency Management.

Pat Hoffman emphasized the importance of an efficient and effective restoration processes to keep consumer confidence high in that there is structure and communication in place. There are expectations [on the part of citizens, government officials and others] when there is damage due to wind speed and flooding that are met through the outage management system and restoration timelines. She challenged the group to think of better ways to identify special needs customers. Hoffman noted that utilities are the central point in banking, telecommunications, and water which results in an influx of information during power outages. There is a need to streamline information exchange and coordination through partnerships with states.

To help frame the discussion of expediting power restoration for critical healthcare facilities, Griffin Reilly, a distribution engineering leader for Con Edison, made a presentation on "Emergency Preparedness and Storm Hardening Initiatives." Reilly's presentation provided an overview of the major challenges Con Edison faced following Hurricane Sandy and how those challenges impacted loss of power for hospitals in the New York City area.

Reilly's presentation also included a brief overview of the mutual assistance process in place at Con Ed and with other utilities that is a cornerstone of a utility's power restoration process.

Key points made by Reilly included:

- During hurricane Irene and tropical storm Sandy, Con Edison learned they did not have enough people to disseminate information.



- In the wake of Hurricane Sandy, Con Edison has reviewed and updated their Corporate Coastal Storm Plan.
- The company also replaced its low line high voltage underground distribution system with a new state of the art sub-network design with submersible network protection (84% of their system is underground, 16% overhead).
- The company is working with the New York City government and municipalities to identify facilities critical to the community (e.g. hospitals, critical care facilities, grocery stores, etc.) to mitigate the amount of damage that occurs to these facilities.

To address a related topic, Kristen Finne, Senior Policy Analyst, ASPR, gave a presentation that provided additional detail on HHS' At-Risk Resiliency Initiative, described earlier in the meeting by Dr. Nicole Lurie in her keynote address.

Finne's detailed presentation led some stakeholders to note the significant differences in the challenges between helping medically vulnerable populations that are dependent upon electricity devices or healthcare services versus critical healthcare facilities, leading to suggestions that the two efforts advance on parallel but separate tracks.

It is important to note that a major reason for the development of the HHS tool is to inform and assist communities in anticipating potential needs of electricity-dependent populations that rely upon medical and assistive devices in their communities. The Map will assist state, local and community partners to better identify optimal locations for shelters and potential power needs for devices, anticipate and plan for potential surge in hospitals for those seeking care, and inform power restoration prioritization decision making prior to an emergency.

Other notable comments during this discussion included:

- Restoration of utility power for hospitals could be accelerated if there was greater coordination between the right staff at hospitals and utilities.
- Mike Hyland, of the American Public Power Association, said identifying Individuals using home-based dialysis is a real gap. "We have dialysis customers who we don't know exist. We could change our prioritization if we had the information."
- Victor Fleites of Florida Power and Light (FPL) gave an excellent overview of FPL's practices around restoration, and hardening. He noted that the utility has reached out to thousands of critical customer functions, including hospitals and other healthcare facilities, to obtain storm specific contact information so they can communicate effectively. They also have an extensive database for tracking and reporting the status of these customers during events.
- Fleites also discussed FPL's use of smart meters to help determine if an individual customer's power is on. He reported that these meters were originally intended to be used as a billing mechanism, not an outage reporting system, but FPL is using the data transmitted by these meters to verify a customer power outage when they call. Fleites also described an innovative program involving Miami Dade County



which involves the use of smart meters on the homes of approximately 2,000 at-risk citizens slated for evacuation due to their special medical needs. Miami Dade officials want to know when power is restored for these 2,000 pre-identified evacuees so they can be returned to their homes.

- The use of voluntary registries, such as those offered by electric utilities, for electricity-dependent individuals were discussed. The discussion noted many of the difficulties of awareness and enrollment in communities and the difficulty and costs associated with maintaining them and keeping the data up to date. While there are a few examples of successful registries, many do not work and individuals commonly are reluctant or unable to self-register.



## Critical Questions Raised by Stakeholders and Powered for Patients Leaders

The following questions were raised during the Stakeholder Meeting by delegates and Powered for Patients leaders but were not answered due to time constraints or because the right expert was not in the room. Answering these questions will be a key focus for Powered for Patients moving forward.

- a. What does the model for power restoration prioritization look like? In addressing this question, stakeholders wanted to better understand the communications process currently in place regarding restoration between healthcare facilities, utilities and government officials. Stakeholders also wanted to understand how prioritization lists are developed and maintained, and by whom. Another important component to these questions is understanding best practices that should be in place with specifics to include what pre and post disaster steps should be taken, who should be calling whom, and when, etc.
- b. In terms of increasing situational awareness of generator status for government officials and utilities, key questions to be addressed include:
  1. What information about generator status is needed, by whom, in what form, and when is this information needed? In addressing these questions, it will be important to understand the current communications practices when backup power is threatened or lost and assess best practices that should be in place during these situations.
  2. To what extent is remote generating monitoring being done to allow generator maintenance staff to monitor generator performance from a remote location within the hospital versus remote monitoring by a third party outside the hospital?
  3. To what extent are hospitals, generator manufacturers and monitoring companies willing to share data about generator status with government officials? This information is distinguished from proprietary data required to service a generator.
- c. In terms of access to fuel following a disaster, how is access to fuel currently prioritized and by whom?
- d. How many critical healthcare facilities do not have contracts in place to ensure delivery of replacement fuel for backup generators or critical vehicles?
- e. What other organizations should be part of Powered for Patients? (Answers provided to date include):
  - National Electrical Manufacturers Association (NEMA)
  - The Joint Commission
  - DVA (for accrediting purposes)
  - Healthcare Facilities Accreditation Program (HFAP)
  - Accreditation Association for Ambulatory Health Care (AAAHC)
  - AmeriCares
  - Medical Device Manufacturers Association (MDMA)
  - Advanced Medical Technology Association (AdvaMed)
  - National Alliance for Radiation Readiness (to discuss challenges and expectations in forming this alliance)



- All Hazards Consortium (to leverage their work on DOT issues such as responder/power team movement)
- DOE representatives involved in Lantern Light and Eagle Eye programs
- Electrical Generating Systems Association (power generation industry)
- Insurance Industry

More broadly, organizations, industries and categories of individuals that should be a part of Powered for Patients include:

- Larger generator manufacturers
  - Owners and operators of nursing homes and assisted living facilities
  - Fuel industry
  - Hospital associations other than American Hospital Association
  - Urgent care clinics
  - Local government representatives including more local emergency management officials from Katrina/Sandy affected areas
  - Emergency Medical Services organizations
  - More FEMA representatives with real life accounts of what they went through during Sandy
  - Patient organizations
- f. How many dialysis centers are in rented space and thus cannot install a generator?
- g. Who insures healthcare facilities and is there opportunity to get these insurance companies to weigh in on the importance of more effectively addressing backup power?
- h. How do you perform the economic analysis that helps support the advancement [of backup power] and get facilities to take these measures?
- i. In terms of healthcare facilities and technology, what is the best forward thinking to leverage technology to better protect backup power?
- j. What post-disaster reports already exist on this topic that should be included as reference material on the Powered for Patients website?
- k. What other organizations are engaged in related work that Powered for Patients should work with to avoid duplication of effort?



## Proposed Solutions to Serious Challenges

Another indication of the success of the Stakeholder Meeting was the identification of potential solutions to the serious challenges discussed between stakeholders. Some of these solutions were described as “low hanging fruit” given the relative ease of implementing them and are listed as such, while others were more involved and will require additional analysis and planning and thus are listed under the category of “more complex solutions.”

### Low Hanging Fruit

- Work with the Building Owners and Managers Association (BOMA) to address the issue of dialysis centers in BOMA member buildings lacking backup power. On this front, engage with the Department of Homeland Security to enlist the help of the commercial building sector.
- Encourage more healthcare facilities to register with the Army Corps of Engineers' *Emergency Power Facility Assessment Tool* (EPFAT) so the Army Corps has better advanced information about a facility's generator and electrical configuration. This information can reduce the time needed by the Army Corps to install a replacement generator. It can also facilitate faster response by local emergency management officials in meeting backup power needs when an event does not lead to a Stafford Act declaration, in which case backup power support from the Army Corps of Engineers would not be available.
- Develop recommendations for Continuity of Operations Planning (COOP) for healthcare facilities not currently required to engage in COOP planning and ensure that these recommendations include emergency power contingencies as part of a disaster-planning checklist.
- Develop power charging stations at shelters.
- Develop best practices and/or requirements for small or rural dialysis centers to sustain power (i.e.: EPFAT registration, provide value proposition and incentives for improving facility power/backup power).
- Outreach to durable equipment manufacturers to identify and advance ways to enhance prolonged power backup for life-critical, electric-powered medical equipment.
- Develop best practices (including pre and post-disaster protocols for communications) to maintain continuity of power for hospitals, dialysis centers and long-term care facilities.
- Consider the following programs as models when assessing how Powered for Patients operates going forward:
  - KCER (Kidney Coalition for Emergency Response)
  - Rx Response
  - National Alliance for Radiation Readiness
  - Centers for Disease Control's Dragon Fire program
  - Department of Energy's Lantern Project



## More Complex Solutions

- Identify local statutes or zoning requirements that present obstacles to preparedness and resiliency, and then work with states and localities to develop model legislation and language to address obstacles.
- Address the serious challenge of fuel shortages in disaster areas to include a review of the current process by which access to fuel is prioritized. Also address contract restrictions relating to propane delivery that can prevent a propane supplier from filling the tanks of a non-customer, even if that customer's own propane supplier is unable to resupply propane.

Furthermore, seek to determine following a disaster how much of available fuel is allocated to customers with a contract versus non-contracted fuel that is available for use. Finally, there is a need to examine and document the current process for prioritizing scarce fuel resources in a disaster area.

- Conduct a social network analysis to assess opportunities to reach patients who are dependent on electric-powered medical devices through community-based organizations such as Meals on Wheels, religious organizations, family members, disease advocacy groups, etc. In conjunction with this deliverable, consider stakeholder engagement meetings around the country to determine how to get into these communities to assess barriers to planning and determine the most effective means of reaching patients who are dependent on electric-powered medical devices.
- Consider legislation or other steps to ensure that clinical and non-clinical healthcare workers can get into restricted areas during times of emergency. Address credentialing and post-disaster access for other key personnel including utility technicians, generator service technicians, fuel delivery drivers, etc.).
- Consider pre-deploying replacement generators in the face of a threat.
- The process for electric utility registries for individuals that rely upon electricity-dependent medical and assistive devices needs to be better understood and opportunities to enhance awareness of these registries and uses could be better understood.
- Address codes and standards pertaining to backup power for dialysis centers and long-term care facilities.
- Create a think tank to leverage current technologies to enhance continuity of power and investigate forward-thinking technologies (Lantern – DOE app, Dragon Fire – CDC, etc.).
- Coordinate educational events with stakeholder groups that address continuity of power in disaster.



## Highlights of Post-Stakeholder Meeting Attendee Survey Results

Of the 37 Stakeholder Meeting attendees representing organizations other than meeting sponsors, 26, or 70%, completed the Post-Stakeholder Meeting Survey. The survey results provided very helpful feedback on the Stakeholder Meeting and the priorities stakeholders considered most important for Powered for Patients to address.

It should be noted that the threshold of survey respondents needed to provide results that are quantitative in nature, meaning validated by a large enough sample to keep the margin of error to a reasonable level, is 50. As such, with 26 respondents to the Post-Stakeholder Meeting Survey, the feedback is considered qualitative, meaning helpful input from a small group of respondents.

The top three rated elements of the Stakeholder Meeting were:

1. Presentation on Remote Monitoring Technologies for Hospitals (48% very satisfied and 30% satisfied)
2. Presentation on Hospital Generator Performance Statistics Pertaining to Electric Outages, Generator Issues and Remote Monitoring (41% very satisfied and 36% satisfied)
3. Networking Opportunities (42% very satisfied and 37% satisfied)

The respondents rated the top opportunities for improvement in future meetings to be larger meeting facilities and additional networking opportunities.

As noted in the Executive Summary, the top five Powered for Patients priorities based on survey feedback are:

1. Understanding and enhancing power restoration and prioritization (66%)
2. Enhancing pre-disaster communications and post disaster coordination between utilities and critical healthcare facilities (62%)
3. Enhancing situational awareness of backup power status for critical healthcare facilities for government officials (58%)
4. Addressing codes and standards relating to backup power for healthcare facilities (50%)
5. Addressing challenges related to fuel shortages following disasters (46%)



Also noted in the Executive Summary were the highest ranked activities Powered for Patients should undertake in addressing critical issues. They were:

1. Serving as a resource-sharing platform through which information and programs from other stakeholders and interested parties, journals and other media sources can be provided (50% very important, 37% important)
2. Convening stakeholders and other partners to raise awareness of and resolve challenges related to backup power and address power restoration issues (50% very important, 42% important)
3. Participate in national dialogues on backup power and power restoration issues (46% very important, 50% important)
4. Identify and disseminate best practices (46% very important, 46% important)
5. Develop mechanisms such as a website for sharing resources and tools, including technical methods and information (42% very important, 42% important)



## Powered for Patients Moving Forward: An Emerging Framework for Success

In assessing the outcome of the Stakeholder Meeting, and analyzing Post-Meeting Survey results, Powered for Patients leaders believe it is imperative that this initiative move forward with proper funding and leadership. This will enable refinement of an action plan to address the challenges around backup power and power restoration while advancing on the important recommendations arising from the Stakeholder Meeting.

To that end, as an initial framework of activity moving forward, Powered for Patients leaders have developed the following suggested Workgroups to help advance the most important work identified by stakeholders.

1. **Power Restoration and Prioritization** – This workgroup would focus on enhancing pre-disaster communications and post-disaster coordination between utilities and healthcare facilities. This workgroup would also map the current pre-disaster and post-disaster communications process between utilities, healthcare facilities and government with the goal of determining and helping to implement best practices for this communication.
2. **Situational Awareness** – This workgroup would address the need for enhanced situational awareness of backup power status for critical healthcare facilities for government officials and utilities to include a review of remote monitoring capabilities. This workgroup would also map the current post-disaster communications process when backup power is threatened or lost between healthcare facilities, government, backup generator service companies and utilities with the goal of developing best practices to maximize situational awareness.
3. **At Risk Individuals** – This workgroup would identify challenges associated with helping at-risk populations that rely upon electricity-dependent medical and assistive devices during prolonged power outages or disasters. This workgroup will work with ASPR and HHS to help support the rollout of the HHS At-Risk Resiliency Interactive Map, an emergency planning open data tool that can assist community partners, such as hospitals, EMS and emergency managers, to better anticipate, emergency plan for, and assist electricity-dependent populations within their communities.
4. **Emerging Technologies & Codes and Standards** – This workgroup would look at emerging technologies and how these technologies can be used by healthcare facilities, code bodies and accrediting organizations to help enhance backup power reliability and expedite power restoration for critical healthcare facilities.
5. **Disaster Response Challenges** – This workgroup will address post-disaster challenges to include:
  - a. **Fuel Shortages** including an assessment of how scarce fuel resources are currently prioritized for critical healthcare facilities and by whom. This work would leverage the considerable effort of the Department of Energy and other stakeholders in tackling the problem of scarce fuel supplies for disaster-impacted areas.
  - b. **Credentialing and access** for key personnel to include critical healthcare workers and service personnel for backup power systems (including fuel delivery vehicles)



- c. Addressing the impact of the limited capacity of the generator industry to meet service needs for various reasons, including manpower, parts, and inability to service other manufacturer products due to proprietary technician's manuals.

In addition to proposed workgroups, Powered for Patients leaders are also suggesting the creation of a Powered for Patients Steering Committee or Leadership Body to help guide the overall work of the organization. A number of survey respondents indicated their willingness to serve on such a body.

With a suggested framework in place for Powered for Patients to advance its important work in protecting backup power and expediting power restoration for critical healthcare facilities, the next step is securing the necessary resources to move the initiative forward. The initiative will not only involve advancing on the priorities identified by stakeholders through workgroups but working with stakeholders to help build awareness of Powered for Patients with their colleagues and members. Other important work will include engaging with the numerous organizations identified as missing from the Stakeholder Meeting but important to the overall work of Powered for Patients.

As noted during the Stakeholder Meeting, ASTHO expects to be able to support some of the work moving forward but anticipates the need for financial support from other stakeholders to enable full engagement on the range of issues identified at the Stakeholder Meeting.

A number of stakeholders indicated that funding from their organization for Powered for Patients work was a possibility. Powered for Patients staff will be working with these individuals and organizations to assess what may be possible. At this time, two organizations are seeking approval from their governing bodies for financial appropriations to support the work of Powered for Patients. Once these funding questions are addressed, a more detailed action plan for moving forward over the next 12 to 18 months can be developed and shared with stakeholders for their input. At that point, a more formal organizational structure will be proposed to reflect the investment being made, both financial and otherwise, in Powered for Patients work by various stakeholders.

The leaders of ASTHO, NACCHO and NEMA extend their thanks to the individuals and organizations who participated in the vitally important Powered for Patients Stakeholder Meeting on August 19, 2014.



## Appendix



## Powered for Patients August 19, 2014 Stakeholder Meeting Agenda

George Hotel, 15 E Street, N.W. Washington D.C. 20001  
8:30 am to 5:00 pm

8:30 am

### Welcome

Jim Blumenstock, Chief Program Officer, Public Health Practice  
Association of State and Territorial Health Officials (ASTHO)

Jack Herrmann, Senior Advisor and Chief of Public Health Programs  
National Association of County and City Health Officials (NACCHO)

8:35 am

### Keynote Address

Dr. Nicole Lurie, Assistant Secretary for Preparedness and Response (ASPR)  
U.S. Department of Health and Human Services (Introduced by Jim Blumenstock)

9:00 am

### Stakeholder Introductions

Facilitated by Gerrit Bakker, Senior Director, Public Health Preparedness, ASTHO

9:45 am

### Key Topic # 1 - Understanding Stakeholder Roles, Capabilities and Challenges and Assessing Opportunities to Leverage Capabilities and Overcome Challenges through Public-Private Partnership

This discussion will provide the opportunity for each stakeholder's role in protecting backup power and expediting utility power restoration to be shared in greater detail than what will be provided in pre-meeting background material. This session will also give attendees a clearer sense of the challenges facing each stakeholder and the opportunities to enhance reliability of backup power and expedite power restoration through a public-private partnership between the power generation industry, the healthcare sector, utilities and government officials.

#### Discussion Leaders:

- Steve Curren, Critical Infrastructure Protection Program Manager  
Office of the Assistant Secretary for Preparedness and Response (ASPR)  
U.S. Department of Health and Human Services
- Gerrit Bakker, Senior Director, Public Health Preparedness  
Association of State and Territorial Health Officials (ASTHO)



1:15 pm

### **Key Topic # 2 - Assessing the Value of Enhanced Situational Awareness of Generator Status for Critical Healthcare Facilities on Emergency Response Decision Making**

The discussion will explore current practices by hospitals when backup power is threatened or lost and assess how improvements in situational awareness of hospital generator status can enhance emergency response decision-making. Opportunities to improve situational awareness will be discussed in terms of improved communications protocols and the use of remote generator monitoring technologies.

#### Discussion Leaders:

- Eric Cote, President  
Disaster Safety Strategies (DSS)
- V. Scott Fisher, MPH, Director, Preparedness Program  
National Association of County and City Health Officials (NACCHO)

#### Special Presenters:

- Jim Taufer, AEE-CEA & BEP, LEED-GA, Schneider Electric | Energy & Sustainability Services – Will discuss technical aspects of remote monitoring of generators and sharing of data.
- Jonathan Flannery, MHSA, CHFMM, FASHE, Senior Associate Director of Advocacy, American Society for Healthcare Engineering (ASHE) – Will discuss results of ASHE survey of hospital facility managers relating to remote generator monitoring and sharing of remotely monitored generator data.

2:45 pm

### **Key Topic # 3 - Exploring Opportunities to Expedite Power Restoration for Critical Healthcare Facilities**

This discussion will explore the possibilities of expediting power restoration for critical healthcare facilities through greater coordination between utilities, healthcare facilities, government and other stakeholders. The discussion will detail necessary resources to achieve expedited restoration, obstacles to be overcome, and a reasonable timeframe for implementation of an action plan.

#### Discussion Leaders:

- Pat Hoffman, Assistant Secretary for the Office of Electricity Delivery and Energy Reliability  
U.S. Department of Energy (DOE)
- Bryan Koon, Director  
Florida Division of Emergency Management (FDEM)

#### Special Presenters:

- Kristen P. Finne, Senior Policy Analyst, ASPR – Will address HHS's forthcoming public map that provides the volume of Medicare beneficiaries that rely upon electricity-dependent medical devices at the state, county and zip code level.



- Griffin Reilly, Manager, Distribution Engineering, Consolidated Edison – Will address lessons learned from Hurricane Sandy and steps being considered by Con Ed to facilitate expedited power restoration for hospitals.

4:00 pm

**Recap of Day with Development of Action Plan**

Meeting organizers will lead an event recap and facilitate development of a consensus Action Plan and solicit input on what stakeholders are prepared to do to advance the work of Powered for Patients.

Discussion Leaders:

- Gerrit Bakker, Senior Director, Public Health Preparedness (ASTHO)
- V. Scott Fisher, MPH, Director, Preparedness Program  
National Association of County and City Health Officials (NACCHO)

5:00 pm

**Meeting Adjourned**



## Participant List

**Beth Armstrong**

Executive Director, International Association of Emergency Managers

**Gerrit Bakker**

Senior Director, Public Health Preparedness, Association of State and Territorial Health Officials (ASTHO)

**Jeffrey Baumgartner**

ESF-12 Support, US Department of Energy

**James Blumenstock**

Chief Program Officer, Public Health Practice, Association of State and Territorial Health Officials (ASTHO)

**Tom Bradsell**

Divisional Biomed Manager, DaVert, DaVita

**Robert Byrne**

President & CEO, Power Pro-Tech Services, Inc.

**Mary Casey-Lockyer**

Manager, Disaster Health Services, American Red Cross

**Carmine Centrella**

Program Director - Capitol Region, Metropolitan Medical Response System

**Peggy Connorton**

Director, Quality and LTC Trend Tracker, American Health Care Association

**Debbie Cote**

President Elect, National Renal Administrators Association

**Eric Cote**

Powered for Patients Project Director, Disaster Safety Strategies

**Matt Cowles**

Government Relations Director, National Emergency Managers Association (NEMA)

**Edward Creamer**

Corporate Director, Risk Management, Dialysis Clinic, Inc.

**Deanne Criswell**

Team Leader, National IMAT, Federal Emergency Management Association (FEMA)



**Steve Curren**

Program Manager, Critical Infrastructure Protection Program, Office of the Assistant Secretary for Preparedness and Response (ASPR), US Department of Health and Human Services

**John Degnan**

Public Health Emergency Response Coordinator, Eastern Highlands Health District

**Neyling Fajardo**

Administrative Coordinator, Public Health Preparedness , Association of State and Territorial Health Officials (ASTHO)

**Kristen Finne**

Senior Program Analyst , Office of the Assistant Secretary for Preparedness and Response (ASPR), US Department of Health and Human Services

**Scott Fisher**

Senior Director, Public Health Preparedness National Association of County & City Health Officials (NACCHO)

**Jonathan Flannery**

Senior Associate Director of Advocacy, American Society for Healthcare Engineering

**Victor Fleites Sr.**

Emergency Preparedness Coordinator for Customer Service, Florida Power & Light

**Charlie Habic**

President & Owner, Gillette Generators, Inc.

**Daniel Hahn**

Plans Chief, Santa Rosa County Division of Emergency Management

**Jack Herrmann**

Senior Advisor & Chief, Public Health Programs, National Association of County & City Health Officials (NACCHO)

**Pat Hoffman**

Assistant Secretary, Office of Electricity Delivery and Energy Reliability, US Department of Energy

**Mike Hyland**

Senior Vice President – Engineering, American Public Power Association

**Cara Klein**

Powered for Patients Project Director, Disaster Safety Strategies

**Bryan Koon**

Director, Florida Division of Emergency Management



**Gary Krupa**

Senior Electrical Engineer, VA Medical Center, VHA Office of Capital Asset Management Engineering and Support

**Deborah Levy**

Chief, Healthcare Preparedness Activity , US Centers for Disease Control and Prevention

**Dr. Nicole Lurie**

Assistant Secretary for Preparedness and Response, Office of the Assistant Secretary for Preparedness and Response (ASPR), US Department of Health and Human Services

**Jack McCauley**

Director of Federal Government Segment, Schneider Electric

**Heather Misner**

Director, Preparedness and Clinical Outreach, Association of State and Territorial Health Officials (ASTHO)

**Peter Navesky**

Temporary Emergency Power Disaster Program Manager, US Army Corps of Engineers

**Frank Navetta**

President and Owner, Power Pro Services Company, Inc.

**Bill Numbers**

Senior Vice President Operations Support/ Incident Commander for Disaster Response & Planning, Fresenius Medical Care North America

**Lisa Peterson**

Senior Analyst, Preparedness Policy, Association of State and Territorial Health Officials (ASTHO)

**Abid Rahman**

Veterans Health Administration, Office of Emergency Management

**Darrell Ransom**

Director Distribution Management, FEMA Logistics office

**Griffin Reilly**

SCADA (Supervisory Control and Data Acquisition) Engineering Manager Distribution Engineering, Con Edison of New York

**April Salas**

Situational Awareness Unit Chief, US Department of Energy

**David Sanders**

Director, Federal Government Affairs at DaVita Healthcare Partners, DaVita



**Laura Saporito**

Policy Analyst, Homeland Security & Public Safety Division, National Governor's Association

**Daniel Schultz**

Chief, Emergency Services Sector Specific Agency, Department of Homeland Security, Office of Infrastructure Protection

**Robert Solomon**

Assistant VP for Building and Life Safety Codes, National Fire Protection Association

**Debra Sottolano**

Office for Primary Care and Health Systems Management Lead and Liaison for Preparedness, New York State Department of Health

**Jim Taufer**

Solution Development Leader - Healthcare Segment, Schneider Electric

**Joan Thomas**

Director, Emergency Management, Kidney Community Emergency Response

**Ahsha Tribble**

Senior Advisor to the Secretary, Emergency Preparedness and Response , US Department of Energy

**Laura Wolf**

Senior Program Analyst, Critical Infrastructure Protection Branch, Office of Emergency Management, HHS ASPR



## **Pre-Meeting Overview from Gerrit Bakker Senior Director, Public Health Preparedness, ASTHO**

August 13, 2014

**TO:** Powered for Patients Stakeholder Meeting Attendees

**FROM:** Gerrit Bakker, Senior Director, Public Health Preparedness  
Association of State and Territorial Health Officials (ASTHO)

**RE:** Important Background Information on Stakeholder Meeting

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Greetings,

Thank you for accepting our invitation to attend the Powered for Patients Stakeholder Meeting in Washington, D.C. on Tuesday, August 19<sup>th</sup>. As part of your pre-meeting briefing material, I wanted share some background on the meeting and also some expectations for our discussions on the 19<sup>th</sup>.

Our meeting will be the first time most of the stakeholders involved in backup power and power restoration for critical healthcare facilities will convene in one place to talk about respective roles and challenges. Achieving this alone has been a significant undertaking and one ASTHO has been pleased to help advance.

The work of Powered for Patients has been aptly described as moving from a crawl, to a walk, and eventually to the proverbial run. The crawl stage of Powered for Patients has been underway since late 2012 when the lessons of Hurricane Sandy prompted Disaster Safety Strategies (DSS), whose principals will be with us on Tuesday, to develop the concept for Powered for Patients. For the last 18 months, DSS principals Eric Cote and Cara Klein worked with the power generation industry, with our organization and others in public health to help develop the structure and refine the mission of Powered for Patients. They also sought input from the HHS Office of the Assistant Secretary for Preparedness and Response (ASPR).

Earlier this year, I had the opportunity to meet with Powered for Patients Project Director Eric Cote at the Preparedness Summit. It was clear that what was needed to advance Powered for Patients was an initial Stakeholder Meeting. With funding from ASPR, our organization is pleased to be convening the stakeholder meeting in conjunction with the National Emergency Management Association (NEMA) and the National Association of County and City Health Officials (NACCHO).

We consider the August 19<sup>th</sup> Stakeholder Meeting a graduation from the "crawl" phase to the "walk" phase and we hope our work on August 19<sup>th</sup> gets us to the starting gate of the "run" stage.

The ultimate goal is to get to a run stage where Powered for Patients is a highly effective organization that has the active engagement of all critical stakeholders and facilitates meaningful pre-disaster planning and post-disaster coordination. Getting to this point will require a number of steps. The first step will be development of a formal report that documents the Stakeholder Meeting discussions, the agreed upon action items, any open questions that are being addressed and a timeframe for their resolution.



This report will allow us to refine a broader Strategic Plan for Powered for Patients that provides a blueprint for getting the initiative to the run stage. Some initial thinking has already been done on this front and I'd like to share some of those thoughts so you have an understanding of what we see as the steps between now and gaining operational capabilities for Powered for Patients. Of course we want to hear from everyone involved in the Stakeholder Meeting so your input can help shape the ultimate direction of Powered for Patients.

Depending on available resources, the move from walk to run as we see it may include some or all of the following:

- Further engagement with each of you and an introduction of Powered for Patients to your broader industry or government agency. This can be achieved as you share details of the Stakeholder Meeting. We'll make that easier by providing you with the report capturing the day's discussions, and next steps.
- We can also help facilitate outreach and education of your industry or government sector with a potential Powered for Patients presence at your conferences and meetings.
- We can consider webinars and provide you with materials to share with your industry or government sector.
- We hope to reconvene the initial stakeholder meeting attendees and advance the work of steering committees and any workgroups that may be set up at the Stakeholder Meeting.
- As resources and interest allow, we may convene a disaster exercise to test some of the concepts we develop at the Stakeholder Meeting.
- Also as resources allow, ongoing staff support to advance all of the work of Powered for Patients will be addressed.

In terms of resources, ASTHO hopes to support some of the activities I described. But we can't do it alone so we're open to active involvement of other stakeholders, both operationally and financially. It is our hope that a subset of those gathered on August 19<sup>th</sup> will have an interest in serving on a leadership body that carries with it not only the opportunity to help direct Powered for Patients, but the responsibility to provide resources to support ongoing work.

Here are our thoughts and expectations for the Stakeholder Meeting and what we're looking for as outcomes:

- As we move through the meeting, I think we are going to identify information gaps and open questions that no one present can answer for which either some other expert has the answer or for which research is needed. These questions may relate to technologies, regulations or policies that could be barriers to coordination.
- I also think we will come across solutions to problems that can be implemented fairly easily, solutions we might call "low hanging fruit".
- There will be longer-term solutions offered that will require significant effort and or investigation to assess feasibility.
- As we move through the agenda, our team will make note of all of these questions, potential solutions and the action items we agree to.
- Before we conclude the Stakeholder Meeting, we would also like to understand what stakeholders are prepared to invest in time and potentially other resources to support the ongoing work of Powered for Patients. We will specifically address this question during our wrap up session Tuesday afternoon.



- Additionally, we would like to get some consensus on an organizational structure for Powered for Patients that may include a steering committee or leadership body and possibly some working groups.
- Finally, we'd like to reach consensus on when to meet next to review the progress we make at the Stakeholder Meeting and continue charting the course of Powered for Patients into the future.

Thank you again for attending the Stakeholder Meeting and for taking the time to review the important material in this pre-meeting briefing packet.



## Pre-Meeting Overview from Eric Cote, Project Director, Powered for Patients

August 14, 2014

TO: Powered for Patients Stakeholder Meeting Attendees

FROM: Eric Cote, Project Director, Powered for Patients

RE: Important Background Information to Review Prior to Stakeholder Meeting

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Greetings,

As part of the briefing material you are receiving in advance of the August 19<sup>th</sup> Stakeholder Meeting, I'm pleased to include this backgrounder that provides a non-technical primer on the subjects we will be discussing on Tuesday. The goal in providing this document in advance of the meeting is to enable attendees to gain a basic understanding of the key subjects we will be covering, avoiding the need to review this information during the meeting and freeing up time for more fruitful discussions.

If time permits, I encourage you to review the reference document from Edison Electric Institute (EEI) pasted below. It will provide an even deeper understanding of the issues to be discussed and a very good overview of the process utilities generally use to prioritize power restoration after a disaster.

If time doesn't allow you to review the EEI document, you can still be well prepared for the meeting by reading this memo in its entirety (along with the preceding memo provided by Gerrit Bakker of ASTHO).

Key things you should know going into the meeting:

### **Big Picture: Why are we meeting?**

The Powered for Patients initiative and the initial Stakeholder Meeting are based in large part on the reality that backup power failures in critical healthcare facilities can put patients at serious risk. The meeting provides an important opportunity for all stakeholders involved in supporting backup power and facilitating power restoration to better understanding the challenges faced by other stakeholders. The meeting also provides a platform for stakeholders to discover opportunities to better safeguard backup power and expedite power restoration through coordinated effort between government, healthcare facilities, the power generation industry and the electric utility industry.

### **Rules Governing Backup Power for Healthcare Facilities Are Changing**

Healthcare facilities receiving Medicare and Medicaid funding are mandated to comply with CMS rules that include backup power requirements. There are also private accreditation organizations, such as the Joint



Commission, that have their own requirements relating to backup power. A common thread woven throughout CMS rules and Joint Commission requirements are codes developed and updated by the National Fire Protection Association (NFPA), the recognized code writing body for fire and safety codes for all types of facilities. As noted earlier, the backup power requirements for healthcare facilities will likely change once CMS finalizes its Notice for Proposed Rule Making (NPRM) for *Medicare and Medicaid Program; Emergency Preparedness Requirements for Medicare and Medicaid Participating Providers and Suppliers* initially published for public comment via the Federal Register issued in December 2013. The CMS rule as proposed not only stiffens requirements for healthcare facilities already mandated to use backup power but also requires some healthcare facilities not currently required to use generators to do so. Understanding the nuances of codes and proposed changes is a major challenge for a non-technical person. Any discussions of pending code changes and CMS requirements at the Stakeholder Meeting will be addressed from a less technical, higher level perspective.

### **Generator Failures Will Occur**

Even if proposed CMS rules governing backup power were in place, there would still be isolated failures of generators in healthcare facilities impacted by disaster. During Hurricane Sandy, three hospitals suffered backup generator failures triggering emergency evacuations. A key goal of Powered for Patients is enhancing situational awareness of hospital generator status to facilitate assistance to a facility whose backup power is threatened with the hope of preventing a failure. Another goal is to facilitate greater coordination among key players to better manage the impacts of unplanned evacuations of healthcare facilities that cannot be avoided.

Nursing homes, assisted living facilities and dialysis centers are also at risk for loss of power during emergencies. These facilities generally do not face the same stringent requirements for backup power as a hospital, making them even more vulnerable to loss of power. The Stakeholder Meeting will explore these vulnerabilities and review best practices and solutions to close gaps in backup power.

### **If a Facility Doesn't Have a Generator Before a Disaster, it Will be Difficult to Get One Afterwards**

The Stakeholder Meeting will provide an opportunity for attendees to better understand the post disaster surge capacity of the power generation industry. Initial Powered for Patients research suggests that surge capacity is limited for some companies both in terms of supplying new generators on a large scale and deploying large teams of generator service personnel. This limitation makes it critically important that critical healthcare facilities address their backup power needs before disaster strikes.

### **Federal Backup Generator Assets can Augment the Capacity of the Power Generation Industry**

The federal government maintains a large fleet of backup generators that can be deployed to provide support for existing generators facing operational challenges or to provide backup power for vital facilities not equipped with backup power. The federal government also has significant emergency fuel supplies that can augment private sector resources during times of disaster. This federal generator fleet is managed between FEMA and the Army Corps of Engineers. Representatives from both agencies will be at the Stakeholder Meeting to provide



an overview of their assets, how they are deployed, and what synergistic opportunities may exist to leverage federal assets and power generation industry assets to augment total capabilities.

### **The Path to Increasing Situational Awareness of Generator Status in Critical Healthcare Facilities**

One of the key drivers of the Powered for Patients initiative has been addressing the stated need of federal officials for better situational awareness of hospital generator status in disaster areas. Enhanced situational awareness will help government officials at all levels make better decisions when deploying limited resources. Enhanced situational awareness of generator status can also help utilities with power restoration prioritization. As an example, if there were three hospitals in a disaster area running on generator power and it became known that one of them only had 10 hours of generator fuel remaining while the others had a 24 hour supply, a more informed decision could be made about supplying fuel to the hospital with only 10 hours of fuel left. In a scenario where fuel may not be available, providing this information to a utility may help in prioritizing restoration to the hospital with less generator fuel.

A key focus for the Stakeholder Meeting will be discussing how to best achieve enhanced situational awareness of generator status. It is hoped that some improvements in situational awareness can be achieved by simply enhancing traditional means of communication (email, phone calls, texts, etc.) between individuals who will become known to each other in part through the work of Powered for Patients (healthcare officials, government officials, and leaders in the power generation industry and utility industry).

A more sophisticated means of increasing situational awareness of hospital generator status is also being explored through the use of remote generator monitoring technology. The remote monitoring of generators, and other vital systems within a hospital, is increasing. Much of this remote monitoring is being done to measure energy efficiency and the performance of other hospital systems. Remote monitoring and the sharing of generator performance data with government officials holds the promise of dramatically improved situational awareness. However, there are significant challenges associated with the widespread sharing of remotely monitored generator data and these will be explored at the Stakeholder Meeting. Among the challenges is synthesizing data feeds from different types of monitoring equipment into a single data feed that can be shared in a usable format with emergency response decision makers. Tackling this challenge is not just a technology issue. Some generator manufacturers use proprietary software controls that provide monitoring and even more sophisticated remote diagnostics but may not be willing to share access to this data with third parties.

The Stakeholder Meeting will provide an excellent forum for a deeper discussion of these issues.

### **How do electric utilities prepare for storms and other events that can cause outages?**

Extensive pre-disaster planning, mutual aid agreements and advanced technologies are the backbone of utility disaster response and restoration capabilities. An important fact to understand about electric power is that the U.S. has three basic types of utilities, including investor-owned utilities, utilities owned and operated by cities (municipals), and electric cooperatives that are often located in rural parts of the country. Investor-owned



utilities provide approximately 70 percent of the electricity in the U.S. The remaining 30 percent is split nearly evenly between municipal utilities and co-ops. There are approximately 2,000 municipal utilities and 900 co-ops in the U.S. Some of the larger cities served by municipal utilities include Los Angeles, CA; Austin, TX and Cleveland, OH. The U.S. Department of Energy works very closely during disasters with senior leaders from the associations that represent the three types of utilities to coordinate disaster response and leverage public and private resources. These associations are: the Edison Electric Institute (investor owned utilities), the American Public Power Association (municipal utilities) and the National Rural Electric Cooperative Association (NRECA).

(The following content was excerpted from the Edison Electric Institute (EEI) document that is below in its entirety)

Electric utilities' power restoration and business continuity planning includes year-round preparation for all types of emergencies, including storms and other weather-related events, as well as cyber and physical infrastructure attacks. For example, utilities conduct exercises and drills to prepare them to respond to significant outages—whether they are caused by an expected storm or by an event that occurs without warning.

Restoring power after a major incident is a complex task that must be completed as safely and efficiently as possible. A speedy restoration process requires significant logistical expertise, along with skilled workers and specialized equipment. Electric utilities begin their preparation for weather-related events long before an event actually occurs, with organization-wide plans and drills that involve virtually all employees. When a major storm or natural disaster is expected, electric utilities begin their standard preparations to organize restoration workers, trucks, and equipment.

A utility's storm restoration plan focuses on restoring power to the greatest number of customers safely and as quickly as possible. This typically means that a utility will first assess affected power plants, transmission lines, and substations to determine the extent of any damage. Power is then restored to critical facilities, such as hospitals, police and fire stations, water and water-treatment facilities, and nursing homes; main thoroughfares that host supermarkets, gas stations, and other essential community services; and, finally, individual neighborhoods. As a storm approaches, a utility's command center serves as the nucleus of its operations, communicating restoration and logistics planning 24 hours a day until all customers have their electricity service restored.

### **What is the mutual assistance program?**

EEI's mutual assistance program is a voluntary partnership of investor-owned electric utilities across the country committed to helping restore power whenever and wherever assistance is needed. Municipal utilities and electric cooperatives also have their own mutual aid programs that provide restoration support to their participating utilities. Created decades ago, the EEI mutual assistance program provides a formal, yet flexible, process for utilities to request support from other utilities in parts of the country that have not been affected by major outage events.



Mutual assistance is an essential part of the electric power industry’s service restoration process and contingency planning. Electric utilities impacted by a major outage event are able to increase the size of their workforce by “borrowing” restoration workers from other utilities. When called upon, a utility will send skilled restoration workers—both utility employees and contractors—along with specialized equipment to help with the restoration efforts of a fellow utility.

### **How does mutual assistance work?**

Partnerships in the mutual assistance program are based upon voluntary agreements among electric utilities within the same region. Most of these agreements are managed by seven Regional Mutual Assistance Groups (RMAGs) throughout the country. When a member determines that it needs restoration assistance, it initiates a request through an RMAG. (Utilities in the western states coordinate responses directly with each other, rather than through an RMAG.)

RMAGs facilitate the process of identifying available restoration workers and help utilities coordinate the logistics and personnel involved in restoration efforts. For example, RMAGs can help utilities locate specialized skill sets, equipment, or materials, and can assist in identifying other types of resources that may be needed, including line workers, tree trimmers, damage assessors, and even call center support.

Utility restoration workers involved in mutual assistance typically travel many miles to help the requesting utility to rebuild power lines, replace poles, and restore power to customers.



## Understanding the Electric Power Industry's Response and Restoration Process

**Electricity is a crucial product many of us take for granted. We scarcely think about it, unless we don't have it. Because electricity plays such an important role in our everyday lives, we rely on electric utilities to provide a reliable supply of on-demand power. Utilities constantly plan for emergency situations that could impact their ability to generate or deliver power. And, the industry has a strong track record of maintaining high levels of reliability.**

No matter how well the industry is prepared, hurricanes, earthquakes, storms, and other natural and man-made disasters can cause significant damage to the electric grid, creating widespread power outages. Following these events, electric utilities must respond safely, swiftly, and efficiently to restore service to large numbers of affected customers. Edison Electric Institute's (EEI) members, the nation's investor-owned electric utilities, often turn to our mutual assistance program—a voluntary partnership of electric utilities from across the country—to help restore power efficiently. Such was the case in 2012 after Superstorm Sandy, which impacted 24 states and left as many as 10 million customers without power.

Following are frequently asked questions about the response and restoration process and the steps we are taking to enhance our mutual assistance program to improve public safety, accelerate the industry's response, and reduce potential economic consequences.

For more information, visit the Edison Electric Institute's web site at [www.eei.org](http://www.eei.org).



### **How do electric utilities prepare for storms and other events that can cause outages?**

Electric utilities' power restoration and business continuity planning includes year-round preparation for all types of emergencies, including storms and other weather-related events, as well as cyber and physical infrastructure attacks. For example, utilities conduct exercises and drills to prepare them to respond to significant outages—whether they are caused by an expected storm or by an event that occurs without warning.

Restoring power after a major incident is a complex task that must be completed as safely and efficiently as possible. A speedy restoration process requires significant logistical expertise, along with skilled workers and specialized equipment. Electric utilities begin their preparation for weather-related events long before an event actually occurs, with organization-wide plans and drills that involve virtually all employees. When a major storm or natural disaster is expected, electric utilities begin their standard preparations to organize restoration workers, trucks, and equipment.

As illustrated on page 3, a utility's storm restoration plan focuses on restoring power to the greatest number of customers safely and as quickly as possible. This typically means that a utility will first assess affected power plants, transmission lines, and substations to determine the extent of any damage. Power is then restored to critical facilities, such as hospitals, police and fire stations, water and water-treatment facilities, and nursing homes; main thoroughfares that host supermarkets, gas stations, and other essential community services; and, finally, individual neighborhoods.

As a storm approaches, a utility's command center serves as the nucleus of its operations, communicating restoration and logistics planning 24 hours a day until all customers have their electricity service restored.

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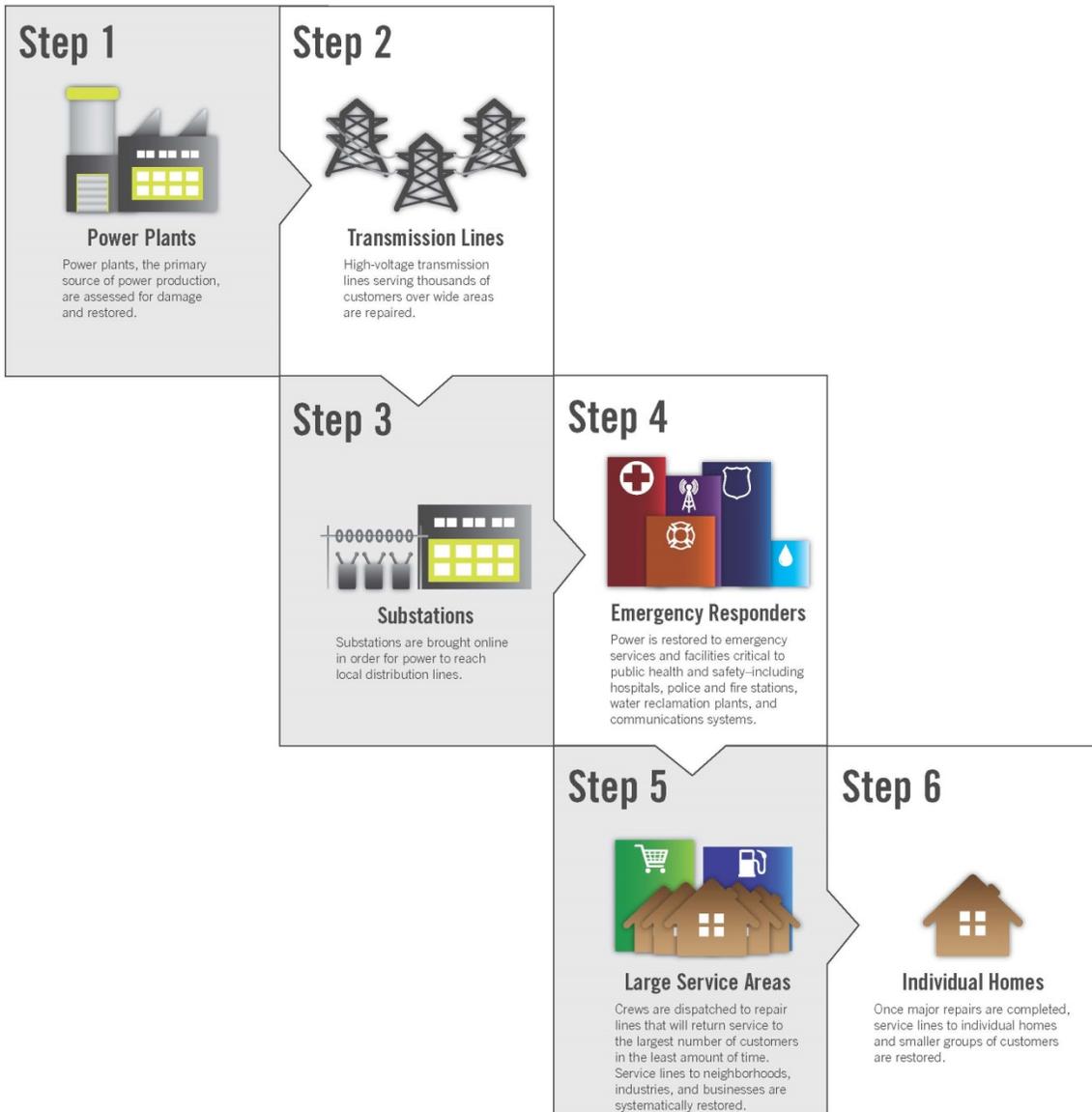
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Utility restoration workers involved in mutual assistance typically travel many miles to help the requesting utility to rebuild power lines, replace poles, and restore power to customers. Before their restoration



# The Storm Restoration Process

Every electric utility has a detailed plan for restoring electricity after a storm. Typically, one of the first steps a utility takes—to prevent injuries and fires—is to make sure that power is no longer flowing through downed lines. Restoration then proceeds based on established priorities.





work begins, the volunteer restoration workers receive any necessary safety training and an overview of the affected facilities from the host electric utility.

### How are the RMAGs organized?

RMAGs are organized geographically to meet the needs of electric utilities during emergency situations most effectively. Although participation is voluntary, each utility in an RMAG has committed, when possible, to send its restoration workers, contractors, and specialized equipment to help other utilities in the network when called upon to do so. If needed, utilities in one RMAG will assist those in another region. By sharing resources among utilities, the RMAGs help to mitigate the risks and costs related to restoring power following major outages. Together, the RMAGs enable a consistent, unified response to emergency events that result in a significant loss of power.

### How do RMAGs help to maintain electric reliability throughout the country during a major restoration effort?

RMAGs develop contingency plans to ensure that the transfer of resources from one electric utility or region to another has a minimal effect on a regional area if an unexpected event occurs within the service areas of assisting utilities. Contingency plans are developed according to the amount of resources—both restoration workers and equipment—being transferred either to a region or to a larger geographic area.

### What are the key goals of the mutual assistance program?

The mutual assistance program serves as an effective—and critical—restoration resource for electric utilities because of its unique structure. It is both flexible and voluntary, empowering the network to respond quickly to the unpredictable nature of weather, while also recognizing that any one utility may be limited in its ability to provide resources at a given point in time.

While a primary goal of the mutual assistance program is to restore electric service in a safe, effective, and efficient manner, the program also serves additional objectives that benefit the entire electric power industry. The mutual assistance program:

- ▶ Promotes the safety of employees and customers;
- ▶ Strengthens relationships among electric utilities;
- ▶ Provides a means for electric utilities to receive competent, trained employees and contractors from other experienced utilities;
- ▶ Provides a predefined mechanism to share industry resources expeditiously;
- ▶ Mitigates the risks and costs of member utilities related to major incidents;
- ▶ Proactively improves resource-sharing during emergency conditions;
- ▶ Shares best practices and technologies that help the electric power industry improve its ability to prepare for, and respond to, emergencies;
- ▶ Promotes and strengthens communication among RMAGs; and
- ▶ Enables a consistent, unified response to emergency events.

### What have been some of the largest mutual assistance responses?

The damage done by Superstorm Sandy in October 2012 was unprecedented in its size and scope. Approximately 10 million customers lost power across 24 states in the Northeast, Mid-Atlantic, and parts of the Midwest. In response, the electric power industry deployed an army of tens of thousands of restoration workers—representing 80 utilities from almost every state and Canada. The goal was to restore power as quickly and safely as possible.

The June 2012 derecho—a sudden and widespread storm with peak wind gusts ranging from 80-100 miles per hour—caused more than four million people across Ohio and the Mid-Atlantic to lose power. Utilities responded with a workforce of about 30,000, including local utility workers and crews from as far away as Canada, Texas, and Wyoming.

In August 2011, Hurricane Irene made landfall on the East Coast, leaving approximately nine million



customers without power. Nearly 50,000 electric utility restoration workers from as far away as the West Coast and Canada assisted with the restoration efforts in 14 states and the District of Columbia.

When Hurricane Katrina hit the Gulf of Mexico in August 2005, it damaged almost an entire 400-mile section of coastline from central Louisiana, across Mississippi, and into Alabama and western Florida, and destroyed much of the electric power grid in the area. More than 46,000 electric utility restoration workers and contractors from around the country travelled to the Gulf Coast to help the local electric utilities with their monumental restoration effort.

### **What are electric utilities doing to strengthen the mutual assistance network after Superstorm Sandy?**

The electric power industry is committed to strengthening its preparations for, and response to, emergency events that threaten electric service. Electric utilities, contractors, and vendors that provide support or services during outage events meet annually to discuss the outage events that have taken place over the past year; to share lessons learned when responding to storms; and to allow restoration managers to learn about technologies and products that could assist them during future weather-related events.

One of the important lessons learned following Superstorm Sandy was that there were too many small RMAGs in the Northeast. In September 2013, the Mid-Atlantic Mutual Assistance (MAMA), New York Mutual Assistance Group (NYMAG), and the Northeast Mutual Assistance Group (NEMAG) finalized their merger into the North Atlantic Mutual Assistance Group (NAMA)—reducing the total number of RMAGs from nine to seven.

This merger included 21 utilities across 13 states, 1 district, and 4 Canadian provinces. Merging these three smaller RMAGs into one larger RMAG allows better coordination of the resources available to the participating utilities and increases the ability of the

RMAG to provide more self-sustaining support for most local and regional outage events without having to reach out and coordinate across multiple RMAGs.

In the aftermath of Superstorm Sandy, EEI members also recognized the need to enhance and formalize the mutual assistance program for national events. In September 2013, the Edison Electric Institute's Board of Directors approved a framework to institutionalize the lessons learned and best practices from Sandy in order to optimize restoration efforts following events that impact a significant population or several regions across the U.S. and require resources from multiple RMAGs.

### **Why was the response and restoration process revised?**

To prepare for severe storms and outage events that cross RMAG boundaries, such as Superstorm Sandy, we developed guidelines for responding to large, multi-RMAG or industry-wide National Response Events (NREs). Sandy was the single biggest post-storm restoration the electric power industry had ever undertaken. The damage was catastrophic and widespread. All RMAGs were impacted or involved in the restoration effort.

Prior to Sandy, there was not a national framework in place to respond to storms of this magnitude. Determined to enhance the restoration process, EEI members are institutionalizing best practices based on the lessons learned from Sandy. The electric power industry is prepared for significant outage events and continues to improve its coordination and response and recovery efforts. Customers have increasing expectations and electricity dependence, and we are committed to making our mutual assistance process safe, efficient, equitable, and scalable.

### **What is an industry-wide National Response Event?**

The most serious outage events are classified by EEI members as "national response events" (NREs). An NRE is a natural or man-made event that is forecast to cause or that causes widespread power outages impacting a significant population or several regions across the U.S. and requires resources from multiple RMAGs.



The response and restoration plan for a designated NRE includes a new standing and rotating National Response Executive Committee (NREC), consisting of senior-level member company executives representing all regions of the United States. It also establishes an inter-RMAG framework for a national allocation of member company mutual assistance resources (utility restoration workers, contractors, and spare materials).

When an NRE is declared, all available member emergency restoration resources (including contractors) will be pooled and allocated to participating utilities in a safe, efficient, transparent, and equitable manner.

### **What triggers an NRE?**

An NRE is a natural or man-made event that is forecast to cause or that causes widespread power outages impacting a significant population or several regions across the U.S. and requires resources from multiple RMAGs.

It's important to understand a NRE designation is reserved only for the most significant events, such as a major hurricane, earthquake, an act of war, or other occurrence that results in widespread power outages.

### **What is different about NREs?**

Our current mutual assistance program works well for regional events, but was not designed to be scalable for national events. In the case of a designated NRE, our mutual assistance program will be scaled to a national level so member restoration resources are allocated in a singular and seamless fashion. The NRE process is overseen by the NREC comprised of senior-level member company executives from all regions of the country. During an NRE, the NREC will activate a National Mutual Assistance Resource Team (NMART) that will evaluate mutual assistance requests and assign available resources to participating utilities in coordination with the RMAGs.

For regional or local outages, mutual assistance resources will continue to be managed through the existing RMAG process, which concentrates on providing support across smaller geographic areas.

### **How has the industry worked with state and federal governments following Superstorm Sandy?**

In the aftermath of Sandy, the electric power industry continues to work with the federal government and the states to enhance and formalize industry-government partnerships developed during Sandy that support the industry's response and restoration process. This is especially critical during events that impact significant populations or multiple regions and that require resources from multiple RMAGs. Areas of focus include:

- ▶ Embedding senior industry officials with government response teams at the U.S. Department of Energy to allow a direct, two-way flow of information between industry responders and government emergency managers.
- ▶ Partnering with the U.S. Department of Transportation and state transportation agencies to expedite the movement of electric utility resources in support of mutual assistance and power restoration.
- ▶ Negotiating a new procedure for U.S. and Canadian border crossings with the Department of Homeland Security and the Canadian Border Services Agency to minimize delays and to ensure timely movement of mutual assistance fleets across the international border.
- ▶ Engaging in an ongoing dialogue with the Department of Defense (DOD) to build upon the unique capabilities that the military can provide in an emergency. This effort includes working to expand logistical support such as access to DOD property and facilities for pre-staging areas, exploring ways to enhance security and road access with the National Guard, and securing access to critical supplies and equipment from the Army Corps of Engineers.



### **What is the role of the states during power restoration efforts?**

The states and electric utilities should continue to collaborate and work with first responders to ensure a flexible approach to storms and other events that lead to widespread power outages. A timely restoration effort requires a smooth transition of resources from other regions into the affected area, regardless of the state boundary. Utility service territories often extend beyond state boundaries, and restoration work often involves multiple jurisdictions. Having flexibility to move resources to the outage location is the key to successfully completing a restoration.



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The **Edison Electric Institute (EEI)** is the association that represents all U.S. investor-owned electric companies. Our members provide electricity for 220 million Americans, operate in all 50 states and the District of Columbia, and directly employ more than 500,000 workers.

With more than \$85 billion in annual capital expenditures, the electric power industry is responsible for millions of additional jobs. Reliable, affordable, and sustainable electricity powers the economy and enhances the lives of all Americans.

EEI has 70 international electric companies as Affiliate Members, and 250 industry suppliers and related organizations as Associate Members.

Organized in 1933, EEI provides public policy leadership, strategic business intelligence, and essential conferences and forums.

For more information on EEI programs and activities, products and services, or membership, visit our Web site at [www.eei.org](http://www.eei.org).



701 Pennsylvania Avenue, N.W.  
Washington, D.C. 20004-2496  
202.508.5000  
[www.eei.org](http://www.eei.org)

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