Energy Assurance in a Post Sandy World

Alice Lippert
Acting Deputy Assistant Secretary
Office of Electricity Delivery and Energy Reliability

31st National Regulatory Conference, May 16, 2013
<table>
<thead>
<tr>
<th>Information</th>
<th>Hurricane Sandy</th>
<th>Hurricane Irene</th>
<th>Hurricane Katrina</th>
</tr>
</thead>
<tbody>
<tr>
<td>First U.S. Landfall Date</td>
<td>October 29, 2012</td>
<td>August 27, 2011</td>
<td>August 29, 2005</td>
</tr>
<tr>
<td>Strength at First U.S. Landfall</td>
<td>Post-Tropical Cyclone</td>
<td>Category 1 Hurricane</td>
<td>Category 3 Hurricane</td>
</tr>
<tr>
<td>U.S. Landfall Location and Sustained Wind Speeds</td>
<td>Atlantic City, NJ – 80 mph</td>
<td>Cape Lookout, NC - 90 mph</td>
<td>Plaquemines Parish, LA – 127 mph</td>
</tr>
<tr>
<td></td>
<td>Little Egg Inlet, NJ - 80 mph</td>
<td>Coney Island, NY - 75 mph</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extent of Tropical Storm Force Winds (from Center)</td>
<td>500 miles</td>
<td>300 miles</td>
<td>230 miles</td>
</tr>
<tr>
<td>Affected States</td>
<td>NC to ME</td>
<td>SC to ME</td>
<td>Gulf Coast to Midwest</td>
</tr>
<tr>
<td>Peak Flooding&lt;sup&gt;1&lt;/sup&gt;</td>
<td>New York City&lt;sup&gt;2&lt;/sup&gt; - 14.1 ft</td>
<td>New York City&lt;sup&gt;2&lt;/sup&gt; – 9.5 ft</td>
<td>New Orleans – up to 20 ft</td>
</tr>
<tr>
<td></td>
<td>Philadelphia - 10.6 ft</td>
<td>Philadelphia - 9.9 ft</td>
<td>Pascagoula – 12.2 ft</td>
</tr>
<tr>
<td>Property Damages</td>
<td>$20 billion&lt;sup&gt;3&lt;/sup&gt;</td>
<td>$10 billion</td>
<td>$125 billion</td>
</tr>
<tr>
<td>Deaths</td>
<td>131</td>
<td>45</td>
<td>1,833</td>
</tr>
</tbody>
</table>

1) Above Mean Lower Low Water  
2) Battery Park  
3) Preliminary Estimates  
Sources: NOAA, EQUECAT, Property Claim Services, press
DOE Analysis of Power Outages by Storm

**Table:**

<table>
<thead>
<tr>
<th>Storm</th>
<th>Peak Outages (Millions)</th>
<th>Total Outages* (Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irene</td>
<td>5.95</td>
<td>6.69</td>
</tr>
<tr>
<td>Sandy</td>
<td>8.20</td>
<td>8.66</td>
</tr>
</tbody>
</table>

*Total outages reported at one point or another over the course of storm and resulting from other storms affecting the region during the restoration period.

![Graph](image_url)
Sandy Power Outages by State

- Connecticut: 0.63
- New Jersey: 2.62
- New York: 2.10
- Pennsylvania: 1.27

Source: OE/ISER Situation Reports
## Oil, Nat Gas, and Nuclear Outages

<table>
<thead>
<tr>
<th>Infrastructure</th>
<th>Hurricane Sandy</th>
<th>Hurricane Irene</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Refineries</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td>2 shut, 4 reduced</td>
<td>1 shut, 5 reduced</td>
</tr>
<tr>
<td>Capacity Shut</td>
<td>308,000 barrels per day</td>
<td>238,000 barrels per day</td>
</tr>
<tr>
<td><strong>Pipelines</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Products</td>
<td>Buckeye, Colonial, Plantation</td>
<td>Buckeye, Plantation, TEPPCO (LPG)</td>
</tr>
<tr>
<td>Crude</td>
<td>None</td>
<td>Portland Pipe Line</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>New Jersey Natural Gas</td>
<td>None</td>
</tr>
<tr>
<td><strong>Petroleum Terminals</strong></td>
<td>57</td>
<td>25</td>
</tr>
<tr>
<td><strong>Nuclear Power Reactors</strong></td>
<td>3 shut, 5 reduced</td>
<td>2 shut, 6 reduced</td>
</tr>
</tbody>
</table>

Source: OE/ISER Situation Reports, NRC
DOE’s Role
Serve as the Federal focal point for energy response and restoration issues and policy decisions related to energy infrastructure and systems

Collect, assess, and provide information on energy impacts, supply, demand, and prices

Facilitate energy restoration for events requiring a coordinated Federal response

Serve as the Federal POC to private sector energy partners during major disasters

Leverage Department of Energy (DOE) expertise, capabilities, and resources

Deploy ESF-12 Response Teams to affected areas to assist in response and restoration efforts
DOE provided situational awareness of energy infrastructure outages and restoration activities for federal, State, and local stakeholders.

- Emergency Situation Reports:
  - Power outages and status of restoration activities.
  - Status of petroleum refineries, pipelines, and storage terminals.
  - Status of natural gas pipelines
  - Status of nuclear power plants.


- Visualization and Mapping:
  - Regional maps with county-level power outage data
DOE, in partnership with FEMA and other federal agencies, worked around the clock to support the impacted States and utilities.

• Utility Calls: Daily conference calls between utility executives and Secretary Chu.

• Interagency Taskforce: DOE participated in an interagency taskforce on power restoration and fuel availability at the FEMA National Response Coordination Center.
  ▪ Focused on eliminating any bureaucratic roadblocks - help to get power back up as quickly as possible.
  ▪ Facilitated the movement of utility workers by working with U.S. DOT to issue the appropriate permits for utility trucks crossing state lines.

• Power Marketing Administrations and Other Assistance
  ▪ Over 220 personnel and equipment from the Energy Department's Power Marketing Administration (PMA) offices in Western States were involved in the restoration efforts.

• “Boots on the Ground” support: 35 DOE Personnel Deployed.
Jones Act Waiver: DHS issued, in coordination with DOE, the Maritime Administration and the DOD, a waiver of the Jones Act allowing foreign vessels to ship petroleum products from the Gulf of Mexico to Northeastern ports.

Fuel Flexibility Waivers: The EPA in coordination with DOE issued a number of waivers that allow for fuel flexibility in the use of a variety of fuel products.
- Reformulated Gasoline (RFG) waiver.
- Ultra Low Sulfur Diesel (ULSD) waiver for emergency response vehicles and equipment in NY, NJ, and PA.
- Non Action Assurance allowing fuel loading and unloading without the use of vapor recovery systems.

Accessing Reserves: For the first time, diesel fuel from the Northeast Home Heating Oil Reserve was released for use by emergency responders, generators and emergency equipment and buildings, as well as to alleviate fuel shortages in Connecticut.

Additional Efforts included: Assessing port conditions, generators to gas stations and fuel to first responders.
• Dedicated senior leadership involvement
  ▪ Secretary of Energy held daily conference calls with utility CEOs

• Expanded mutual aid assistance
  ▪ Peak deployment of 70,000 workers (including DOE PMA crews)
  ▪ DOD movement of personnel and resources
  ▪ State and Federal waivers to facilitate movement of resources across State lines

• Expedited waivers
  ▪ President: “zero tolerance for red tape”
  ▪ Facilitated movement of personnel and resources
  ▪ Provided flexibility in fuel systems
State and Local Response Actions and Energy Assurance Planning
State & Local Actions

- **Rationing Fuel:** The State of New Jersey, New York City, and two New York counties established fuel rationing programs in order to alleviate long lines at fueling stations.

- **Easing Regulations:** The State of New Jersey and New York State, along with the New York City government, issued temporary waivers on certain State and local fuel regulations in order to alleviate fuel shortages.

- **Monitoring Price Gouging:** New Jersey, New York, and Connecticut monitored sellers of fuel and emergency generators, among other goods, for price gouging.

- **Facilitating Restoration:** New York deployed National Guard troops helped identify and properly mark downed power lines so that utility crews could be freed up to focus on the technical work of repairing lines.
  - The New York City government, in partnership with FEMA, launched the “NYC Rapid Repairs” program to send teams of contractors and City inspectors into neighborhoods impacted by Hurricane Sandy to make emergency repairs, including permanent or temporary restoration of heat, power, and hot water, and other limited repairs to protect a home from further significant damage.
• Review and update plans every one to two years
• The Governor could issue an executive order to maintain the plans and capabilities. Public utility commissions could also take corresponding actions
• Annually update State, local and energy industry contact lists.
• Update State’s energy profile to accurately reflect how energy is produced, transmitted and distributed
• Reference the plan in the State’s emergency response plans and as part of any ESF-12 annex
• Include duties in position descriptions of staff with energy assurance responsibilities
• Conduct training for new staff and periodic refresher training for existing staff
• Participate and/or conduct periodic State energy exercises and multi-state regional exercises
DOE -OE publishes analytical reports related to major energy disasters and public and private sector response actions.

- Comparing the Impacts of Northeast Hurricanes on Energy Infrastructure: compares the impacts of Hurricanes Irene and Sandy

http://www.oe.netl.doe.gov/outreach.aspx
For public information visit:


Alice Lippert, DOE/OE
Alice.lippert@hq.doe.gov