



Hurricane Isabel

A Summary of Energy Impacts and OEA's Response

On September 18, 2003, Hurricane Isabel made landfall near Cape Hatteras, North Carolina, as a Category 2 storm with winds near 100 mph. Despite this fairly modest storm classification, over the next 24 hours Isabel caused unprecedented power outages throughout the Mid-Atlantic region.

DOE's Office of Energy Assurance (OEA) played a major role in conducting Federal preparation and response activities prior to the hurricane and throughout the ensuing recovery period. As described below, OEA worked with states, utilities, and other Federal agencies to expedite the restoration of power to the millions who suffered outages.

Hurricane Isabel's Severity

Twice rated as a Category 5 storm prior to landfall, Isabel moved quickly once it hit the East Coast, but still caused widespread flooding and power outages.

- ❑ At least 40 deaths have been attributed to the storm.
- ❑ After making landfall and weakening, Isabel cut a path through North Carolina, Virginia, West Virginia, Maryland, the District of Columbia, Delaware, Ohio, and New York. The storm also affected New Jersey and Rhode Island.
- ❑ Storm surge levels ranged from 5 feet on the North Carolina coast to over 8 feet in the Chesapeake Bay.

- ❑ The Insurance Information Institute estimates that insurers will pay out \$1 billion in claims.
- ❑ President Bush signed disaster declarations for North Carolina, Virginia, West Virginia, Maryland, Delaware, and Washington, DC.

Energy Impacts

"Isabel was the worst storm in our company's history," declared Jimmy D. Staton, Senior Vice President of Operations at Dominion Power. Some Dominion Power customers in Richmond and Tidewater were forced to cope without power for over two weeks. BG&E, with service territory in Maryland, also reported that Isabel was the most destructive storm in their history.



- ❑ Power outages affected **over 6.5 million customers** at the storm's peak. Utility crews were stretched to their limits, even with assistance from out-of-the-area crews.
 - Pepco: At one point, the utility had more than 1,000 wires and 380 feeders lines down, five substations out, and more than 3,000 transformers out of service.
 - Dominion: Utility workers had to contend with 62 downed transmission lines (1,600 miles of high-voltage lines); 1,150 disrupted primary distribution circuits; 2,311 broken utility poles; 3,899 snapped crossarms; and 7,363 spans of downed power lines.
 - BG&E: The utility repaired 3,612 sections of overhead wires and replaced 444 poles, 306 transformers, and 3,482 fuses.

- ❑ Many other utilities were affected, including Allegheny Power, Conectiv Power, Duke Power, NOVEC, PECO, Progress Energy, PPL Electric, and Rappahannock.

- ❑ The energy impacts from Hurricane Isabel were among the most severe in history. Even Hurricane Andrew, by far the most costly of all hurricanes with insurance costs of \$19.8 billion (adjusted to 2002 dollars), resulted in only 1.3 million power outages— **5 times less than Isabel.**

Utility	Total Customers Who Lost Power
Allegheny	218,000
BG&E	650,000
Conectiv	193,000
Dominion	1,800,000
NOVEC	4,000
Duke Power	131,000
PECO	540,000
Pepco	497,000
PPL Electric	492,000
Progress Energy	320,000
Rappahannock	14,000
Total*	4,859,000

* Total is less than the 6.5 million figure because other affected utilities and electric cooperatives are not included in this table.

Office of Energy Assurance: Working to Prepare and Respond

From the days leading up to Isabel's landfall and continuing well after the storm had passed, the Office of Energy Assurance worked to prepare for and respond to the energy impacts of the hurricane. OEA worked with numerous organizations to help conduct the Federal response to Isabel and assist utilities in restoring power to customers. Examples of OEA's efforts include the following:

Coordination

- ❑ Coordinated responses with DOE'S Emergency Operations Center (EOC), the Energy Information Administration (EIA), the Department of Homeland Security, the Federal Emergency Management Agency (FEMA), and other groups.
- ❑ Worked with FEMA at the Disaster Field Office established in Richmond, Virginia to help restore the energy systems in the state.
- ❑ Advised Dominion Power, coordinated efforts with forestry crews to clear roads, and met daily with engineers from Dominion Power to discuss restoration efforts.
- ❑ Produced, updated, and maintained a tracking database with utility and outage data and worked with GIS programmers to produce outage and restoration maps.

Preparation

- ❑ Staffed the Department of Energy's EOC located in DC, which began operating 24/7 on September 18.
- ❑ Gathered information on utility preparations and plans in cooperation with the North American Electric Reliability Council (NERC).
- ❑ Contacted state energy officials, establishing efficient communications and a secure internet forum to share emergency information and coordinate response efforts.
- ❑ Created a list of refinery and major utility contacts in the storm's path in collaboration with EIA.

Response

- ❑ Worked with Federal, state, and utility organizations in prioritizing the placement of emergency generators and coordinating their removal.
- ❑ Gathered information and prepared briefings for the Secretary of Energy.
- ❑ Briefed FEMA on energy issues and provided them electrical cooperative contact data.
- ❑ Posted and regularly updated situation reports on the OEA website throughout the event.
- ❑ Provided information to facilitate the delivery of food, water, ice, and generators to affected areas.
- ❑ Established strong information-sharing and coordination with all affected utilities.