



U.S. Department of Energy
Office of Electricity Delivery & Energy Reliability

Hurricane Sandy Situation Report # 8
November 1, 2012 (10:00 AM EDT)

http://www.oe.netl.doe.gov/emergency_sit_rpt.aspx

Highlights:

- At 8:00 pm EDT October 29, the National Hurricane Center reported Sandy made landfall near Atlantic City, NJ as a post tropical cyclone.
- **As of 9:00 am EDT November 1 there are 4,657,013 customers without power in the affected States.**

Summary

Electric Outages by State				
Impacted State	Current Customer Outages	Percentage of Customers Without Power	Peak Outages Reported in DOE SitReps	Customers Restored Since Peak
Connecticut	353,949	17%	626,559	272,610
Maryland	48,224	2%	311,020	262,796
Massachusetts	18,055	< 1%	298,072	280,017
Michigan	10,009	< 1%	120,637	110,628
New Hampshire	14,387	2%	141,992	127,605
New Jersey	1,813,280	45%	2,615,291	802,011
New York	1,583,315	17%	2,097,933	514,618
Ohio	98,994	1%	267,323	168,329
Pennsylvania	524,939	8%	1,267,512	742,573
Rhode Island	25,883	5%	116,592	90,709
Virginia	9,672	< 1%	182,811	173,139
West Virginia	156,306	15%	271,765	115,459
TOTAL:	4,657,013		8,317,507	3,660,494

Note: States with fewer than 1,000 outages are not included in the table. Due to a large number of service providers, including investor owned utilities and cooperatives, the number of customer outages reported may not be comprehensive.

Sources: Outages obtained from company web sites and DOE communications. Total State customers are based on 2010 EIA Customer Data.

- **Yesterday (October 31), the US Environmental Protection Agency (EPA), in consultation with the US Department of Energy, issued an emergency waiver of the reformulated gasoline (RFG) requirements for the States of Connecticut, Delaware, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, , and Virginia, and the District of Columbia. The waiver also applies to Alabama, Georgia, Mississippi, North Carolina, South Carolina, and Tennessee to allow for fuel flexibility in the system. The waiver will be in effect through November 20.**
- **Yesterday (October 31), the US Environmental Protection Agency (EPA), in consultation with the US Department of Energy, issued an emergency waiver of the Ultra Low Sulfur Diesel (ULSD) fuel specifications in mobile nonroad diesel engines in New Jersey. The waiver will be in effect through November 13.**



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- As of 7:00 am EDT, November 1, the U.S. Nuclear Regulatory Commission (NRC) reports three nuclear power units in the Northeastern United States continue to be shut down and two units remain reduced as a result of impacts from Hurricane Sandy.

Nuclear Generation Facility	Power Status (11/1)	Status Notes
Millstone Unit 3 (1,233 MW) Dominion Resources Connecticut	Online 95 percent	The unit was reduced from full power to 73 percent power on October 29 to minimize potential impacts on its circulating water system due to the storm and help maintain grid stability during the storm. Operators installed flood barriers around the plant as a precaution against storm surges, but did not expect flooding at the station. Operators brought the unit up to 95 percent power on November 1.
Salem Unit 1 (1,174 MW) PSEG Nuclear New Jersey	Offline	PSEG manually shut Salem Unit 1 at 1:09 am EDT Tuesday morning (October 30) per plant operating procedures when four of the station's six circulating water pumps were no longer available due to weather impacts from Hurricane Sandy. On November 1, Unit 1 remained offline. As of Wednesday morning, one of the pumps had been repaired, and the others were expected to be repaired by the end of the day. Operators did not state when they expected the unit to return to service.
Indian Point Unit 3 (1,040 MW) Entergy Nuclear New York	Offline	Entergy shut Unit 3 at 10:45 pm EDT on Monday (October 29) due to external electric grid issues caused by Hurricane Sandy. On November 1, Unit 3 remained offline. Operators state they were prepared to return the unit to service when the grid is ready to accept its power.
Nine Mile Point Unit 1 (630 MW) Constellation Energy New York	Offline	On Monday (October 29) at 9:00 pm EDT, Unit 1 experienced an automatic reactor scram due to a generator load reject. A lightning arrestor at the unit's switchyard fell onto electrical components Monday during the storm, which caused a loss of offsite power and a grid disturbance. On November 1, the unit remained offline. Operators have not commented on the expected length of the outage.
Nine Mile Point Unit 2 (1,143 MW) Constellation Energy New York	Online 100 percent	On October 30, Unit 2 experienced a loss of one of two incoming offsite power lines as a result of the same fault that tripped Unit 1. One of the plant's emergency diesel generators started in response to generate power usually provided by the line. Unit 2 remained at full power during the incident and continued to operate at full power November 1.
Limerick Unit 1 (1,130 MW) Exelon Corp. Pennsylvania	Online 100 percent	Exelon restored Unit 1 to full power on October 31, after reducing it to 48 percent power October 30 in response to storm-related power outages.
Limerick Unit 2 (1,134 MW) Exelon Corp. Pennsylvania	Online 96 percent	Unit 2 was reduced to 30 percent power by October 31 in response to storm-related power outages. Operators brought the unit up to 96 percent power on November 1.
Vermont Yankee Unit 1 (620 MW) Entergy Nuclear Vermont	Online 100 percent	On October 30 the unit reduced power to 89 percent in response to a request from the grid operator due to the loss of a transmission line in New Hampshire. Operators brought the unit back up to full power by October 31, and it remained at full power November 1.

William N. Bryan | Deputy Assistant Secretary | ISER | Department of Energy | 202-586-7517



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ESF 12 Actions:

- ESF 12 is staffing the FEMA National Response Coordination Center (NRCC) in Washington, DC; the FEMA Region I Regional Response Coordination Center (RRCC) in Boston, MA, the FEMA Region II RRCC in Colts Neck, New Jersey; the FEMA Region III RRCC in Philadelphia, PA, and the New York State Emergency Operations Center (EOC) in Albany, NY.

Petroleum & Natural Gas Information:

Refineries

- Trade press reported this morning (November 1) that the Philadelphia Energy Solutions refinery in Philadelphia is operating at reduced rates until waterborne deliveries resume.
- A list of refineries impacted by Hurricane Sandy is presented in the table below.

Refineries in the Path of Sandy as of 7:00 am EDT 11/1/12						
Refinery	Location	Capacity (B/D)				
		Operating Capacity*	Shut Down	Restarting	Reduced Runs	Normal
Hess*	Port Reading, NJ	70,000	X			
Monroe Energy	Trainer, PA	185,000				X
PBF	Delaware City, DE	182,200				X
PBF	Paulsboro, NJ	160,000				X
Philadelphia Energy Solutions (Sunoco)	Philadelphia, PA	335,000			X	
Phillips 66	Linden, NJ	238,000	X			
TOTAL		1,170,200	308,000	0	335,000	527,200

Note: The table does not include asphalt refineries or facilities already closed in prior years.

*The Hess Port Reading, NJ facility does not process crude, but processes gas oils to produce petroleum products.

Sources: Confirmed by company or on company web site. Various trade press sources

Ports

- As of the morning of November 1, the Captain of the Port (COTP) of New York has authorized loaded fuel barges to transit to all operational facilities in the Upper Bay, the North River (Hudson) and the East River to Long Island Sound. Fuel barges must have a predetermined fuel facility destination at which to offload their cargo before authorization to enter or transit within the port is granted. The Arthur Kill, Kill Van Kull, and Buttermilk Channel will remain closed for all vessel traffic due to known hazardous conditions in the water. The U.S. Coast Guard has reopened all other port sectors affected by Sandy.

Petroleum Terminals

- Motiva states that their terminals in New York and New Jersey have experienced flooding and power loss. Two diesel storage tanks were damaged at the Sewaren, NJ terminal.
- The table below lists the status of petroleum terminals impacted by Hurricane Sandy.

Status of Petroleum Terminals as of 7:00 am EDT 11/1/12				
Company	City	State	Status	Date Stamp
Colonial Pipeline	Linden	NJ	Shut	10/30/12
Hess	Groton	CT	Shut	10/30/12



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Status of Petroleum Terminals as of 7:00 am EDT 11/1/12				
Company	City	State	Status	Date Stamp
IMTT	Bayonne	NJ	Shut	10/31/12
Kinder Morgan	Carteret	NJ	Shut	10/30/12
Kinder Morgan	Perth Amboy	NJ	Shut	10/30/12
Kinder Morgan	Philadelphia	PA	Open	10/31/12
Kinder Morgan	Staten Island	NY	Shut	10/30/12
Magellan Midstream	Wilmington	DE	Open	10/30/12
Magellan Midstream	New Haven	CT	Open with reduced operations	10/30/12
Motiva	Bridgeport	CT	Open with reduced operations	10/31/12
Motiva	Brooklyn	NY	Shut	10/31/12
Motiva	Long Island	NY	Shut	10/31/12
Motiva	Newark	NJ	Shut	10/31/12
Motiva	New Haven	CT	Open	10/31/12
Motiva	Sewaren	NJ	Shut	10/31/12
Motiva	Baltimore	MD	Open	10/31/12
Motiva	Fairfax	VA	Open	10/31/12
Motiva	Richmond	VA	Open	10/31/12
Motiva	Providence	RI	Open	10/31/12
NuStar Energy	Paulsboro	NJ	Open	10/31/12
NuStar Energy	Linden	NJ	Shut, Restart timing pending	10/31/12
NuStar Energy	Virginia Beach	VA	Open	10/31/12
NuStar Energy	Dumfries	VA	Shut, Expected Back 11/1	10/31/12
NuStar Energy	Piney Point	MD	Open	10/31/12
NuStar Energy	Andrews AFB	MD	Open	10/31/12
NuStar Energy	Baltimore	MD	Open	10/31/12
Phillips 66	Riverhead	NY	Shut	10/31/12
Phillips 66	Tremley Point	NJ	Shut	10/31/12

Petroleum Pipelines

- The Colonial Pipeline shut down its mainline serving the Philadelphia, New Jersey and New York harbor markets at 7:00 pm EDT, October 29. **As of 8:00 pm yesterday (October 31), trade press report that the line remains down but operators expect power to be restored by Friday although there is still no estimated time for restart.** Sandy has caused severe flooding at Colonial Pipeline’s tank farm and other facilities in Linden, NJ. Colonial’s southern mainlines (Houston-to-Greensboro, N.C.), as well as a mainline between Greensboro and central Maryland, are continuing normal operations.
- As of 8:40 am EDT yesterday (October 31), trade press reports that Buckeye Partners LP is in the process of restarting six oil products pipelines. The resumption is conditional on favorable reports about the lines and supply availability. Buckeye does not have a timeframe for restarting operations.

Electric Restoration Information

Connecticut

William N. Bryan | Deputy Assistant Secretary | ISER | Department of Energy | 202-586-7517



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- The United Illuminating Company reported yesterday (October 31) is continuing restoration work and damage assessments of its electrical infrastructure.
- Connecticut Light and Power (CL&P) reported yesterday (October 31) that it has 5,000 workers responding to damage from Hurricane Sandy. Groups of employees are working to complete damage assessments and line workers are responding to emergencies, restoring power to town-identified critical customers, such as water treatment plants, police and fire stations and shelter locations.

Delaware

- Delmarva Power reported yesterday afternoon (October 31) that they have mobilized more than 1,500 service personnel including company teams and crews from as far away as New Mexico. In Northern Delaware and in Northeast Maryland, 90 percent of customers were expected to be restored by midnight last night. On the Southern Delmarva Peninsula, most customers are expected to receive service by tomorrow at 6 p.m.

Maine

- Central Maine Power Company (CMP) announced yesterday (October 31) that they company expected to have power restored to all customers by late last night.

Maryland

- FirstEnergy Corp., whose utilities serve New Jersey, Pennsylvania, Ohio, Maryland and West Virginia, reported yesterday (October 31) that its Maryland customers will be restored by early evening Saturday, with the exception of the hardest hit area of Garrett County, which requires further assessment. Its assessment and restoration effort in the wake of Hurricane Sandy includes more the 12,000 company personnel, electrical contractors and outside utility resources are assisting with service restoration efforts.
- Pepco, serving Washington, DC and Maryland, stated that they expected to have all of their customers restored by late last night (October 31).
- Baltimore Gas and Electric Company (BGE) stated Wednesday (October 31) they expect the vast majority of customers to have power restored by Friday night, with some scattered customer outages involving smaller numbers of customers and/or significant system damage extending into the weekend More than 5,000 out-of-state and contract linemen, tree personnel and support staff make up BGE's restoration workforce.
- Southern Maryland Electric Cooperative (SMECO) restored all outages yesterday (October 31).

Massachusetts

- NSTAR reported yesterday afternoon (October 31) that it expects to restore power to all of its customers by tonight.
- National Grid reported yesterday (October 31) that it expects to restore the majority of its customers in Massachusetts by today and have restoration fully completed by tomorrow

Michigan

- Detroit Edison reported Tuesday afternoon (October 30) that they expect to have 90 percent of customers restored by midnight Wednesday, but it will take several days before every customer affected by the storm is back in service.



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New Hampshire

- Public Service of New Hampshire (PSNH) reported yesterday (October 31) that the first wave of 75 two-man crews from Hydro Québec arrived in New Hampshire that afternoon and joined with PSNH crews and contractors already in the field. Aided by others, including crews from as far away as Texas and Oklahoma, PSNH expects that its restoration will be substantially completed by Friday evening
- New Hampshire Electric Coop (NHEC) announced last night (October 31), that they expect all customers to be restored by mid-day tomorrow.

New Jersey

- Public Service Electric and Gas (PSE&G), serving New Jersey reported this morning (November 1) that it forecasts to have virtually all of its customers restored to service within the next seven to ten days. But customers who have individual flooding or downed lines issues may take longer to be restored. PSE&G has assembled over 1,730 technicians – 600 PSE&G workers, 1,050 workers from across the country, and an additional 600 contractors to cut and remove trees. Crews helping in the restoration efforts have arrived from Florida, Georgia, Indiana, Illinois, Missouri, Pennsylvania, Tennessee, Texas, and Wisconsin, as well as Canada.
- Orange and Rockland (O&R), serving New Jersey, New York, and Pennsylvania estimated at 8:00 AM yesterday (October 31) that a majority of its customers without power should have electricity restored within 10 days, but complete repairs and total service restoration could take weeks. The company has restored 13 of the 27 transmission lines and 7 of the substations that were damaged by the storm. More than 1,000 O&R employees and over 1,000 contractors from almost 20 states are working on rebuilding O&R's electric system.
- Jersey Central Power and Light, reported yesterday that the majority of its customers will be restored in the next seven days and customers in the hardest-hit areas are expected to be restored within 14 days. Remaining customers will be restored once damaged roads, infrastructure and homes are rebuilt. Across the First Energy utilities, more the 12,000 company personnel, electrical contractors and outside utility resources are assisting with service restoration efforts. These workers including linemen, dispatchers, hazard responders, damage assessors, mechanics, supervisors, and call center representatives.
- Atlantic City Electric (AEC) reports extensive damage to its system. As of Noon yesterday (October 31), AEC estimates 90 percent of customers in the Mainland areas (Cape May, Glassboro, Pleasantville, and Winslow Districts) will be restored by midnight on Sunday November 4. Restoration estimates for the NJ Barrier Islands will be established after damage assessments have been completed.

New York

- Consolidated Edison (ConEd) announced last night (October 31) that it restored power to customers served by two underground electrical networks taken out of service October 29. The networks are in lower Manhattan (serving 2,000 customers) and Brighton Beach (serving 28,200 customers). The company stated that underground lines are expected to be back within three days and overhead lines will take at least a week. ConEd stated that across its service area the storm knocked down more than 100,000 primary electrical wires in overhead areas.
- Central Hudson estimated last night (October 31) that it is on track to meet its projected restoration goal of 90 percent of total impacted customers by Friday (November 2) at 11:00 PM. Some

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restoration activities will continue to take place over the weekend. Central Hudson is deploying 700 employee line personnel, contractors, and mutual aid crews from Florida, Iowa, Indiana, and Wisconsin.

- New York State Electric and Gas (NYSEG) reported yesterday (October 31) that it expects to restore power to the vast majority of its customers in Rochester by midnight tomorrow. The company continues to conduct its damage assessment and estimated restoration times for other regions will be established when the damage assessment is complete.
- Long Island Power Authority (LIPA) has more than 1,200 crews from National Grid, other utilities and qualified contractors from as far as California and Texas are currently assisting with restoration efforts, supported by more than 4,500 people behind the scenes from virtually every company department assisting with activities such as call handling, logistics and damage assessment. An additional 1,969 utility personnel are on way to Long Island to assist in the restoration effort. Yesterday (October 31) restored power to 22 Substations of 50 that were out of power. LIPA anticipates some customers to be without power at least 7 to 10 days.
- Orange and Rockland (O&R), serving New Jersey, New York, and Pennsylvania estimated at 8:00 AM yesterday (October 31) that a majority of its customers without power should have electricity restored within 10 days, but complete repairs and total service restoration could take weeks. The company has restored 13 of the 27 transmission lines and 7 of the substations that were damaged by the storm. More than 1,000 O&R employees and over 1,000 contractors from almost 20 states are working on rebuilding O&R's electric system.

Ohio

- Ohio Edison, a FirstEnergy Company, announced yesterday (October 31) that the majority of customers in Erie, Ottawa, Huron and Medina counties are expected to have service restored by midnight today, while the majority of customers in Lorain County are expected to be restored by noon tomorrow. Ohio Edison customers in all other areas were anticipated to be restored by midnight yesterday.

Pennsylvania

- PECO announced Wednesday (October 31) that it has a team of 3,500 PECO crews, contractors and employees from other utilities working to restore service to its customers. PECO expects to be able to restore service to approximately 80-90 percent of customers impacted by the storm by Friday night. Service for most of the remaining customers should be restored during the weekend. Some customers, in the most damaged and isolated areas may be without electric service until next week.
- First Energy, which includes PennPower, WestPenn Power, Met-Ed and Penelec, reported yesterday (October 31) that nearly 95 percent of Met-Ed's customers are expected to be restored by this weekend, with the remainder restored early next week. The majority of affected customers in the Erie, Oil City, Johnstown, Lewistown and Clearfield areas should have been restored around midnight last night. The majority of Penelec customers in Altoona, Mansfield and Towanda are expected to be restored by midnight today. Across the First Energy utilities, more than 12,000 company personnel, electrical contractors and outside utility resources are assisting with service restoration efforts.
- PPL Utilities reports that the hardest-hit areas are in the Lehigh Valley, the Poconos and northeastern Pennsylvania, and Bucks County. The utility expects outages to last through the weekend. PPL received more than 400 line technicians, tree crews, and other personnel from the



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Kentucky-based utilities Kentucky Utilities Co (KU) and Louisville Gas & Electric (LG&E) which are subsidiaries of PPL's parent company, PPL Corporation.

- Orange and Rockland (O&R), serving New Jersey, New York, and Pennsylvania estimated at 8:00 AM yesterday (October 31) that a majority of its customers without power should have electricity restored within 10 days, but complete repairs and total service restoration could take weeks. The company has restored 13 of the 27 transmission lines and 7 of the substations that were damaged by the storm. More than 1,000 O&R employees and over 1,000 contractors from almost 20 states are working on rebuilding O&R's electric system.

Rhode Island

- National Grid reported yesterday (October 31) that it expects all power to be restored to its customers, except for isolated outages, by tomorrow. The company stated there might be possible isolated restorations occurring Saturday.

Virginia

- Dominion Power stated that In Northern Virginia, where the storm's impact was greatest, restoration is expected to be completed Thursday night (November 1) in all but a very few locations where flooding or severe damage occurred.
- Northern Virginia Electric Cooperative (NOVEC) announced yesterday (October 31) that the majority of its customers have been restored. It anticipates having most customers' service restored by Friday night (November 2). NOVEC crews, along with crews from North and South Carolina, and Maryland, are making sure all power lines are repaired and connected
- Shenandoah Electric Cooperative (SVEC) reports that, as of 9:30 PM yesterday (October 31), the majority of customers will have power restored by the end of the day; however, scattered outages may remain due to more difficult to address repairs. With the number of members affected, SVEC has brought in additional manpower, including crews from six cooperatives, and two contractors, from Alabama, North Carolina, and Virginia. In total, SVEC has approximately 425 men and women working to restore electric service.
- Appalachian Power (AEP), which services Tennessee, Virginia, and West Virginia, released some restoration estimates yesterday (October 31) for Virginia, noting that Lebanon (Russell) and Tazewell (Tazewell) and all surrounding areas should be 90 percent restored by Thursday midnight and Grundy (Buchanan) and Clintwood (Dickenson) and all surrounding areas should be 90 percent restored by Friday night.
- Rappahannock Electric Cooperative (REC) expects to have most outages restored by the end of the day tomorrow (November 1). Some members may still be without power longer, as access to downed lines is proving difficult in certain off-road and mountainous areas. Remaining outages are concentrated in the counties of Greene, Rappahannock, Fauquier and Madison. In those areas numerous poles and cross-arms have been broken and need to be replaced in remote locations that are difficult to access even with heavy-duty, four-wheel drive line trucks. Right-of-way crews continue to clear the paths into highly-damaged areas. The crews will also clear trees and limbs from power lines once linemen are able to reach affected areas. In addition to REC work crews and contract resources, the restoration work has been bolstered by help from fourteen sister cooperatives in Tennessee, Alabama, South Carolina and Georgia.



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West Virginia

- Appalachian Power (AEP), which services Tennessee, Virginia, and West Virginia, reports that in West Virginia **many areas will be 90 percent restored by Friday night (November 2) while some will not until Sunday night.** The company is dealing with significant transmission damage which is typically assessed by helicopter. However, crews have to assess damage by 4-wheel-drive and ATV vehicles, and foot patrol in the most remote, mountainous regions of our territory until it is safe to fly a helicopter. AEP secured more than 400 outside workers are positioned in areas where outages are expected and will assist more than 500 locally-based Appalachian Power employees with service restoration. Additional crews were secured from AEP's sister companies.
- Yesterday (October 31), MonPower (First Energy) reports that damage assessment is underway but is being complicated due to weather conditions. Restoration is expected by early next week for the majority of customers, but because of the difficult terrain and snow on the ground, and additional accumulation expected, some customers in remote areas may not be restored until the middle of next week. Damage assessments will be conducted via helicopter once conditions improve. Across the First Energy utilities, more the 12,000 company personnel, electrical contractors and outside utility resources are assisting with service restoration efforts. The utility is working to secure additional resources.