

**BEFORE THE
PUBLIC SERVICE COMMISSION
OF MARYLAND**

**IN THE MATTER OF REQUESTS
AND REPORTS ASSOCIATED WITH
HURRICANE SANDY**

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CASE NO: 9308

**Hurricane Sandy Multi-State
Outage & Restoration Report**

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I. BACKGROUND

On October 28, 2012, Hurricane Sandy began affecting the Mid-Atlantic region of the United States with heavy rain and sustained winds reaching 75 mph. The U.S. Department of Energy's ("DOE") Office of Electricity Delivery and Energy Reliability issued 19 Situation Reports spanning October 28-November 7, at 10:00 a.m. and 3:00 p.m. intervals, in an effort to track state-by-state outage and restoration efforts.¹ Immediately, states and utilities came under scrutiny for their performance during restoration efforts. Four presentations of this data are provided below: (1) an overview of the restoration efforts by all affected states; (2) an overview of the restoration efforts of the most highly affected regions; (3) Maryland specific performance; (4) snow storm related outages; and (5) restoration performance in other states.

II. ALL AFFECTED STATES

According to data provided by the DOE, 20 states plus the District of Columbia ("DC") experienced significant outages² as a result of the Hurricane. New Jersey experienced the most customer outages, peaking at 2,615,291, followed closely by New York, 2,097,933; and Pennsylvania with 1,267,512 customer outages at the peak.

Table.II.1 lists the number of outages reported by each state between October 29th and November 6th at the 3:00 p.m. reporting interval.³ Although customer outages persisted in some states past this reporting period, on November 7th the DOE ceased the Hurricane Sandy Situation Reports due to a Nor'easter along the east coast, which warranted the creation of a new series of Situation Reports. In all cases, except New Jersey with 10 percent, the number of customer outages persisting as of November 7th, at 10:00 a.m., represented 3 percent or less of the respective state customers without power.⁴

¹ See U.S. Department of Energy, *Emergency Situation Reports: Hurricane Sandy* (Oct 28- Nov 7) available at: http://www.oe.netl.doe.gov/named_event.aspx?ID=67.

² DOE notes that the daily Situation Reports only present data for states experiencing over 1,000 outages at the time of issuance. U.S. Department of Energy, *Emergency Situation Reports: Hurricane Sandy* (Oct 28-Nov 7) available at: http://www.oe.netl.doe.gov/named_event.aspx?ID=67.

³ For the complete chart of the entire event, please see Appendix B.

⁴ DOE calculated the percentage of total state customers using 2010 EIA Customer Data.

Table.II.1: State Wide Customer Outages

PM Outage Reports									
State	29-Oct	30-Oct	31-Oct	1-Nov	2-Nov	3-Nov	4-Nov	5-Nov	6-Nov
Connecticut	2,073	626,559	502,465	348,294	232,142	132,805	64,955	30,608	7,371
Delaware	2,406	18,611	2,757						
District of Columbia		3,010							
Illinois		1,149							
Indiana		9,224							
Kentucky		8,379	2,941						
Maine		72,049	9,145						
Maryland	20,199	253,315	103,997	40,760	17,803	12,064	7,198	4,155	1,666
Massachusetts	30,413	256,039	82,809	12,883	2,248				
Michigan		69,006	35,422	10,004	10,020				
New Hampshire	18,190	136,565	55,809	8,324					
New Jersey	87,649	2,615,291	2,052,724	1,733,202	1,491,529	1,241,763	999,927	756,774	537,089
New York	105,089	2,097,933	1,948,282	1,525,969	1,269,392	871,161	654,623	492,575	348,985
North Carolina	15,466	1,998							
Ohio		267,353	162,637	96,880	60,273	25,244	10,007	2,589	
Pennsylvania	12,944	1,221,536	800,745	509,839	304,094	153,695	77,630	31,114	10,074
Rhode Island	11,009	116,592	50,468	21,376	5,962				
Tennessee		2,120							
Vermont		8,104							
Virginia	11,125	147,622	33,385	7,538	2,176				
West Virginia		271,765	218,490	139,581	95,956	60,689	41,618	33,868	25,598
Total	316,563	8,204,220	6,062,076	4,454,650	3,491,595	2,497,421	1,855,958	1,351,683	930,783

III. HIGHLY AFFECTED STATES

According to data provided by the DOE, eight states represented approximately 93 percent of all outages caused by Hurricane Sandy as of 3:00 p.m. on October 30th when, in total, the number of outages were at their highest. New Jersey, New York, Pennsylvania, Connecticut, West Virginia, Ohio, Massachusetts, and Maryland had 7,609,791 outages out of the reported 8,204,220, or 93 percent.

These eight states were the most highly affected with large portions of the customer base experiencing electricity interruptions. Table.III.1, below, illustrates the number of outages as well as the percentage of each states' customers that were without power at the peak.

Table.III.1: Outages & Percentage of Affected Customers at Peak⁵

State	Peak	
	Outages	% of Customers without Power
New Jersey	2,615,291	65%
New York	2,097,933	23%
Pennsylvania	1,267,512	20%
Connecticut	626,559	31%
Maryland	311,020	12%
Massachusetts	298,072	9%
West Virginia	271,765	27%
Ohio	267,353	4%

New Jersey was clearly the most highly affected by the hurricane with over 2.6 million outages and 65 percent of all customers in the state without power at the DOE reported peak. While New York also experienced a significant number of outages, only 23 percent of the entire state's customer base had interruptions. Maryland, compared to more northern states experienced half the outages of Connecticut, and significantly less than New Jersey, New York, and Pennsylvania.

Table.III.2: Percentage of Peak Outages Restored⁶

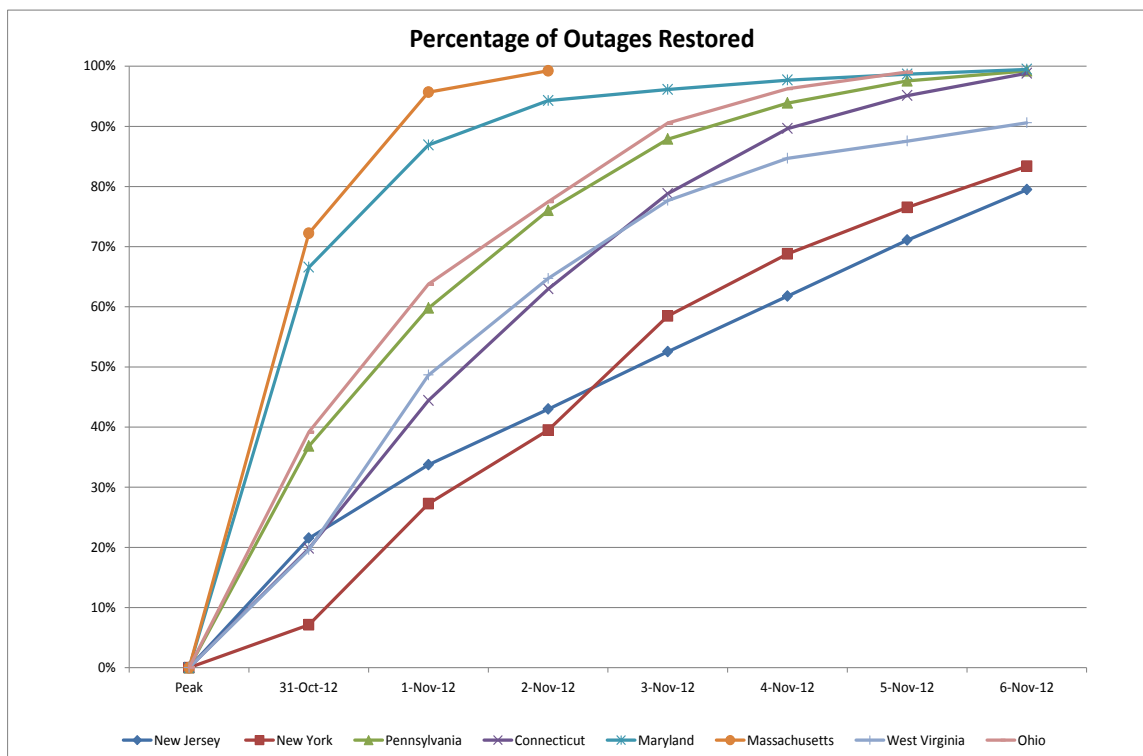
Percentage of Peak Outages Restored								
State	Peak Outage	31-Oct-12	1-Nov-12	2-Nov-12	3-Nov-12	4-Nov-12	5-Nov-12	6-Nov-12
New Jersey	2,615,291	22%	34%	43%	53%	62%	71%	79%
New York	2,097,933	7%	27%	39%	58%	69%	77%	83%
Pennsylvania	1,267,512	37%	60%	76%	88%	94%	98%	99%
Connecticut	626,559	20%	44%	63%	79%	90%	95%	99%
Maryland	311,020	67%	87%	94%	96%	98%	99%	99%
Massachusetts	298,072	72%	96%	99%				
West Virginia	271,765	20%	49%	65%	78%	85%	88%	91%
Ohio	267,353	39%	64%	77%	91%	96%	99%	

⁵ The Peak Outage numbers taken from each state are either from the 10:00 a.m. or 3:00 p.m. Situation Report on October 30, 2012.

⁶ The October 31st through November 6th figures are the values of the DOE p.m. reports. The situation reports were issued twice a day from October 30 through November 7, one at approximately 10:00 a.m. and the other at 3:00 p.m. For the complete list of affected states and restoration percentages please see Appendix A. The equation used to find the percentage is: 1-(p.m. Outages/Peak Outage).

The above table demonstrates each state’s overall restoration effort. Massachusetts reached full hurricane restoration approximately on November 2, 2012. Connecticut, Maryland, Ohio, and Pennsylvania all had roughly 99 percent of all interruptions restored as of November 6th. In the November 7th 10:00 a.m. Report , the last Sandy update, Maryland was no longer required to provide outages number to the DOE because the state has fallen below 1,000 outages. West Virginia trailed all other states, except New York and New Jersey, with only having restored 91 percent at the end of the reporting period. Massachusetts was able to complete its full restoration on or after November 2nd. It is important to note that the effects of the storm were centrally located to the Massachusetts coast and the devastation experienced by so many was not felt in the state.⁷ The information comprised in Table.III.2 is also represented graphically in Figure.III.1 below.

Figure.III.1: Percentage of Outages Restored

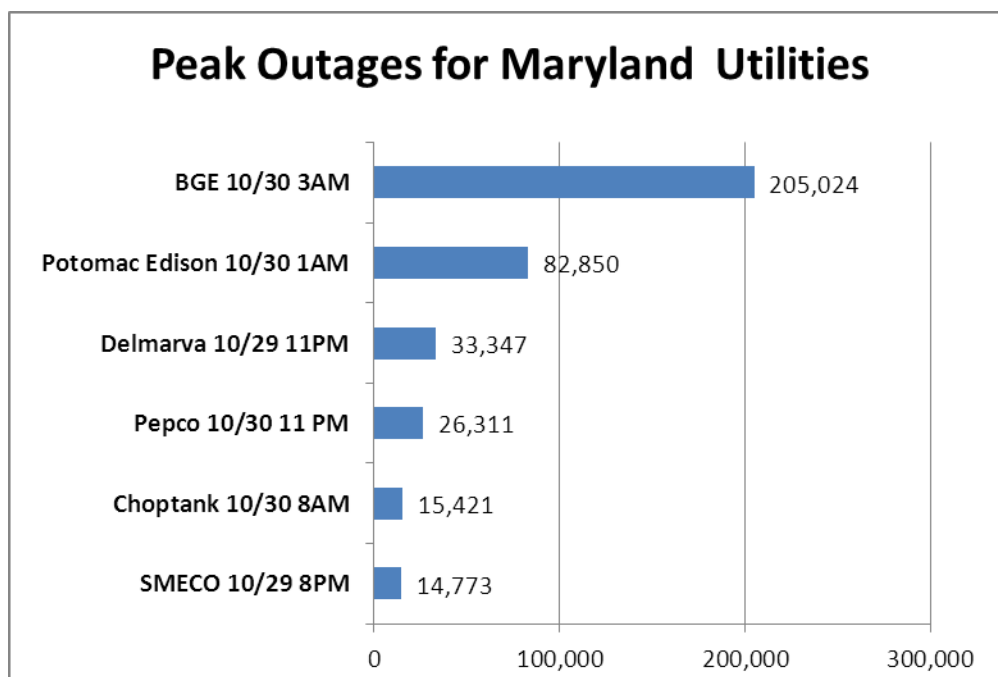


⁷ See The Boston Globe, *Hundreds of Thousands Without Power Across Mass.* (Oct 30, 2012) available at: <http://www.bostonglobe.com/metro/2012/10/30/hundreds-thousands-remain-without-power-across-massachusetts-state-offices-reopen/i8a2OhRF7mQJ0rkek0hr1O/story.html>.

IV. OUTAGES WITHIN MARYLAND

Between November 20th and November 30th, six Maryland electric utilities submitted major storm reports for Hurricane Sandy in Case No. 9308.⁸ Outages in Maryland were experienced across the State, but mostly occurred in two utility territories: Baltimore Gas and Electric (“BGE”) and Potomac Edison (“PE”), with only BGE’s outages totaling more than 100,000 customers. In Figure.IV.1, below, the number of peak outages is illustrated for the six reporting utilities.

Figure.IV.1: Peak Outages for Maryland Utilities⁹



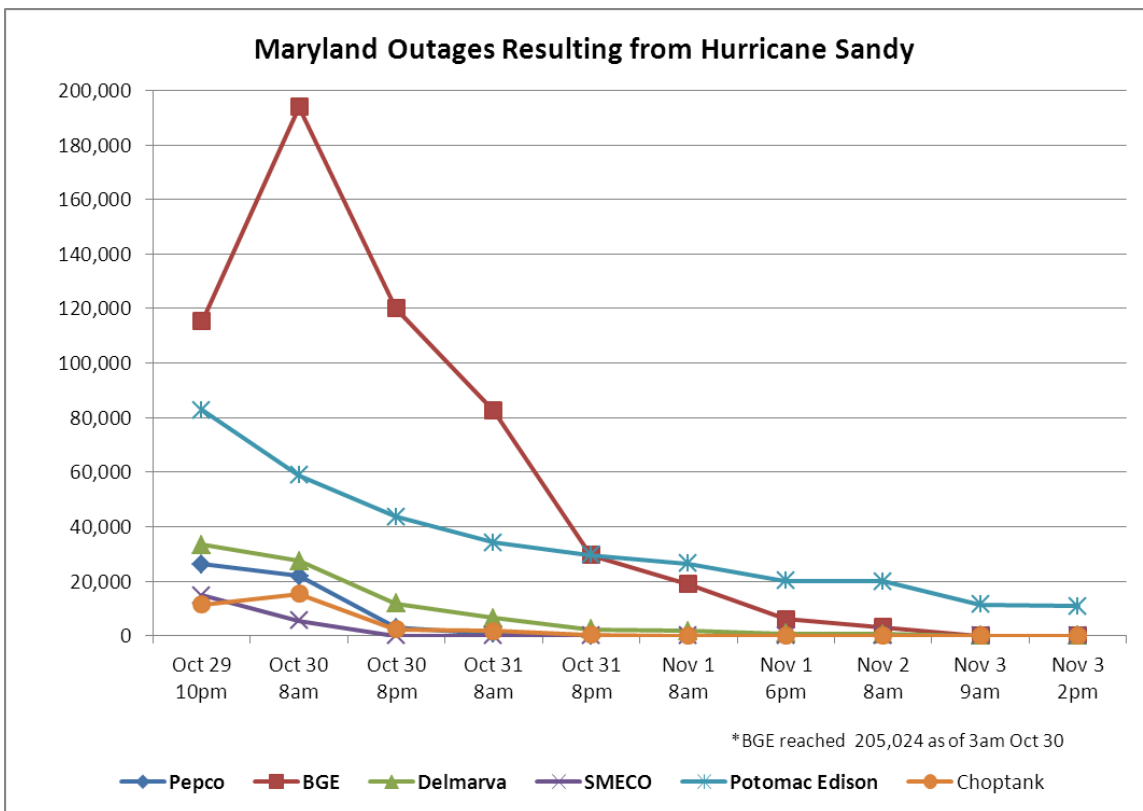
Unlike the unexpected Derecho that struck Maryland late June 2012, the utilities had advanced warning and were better prepared for the outages resulting from Hurricane Sandy in October. Within three days of the peak number of outages Delmarva Power and Light Company (“DPL” or “Delmarva”) had fewer than 1,000 outages, and BGE had fewer than 7,000 outages, while PE still had 20,000 remaining outages. Southern Maryland Electric Cooperative (“SMECO”) and Potomac Electric Power Company

⁸ Pursuant to COMAR 20.50.12.01, the regulations only apply to utilities with more than 40,000 customers, and only those which experience a “major outage event”, as defined by COMAR 20.50.01.03(B)(27), are required to file a Major Outage Event Report in Maryland.

⁹ *PSC Status Report, Hourly Utility Outages, 11-03-12.xlsx*

(“Pepco”) were fully restored within two days of their respective peak outage totals. Figure.IV.2, below shows the utilities number of outages experienced and their ability to restore power to the customer base.

Figure.IV.2: Maryland Outages Resulting from Hurricane Sandy¹⁰



BGE’s outage recovery reached 93% within 53 hours of its peak, 205,024 outages. In comparison, following the Derecho, the utility took three days from its peak outage numbers to restore only 63.47% of customers. Given the advanced notice of Hurricane Sandy resources were more readily available to the utilities for restoration efforts. Preparations made under these circumstances allowed for a significantly shortened recovery period, with fewer than 10,000 remaining outages 61 hours after the peak on the morning of October 30th.

Pepco, Choptank, SMECO had much smaller outage totals, and they both had reached full restoration within 60 hours of Hurricane Sandy’s peak. SMECO’s outages fell to 25 customers within 24 hours after the storm’s peak. Pepco had restored 97% of its

¹⁰ PSC Status Report, Hourly Utility Outages, 11-03-12.xlsx

customers 33 hours after the peak, and all but 70 customer outages remained on the night of October 31st. Choptank peaked at 13,718 service interruptions and within 24 hours had fewer than 2,000 outages.

The utilities' peak outage totals in their storm reports were in the same range as those outages reported during the storm in the *PSC Status Report, Hourly Utility Outages* ("*Hourly Outages*"). For example, SMECO's and Choptank's outages were a few thousand off from their respective numbers in the *Hourly Outages* reported during the storm. BGE's peak outages were also within range of the *Hourly Outages* totals, with a discrepancy of 6 percent. These minimal discrepancies may be caused by nothing more than simple inaccuracies in reporting during the actual event, given the amount of information being processed from the field. However, PE reported 20,000 more outages in its storm report than it originally stated during the hurricane. The differences reported by PE are plausible and may be attributable to not having a complete assessment of outages in rural areas until after the blizzard conditions had passed.

Conversely, Pepco and Delmarva listed far fewer peak totals in their storm reports than during the hurricane, 37 percent and 61 percent respectively. This discrepancy is attributable to Pepco Holdings, Inc. ("PHI") reporting outages for each utility's entire service territory—Washington, D.C., and Maryland for Pepco; Delaware and Maryland for DPL.

V. SNOWSTORM-RELATED OUTAGES

PE was the only utility in Maryland whose restoration time lasted longer than one week, with power fully restored on November 7th.¹¹ The utility's methodical restoration efforts were not related to typical damage occurring from a hurricane, but rather that of a blizzard. More than two feet of snow blanketed the service territory, and restoration efforts resembled recovery from a snowstorm.¹² Nevertheless, the utility was able to restore three quarters of customer outages by the morning of November 2nd, and it had restored 86 percent of outages the following morning, nearly five days after the event. Though not all outages were related to the snowstorm, most outages beyond November

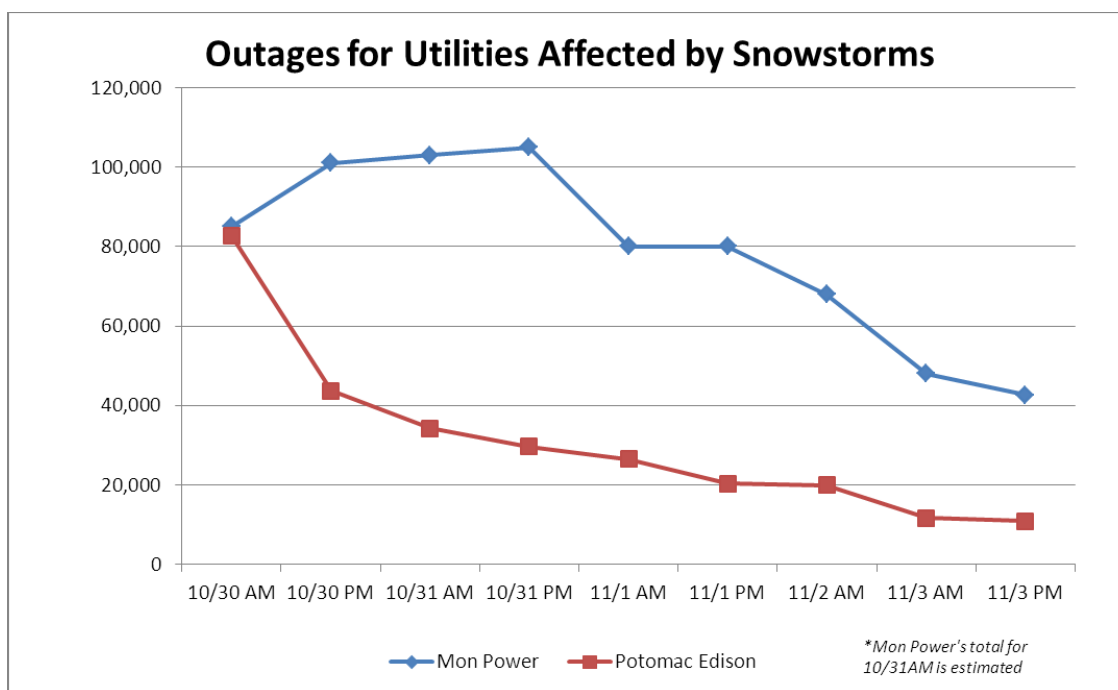
¹¹ https://www.firstenergycorp.com/content/fecorp/newsroom/news_releases/restoration-efforts-complete-for-more-than-2-1-million-firstener.html

¹² <http://thedailyrecord.com/2012/11/05/4-in-5-garrett-county-homes-back-on-grid/>

1st were snowstorm-related, and virtually all outages on November 3rd were contained to Garrett County, the area hardest hit by snow.

By comparison, the utility’s efforts fared better than those of Mon Power, a West Virginia utility that also endured serious snowfall from Hurricane Sandy. Looking at Figure.V.3, below, Mon Power’s outages did not peak until the evening of October 31st, topping more than 100,000. While in absolute totals, the utility reduced outages by 60,000 in four days—a faster rate than PE—this did not occur until November 3rd and amounted to only 60 percent of restoration. By that point, PE had restored all but 10,000 customers.

Figure.V.3: Outage for Utilities Affected by Snowstorms¹³



**See Appendix A for citations*

However, the comparison between these two utilities may be inapposite, given the nature of each utility’s overall customer base. Mon Power’s customer base is largely rural, and while the hardest hit areas of PE were also rural, its restoration process also accounted for customers in urban centers unaffected by snow, such as Frederick. This composition allowed the utility to restore larger amounts of customers at one time, giving

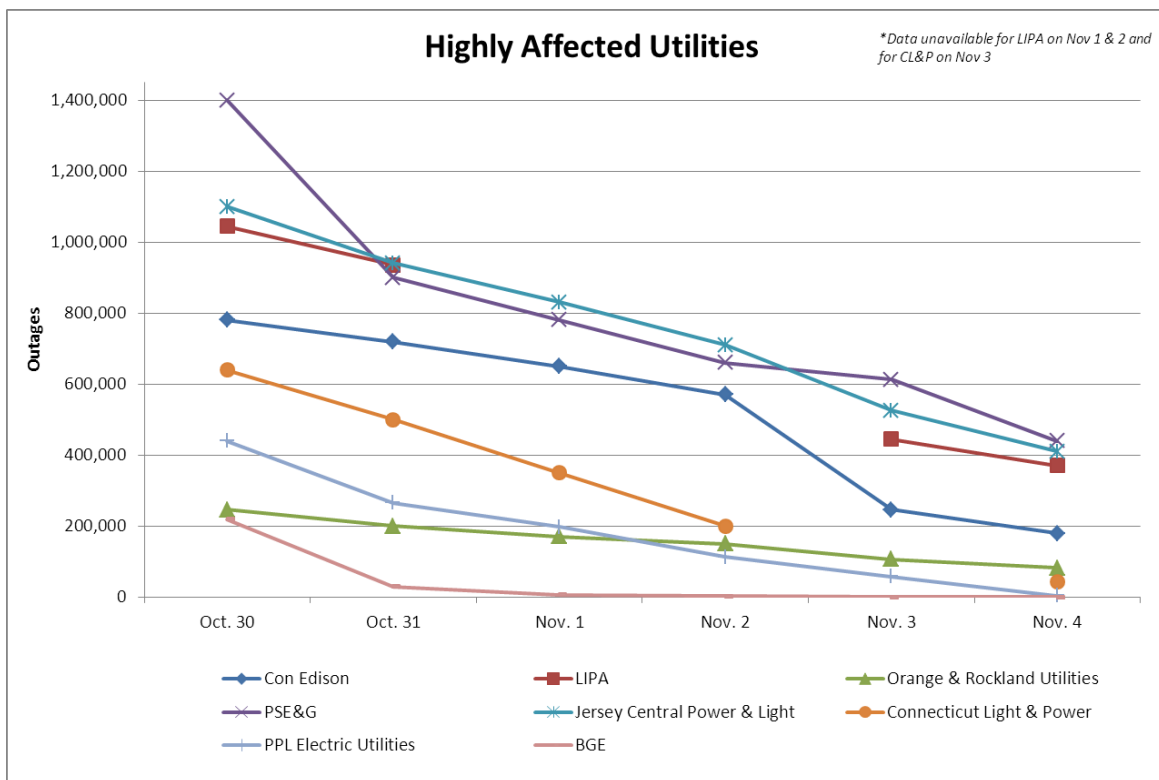
¹³ The AM and PM reporting times varied daily. Mon Power reported between 6:00 a.m. – 10:00 a.m. and 6:00 p.m. – 10:00 p.m. PE generally reported between 8:00 a.m. – 9:00 a.m. and 6:00 p.m. – 10:00 p.m.

it an overall faster recovery time. Nevertheless, Figure.V.3 illustrates that PE had a reasonable restoration rate given the snowstorm affecting it as well as the nearby utility in West Virginia.

VI. OUTAGES WITHIN OTHER STATES

While BGE had a large amount of customer outages, its totals paled in comparison to the states most affected by the hurricane. Figure.V.1 lists the utilities hardest hit by Hurricane Sandy, many of which are in the New York and New Jersey areas. In absolute numbers, the utilities in New Jersey had more than five times the amount than BGE at their respective peak outages. Even percentage-wise, the rate at which BGE restored customer outages is wholly inapposite to these utilities because the storm's severity made their recovery efforts disproportionately more complex. The larger point exemplifies that when compared to the Derecho, Maryland's utilities not only had the advantage of preparation, but their territories also did not lie in the center of the Hurricane Sandy's havoc. The following totals are peak outages for each highly affected utility listed on Figure.VI.1: Con Edison (N.Y.), 780,000; LIPA (N.Y.), 1,045,000; Orange & Rockland Utilities (N.Y./N.J.), 246,000; PSE&G (N.J.), 1,400,000; Jersey Central Power & Light, 1,100,000; Connecticut Light & Power, 640,000; PPL Electric Utilities (Penn.), 440,000; and BGE, 218,738.

Figure.VI.1: Highly Affected Utilities



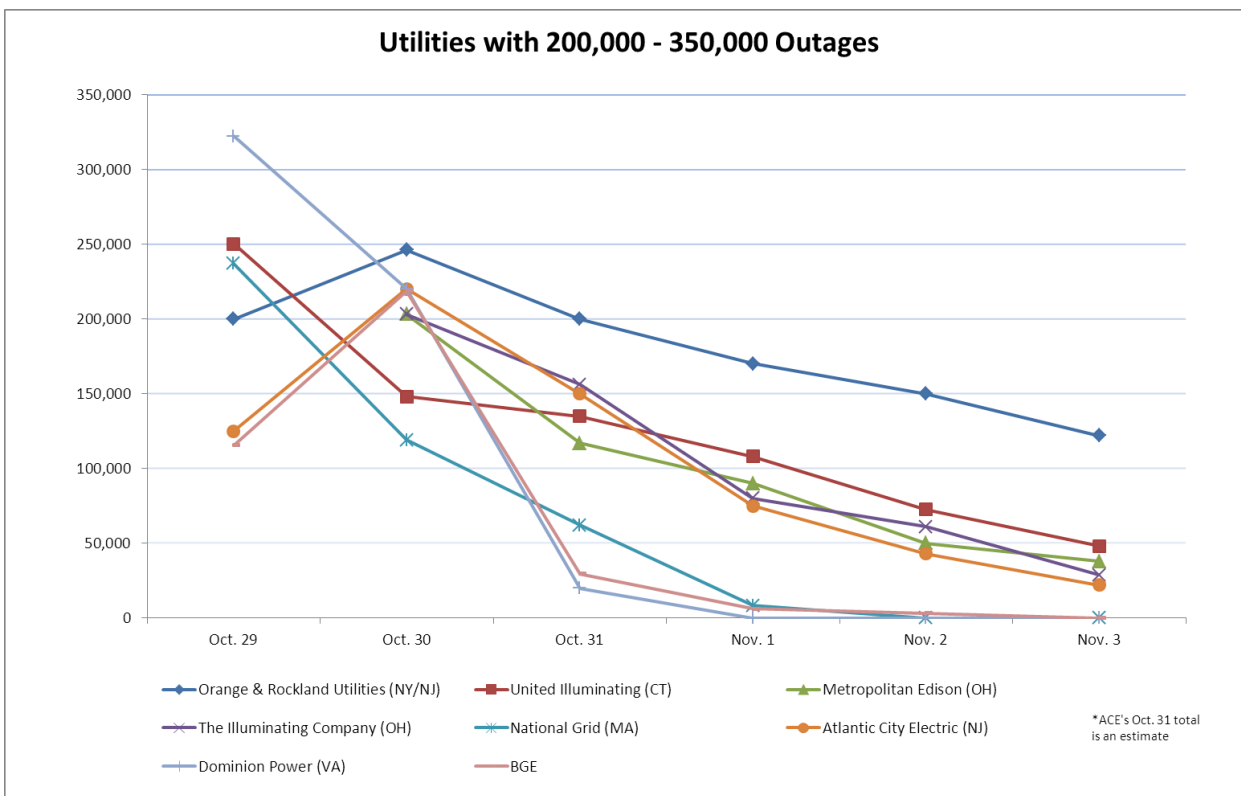
*See Appendix A for citations

BGE’s restoration period more appropriately compares to the utilities in Figure.VI.2, several of which lay outside of center of Hurricane Sandy’s path, two of them, Atlantic City Electric and Orange & Rockland Utilities, did not endure as large a number of outages as other utilities in New York and New Jersey. These utilities have similar customer bases with large urban centers and experienced an amount of outages within a close range of BGE. The following totals are peak outages for each utility listed on Figure.VI.2: Orange & Rockland Utilities (N.Y./N.J.), 246,000; United Illuminating (Conn.), 250,000; Metropolitan Edison (Ohio), 203,000; The Illuminating Company (Ohio), 203,000; National Grid (Mass.), 237,000; Atlantic City Electric, 220,000; and Dominion Power, 322,000.

BGE sat at the lowest end of this range and Dominion Power, with 322,000 interruptions, was at the high end. However, this sampling provides a valuable illustration of how proficiently BGE restored outages compared to utilities under similar scenarios. BGE restored most of its outages on the day following the hurricane. It had less than 50,000 outages by October 31st, with only Dominion Power reaching the same

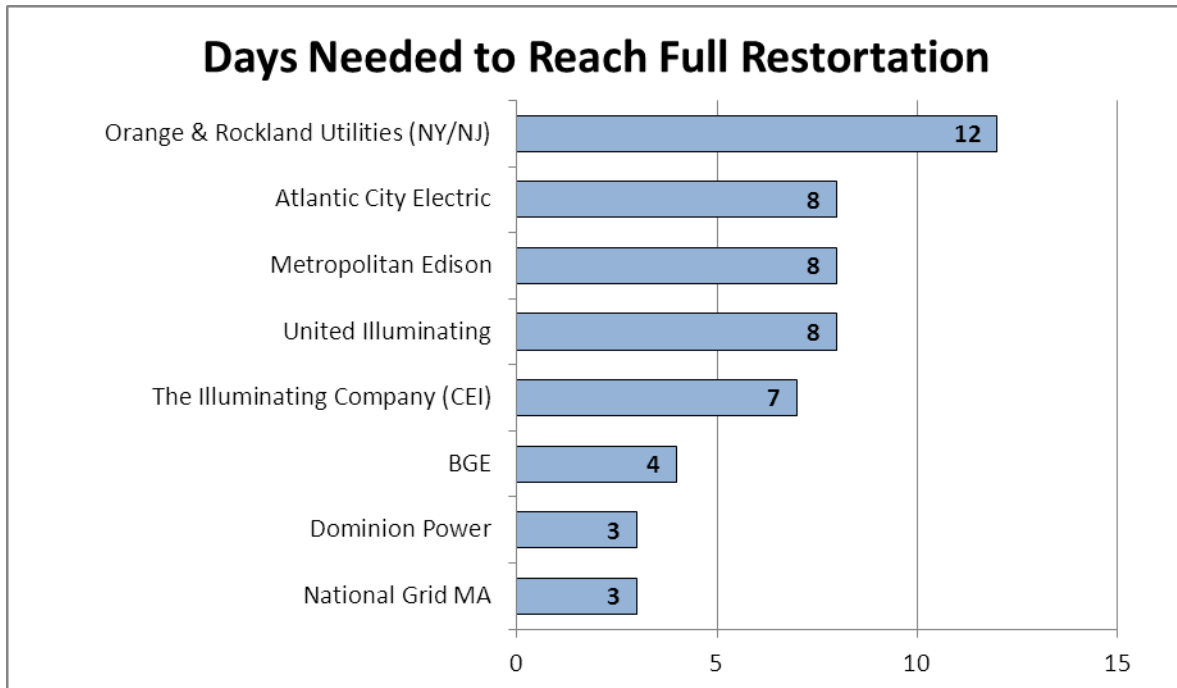
milestone by that date. While Orange & Rockland and Atlantic City Electric could not have met this restoration rate given the hurricane’s landfall, the other utilities had similar outage totals to BGE, and their circumstances do not appear to be significantly more challenging than BGE’s.

Figure.VI.2: Utilities with 200,000 to 350,000 Outages



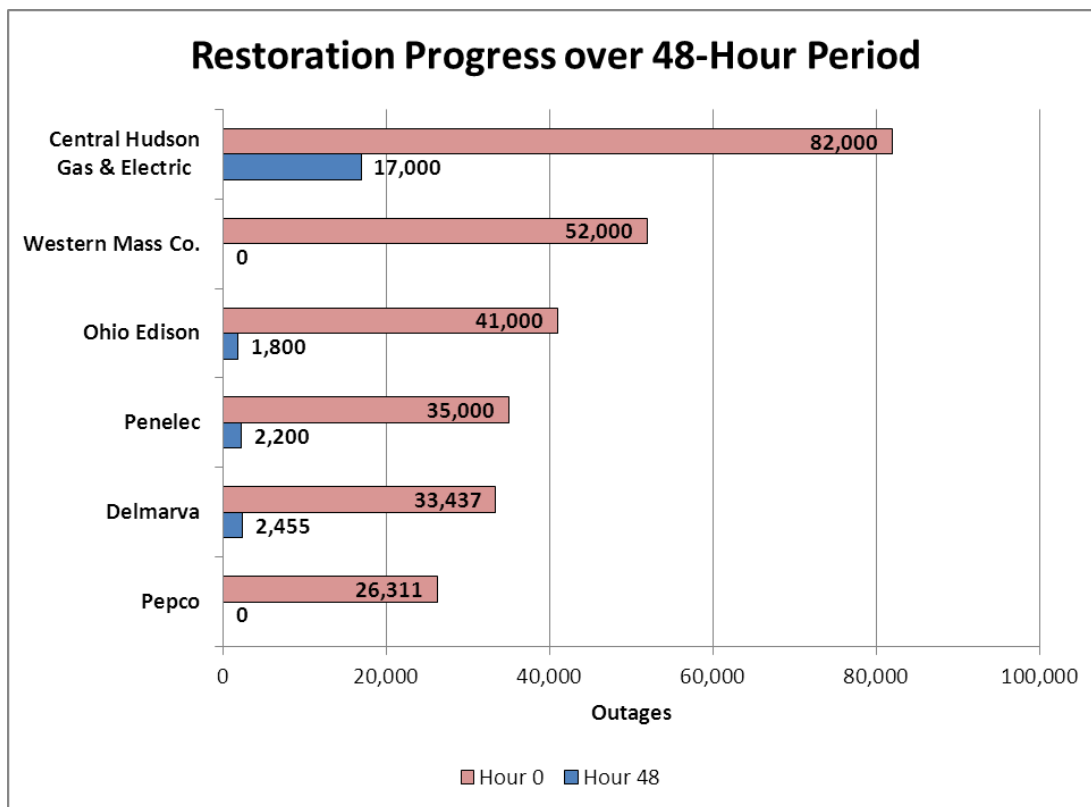
*See Appendix A for citations

Within this grouping, BGE reached full restoration in four days, the second-fastest after National Grid in Massachusetts and Dominion Power in Virginia, which had 65 percent more outages than BGE, as seen in Figure.VI.3 below. These two utilities took three days to restore all outages, while the rest took six days or more to complete restoration. Excluding Orange & Rockland and Atlantic City Electric, the average time to reach full restoration was 5.5 days.

Figure.VI.3: Days Needed to Reach Full Restoration

**See Appendix A for citations*

Data also exists for utilities with similar outage totals to Pepco and Delmarva, though the sample is smaller and more varied. One utility, Central Hudson Gas & Electric, had nearly the same amount of outages as Delmarva, and the results show both utilities were able to restore most customers within a 48-hour period, with Delmarva performing slightly better which can be seen in Figure.VI.4.

Figure.VI.4: Restoration Progress over 48-Hour Period

*See Appendix A for citations

Three utilities—Western Mass Co., Ohio Edison, and Penelec—had outages in the tens of thousands as Pepco and Delmarva did, with Ohio Edison’s outages virtually equivalent to Pepco’s. While these totals do not explicitly mirror that of Pepco’s—the data generally reveals that several utilities in the 30,000 – 50,000 outage range were able to restore most, if not all, utility customers within a 48-hour period.

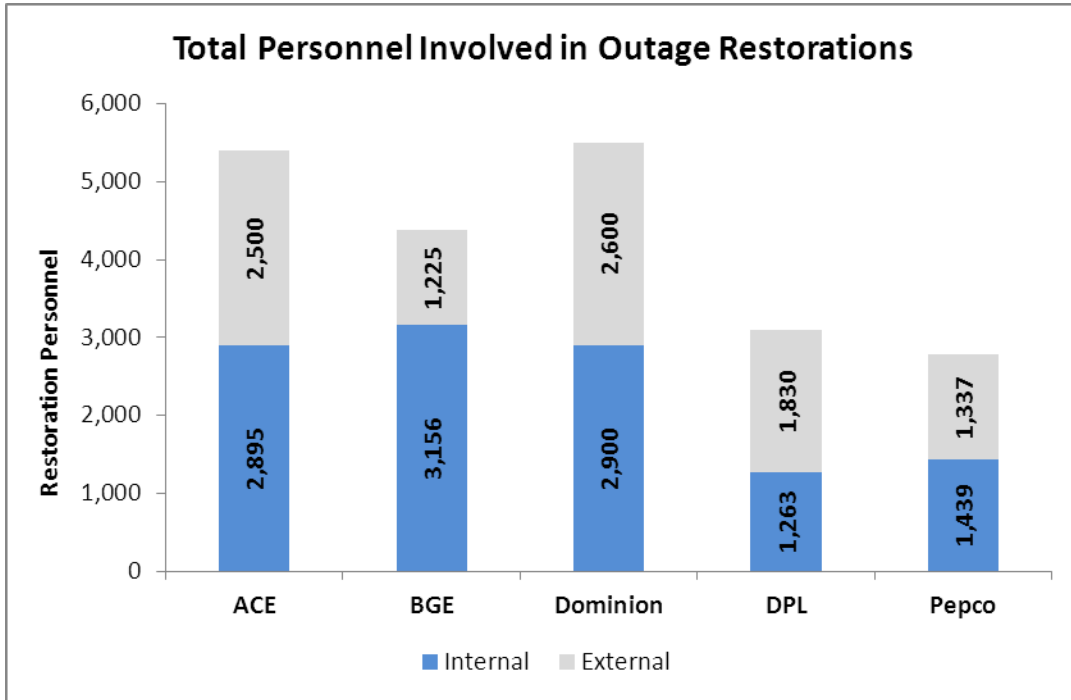
VII. AVAILABLE RESOURCES FOR RESTORATION EFFORTS

In Maryland, the utilities reported during the storm their respective personnel that were assigned to restoration efforts, with a final count provided in later reports. The same detailed information was not available regarding other utilities affected by the storm. General estimates of other states personnel were provided through press releases and the EIA Situation Reports.

Given Hurricane Sandy’s long approach, the utilities had significant time to prepare for the outages to be experienced during the storm. As such, they were able to request and receive outside assistance early as well as mobilize their own personnel. The

figure below, Figure.VII.1, illustrates the totals for internal and external personnel for the Maryland utilities as well as two other companies who were similarly affected.

Figure.VII.1: Personnel Involved in Outage Restoration¹⁴



**See Appendix A for citations* While staffing levels for Dominion Power were consistent with the June 2012 Derecho, the Maryland utilities were able acquire and equip higher numbers of internal and external personnel. In total, BGE had 4,831 people in roles pertaining to restoration effort; the PHI companies, ACE, DPL (in Maryland), and Pepco (in Maryland) had 5,395, 3,093, and 2,776 respectively; finally, Dominion Power had approximately 5,500 personnel. Given the rate at which these companies were able to restore power to their customers, the staffing levels for restoration appear to be sufficient.

VIII. FINAL COMMENTS

Overall, the Maryland utilities performed as efficiently or better compared to utilities with similar situations in other states during Hurricane Sandy. With the exception of PE, which dealt with massive snowfall, the Maryland utilities reached full restoration

¹⁴ The companies chosen for this figure were based on the utilities used for Figure.VI.3, unfortunately, the other companies either did not provide staffing levels in their press releases or were part of First Energy which stated they had 7,800 personnel across all service territories.

in three days, an improvement from the Derecho event in June 2012. Two significant factors in achieving faster restoration times for this event were that the utilities had properly prepared their resources in anticipation of Hurricane Sandy and that Maryland did not bear the brunt of this event as it did in June for the Derecho. The utilities efficiently restored power and curtailed outages down to a fraction of peak totals within one to two days following the height of Hurricane Sandy.

Appendix A

Cites for Each Table

Figure.IV.1: Peak Outages for Maryland Utilities

- **Case No. 9308**, *In the Matter of Requests and Reports Associated with Hurricane Sandy*; Baltimore Gas and Electric Company - Major Outage Event Report - Hurricane Sandy, p. 24.
- **Case No. 9308**, *In the Matter of Requests and Reports Associated with Hurricane Sandy*; Potomac Electric Power Company - Major Storm Report October 29-31, 2012 - Hurricane Sandy, p. 21.
- **Case No. 9308**, *In the Matter of Requests and Reports Associated with Hurricane Sandy*; Delmarva Power & Light Company - Major Storm Report, October 29-Nov. 2, 2012 - Hurricane Sandy, p. 20.
- **Case No. 9308**, *In the Matter of Requests and Reports Associated with Hurricane Sandy*; Southern Maryland Electric Cooperative, Inc. - Major Storm Outage Report - October 29, 31, 2012 - Hurricane Sandy, p. 2.
- **Case No. 9308**, *In the Matter of Requests and Reports Associated with Hurricane Sandy*; The Potomac Edison Company - Major Storm Report regarding Hurricane Sandy, p. 3.
- **Case No. 9308**, *In the Matter of Requests and Reports Associated with Hurricane Sandy*; Choptank Electric Cooperative, Inc. - its Major Outage Event Report for the outages caused by Hurricane Sandy, p. 3.

Figure.IV.2: Maryland Outages Resulting from Hurricane Sandy

- PSC Status Report, Hourly Utility Outages, 11-03-12.xlsx
- **Case No. 9308**, *In the Matter of Requests and Reports Associated with Hurricane Sandy*; Baltimore Gas and Electric Company - Major Outage Event Report - Hurricane Sandy, p. 24.
- **Case No. 9308**, *In the Matter of Requests and Reports Associated with Hurricane Sandy*; Potomac Electric Power Company - Major Storm Report October 29-31, 2012 - Hurricane Sandy, p. 21.
- **Case No. 9308**, *In the Matter of Requests and Reports Associated with Hurricane Sandy*; Delmarva Power & Light Company - Major Storm Report, October 29-Nov. 2, 2012 - Hurricane Sandy, p. 20.
- **Case No. 9308**, *In the Matter of Requests and Reports Associated with Hurricane Sandy*; Southern Maryland Electric Cooperative, Inc. - Major Storm Outage Report - October 29, 31, 2012 - Hurricane Sandy, p. 2.
- **Case No. 9308**, *In the Matter of Requests and Reports Associated with Hurricane Sandy*; The Potomac Edison Company - Major Storm Report regarding Hurricane Sandy, p. 3.
- **Case No. 9308**, *In the Matter of Requests and Reports Associated with Hurricane Sandy*; Choptank Electric Cooperative, Inc. - its Major Outage Event Report for the outages caused by Hurricane Sandy, p. 3.

Figure.V.3: Outage for Utilities Affected by Snowstorms

Potomac Edison

- PSC Status Report, Hourly Utility Outages, 11-03-12.xlsx
- **Case No. 9308**, *In the Matter of Requests and Reports Associated with Hurricane Sandy*; The Potomac Edison Company - Major Storm Report regarding Hurricane Sandy, p. 3.

Mon Power

- https://www.firstenergycorp.com/content/fecorp/newsroom/news_releases/media-advisory---firstenergy-hurricane-sandy-outage-update1.html
- https://www.firstenergycorp.com/content/fecorp/newsroom/news_releases/firstenergy-utilities-continue-round-the-clock-restoration-effor.html
- https://www.firstenergycorp.com/content/fecorp/newsroom/news_releases/firstenergy-utilities-continue-round-the-clock-restoration-effor.html
- https://www.firstenergycorp.com/content/fecorp/newsroom/news_releases/media-advisory---firstenergy-hurricane-sandy-outage-update2.html
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- https://www.firstenergycorp.com/content/fecorp/newsroom/news_releases/media-advisory---firstenergy-hurricane-sandy-outage-update3.html
- https://www.firstenergycorp.com/content/fecorp/newsroom/news_releases/firstenergy-utilities-restore-service-to-more-than-1-4-million-c.html
- https://www.firstenergycorp.com/content/fecorp/newsroom/news_releases/media-advisory---firstenergy-hurricane-sandy-outage-update4.html
- https://www.firstenergycorp.com/content/fecorp/newsroom/news_releases/media-advisory---firstenergy-hurricane-sandy-outage-update-0.html

Figure.VI.1: Highly Affected Utilities

Con Edison

- http://www.coned.com/newsroom/news/pr20121030_2.asp
- http://www.coned.com/newsroom/news/pr20121031_4.asp
- http://www.coned.com/newsroom/news/pr20121101_3.asp
- http://www.coned.com/newsroom/news/pr20121102_3.asp
- http://www.coned.com/newsroom/news/pr20121103_3.asp
- http://www.coned.com/newsroom/news/pr20121104_4.asp

LIPA

- <http://www.lipower.org/newscenter/pr/2012/103012-storm.html>
- <http://www.lipower.org/newscenter/pr/2012/103112-storm.html>
- <http://www.lipower.org/newscenter/pr/2012/110312-storm.html>
- <http://www.lipower.org/newscenter/pr/2012/110412-storm.html>

Orange & Rockland Utilities

- <http://www.oru.com/aboutoru/news/2012103001.html>
- <http://www.oru.com/aboutoru/news/2012103104.html>
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- <http://www.oru.com/aboutoru/news/2012110202.html>
- <http://www.oru.com/aboutoru/news/2012110303.html>
- <http://www.oru.com/aboutoru/news/2012110403.html>

PSE&G

- <http://www.pseg.com/info/media/newsreleases/2012/2012-10-30c.jsp>
- <http://www.pseg.com/info/media/newsreleases/2012/2012-10-31b.jsp>
- <http://www.pseg.com/info/media/newsreleases/2012/2012-11-01.jsp>
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Figure.VI.2: Utilities with 200,000 to 350,000 Outages

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Figure.VI.3: Days Needed to Reach Full Restoration

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Figure.VI.4: Restoration Progress over 48-Hour Period*Western Mass Co.*

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- PSC Status Report, Hourly Utility Outages, 11-03-12.xlsx
- **Case No. 9308**, *In the Matter of Requests and Reports Associated with Hurricane Sandy*; Potomac Electric Power Company - Major Storm Report October 29-31, 2012 - Hurricane Sandy, p. 21.

Figure.VII.1: Personnel Involved in Outage Restoration*Atlantic City Electric*

- <http://www.atlanticcityelectric.com/welcome/news/releases/archives/2012/article.aspx?cid=2204>

BGE

- **Case No. 9308**, *In the Matter of Requests and Reports Associated with Hurricane Sandy*; Baltimore Gas and Electric Company - Major Outage Event Report - Hurricane Sandy, p. 24.

Delmarva

- **Case No. 9308**, *In the Matter of Requests and Reports Associated with Hurricane Sandy*; Potomac Electric Power Company - Major Storm Report October 29-31, 2012 - Hurricane Sandy, p. 21.

Dominion

- See U.S. Department of Energy, *Emergency Situation Reports: Hurricane Sandy* (Oct 28- Nov 7) available at: http://www.oe.netl.doe.gov/named_event.aspx?ID=67.

Pepco

- **Case No. 9308**, *In the Matter of Requests and Reports Associated with Hurricane Sandy*; Potomac Electric Power Company - Major Storm Report October 29-31, 2012 - Hurricane Sandy, p. 21.