



**Summary Report
Outage Information Reported
by Electric Distribution Companies
in Response to
Docket No. I-2011-2271989**

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by
Electric Distribution Companies
in
Response to
Docket No. I-2011-2271989

June 2012



Technical Utility Services
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DISCLAIMER: Any comments or conclusions contained in this report do not necessarily reflect the views or opinions of the Commission or individual Commissioners.

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INTRODUCTION

The past year's extreme weather events caused over 3.8 million electric customers in Pennsylvania to experience an electric service outage. As shown in our previous report, that is the highest number of customer electric outages in the past 9 years¹. The electric distribution companies (EDCs) were affected by several strong storm systems of varying meteorological circumstances in 2011. All EDCs but Citizen's Electric had at least one Commission reportable outage event in 2011.² The significant events included: heavy snow and some ice in February; strong thunderstorms in late May; a direct impact by Hurricane Irene in late August; flooding rains from the remnants of Tropical Storm Lee in early September; and an early-season heavy, wet snow in late October.

The response by EDC linemen and workers was commendable, enduring hazardous weather conditions and long hours. Despite their efforts, many customers experienced long-duration outages (greater than 72 hours). All EDCs should strive to limit the number of long-duration outages for any storm event. However, if long-duration outages are expected, EDCs need to effectively communicate with customers and other stakeholders throughout the ordeal, as noted in the previous Commission Report on the EDC response to Hurricane Irene.

In order to address the issue of long-duration outages, the Chairman and Vice Chairman issued a Joint Motion (Motion) on November 10, 2011 requesting outage information for the preceding 6 months from all EDCs. Specifically, the Motion sought information on full or partial circuit outages greater than 24 hours. The Motion further broke the request down to outages with durations between 24 and 48 hours; greater than 48 hours to 72 hours and greater than 72 hours. The Motion also requested identification of any circuits that were among the worst performing 5% of circuits identified in the Quarterly Reliability Reports for the first 3 quarters of 2011. A copy of the Motion is attached as Appendix A. A subsequent Order based on the Motion was issued at Docket No. I-2011-2271989. This report is a summary analysis of the EDC responses to the Order. This report also includes recommendations to the Commission and EDCs for further action and discussion.

¹ Summary Report of Electric Companies' Handling of High-Call Volumes During Storms, February 2012.

² Service outages reports are required under 52 Pa. Code §67.1. The reporting requirements are an initial phone call to the Commission when it is believed the threshold will be reached, followed by a written report 10 days after the last customer is restored. The reporting threshold is service outages to 5% of total customers or 2,500 customers, whichever is less, for 6 or more consecutive hours.

EXECUTIVE SUMMARY

The severe weather events of 2011 caused significant and long-duration electric outages for customers of Pennsylvania EDCs. In order to better understand of how customers were affected, the Commission requested specific information from all EDCs on electrical outages for the 6 months preceding November 10, 2011³. Information requested included the number of partial or full circuit outages; whether any of the circuits that experienced an outage were among the worst performing 5% of circuits identified in the Quarterly Reliability Reports for the first 3 quarters of 2011; information on the restoration activities associated with the outages; information on the circuits such as topography, terrain or customer density; and any corrective actions planned or contemplated on any of the circuits identified. The Commission was concerned that customers may have experienced multiple long-duration outages.

Based on a review of the EDC submissions and data, TUS recommends the following:

Recommendation 1 – EDCs should examine the service regions and circuits that experienced significant amounts of long-duration outages to determine if vegetation management trimming cycles should be expedited and if the trimming method is sufficient to mitigate further long-duration outage events in those regions and on those circuits.

Recommendation 2 – In relation to Recommendation 1, above, EDCs should also review other potential outage mitigation actions such as strategic installation of automatic distribution circuit reclosers and sectionalizers. EDCs should consider these outage mitigation actions when developing their Long-Term Infrastructure Improvement Plans under the new regulations at 66 Pa. Code §1352.

Recommendation 3 – EDCs should review their vegetation management programs' approach to off-right-of-way vegetation and determine if more could be done to mitigate damage from off-right-of-way vegetation.

Recommendation 4 – EDCs should work collaboratively and through groups like the Energy Association of Pennsylvania to discuss best practices and effective approaches to both on and off-right-of-way vegetation management and other outage mitigation methods.

³ Order based on Joint Motion of Chairman Robert F. Powelson and Vice Chairman John F. Coleman, Jr., Docket No. I-2011-2271989.

Recommendation 5 – As EDCs review and improve their vegetation management programs, they should work with local and county officials to help mitigate possible consumer or resident resistance to tree trimming, especially in off-right-of-way areas.

Recommendation 6 – The Commission should support EDCs in their outreach efforts in relation to Recommendation 5, above.

Recommendation 7 – EDCs shall continue to implement corrective actions for the worst performing circuits and should strive to complete corrective actions for worst performing circuits by the close of the calendar-year quarter for which they were identified.

Recommendation 8 – TUS will continue to review the corrective actions outlined by EDCs for their worst performing circuits to ensure they are implemented and are having a positive effect.

SUMMARY OF UTILITIES' RESPONSES

Methodology

When presented with such a large data set, the goal is to determine which data which will tell the story as lessons can be learned and future opportunities garnered from that story. In this report, TUS concentrated on certain key data that would answer the question of how many customers experienced multiple (in more than one storm) long-duration outages. Also, TUS looked at the number of outages that occurred on circuits that were among the worst performing 5% of circuits (WPCs) identified in the Quarterly Reliability Reports for the first 3 quarters of 2011. TUS also determined the number of affected circuits that were WPCs. The next step was to examine the long-duration outages (over 72 hours) and see how many outages and affected circuits were WPCs. Finally, TUS examined the primary outage causes and circuit characteristics of the major storm outages and long-duration outages as well as some data on outages by utility service territory regions.⁴

Citizens Electric did not experience any outages of over 24 hours, so they had no data to report. Also, Citizens Electric, Pike County Electric, Wellsboro and UGI Electric are not required to report WPCs. However, UGI did note the 5% of circuits with the lowest reliability scores for this report. If an EDC does not appear in a chart or table within this report, it is because either the data is not applicable or they did not have any significant data to report.

The specified data and a brief narrative for each data set follow as does a list of key observations. When referring of Major Storm outages or circuits, TUS is referring to the 4 major storm events that occurred in the 6 months prior to November 10, 2011 – thunderstorms in May, Hurricane Irene in August, Tropical Storm Lee in September, and early season snow in October. Recommendations based on the data and observations may be found under the Executive Summary and under Recommendations.

⁴ Note – TUS was only able to garner good outage cause and circuit characteristics for certain utilities. TUS then used this information for those utilities affected by one or more major storm. For the primary outage cause data, TUS used data from Met Ed, PPL, Penelec and West Penn Power. For the circuit characteristics, TUS compared the two utilities with the highest number of outages – Met Ed and PPL.

Customers Affected – Total Outages and >72 Hours

For the 6 months of data supplied, significant amounts of the outages experienced by customers were of long-duration for Met Ed, Pike County Electric, PPL and UGI Electric, as indicated in Table 1, data column 3. Data column 4 demonstrates most and sometimes all, of the customers experiencing long-duration outages for Pike, UGI and Penelec were due to Hurricane Irene. As shown in data column 4, the majority of customers experiencing long-duration outages for Met Ed and PPL were due to the October snow, although they both had significant customer outages due to Irene.

Table 1

Utility ⁵	Customers Affected Total Outages	Customers Affected >72 Hr Outages	Customers Affected >72 Hr as % of Total Outages	Customers Affected >72 Hr Outages from Irene	Customers Affected >72 Hr Outages from October Snow
Met Ed	159,360	50,476	31.7%	14,705	35,622
PECO	129,407	4,036	3.1%	4,022	14
Penelec	25,999	2,023	7.8%	2,023	0
Penn Power	221	0	0	0	0
Pike County Electric	1,552	861	55.5%	847	14
PPL	275,758	43,197	15.7%	17,244	20,870
UGI Electric	16,036	9,921	61.9%	9,921	0
Wellsboro	249	1	0.4%	0	0
West Penn Pwr	1,637	108	6.6%	0	108
Totals	610,219	110,623	18.1%	48,762	56,628

Customers Affected By More Than One Major Storm

The total amount of customers on circuits that experienced outages in 2 of the major storms and those that experienced outages in 3 of the major storms is shown in Table 2. Please note that this does not mean that all customers listed experienced outages in either the 2 or 3 storms. Information on individual customer outages was beyond the scope of the information requested by the Joint Motion. Also, customers could have experienced shorter or momentary outages in more than 2 or 3 of the major storms. The Commission was interested to know if a large number of customers experienced long-duration outages over multiple events.

From the data presented in Table 1, the total customers that experienced an outage of 24 hours or greater (approximately 610,219), about 18.1% (approximately 110,623) experienced a long-duration outage. Also, of total customers on circuits that experienced a long-duration outage, roughly 53.8%

⁵ Duquesne is not included in the chart because it reported outage by KVA affected and not customers affected.

(59,492) of those were on circuits that were impacted by 2 of the major storms. Approximately 0.8% (907) of the total customers that experienced a long-duration outage were on circuits that were impacted by 3 of the major storms. While most of the EDCs that experienced multiple long-duration outage events were impacted by 2 major storms, PPL had significant impacts for all 4 major storms. This is likely due to the bulk of PPL’s service territory residing on the eastern half of Pennsylvania. PPL should examine carefully the regions most affected as shown in the PPL table on Page 11.

Table 2

Utility	Customers on Circuits Affected by Multiple >72 Hr Major Storm Outages	May Storms	Hurricane Irene	TS Lee	Oct Snow	Customers on Circuits Affected by 3 >72 Hr Major Storm Outages
Met Ed	36,978	0	11,212	133	25,766	547
PECO	4	0	3	0	1	0
Penelec	55	19	0	36	0	0
Pike County	348	0	334	0	14	0
PPL	22,107	1,786	7,776	1,512	11,033	360
Totals	59,492	1,805	19,325	1,681	36,814	907

Long-Duration Outages From More Than One Major Storm

As indicated in Table 3, relatively few circuits experienced outages in more than 2 separate major storms. Only Met Ed and PPL experienced outages in 3 separate major storms. Some customers did experience momentary or short-duration outages in more than 2 separate major storms; however, Commission’s main concern was the significant amount of customers who experienced several long-term outages. Apparently, that does not appear to be the case. Met Ed and PPL did have significant amounts of customers experience outages in 2 storms – the two main drivers being Hurricane Irene and the early season snow in October.

Table 3

Utility	>72 Hr Major Storm Outages	Multiple >72 Hr Major Storm Outages	Multiple >72 Hr Major Storm Outages WPCs	Circuits with 3 >72 Hr Outages	Circuits with 3 >72 Hr Outages WPCs
Duquesne	0	0	0	0	0
Met Ed	2,361	1,716	454	4	1
PECO	151	3	0	0	0
Penelec	92	2	0	0	0
Penn Power	0	0	0	0	0
Pike County	6	2	n/a	0	0
PPL	1,421	687	127	2	1
UGI Electric	269	0	0	0	0
Wellsboro	1	0	0	0	0
West Penn Pwr	18	0	0	0	0
Totals	4,319	2,410	581	6	2

Percentages of Total Outages and WPCs

Another concern of the Commission was if a large proportion of the outages occurred on problem circuits – WPCs. As indicated in Table 4, WPCs did make up a relatively high percentage of both outages and circuits affected by outages. Data column 3 shows that Duquesne and Penn Power’s outages were not related to any major storm, but as can be seen, virtually all of the outages were related to the major storms for the rest of the EDCs.

Table 4

Utility	% of Circuits with Outages	% of Circuits with Outages from WPCs	% of Total Circuits from Major Storms
Duquesne	4.2	8.7	0
Met Ed	70.8	11.4	100
PECO	30.4	10.6	94.7
Penelec	15.6	16.2	97.8
Penn Power	10.2	35.3	0
Pike County	100	n/a	100
PPL	72.7	11.5	99.6
UGI Electric	62.8	11.1	100
Wellsboro	22.2	n/a	100
West Penn Pwr	15.5	4.3	70.1

Percentage of Outages >72 Hours

Hurricane Irene in August and the early season snow in October caused a significant majority of the long-duration outages, as indicated in Table 5. PECO, Pike County, UGI, PPL and Penelec experienced the majority of their long-duration outages during Irene while Met Ed and West Penn Power experienced their majority during the early season snow. Also, Met Ed, Penelec, PPL, PECO, and UGI experienced WPC percentages of outages and circuits affected (data columns 2 and 3) above the PUC's 5% WPC classification. It does not necessarily follow that WPCs should represent 5% of circuits affected, but as shown in data column 3, Met Ed, Penelec, PPL, and UGI had over 10% of circuits affected from the WPCs list. When reviewing the corrective actions reported by the EDCs for each of the WPC's, the EDCs' actions were typically the normal review of the circuit and tree trimming cycle.

Table 5

Utility	% of Total Major Storm Outages That Were >72 Hr	% of Outages >72 Hr from WPCs	% of Circuits with Outages >72 Hr from WPCs	% of Outages >72 Hr From Irene	% of Outages >72 Hr From October Snowstorm
Duquesne	0	0	0	0	0
Met Ed	52.3	24.8	13.2	30.4	68.9
PECO	11.1	9.3	9.2	97.4	2.6
Penelec	16.4	23.9	23.9	64.1	0
Penn Power	0	0	0	0	0
Pike County	42.9	0	0	83.3	16.7
PPL	29.8	18.6	13.6	53.9	36.2
UGI Electric	87.9	8.9	12.0	100	0
Wellsboro	25.0	0	0	0	0
West Penn Pwr	7.1	0	0	0	100

Outages Greater Than 72 Hours by Region

The following charts detail long-duration (greater than 72 hours) outages and affected circuits by EDC and then by the EDC classified operating region. The aggregate numbers are about what is expected as the most affected areas match up with those areas most affected by Irene and the early snow. EDCs should examine the most affected areas for possible outage mitigation techniques (i.e. off right-of-way tree trimming or increased use of reclosers and other segmenting devices).

Met Ed

Region	Outages	Multiple Storm Outages	Circuits	Multiple Storm Outage Circuits
Boyertown	184	154	21	14
Dillsburg	98	21	19	2
Easton	314	250	68	35
Gettysburg	44	4	17	1
Hamburg	226	224	19	18
Hanover	52	0	18	0
Lebanon	316	280	53	34
Reading	594	426	90	35
Stroudsburg	429	46	104	10
York	429	311	104	46

PPL

Region	Outages	Multiple Storm Outages	Circuits	Multiple Storm Outage Circuits
Central	110	70	46	17
Harrisburg	86	46	53	16
Lancaster	229	113	116	32
Lehigh	488	283	150	53
Northeast	393	165	85	21
Susquehanna	48	10	25	3

PECO

Region	Outages	Multiple Storm Outages	Circuits	Multiple Storm Outage Circuits
Bucks	12	0	9	0
Chester	33	3	28	1
Delaware	89	0	67	0
Montgomery	16	0	14	0
York	1	0	1	0

Penelec

Region	Outages	Multiple Storm Outages	Circuits	Multiple Storm Outage Circuits
Cantro	2	0	2	0
Mansfield	11	0	4	0
Montrose	41	0	14	0
Sayre	16	2	10	1
Towanda	4	0	4	0
Tunkannock	18	0	12	0

Primary Outage Causes

Trees were the major cause of all outages and especially long-duration outages. Generally “not-preventable” tree outages refers to damage that comes from trees not in the utilities’ right-of-way and thus, not normally subject to trimming under the normal tree-trimming cycles. The “preventable” tree outages generally mean that the damage came from trees in the right-of-way or from trees that were thought to have been trimmed sufficiently. TUS would caution that EDCs may have slight differences in classification of tree damage. As can be seen, PPL had a relatively high percentage of outages caused by “preventable” or trimming-related outages. Whether that is due to a difference in classification is not known at this point. Regardless, tree-trimming should be a primary concern for both the EDCs and Commission for its effect on reliability as well as its role in long-duration outages.

Table 6

Utility	% of Major Storm Outages Caused by Trees Not-Preventable	% of Major Storm Outages Caused by Trees Preventable	% of Outages >72 Hr Caused by Trees Not-Preventable	% of Outages >72 Hr Caused by Trees Preventable
Met Ed	70.1	2.8	72.1	2.8
Penelec	72.0	< 1	77.2	0
PPL	72.0	14.5	74.3	15.0
West Penn Pwr	65.4	1.6	83.3	0

Circuit Characteristics

Circuit characteristics were also difficult to quantify as each EDC has their own designation of terrain or regions. Some have so many designations as to make comparison almost impossible. For the purposes of this study, TUS looked at the two utilities with the highest number of total outages and long-duration outages. Both Met Ed and PPL had over double the number of outages of any other EDC. Also, their circuit characteristic classifications were somewhat easier to group together. The review found that it was not the heavily forested areas that caused the majority of long-duration outages but trees in rural and suburban areas. This may be because of less population in the forested areas. However, TUS believes this points to the importance of tree trimming in areas where it will have the most effect on reliability.

Table 7

Utility	% of Outages >72 Hr Rural Forested	% of Outages >72 Hr Rural	% of Outages >72 Hr Suburban/Urban Forested or Involving a RW	% of Outages >72 Hr Suburban/Urban
Met Ed	6	75.7	18.3	0
PPL	17.1	15.3	46.5	19.3

KEY OBSERVATIONS

- During the 6-month study period, approximately 610,219 customers experienced an outage of 24 hours or greater. Approximately 110,000 customers experienced an outage of >72 hours, which is 18.1% of all outages 24 hours or greater.
- During the 6-month study period, major storms accounted for virtually all of the outages reported for the following EDCs: Met Ed, PECO, Penelec, Pike County Electric, PPL, UGI Electric, Wellsboro Electric and West Penn Power.
- Hurricane Irene and the October snow accounted for approximately 95.3% of all outages >72 hours.
- Approximately 59,492, or 53.8%, of customers that experienced an outage >72 hours were on circuits that were impacted by two of the major storms. Approximately 907, or 0.8%, were impacted by 3 of the major storms. No circuit was impacted by more than 3 of the major storms.
- Met Ed, PPL and Pike County Electric had a significant % of circuits that experienced outages of >72 hours that were impacted by 2 of the major storms (45.1%, 28.0%, and 25%, respectively).
- Approximately 24.1% of the circuits with outages >72 hours that were impacted by two of the major storms were from the worst 5% performing circuits (WPCs). There were only 6 circuits with outages >72 hours that were impacted by three of the major storms.
- The WPCs comprised a relatively high percentage of circuits affected for all outages and by each group of outages (24-48, >48-72, >72 hours). For 7 of the 10 EDCs with outages, the percentage of circuits affected that were WPCs was well above the 5% designed by the Commission as a WPC.
- For the EDCs affected by Irene (Met Ed, PECO, PPL, Penelec, UGI Electric), WPCs were at least 9% or more of those circuits with outages >72 hours and at least 8% or more of total outages >72 hours.
- There was no one specific area where EDCs were disproportionately affected by long-term outages, given the general geographic locations of the major storm tracks and impacts.
- For those EDCs where comparable data was available, (Met Ed, PPL, Penelec and West Penn Power), on average over 70% of all major storm outages were caused by off-right-of-way trees or other “non-preventable” trees. This was also true for outages of major storm outages of >72 hours.
- For those EDCs where data was available, a significant % of outages >72 hours occurred on circuits classified as rural or rural/forested.

RECOMMENDATIONS

TUS provides the following recommendations for the Commission and EDCs based on a review of the outage data.

Recommendation 1 – EDCs should examine the service regions and circuits that experienced significant amounts of long-duration outages to determine if vegetation management trimming cycles should be expedited and if the trimming method is sufficient to mitigate further long-duration outage events in those regions and on those circuits.

Recommendation 2 – In relation to Recommendation 1, above, EDCs should also review other potential outage mitigation actions such as strategic installation of automatic distribution circuit reclosers and sectionalizers. EDCs should consider these outage mitigation actions when developing their Long-Term Infrastructure Improvement Plans under the new regulations at 66 Pa. Code §1352.

Recommendation 3 – EDCs should review their vegetation management programs' approach to off-right-of-way vegetation and determine if more could be done to mitigate damage from off-right-of-way vegetation.

Recommendation 4 – EDCs should work collaboratively and through groups like the Energy Association of Pennsylvania to discuss best practices and effective approaches to both on and off-right-of-way vegetation management and other outage mitigation methods.

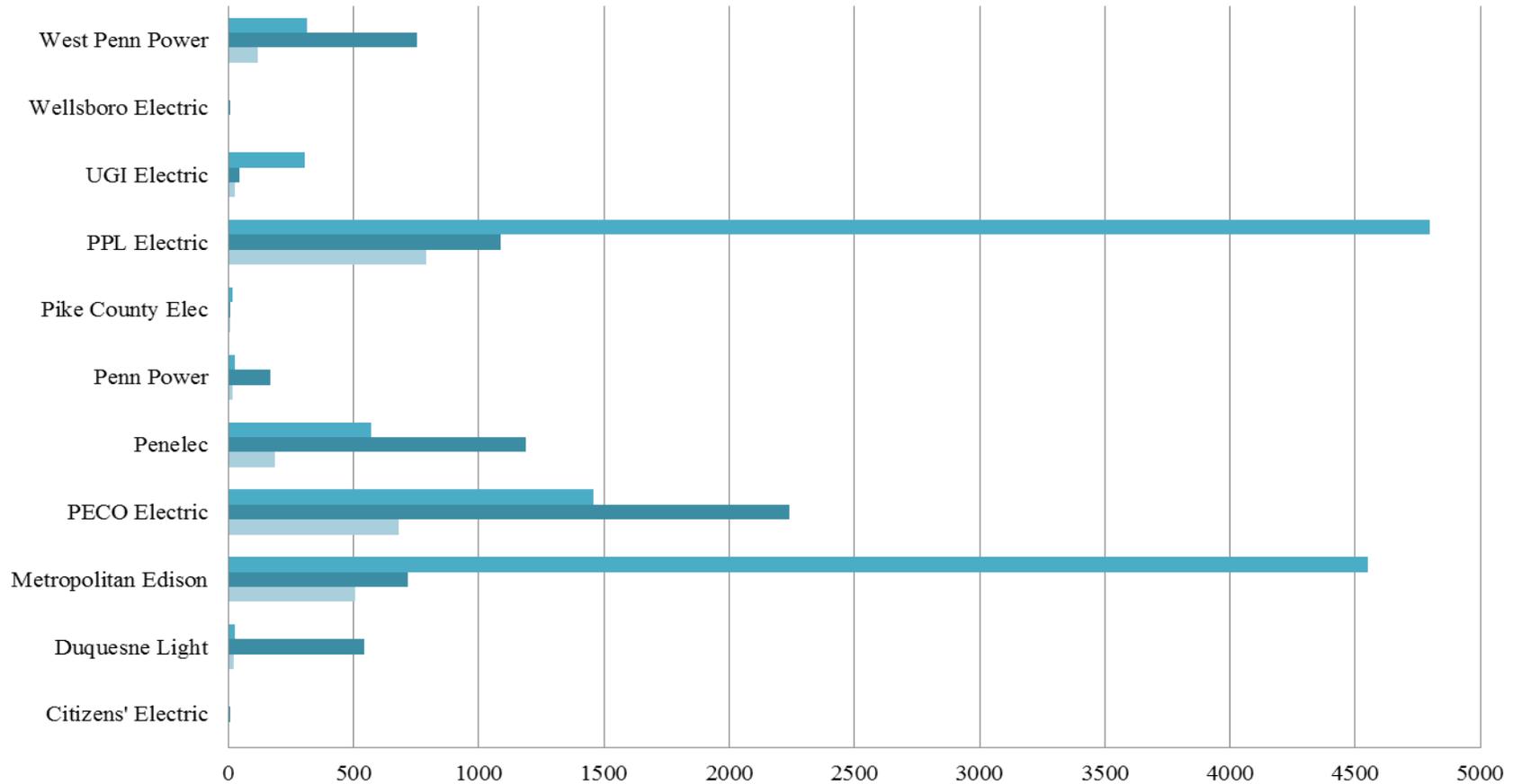
Recommendation 5 – As EDCs review and improve their vegetation management programs, they should work with local and county officials to help mitigate possible consumer or resident resistance to tree trimming, especially in off-right-of-way areas.

Recommendation 6 – The Commission should support EDCs in their outreach efforts in relation to Recommendation 5, above.

Recommendation 7 – EDCs shall continue to implement corrective actions for the worst performing circuits and should strive to complete corrective actions for worst performing circuits by the close of the calendar-year quarter for which they were identified.

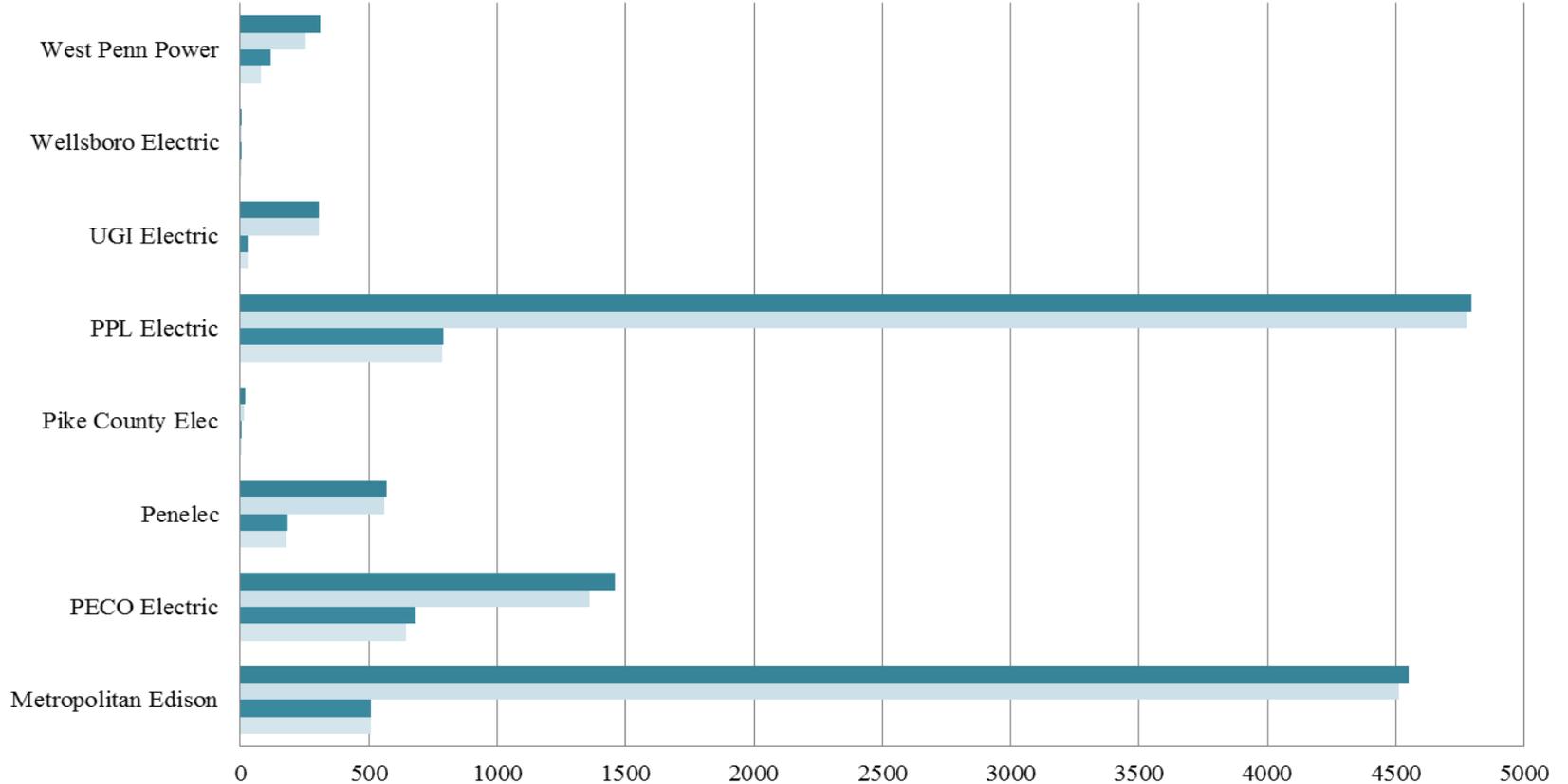
Recommendation 8 – TUS will continue to review the corrective actions outlined by EDCs for their worst performing circuits to ensure they are implemented and are having a positive effect.

Chart 1 - Total Of All Outages



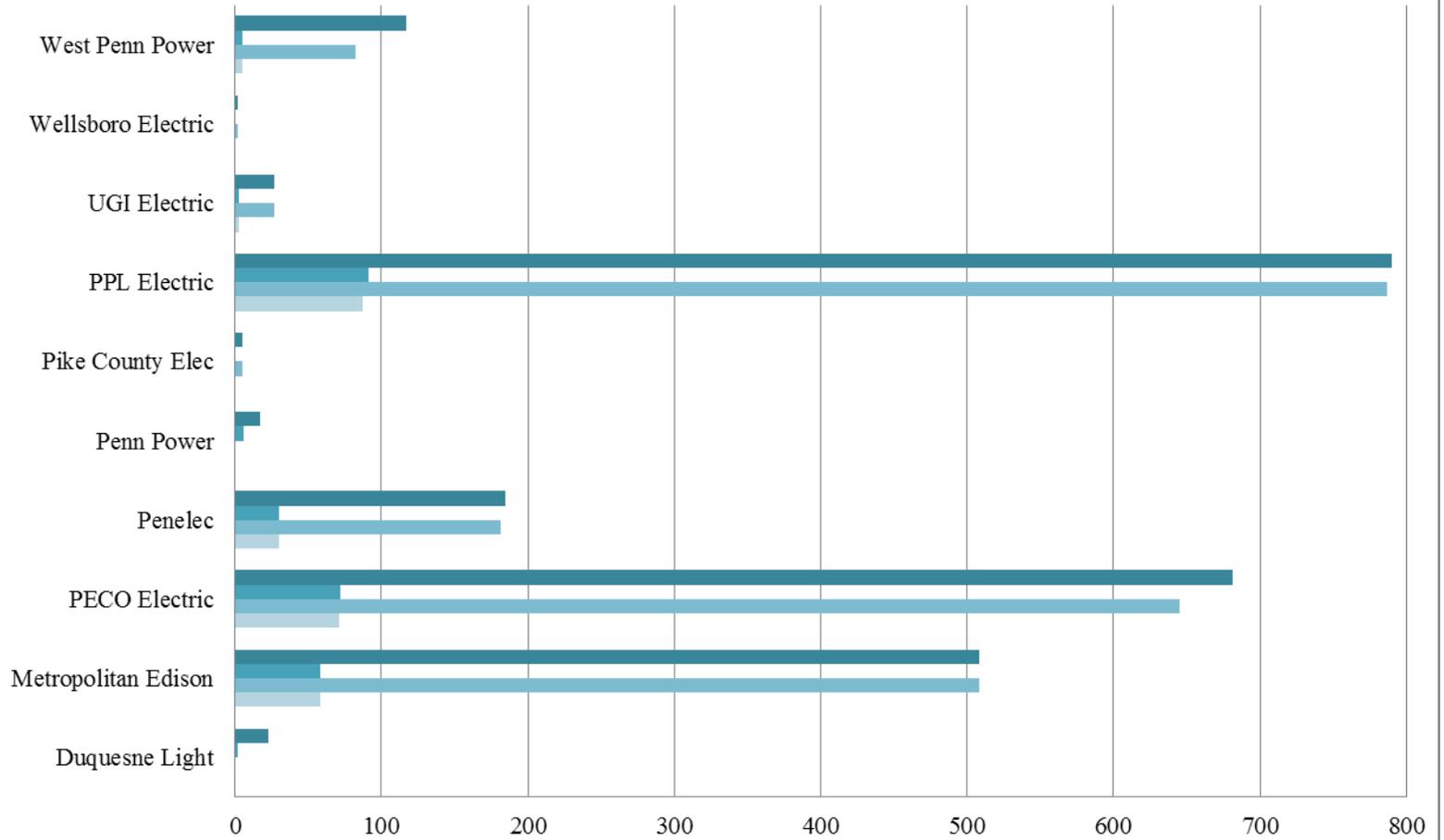
	Citizens' Electric	Duquesne Light	Metropolitan Edison	PECO Electric	Penelec	Penn Power	Pike County Elec	PPL Electric	UGI Electric	Wellsboro Electric	West Penn Power
■ Total Outages	0	25	4551	1459	568	24	17	4797	306	4	312
■ Total System Circuits	9	542	718	2241	1186	167	5	1086	43	9	755
■ Total Circuits With Outages	0	23	508	681	185	17	5	790	27	2	117

Chart 2 - All Major Storm Outages



	Metropolitan Edison	PECO Electric	Penelec	Pike County Elec	PPL Electric	UGI Electric	Wellsboro Electric	West Penn Power
■ Total Outages	4551	1459	568	17	4797	306	4	312
■ Total Major Storm Outages	4513	1360	561	14	4774	306	4	254
■ Total Circuits With Outages	508	681	185	5	790	27	2	117
■ Total Major Storm Circuits	508	645	181	5	787	27	2	82

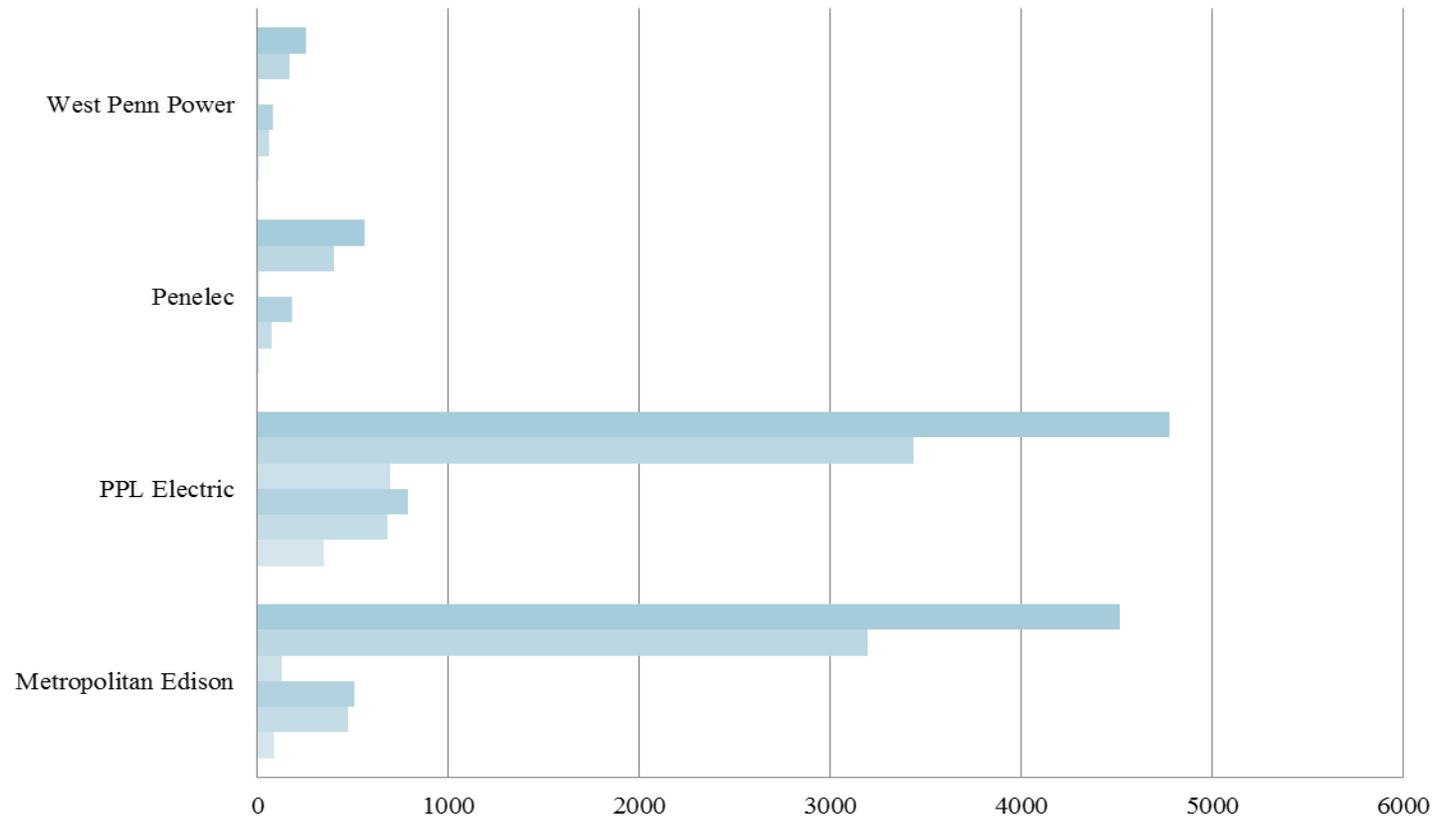
Chart 3 - Circuit Numbers for All Outages and All Major Storm Outages



*WPC = Worst Performing Circuit

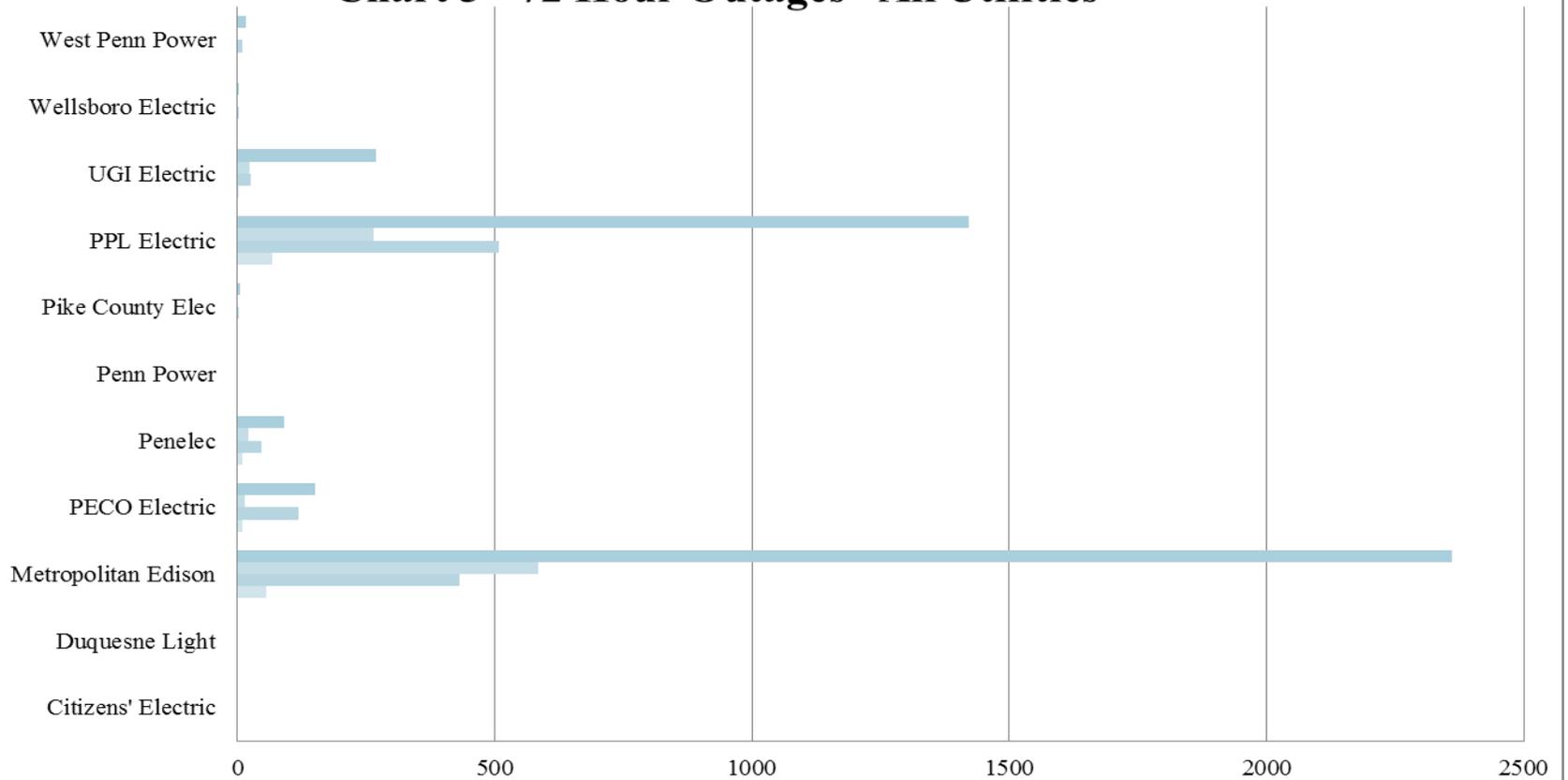
	Duquesne Light	Metropolitan Edison	PECO Electric	Penelec	Penn Power	Pike County Elec	PPL Electric	UGI Electric	Wellsboro Electric	West Penn Power
■ Circuits - All Outages	23	508	681	185	17	5	790	27	2	117
■ Circuits - All Outages - WPC	2	58	72	30	6	0	91	3	0	5
■ Circuits - All Major Storm Outages	0	508	645	181	0	5	787	27	2	82
■ Circuits - All Major Storm Outages - WPC	0	58	71	30	0	0	87	3	0	5

Chart 4 - Major Storm Outages Tree-Related



	Metropolitan Edison	PPL Electric	Penelec	West Penn Power
All Major Storm Outages	4513	4774	561	254
All Major Storm Outages by Tree Non-Preventable	3198	3437	404	166
All Major Storm Outages by Tree Preventable	127	694	1	4
All Major Storm Outage Circuits	508	787	181	82
All Major Storm Circuits by Tree Non-Preventable	473	683	76	62
All Major Storm Circuits by Tree Preventable	85	346	1	4

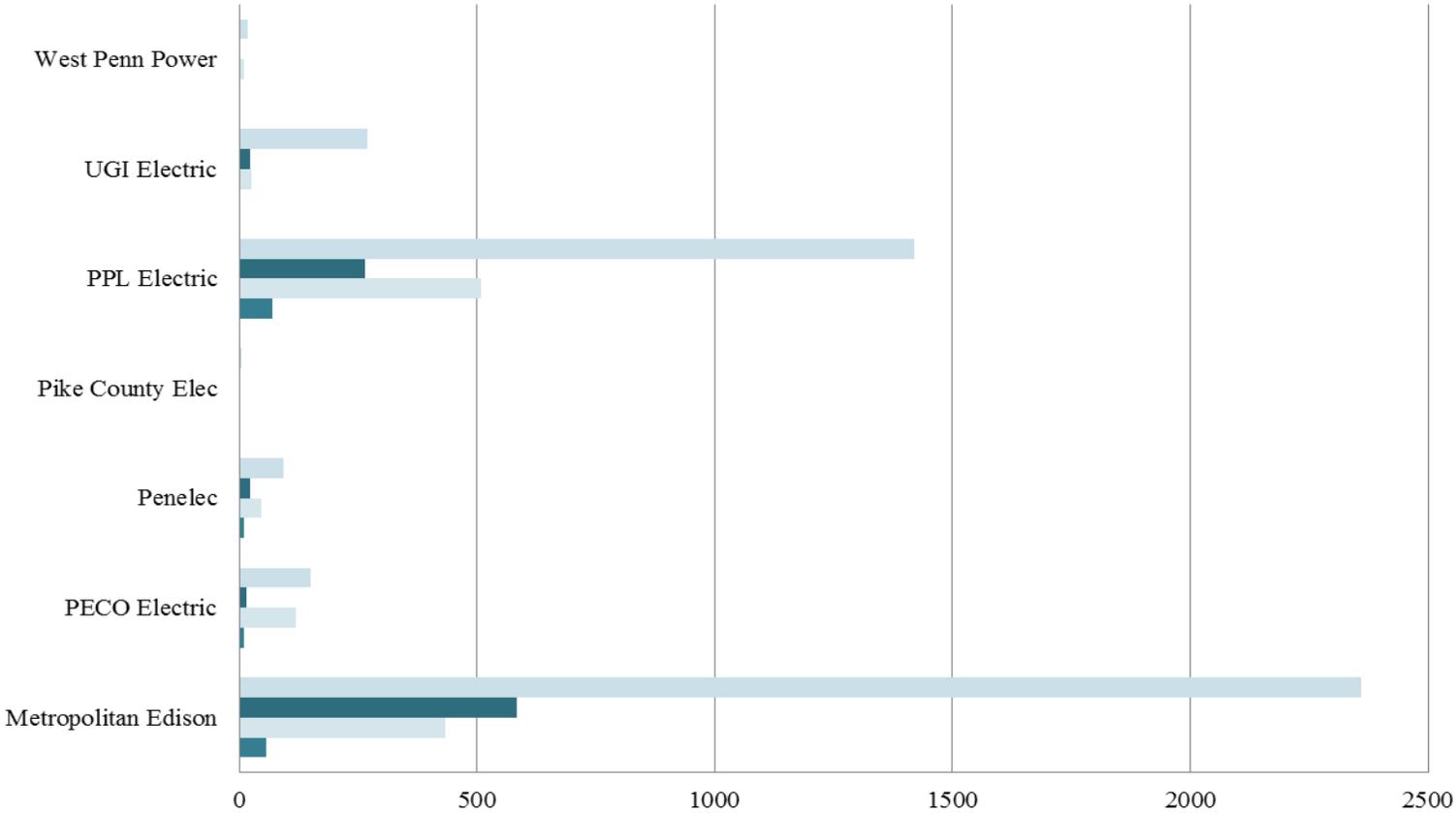
Chart 5 - 72 Hour Outages - All Utilities



*WPC = Worst Performing Circuit

	Citizens' Electric	Duquesne Light	Metropolitan Edison	PECO Electric	Penelec	Penn Power	Pike County Elec	PPL Electric	UGI Electric	Wellsboro Electric	West Penn Power
Total >72 Hr Outages	0	0	2361	151	92	0	6	1421	269	1	18
Total >72 Hr Outages WPC	0	0	585	14	22	0	0	264	24	0	0
Total >72 Hr Circuits	0	0	432	119	46	0	3	508	25	1	11
Total >72 Hr Circuits WPC	0	0	57	11	11	0	0	69	3	0	0

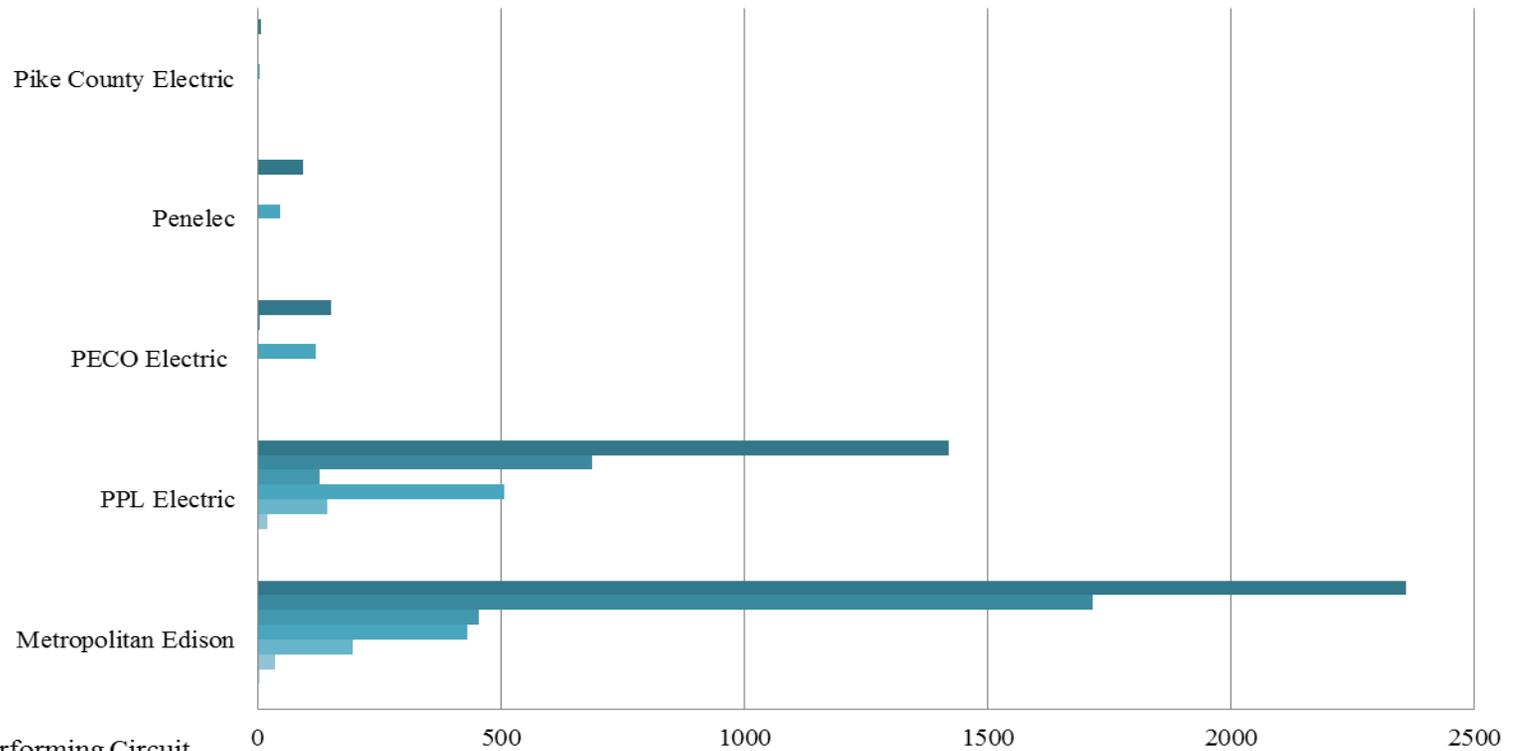
Chart 6 - 72 Hr Major Storms



*WPC = Worst Performing Circuit

	Metropolitan Edison	PECO Electric	Penelec	Pike County Elec	PPL Electric	UGI Electric	West Penn Power
Total >72 Hr Major Storm Outages	2361	151	92	6	1421	269	18
Total >72 Hr Major Storm Outages WPC	585	14	22	0	264	24	0
Total >72 Hr Major Storm Circuits	432	119	46	3	508	25	11
Total >72 Hr Major Storm Circuits WPC	57	11	11	0	69	3	0

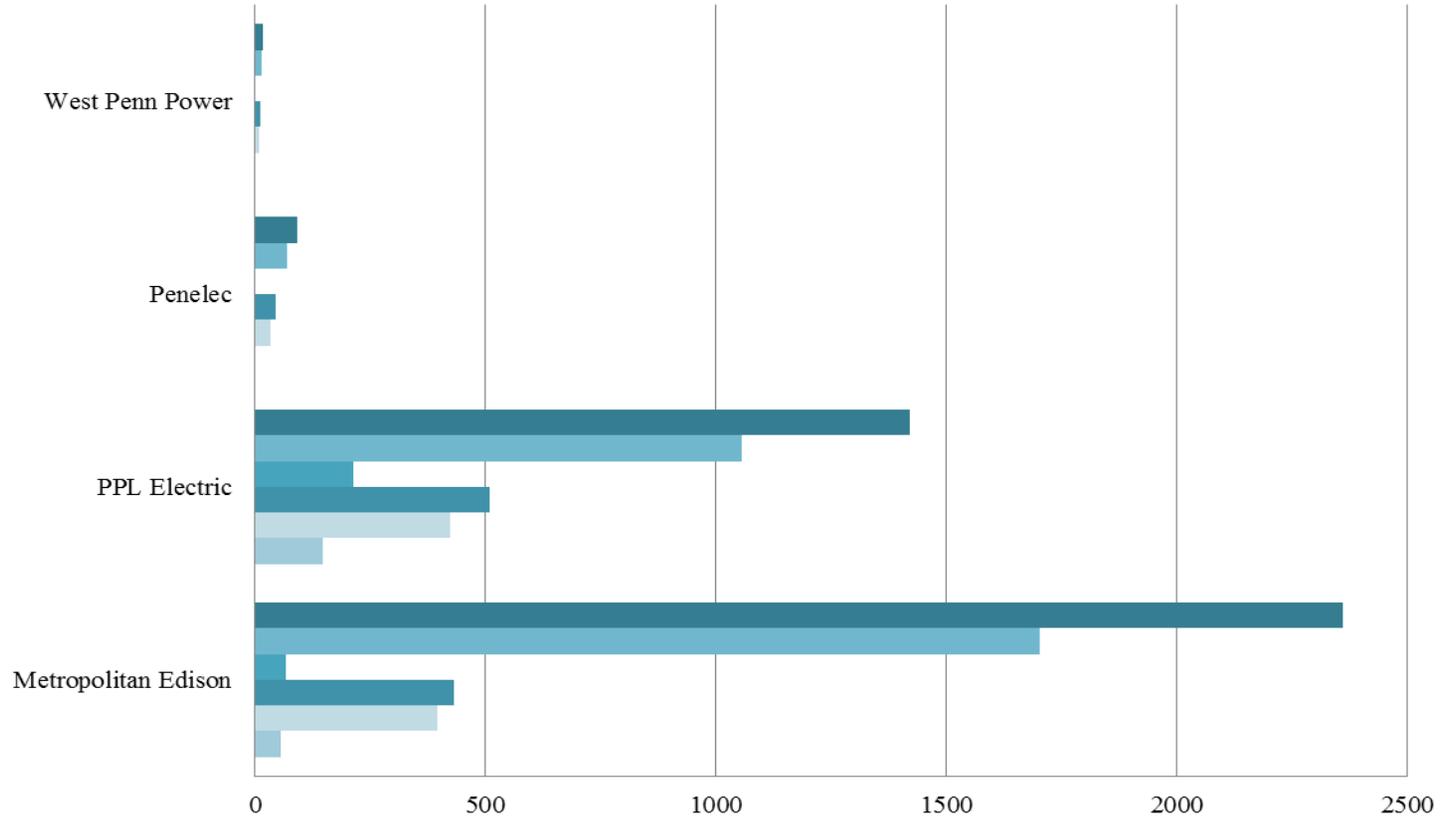
Chart 7 - 72 Hour Circuits Affected by Multiple Major Storms



*WPC = Worst Performing Circuit

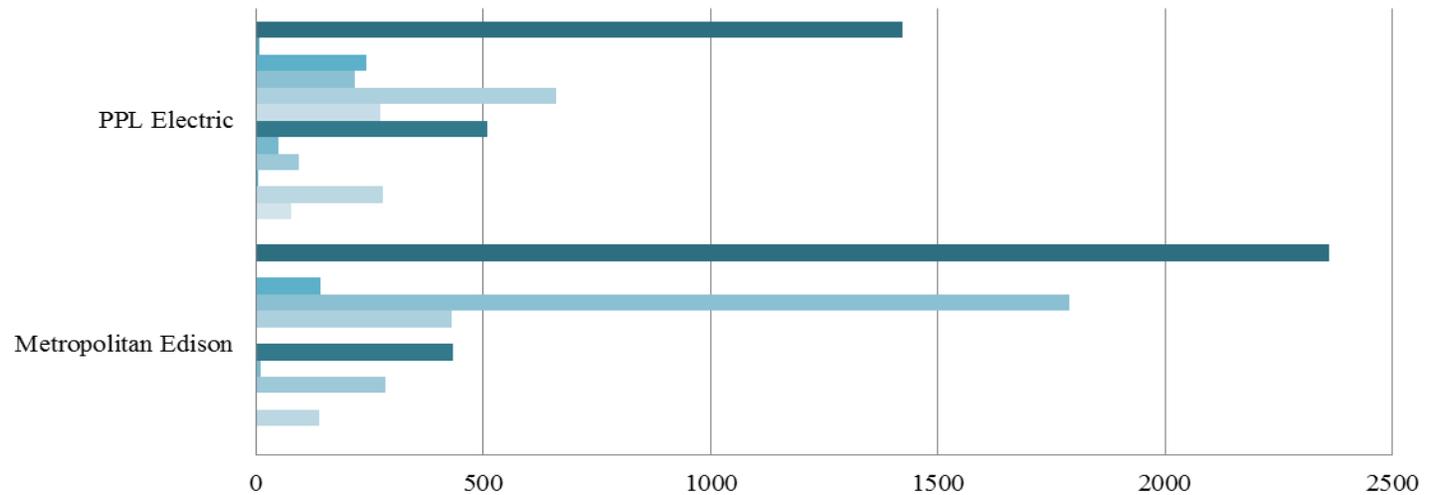
	Metropolitan Edison	PPL Electric	PECO Electric	Penelec	Pike County Electric
■ >72 Hr Major Storm Outages	2361	1421	151	92	6
■ Multiple >72 Hr Major Storm Outages	1716	687	3	2	2
■ Multiple >72 Hr MS Outages WPC	454	127	0	0	0
■ >72 Hr MS Circuits	432	508	119	46	4
■ Multiple >72 Hr MS Circuits	195	142	1	1	1
■ Multiple >72 Hr MS Circuits WPC	36	21	0	0	0
■ Circuits With 3 >72 Hr Storm Outages	4	2	0	0	0
■ Circuits With 3 >72 Hr Storm Outages WPC	1	1	0	0	0

Chart 8 - 72 Hr Major Storm Tree-Related



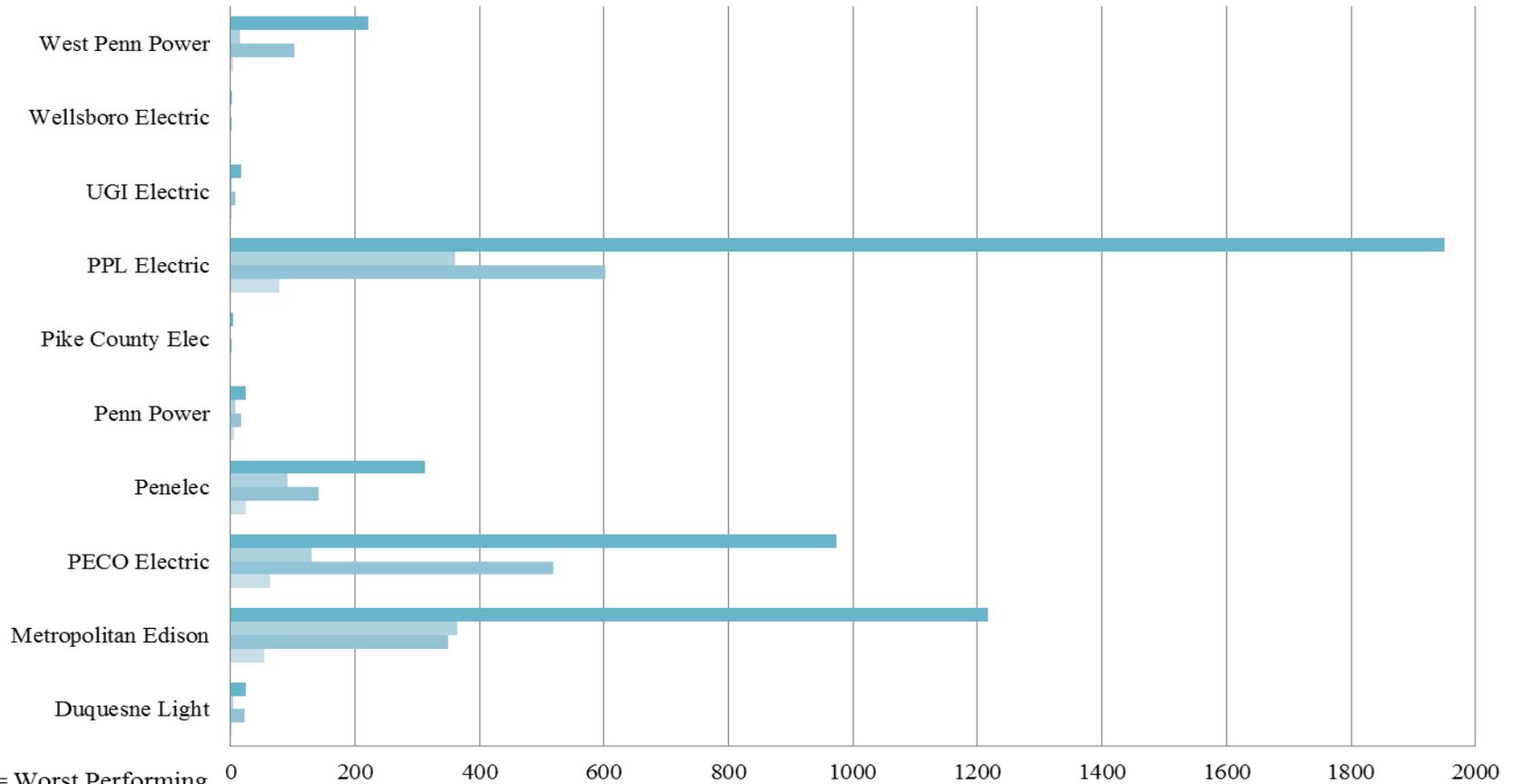
	Metropolitan Edison	PPL Electric	Penelec	West Penn Power
■ > 72 Hour Outages	2361	1421	92	18
■ > 72 Hr Outages Caused by Tree Non-Preventable	1703	1056	71	15
■ > 72 Hr Outages Caused by Tree Preventable	67	213	0	0
■ > 72 Hours Outage Circuits	432	508	46	11
■ > 72 Hr Circuits Caused by Tree Non-Preventable	396	424	34	9
■ > 72 Hr Circuits Caused by Tree Preventable	55	148	0	0

Chart 9 - 72 Hour Major Storm Circuit Characteristics



	Metropolitan Edison	PPL Electric
■ > 72 Hour Outages	2361	1421
■ All > 72 Hr Outages Heavy Forested/Mountainous Area	0	6
■ All > 72 Hour Outages Rural Forested	142	243
■ All > 72 Hour Outages Rural	1788	218
■ All > 72 Hour Outages Suburban/Urban	431	661
■ All > 72 Hour Outages Suburban/Urban Forested or RW	0	274
■ > 72 Hours Outage Circuits	432	508
■ All > 72 Hour Circuits Rural Forested	9	50
■ All > 72 Hour Circuits Rural	285	94
■ All > 72 Hr Circuits Heavy Forrested/Mountainous Area	0	4
■ All > 72 Hour Circuits Suburban/Urban	138	278
■ All > 72 Hour Circuits Suburban/Urban Forested or RW	0	76

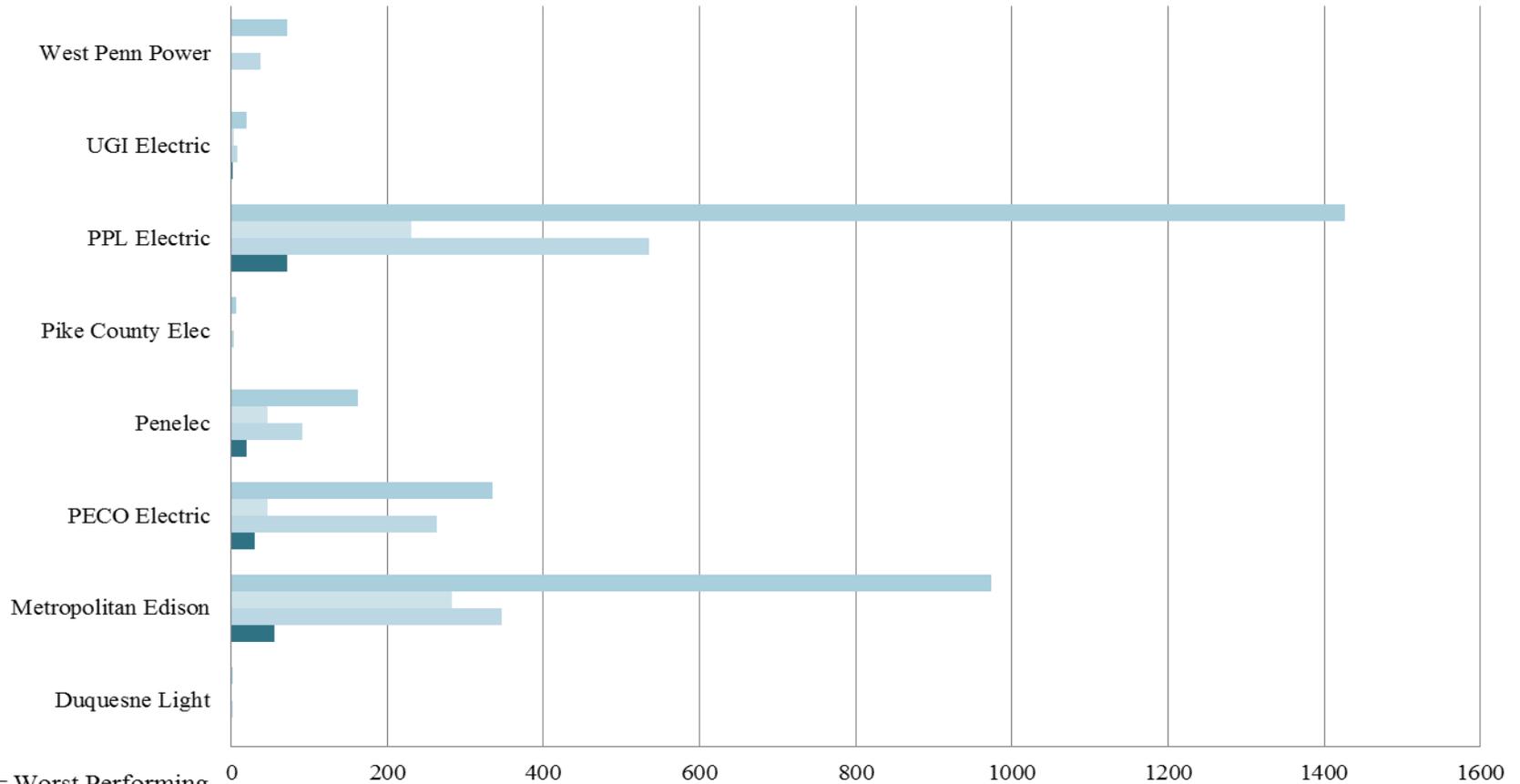
Chart 10 - 24-48 Hour Outages



*WPC = Worst Performing Circuit

	Duquesne Light	Metropolitan Edison	PECO Electric	Penelec	Penn Power	Pike County Elec	PPL Electric	UGI Electric	Wellsboro Electric	West Penn Power
■ Total 24-48 Hr Outages	24	1216	973	313	24	5	1950	17	3	222
■ Total 24-28 Hr Outages WPC	4	364	130	92	8	0	360	3	0	16
■ Total 24-48 Hr Circuits	22	350	519	142	17	2	602	7	2	102
■ Total 24-48 Hr Circuits WPC	2	55	64	25	6	0	79	1	0	5

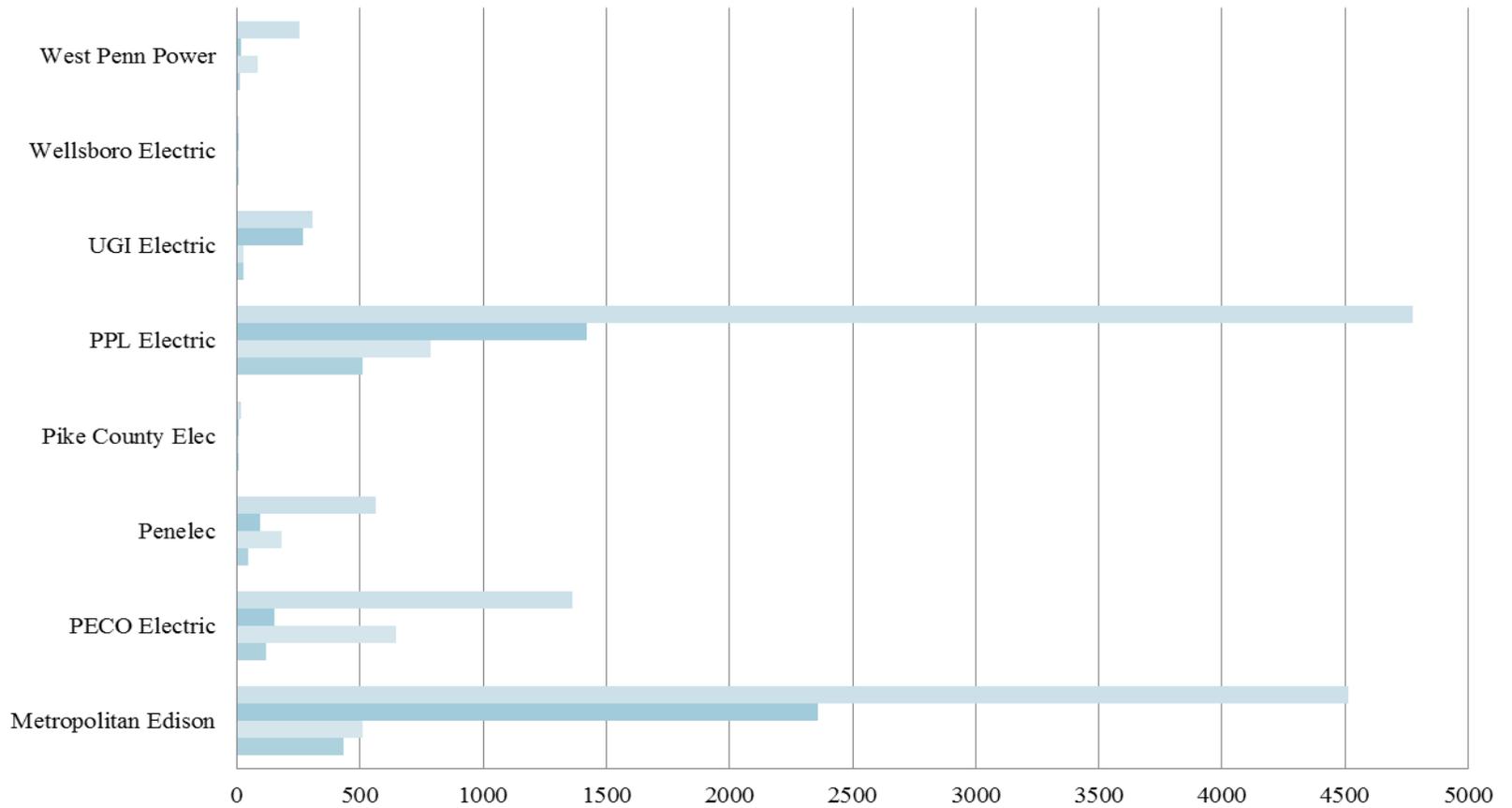
Chart 11 - 48-72 Hour Outages



*WPC = Worst Performing Circuit

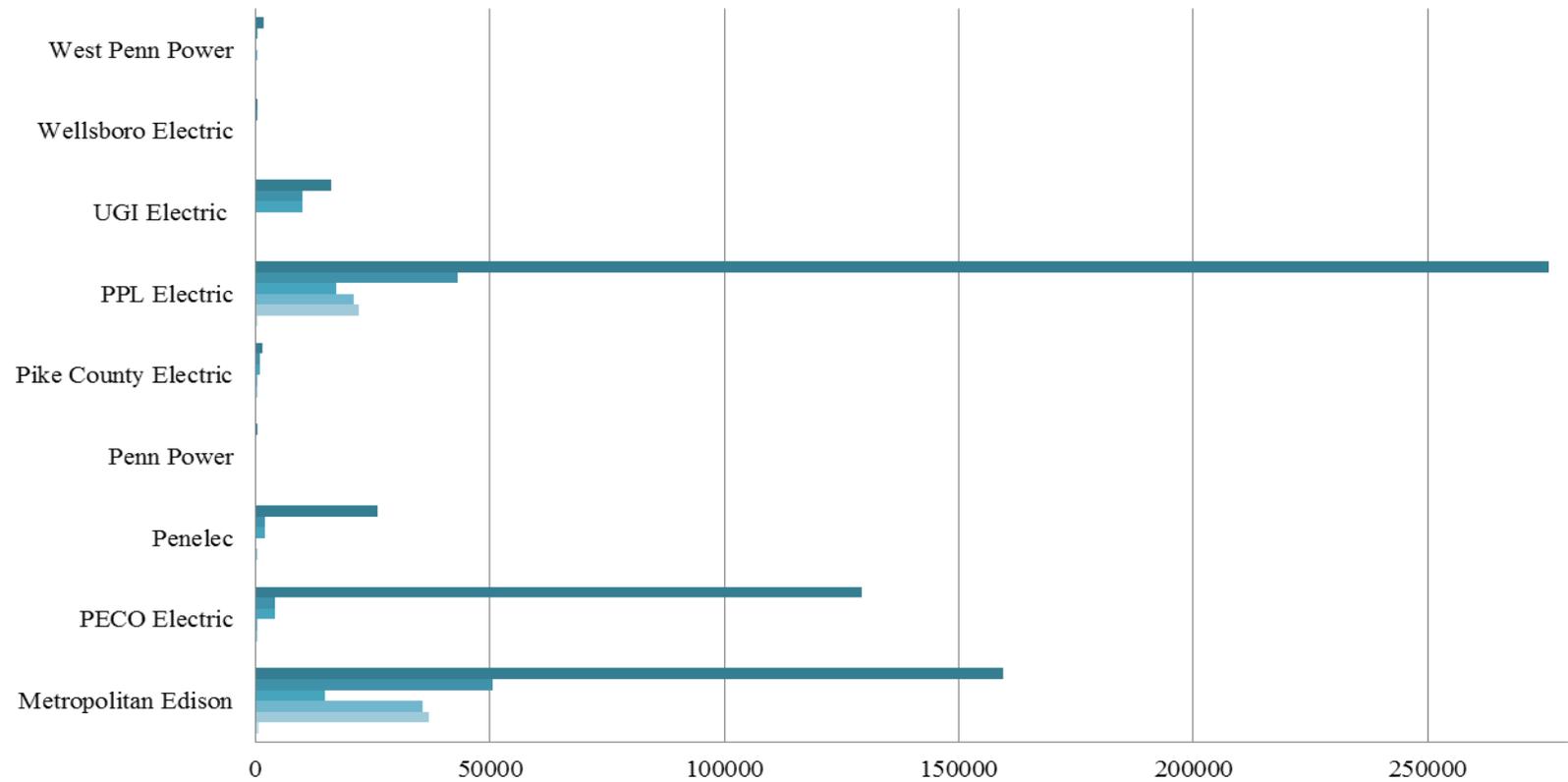
Circuit	Duquesne Light	Metropolitan Edison	PECO Electric	Penelec	Pike County Elec	PPL Electric	UGI Electric	West Penn Power
Total 49-72 Hr Outages	1	974	335	163	6	1426	20	72
Total 49-72 Hr Outages WPC	0	283	46	46	0	230	4	0
Total 49-72 Hr Circuits	1	347	263	91	4	535	8	37
Total 49-72 Hr Circuits WPC	0	55	30	20	0	72	2	0

Chart 12 - Major Storm and 72 Hour Outages



	Metropolitan Edison	PECO Electric	Penelec	Pike County Elec	PPL Electric	UGI Electric	Wellsboro Electric	West Penn Power
Total Major Storm Outages	4513	1360	561	14	4774	306	4	254
Total >72 Hr Major Storm Outages	2361	151	92	6	1421	269	1	18
Total Major Storm Circuits	508	645	181	5	787	27	2	82
Total >72 Hr Major Storm Circuits	432	119	46	3	508	25	1	11

Chart 13 - Customers Affected



	Metropolitan Edison	PECO Electric	Penelec	Penn Power	Pike County Electric	PPL Electric	UGI Electric	Wellsboro Electric	West Penn Power
■ Customers - Total Outages	159360	129407	25999	221	1552	275758	16036	249	1637
■ Customers >72 Hr Outages	50476	4036	2023	0	861	43197	9921	1	108
■ Customers >72 Hr Irene	14705	4022	2023	0	847	17244	9921	0	0
■ Customers >72 Hr October Snow	35622	14	0	0	14	20870	0	0	108
■ Customers >72 Hr 2 Major Storms	36978	4	55	0	348	22107	0	0	0
■ Customers >72 Hr 3 Major Storms	547	0	0	0	0	360	0	0	0

**PENNSYLVANIA PUBLIC UTILITY COMMISSION
HARRISBURG, PENNSYLVANIA 17120**

**Prevention and Mitigation of
Extended Service Outages**

**Public Meeting November 10, 2011
2271989-CMR**

**JOINT MOTION OF CHAIRMAN ROBERT F. POWELSON
AND VICE CHAIRMAN JOHN F. COLEMAN, JR.**

Electric utilities operating in Pennsylvania have a duty to provide safe and reliable service to customers.¹ As part of its statutory powers, the Commission is authorized to adopt and enforce rules to ensure that electric utilities provide safe and reliable service.² This includes rules relating to the frequency, scope and duration of electric service outages that may be caused by extreme weather events. It is self-evident that these types of outages cannot be completely prevented for various reasons, including the strength and unpredictability of weather and the absence of legal authority to remove trees located outside of a utility's rights of way. Further, the Commission must also balance the reliability of service with affordability of service; an electric distribution system completely immune to weather events would not be affordable for many customers.

However, the Commission expects that customers experiencing service outages will be restored safely and within a reasonable period of time. The Commission further expects that electric utilities will appropriately invest in their distribution systems and give the necessary level of priority to the most troubled segments.

Unfortunately, much of Pennsylvania suffered a series of extreme weather events over the past six months that caused many electric customers to experience extended service outages. While the large majority of customers are typically restored within twenty four hours of interruption, many in the past six months experienced outages of longer duration, and a small percentage of customers have suffered outages of up to a week or even longer. The Commission wishes to verify these facts, and investigate whether there are additional remedies that can and should be adopted to improve the reliability of service, particularly during extreme weather events. To accomplish this, pursuant to our authority under Section 504 of the Public Utility Code,³ we direct all electric distribution companies to:

1. Provide a list circuits or segments of circuits that experienced service outages of a duration greater than 24 hours within the last six months. Separate lists should be provided for circuits that were fully or partially out 24 to 48 hours, 48 to 72 hours, and 72 hours and longer. Where there are instances of multiple outages of 24 hours or greater occurring on a circuit over the past 6 months, please list each instance separately and group the instances (where necessary) by whether the outages were 24-48 hours, 48-72 hours, or greater than 72 hours. Please list the circuits by location and provide the date and

¹ 66 Pa. C.S. § 1501.

² 66 Pa. C.S. § 501.

³ 66 Pa. C.S. § 504.

time of the first interruption and the date and time the final customer was restored for each circuit. Indicate whether any of the above circuits were also among the electric distribution company's worst performing 5% of circuits identified in the Quarterly Reliability Reports for the first three quarters of 2011.

2. Provide detailed explanations of the restoration activities associated with these circuits for each outage listed, including a general description of the system damages encountered. Describe any other mitigating factors that hampered restoration efforts for each outage listed. Also provide a general description of the terrain, foliage, topography, and customer density associated with each circuit.
3. Offer any corrective actions planned or contemplated to reduce the frequency, scope and duration of outages on either the circuits impacted by the weather events and/or the worst performing circuits along with any suggestions that would reduce the frequency, scope and duration of outages on these circuits.

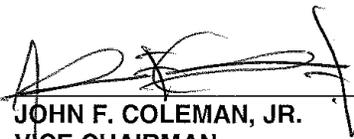
Responses to these questions should be filed with the Commission within thirty days of the entry of this Motion. The Office Technical Utility Services will prepare a report summarizing these responses and providing recommendations for future action by the Commission.

THEREFORE, WE MOVE THAT:

The Law Bureau prepare an Order consistent with this Motion.

DATE: November 10, 2011


ROBERT F. POWELSON
CHAIRMAN


JOHN F. COLEMAN, JR.
VICE CHAIRMAN