2.4.1 RELIABILITY STATISTICS*

Service Reliability Indices

SAIDI, SAIFI, and CAIDI are the specific indices used and provide information about both the duration and frequency of outages for customers. These indices are described as follows:

- **SAIDI -** System Average Interruption Duration Index. Designed to provide information about the average time (in aggregate) that the customers served in a predefined area are interrupted.
- **SAIFI -** System Average Interruption Frequency Index. Designed to give information about the average frequency of sustained interruptions per customer served in a predefined area.
- **CAIDI** - Customer Average Interruption Duration Index. Designed to provide information about the average time required to restore service to the average customer experiencing a sustained interruption.

Each index is calculated several times; once with all outage data and then according to the specific significant event exclusions specified. The expectation is that the indices calculated with significant event related outage data excluded will provide a reflection of system performance under normal operating conditions. The indices calculated with all outage data will provide a reflection of the impact of significant events on the system. It is important to note that a year-to-year comparison of reliability indices calculated with all outage data would not be appropriate. The indices during a year in which major storms or events impact an electric utility will be substantially different from the indices during a year in which no such issues arise.

Service Outage Statistics[48,49]

Presented in Table 2.4-B1-B2 are the SAIDI, SAIFI and CAIDI values for the past five years. These reliability indices are provided for all sustained interruptions and all sustained

[48] In Order No. 16623 paragraphs 48, 62 and 63, the Commission stated the following:

48. …Therefore, we hereby require that Pepco include reliability calculations using District of Columbia-only data and relying on a Major Service Outage exclusion in the 2012 Consolidated Report and in future Consolidated Reports. We also require that Pepco include in its 2012 Consolidated Report a revised version of its reliability calculations from the 2010 and 2011 Consolidated Reports using D.C.-only data and excluding Major Service Outages. Pepco shall also include calculations of reliability indices for the entire Pepco system using system-wide data and Major Event Day exclusions, as well as reliability indices for Pepco D.C. using D.C.-only MEDs in the 2012 Consolidated Report and in future Consolidated Reports, so that we may make comparisons. For purposes of this requirement, the "reliability calculations" contained in the Consolidated Report include all calculations of SAIDI, SAIFI and CAIDI, discussion of failure rate data, and selection of Priority Feeders. (Footnote: Because the Aggressive Corrective Action Program requires the identification of feeders that have been listed as Priority Feeders in the past using system-wide, MED-excluding data, we will allow Pepco to continue to select ACAP feeders using that data. However, we require that a list of Priority Feeders using the new method of calculation be included in the 2012 Consolidated Report.)

62. Pepco is DIRECTED to include in the 2012 Consolidated Report reliability calculations using District of Columbia-only data and excluding Major Service Outages consistent with paragraph 48;

63. Pepco is DIRECTED to include in the 2012 Consolidated Report a revised version of the reliability calculations contained in the 2010 and 2011 Consolidated Report using District of Columbia-only data and excluding Major Service Outages consistent with paragraph 48.

[49] In Order No. 16700 issued February 12, 2012, paragraphs 10 and 11, the Commission stated:

10. In establishing out new reliability performance standards, we decided that Pepco should be given a reasonable amount of time to "ramp up" to our new requirements. Therefore, we made the new SAIDI and SAIFI standards effective beginning in 2013. By replacing the prior rule with a new one, and giving Pepco a transition period, we created a "gap" in reliability measures. We saw no harm in a temporary suspension of reliability benchmarks, recognizing that the standards in effect for 2013 through 2020 would require significant improvement on Pepco's part, starting at once. For example, in order to meet our 2013 SAIDI target, Pepco must make either about a 9% improvement in both 2012 and 2013 or about an 18% improvement in 2013. Therefore, we saw no risk that Pepco would suffer a significant "backslide" in reliability because there were no effective standards in place for 2011 or 2012.

11. We do not believe that reestablishment (for the years 2011 and 2012) of the standards to which Pepco was previously held is necessary. (Footnote: We note that not all states have Electric Quality of Service Standards. For example, Pepco presently operates in Maryland without standards but is required to provide annual reliability indices pursuant to COMAR 20.50.07.06.) Nor has Pepco provided any reason for that reestablishment. Consequently, we decline to make the clarification that Pepco requests. However, we do expect that Pepco will continue to report on its reliability performance in its annual Consolidated Report and we concur with OPC in its suggestion that Pepco coordinate its data reporting so that Pepco calculations are a consistent "apples to apples" comparison from 2011 through 2013 and beyond. Therefore, as OPC has requested, we require Pepco to include in its annual report a description of its performance and a calculation of whether it would have met the appropriate SAIFI, SAIDI and CAIDI standards had they been in effect.

14. Pepco shall include in its 2012 and 2013 annual Consolidated Reports calculations of SAIDI, SAIFI, and CAIDI as described in paragraph 11.

interruptions excluding major events. A sustained interruption is defined as an interruption of five (5) minutes or greater.

Pepco System Indices 2015-2019 (MED Exclusive - IEEE 1366-2003 Std, Pepco System Wide Based)					
SAIFI	**2015**	**2016**	**2017**	**2018**	**2019**
Sustained Outages	0.96	0.98	0.68	0.90	0.73
Sustained Less Major Storms	0.96	0.98	0.68	0.71	0.65
SAIDI (HOURS)	**2015**	**2016**	**2017**	**2018**	**2019**
Sustained Outages	1.88	1.81	1.03	2.70	1.22
Sustained Less Major Storms	1.88	1.81	1.03	0.98	0.97
CAIDI (HOURS)	**2015**	**2016**	**2017**	**2018**	**2019**
Sustained Outages	1.96	1.85	1.52	3.02	1.67
Sustained Less Major Storms	1.96	1.85	1.52	1.37	1.49

Table 2.4-B1

Pepco System Indices 2015-2019 (Major Service Outage Criteria- Pepco System Based)					
SAIFI	**2015**	**2016**	**2017**	**2018**	**2019**
Sustained Outages	0.96	0.98	0.68	0.90	0.73
Sustained Less Major Storms	0.96	0.98	0.68	0.86	0.73
SAIDI (HOURS)	**2015**	**2016**	**2017**	**2018**	**2019**
Sustained Outages	1.88	1.81	1.03	2.70	1.22
Sustained Less Major Storms	1.88	1.81	1.03	2.38	1.22
CAIDI (HOURS)	**2015**	**2016**	**2017**	**2018**	**2019**
Sustained Outages	1.96	1.85	1.52	3.02	1.67
Sustained Less Major Storms	1.96	1.85	1.52	2.78	1.67

Table 2.4-B2

Tables 2.4-B3 and 2.4-B4 show annual indices for 2015 through 2019. Table 2.4-B3 shows performance indices Including and Excluding District of Columbia Major Service Outages, and Table 2.4-B4 shows performance indices Including and Excluding District of Columbia-only MEDs.

District of Columbia Indices 2015-2019
(IEEE 1366-2003, DC Based)

SAIFI	**2015**	**2016**	**2017**	**2018**	**2019**
Sustained Outages	0.69	0.82	0.55	0.64	0.59
Sustained Less Major Storms	0.69	0.82	0.55	0.54	0.49
SAIDI (HOURS)	**2015**	**2016**	**2017**	**2018**	**2019**
Sustained Outages	1.87	1.92	0.96	1.82	1.29
Sustained Less Major Storms	1.87	1.92	0.96	0.88	0.92
CAIDI (HOURS)	**2015**	**2016**	**2017**	**2018**	**2019**
Sustained Outages	2.73	2.35	1.73	2.83	2.20
Sustained Less Major Storms	2.73	2.35	1.73	1.64	1.86

Table 2.4-B3

District of Columbia Indices 2015-2019 (Major Service Outage Criteria- DC Based)					
SAIFI	**2015**	**2016**	**2017**	**2018**	**2019**
Sustained Outages	0.69	0.82	0.55	0.64	0.59
Sustained Less Major Storms	0.69	0.82	0.55	0.53	0.59
SAIDI (HOURS)	**2015**	**2016**	**2017**	**2018**	**2019**
Sustained Outages	1.87	1.92	0.96	1.82	1.29
Sustained Less Major Storms	1.87	1.92	0.96	0.86	1.29
CAIDI (HOURS)	**2015**	**2016**	**2017**	**2018**	**2019**
Sustained Outages	2.73	2.34	1.73	2.83	2.20
Sustained Less Major Storms	2.73	2.34	1.73	1.63	2.20

Table 2.4-B4

Order No. 16975 states the following at paragraphs 62 and 106:

62. ***Decision:*** *The Commission directs Pepco to provide SAIDI and SAIFI statistics in the future Consolidated Reports calculated by both including and excluding cross-border feeders. Pepco shall identify which feeders it treats as "cross-border" for this purpose.*

106. *Pepco is* ***DIRECTED*** *to provide SAIDI and SAIFI information consistent with paragraph 62 herein;*

District of Columbia Reliability Inclusive and Exclusive of Cross-Border Feeders (2019)

2019 IEEE MED Exclusive		
District of Columbia Reliability Statistics	SAIFI	SAIDI (Hours)
Excluding all cross-border feeders	0.36	0.74
Including all cross-border feeders	0.56	1.03

2019 DC MSO (& COMAR) Exclusive		
District of Columbia Reliability Statistics	SAIFI	SAIDI (Hours)
Excluding all cross-border feeders	0.44	1.07
Including all cross-border feeders	0.67	1.42
Table 2.4- B5		

*Note- COMAR is a Maryland cirteria and MSO is a DC criteria.
MSO and COMAR are not compatible with each other.

Table 2.4-B5

Comparison of Cross-Border Feeder Reliability Performance[50]

Pepco calculates reliability indices on a feeder level in the same way regardless of the location of a feeder. For feeders that have customers in both the District of Columbia and Maryland, the indices for these feeders are included for reporting purposes with the jurisdiction in which the majority of customers on these feeders reside. Because feeders may switch between jurisdictions over time, to make their impact on reliability performance

[50] The following is in response to the Commission's directive to:

> [I]nclude in its 2015 Annual Consolidated Report an explanation of the metric or metrics it will use to report upon the reliability performance of its cross-jurisdictional feeders. This explanation is also to describe how Pepco's chosen metric(s) will allow reliability performance to be compared from year-to-year, when the jurisdictional status of a feeder changes between Maryland and the District .

In The Matter of the Annual Consolidated Report of the Potomac Electric Power Company, Formal Case No.

PEPACR-2014-01, Order No. 17816 at P 241 (February 27, 2015).

clear, Pepco presents system reliability performance both with and without both feeders assigned to the District of Columbia and Maryland, thereby allowing comparisons across different years.

PEPCO 4 & 13KV CROSS JURISDICTIONAL FEEDERS SERVING MAJORITY DC CUSTOMERS

(Based on customers served, not physical presence)

Feeder No.	Substation Name	Substation No.	Substation Name	Substation No.	MD Customers	DC Customers	% UG	% OH
120	Chesapeake Street	181	-	-	2	560	4%	96%
183	Chesapeake Street	181	-	-	145	388	13%	87%
205	Seat Pleasant	30	Fort Chaplin	70	3	504	1%	99%
308	Harrison	38-6	Westmoreland	93	4	569	33%	67%
327	Fort Dupont	58	Texas Ave.	111	59	245	5%	95%
328	Fort Dupont	58	Fort Davis	100	54	351	2%	98%
333	Chesapeake Street	181	-	-	59	498	9%	91%
366	Seat Pleasant	30	53rd Street, SE	48	5	500	3%	97%
368	53rd Street, SE	48	Fort Davis	100	63	522	4%	96%
372	Seat Pleasant	30	53rd Street, SE	48	195	559	3%	97%
388	53rd Street, SE	48	-	-	3	627	3%	97%
451	Fort Davis	100	Texas Ave.	111	80	128	4%	96%
476	Quesada	89	Oliver Street	146	3	307	17%	83%
14014	12th & Irving	133	-	-	692	1507	8%	92%
14015	12th & Irving	133	-	-	109	1338	13%	87%
14016	12th & Irving	133	-	-	25	636	38%	62%
14031	Suitland	134	-	-	263	993	13%	87%
14035	Suitland	134	-	-	212	850	20%	80%
14261	Beech Road	159	-	-	373	945	8%	92%
14352	Harrison	38	-	-	4	32	100%	0%
14717	Benning	7	-	-	82	2582	14%	86%
14758	N.R.L.	168	-	-	1	2162	34%	66%
14890	Harrison	38	-	-	150	177	32%	68%
14893	Harrison	38	-	-	6	9	100%	0%
14900	Harrison	38	-	-	285	1057	26%	74%
14987	Grant Avenue	183	-	-	925	1196	24%	76%
15085	St. Barnabas Road	59	-	-	760	807	37%	63%
15094	Bladensburg	175	-	-	1039	1432	61%	39%
15130	Walker Mill Road	15	-	-	774	1231	33%	67%
15171	Alabama Avenue	136	-	-	7	1794	42%	58%
15198	Takoma	27	-	-	97	1612	18%	82%
15199	Takoma	27	-	-	251	1699	29%	71%
15648	Little Falls	77	-	-	0	1	100%	0%
15649	Little Falls	77	-	-	1	0	100%	0%
15705	Benning	7	-	-	33	2025	30%	70%
15944	Van Ness	129	-	-	85	1452	13%	87%

Note: Feeders 15648 and 15649 supply the Dalecarlia Pumping Station (DC) and the Army Map Service (MD)

Table 2.4-B6

Note: Feeders with two source substations listed are 4 kV primary network feeders and are supplied from two substations.

Table 2.4-B6

PEPCO 4 & 13KV CROSS JURISDICTIONAL FEEDERS SERVING MAJORITY MARYLAND CUSTOMERS

(Based on customers served, not physical presence)

Feeder No.	Substation Name	Substation No.	Substation Name	Substation No.	MD Customers	DC Customers	% UG	% OH
152	Fort Dupont	58	Randle Highlands	71	184	149	2%	98%
365	53rd Street, SE	48	Fort Dupont	58	503	207	13%	87%
14032	Suitland	134	-	-	563	73	26%	74%
14033	Suitland	134	-	-	1698	258	13%	87%
14102	Tuxedo	148	-	-	910	60	9%	91%
14263	Linden	156	-	-	1821	72	20%	80%
14271	Linden	156	-	-	723	610	23%	77%
14593	Sligo	9	-	-	15	3	100%	0%
14595	Sligo	9	-	-	112	1	100%	0%
14768	Little Falls	77	-	-	1289	2	26%	74%
14896	Harrison	38	-	-	607	350	14%	86%
14949	Wood Acres	154	-	-	1377	21	7%	93%
14979	Grant Avenue	183	-	-	1033	193	6%	94%
15082	St. Barnabas Road	59	-	-	2025	189	61%	39%
15086	St. Barnabas Road	59	-	-	602	195	32%	68%
15090	St. Barnabas Road	59	-	-	1376	62	11%	89%
15100	Bladensburg	175	-	-	668	648	46%	54%
15131	Walker Mill Road	15	-	-	1289	341	42%	58%
15132	Walker Mill Road	15	-	-	1810	104	20%	80%
15200	Takoma	27	-	-	833	595	14%	86%
15264	Takoma	27	-	-	991	649	14%	86%
15501	Little Falls	77	-	-	36	22	100%	0%
15502	Little Falls	77	-	-	17	6	100%	0%
15503	Little Falls	77	-	-	15	3	100%	0%
15504	Little Falls	77	-	-	153	1	100%	0%
15505	Little Falls	77	-	-	45	0	100%	0%
15506	Little Falls	77	-	-	433	9	100%	0%

15501- 15506 are part of the Little Falls Network Group and all are involved in serving at least one DC customer

14593 is part of the Sligo South LVAC Network group that supplies mainly Maryland Customers.

Table 2.4-B7

Note: Feeders with two source substations listed are 4 kV primary network feeders and are supplied from two substations.

Table 2.4-B7