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February 28, 2013

Paul Clanon Executive Director California Public Utilities Commission 505 Van Ness Avenue San Francisco, CA 94102

Re: San Diego Gas & Electric Company (SDG&E) Electric System Reliability Annual Report

for 2012

Dear Mr. Clanon,

Pursuant to Ordering Paragraph 1 of D.96-09-045, SDG&E hereby submits its Electric System Reliability Report for the calendar year ended December 31, 2012.

As detailed in SDG&E Advice Letter 2256-E (approved June 9, 2011), this report provides SDG&E's Historical System Reliability Data based on IEEE 1366 exclusion criteria, in addition to the Historical System Reliability Data based on D.96-09-045 exclusion criteria.

If there are any questions concerning the enclosed information, please contact Megan Caulson at (858) 654-1748.

Sincerely,

Megan Caulson Regulatory Tariff Manager

Encl.

cc: Edward Randolph, Energy Division

David Lee, Energy Division

Mike Olson, SDG&E



# ELECTRIC SYSTEM RELIABILITY ANNUAL REPORT

2012



Prepared for California Public Utilities Commission

**February 14, 2012** 

#### **EXECUTIVE SUMMARY**

This Electric System Reliability Annual Report for 2012 has been prepared in response to CPUC Decision 96-09-045. This Decision established additional reliability recording, calculation, and reporting requirements for SDG&E.

The data in this report is presented in tabular form. All statistics and calculations include forced transmission, substation, and distribution outages, and exclude planned outages. Forced outages are those that are not prearranged. For the purposes of this report, sustained outages are those outages that lasted more than 5 minutes in duration, while momentary outages are those outages that lasted 5 minutes or less in duration.

The reliability indicators that are tracked are as follows:

- 1. SAIDI (System Average Interruption Duration Index) minutes of sustained outages per customer per year.
- 2. SAIFI (System Average Interruption Frequency Index) number of sustained outages per customer per year.
- 3. MAIFI (Momentary Average Interruption Frequency Index) number of momentary outages per customer per year.
- 4. SAIDET\* (System Average Interruption Duration Index Exceeding Threshold) minutes of sustained outages per customer per year exceeding a defined annual threshold of 150 minutes.
- 5. ERT\* (Estimated Restoration Time) sum of the weighted accuracy of each outage divided by the number of customers who experienced an outage. Weighted accuracy is determined by using the time in play and number of customers who received accurate estimates.

The measurement of each reliability performance indicator excludes CPUC major events and events that are the direct result of failures in the ISO-controlled bulk power market, or non-SDG&E owned transmission and distribution facilities. A Major Event is defined in CPUC Decision 96-09-045 as an event that meets at least one of the following criteria:

- (a) The event is caused by earthquake, fire, or storms of sufficient intensity to give rise to a state of emergency being declared by the government, or
- (b) Any other disaster not in (a) that affects more than 15% of the system facilities or 10% of the utility's customers, whichever is less for each event.

<sup>\*</sup> Introduced as new reliability indices in 2008 as a result of SDGE's General Rate Case Application: (A) 06-12-009 and resulting decision (D) 08-07-046

This report also provides SDG&E's Historical System Reliability Data based on IEEE 1366 exclusion criteria (shown on Page 2), in addition to the Historical System Reliability Data based on D. 96-09-045 exclusion criteria (shown on Page 1).

A summary of 2012 performance is as follows:

CRITERIA	SAIDI	SAIFI	MAIFI	SAIDET	ERT
Including CPUC Major Events (2012)	64.63	0.533	0.301	_	-
Excluding CPUC Major Events (2012)	64.38	0.532	0.301	31.80	32%
10-Year Average (2003-2012) Including CPUC Major Events	153.69	0.723	0.496	_	_
10-Year Average (2003-2012) Excluding CPUC Major Events	62.92	0.552	0.477	_	_

The CPUC Major Events that were declared in 2012 are shown in the following table. Restricted access by a governmental agency that precludes or otherwise delays outage restoration times are considered CPUC Major Events and excluded from reliability results.

Month/Day	SAIDI	SAIFI	Sustained Customer Impact	MAIFI	Momentary Customer Impact	Event Cause(s)
January 6 -7	0.02	0.000	402	0.00	526	Restricted Access by Fire Dept.
April 9	0.00	0.000	13	-	16	Fire Dept. Request to De-energize
September 23 -24	0.14	0.000	167	-	-	Fire Dept. Request to De-energize
November 2	0.09	0.001	1,158	-	1	Fire Dept. Request to De-energize

In 2012, approximately 1,354 customers within SDG&E's service territory experienced more than one 5 minute (or longer) outage per month on a rolling annual average basis, after exclusion of CPUC Major Events.

### **TABLE OF CONTENTS**

HISTORICAL SYSTEM RELIABILITY DATA (USING D.96-09-045 EXCLUSION CRITERIA)	
HISTORICAL SYSTEM RELIABILITY DATA (USING IEEE 1366 EXCLUSION CRITERIA)	2
TEN LARGEST OUTAGE EVENTS IN 2012*	3
TEN LARGEST OUTAGE EVENTS IN 2011*	4
TEN LARGEST OUTAGE EVENTS IN 2010*	5
TEN LARGEST OUTAGE EVENTS IN 2009*	6
TEN LARGEST OUTAGE EVENTS IN 2008*	7
TEN LARGEST OUTAGE EVENTS IN 2007*	8
TEN LARGEST OUTAGE EVENTS IN 2006*	9
TEN LARGEST OUTAGE EVENTS IN 2005*	10
TEN LARGEST OUTAGE EVENTS IN 2004*	
TEN LARGEST OUTAGE EVENTS IN 2003*	
EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2012	13
EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2011	14
EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2010	15
EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2009	18
EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2008	19
EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2007	20
EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2006	23
EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2005	24
EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2004	27
EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2003	28
CUSTOMERS EXPERIENCING MORE THAN 12 SUSTAINED OUTAGES IN A ROLLING 12-MONTH PERIOD (EXCLUDING CPUC MAJOR EVENTS) FOR 2012	A 31

CUSTOMERS EXPERIENCING MORE THAN 12 SUSTAINED OUTAGES IN A ROLLING 12-MONTH PERIOD (EXCLUDING CPUC MAJOR EVENTS) FOR 2011
CUSTOMERS EXPERIENCING MORE THAN 12 SUSTAINED OUTAGES IN A ROLLING 12-MONTH PERIOD (EXCLUDING CPUC MAJOR EVENTS) FOR 2010
CUSTOMERS EXPERIENCING MORE THAN 12 SUSTAINED OUTAGES IN A ROLLING 12-MONTH PERIOD (EXCLUDING CPUC MAJOR EVENTS) FOR 2009
CUSTOMERS EXPERIENCING MORE THAN 12 SUSTAINED OUTAGES IN A ROLLING 12-MONTH PERIOD (EXCLUDING CPUC MAJOR EVENTS) FOR 2008
CUSTOMERS EXPERIENCING MORE THAN 12 SUSTAINED OUTAGES IN A ROLLING 12-MONTH PERIOD (EXCLUDING CPUC MAJOR EVENTS) FOR 2007
CUSTOMERS EXPERIENCING MORE THAN 12 SUSTAINED OUTAGES IN A ROLLING 12-MONTH PERIOD (EXCLUDING CPUC MAJOR EVENTS) FOR 2006
CUSTOMERS EXPERIENCING MORE THAN 12 SUSTAINED OUTAGES IN A ROLLING 12-MONTH PERIOD (EXCLUDING CPUC MAJOR EVENTS) FOR 2005
CUSTOMERS EXPERIENCING MORE THAN 12 SUSTAINED OUTAGES IN A ROLLING 12-MONTH PERIOD (EXCLUDING CPUC MAJOR EVENTS) FOR 2004
CUSTOMERS EXPERIENCING MORE THAN 12 SUSTAINED OUTAGES IN A ROLLING 12-MONTH PERIOD (EXCLUDING CPUC MAJOR EVENTS) FOR 2003

### HISTORICAL SYSTEM RELIABILITY DATA (USING D.96-09-045 EXCLUSION CRITERIA)

	All Forced	Interruption	s Included			CPI	JC Major	Events Excluded
Year	SAIDI	SAIFI	MAIFI	SAIDI	SAIFI	MAIFI	No. of Events	Event Cause(s)
2003	298.45	0.860	0.869	76.14	0.717	0.845	2	Firestorm 2003 (1), Wind Storm Affecting >15% of Facilities (1)
2004	93.19	0.672	0.614	78.75	0.615	0.610	5	Fires (3), Interruptions Due to Non- SDG&E Facilities (1), December Storm (1)
2005	61.99	0.637	0.602	58.46	0.567	0.568	10	Fires (4), Interruptions Due to Non- SDG&E Facilities (4), Storms (2)
2006	52.83	0.545	0.494	52.65	0.541	0.494	9	Fires (6), Interruptions Due to Non-SDG&E Facilities (3)
2007	182.17	0.590	0.572	52.00	0.481	0.527	8	State of Emergency Declared (2), Interruptions Due to Non-SDG&E Facilities (2), Load Curtailment (1), Request to De-energize/ Restricted Access (3)
2008	59.17	0.517	0.380	58.92	0.515	0.378	9	Fires (2), Request to De-energize/ Restricted Access (7)
2009	67.06	0.542	0.380	66.01	0.538	0.380	4	Fires (1), Interruptions Due to Non- SDG&E Facilities (1), Request to De- energize/ Restricted Access (2)
2010	89.77	0.863	0.510	67.74	0.543	0.431	12	Storms (2), Interruptions Due to Non- SDG&E Facilities (6), Load Curtailment (1), Request to De-energize/ Restricted Access (3)
2011	567.59	1.472	0.239	54.14	0.473	0.239	5	Requests to De-energize (2), Restricted Access (1), Southwest Electrical Outage (1), Interruptions Due to Non-SDG&E Facilities (1)
2012	64.63	0.533	0.301	64.38	0.532	0.301	4	Restricted Access (1), Requests to De- energize (3)

### HISTORICAL SYSTEM RELIABILITY DATA (USING IEEE 1366 EXCLUSION CRITERIA)

	All Force	ed Interruptions	Included	Threshold M	lajor Event Day	ys Excluded *
Year	SAIDI	SAIFI	MAIFI	SAIDI	SAIFI	MAIFI
2003	298.45	0.860	0.869	81.49	0.698	0.856
2004	93.19	0.672	0.614	78.83	0.619	0.610
2005	61.99	0.637	0.602	61.99	0.637	0.602
2006	52.83	0.545	0.494	52.83	0.545	0.494
2007	182.17	0.590	0.572	54.89	0.477	0.530
2008	59.17	0.517	0.380	59.17	0.517	0.380
2009	67.06	0.542	0.380	49.71	0.466	0.362
2010	89.77	0.863	0.510	63.36	0.520	0.444
2011	567.59	1.472	0.239	53.43	0.471	0.239
2012	64.63	0.533	0.301	64.63	0.533	0.301

<sup>\*</sup> Per IEEE Standard 1366-2003 "2.5 beta method" for determining excludable days, days are excluded from a given year's metric if their SAIDI exceeds 2.5 times the standard deviation of daily SAIDI over the previous five year period.

### **TEN LARGEST OUTAGE EVENTS IN 2012\***

Rank	Date	Description	SAIDI Impact	SAIFI Impact	CPUC Major Event?	Total Number of Customers Affected	Longest Customer Interruption (minutes)	Number of People Used to Restore Service
1	September 9 - 11	September 9th - Storm	1.64	0.019	No	26,024	1,126	Not Available
2	June 23 - 24	Faulted Underground Cable	1.48	0.003	No	4,430	680	Not Available
3	July 12 -13	Faulted Tee and Circuit Breaker	1.45	0.014	No	20,177	686	Not Available
4	May 28	Faulted Tee	1.27	0.002	No	3,174	626	Not Available
5	May 6 - 7	Faulted Connector	0.79	0.003	No	4,608	501	Not Available
6	February 27 - 28	February 27 - Storm	0.76	0.004	No	5,760	1,000	Not Available
7	April 28	Faulted Switch	0.67	0.002	No	2,643	467	Not Available
8	March 26	Faulted Glass Insulator	0.64	0.003	No	4,288	209	Not Available
9	August 12 - 13	Damaged Overhead Conductor and Underground Cable	0.63	0.003	No	4,535	1,024	Not Available
10	March 17 - 21	March 17 - Storm	0.62	0.004	No	6,006	3,000	Not Available

<sup>\*</sup>Based on SAIDI impact.

### **TEN LARGEST OUTAGE EVENTS IN 2011\***

Rank	Date	Description	SAIDI Impact	SAIFI Impact	CPUC Major Event?	Total Number of Customers Affected	Longest Customer Interruption (minutes)	Number of People Used to Restore Service
1	September 8 - 9	Pacific Southwest Electrical Outage	513.40	0.999	Yes	1,387,249	981	Not Available
2	June 28 - 29	Faulted Circuit Breaker	1.52	0.004	No	5,147	539	Not Available
3	October 16 - 17	Faulted Underground Cable	0.68	0.002	No	2,422	1,054	Not Available
4	March 15 - 16	Faulted Tee	0.64	0.004	No	5,257	704	Not Available
5	August 4 - 5	Faulted Underground Cable	0.57	0.004	No	5,285	706	Not Available
6	August 28 - 29	Storm	0.51	0.003	No	4,314	1,170	Not Available
7	October 22	Faulted Tee	0.48	0.004	No	5,096	609	Not Available
8	December 23 - 24	Vehicle Contact	0.45	0.001	No	1,210	1,543	Not Available
9	June 29	Faulted Underground Cable	0.44	0.002	No	2,140	453	Not Available
10	November 4	Faulted Cutout	0.43	0.006	No	7,841	77	Not Available

<sup>\*</sup>Based on SAIDI impact.

### **TEN LARGEST OUTAGE EVENTS IN 2010\***

Rank	Date	Description	SAIDI Impact	SAIFI Impact	CPUC Major Event?	Total Number of Customers Affected	Longest Customer Interruption (minutes)	Number of People Used to Restore Service
1	January 18 - 22	Heavy Rain Storm	12.61	0.085	Yes	117,558	1,752	Not Available
2	December 20 - 23	Heavy Rain Storm	4.93	0.023	Yes	31,376	1,758	Not Available
3	April 1	ISO Ordered Load Curtailment	4.40	0.211	Yes	290,945	43	Not Available
4	September 30 - October 5	Heavy Rain and Lightning Storm	2.88	0.036	No	50,155	1,343	Not Available
5	January 5 - 6	Faulted Tee	1.57	0.004	No	5,111	760	Not Available
6	September 26 - 28	Heat Storm	1.42	0.010	No	13,531	624	Not Available
7	September 30 - October 1	Vehicle Contact	1.34	0.004	No	5,503	1,074	Not Available
8	October 21	Vehicle Contact	1.33	0.002	No	2,753	1,341	Not Available
9	April 4 - 5	Earthquake	1.22	0.003	No	4,512	651	Not Available
10	October 19 - 20	Heavy Rain and Lightning Storm	1.12	0.014	No	18,873	718	Not Available

<sup>\*</sup>Based on SAIDI impact.

### **TEN LARGEST OUTAGE EVENTS IN 2009\***

Rank	Date	Description	SAIDI Impact	SAIFI Impact	CPUC Major Event?	Total Number of Customers Affected	Longest Customer Interruption (minutes)	Number of People Used to Restore Service
1	December 7 - 10	December Storm**	11.68	0.045	No	61,783	3,624	Not Available
2	December 13 - 14	Overhead Equipment Failure	4.49	0.016	No	21,956	1,099	Not Available
3	August 20 - 21	Vehicle Contact	1.05	0.004	Yes	5,031	970	Not Available
4	June 3 - 4	Lightning Storm	0.97	0.006	No	7,909	1,204	Not Available
5	February 9 - 10	Heavy Rain and Snow Storm	0.86	0.009	No	12,304	1,686	Not Available
6	December 7 -8	Underground Equipment Failure**	0.60	0.003	No	3,889	1,082	Not Available
7	November 18 - 19	Faulted Cable	0.53	0.003	No	4,322	950	Not Available
8	November 28 - 29	Heavy Rain Storm	0.50	0.006	No	8,779	756	Not Available
9	November 23 - 24	Underground Equipment Failure	0.48	0.003	No	4,045	544	Not Available
10	November 9 -10	Heavy Equipment Dig-In	0.47	0.005	No	7,458	1,167	Not Available

<sup>\*</sup> Based on SAIDI impact.

<sup>\*\*</sup> The information for both the Dec. 7-10 and Dec. 7-8 events have been updated since the filing of the 2009 annual report. The above figures represent the corrected values. An underground equipment failure was inadvertently associated with the December storm event. This had no impact on the filed SAIDI, SAIFI, and MAIFI impacts when excluding CPUC events.

### **TEN LARGEST OUTAGE EVENTS IN 2008\***

Rank	Date	Description	SAIDI Impact	SAIFI Impact	CPUC Major Event?	Total Number of Customers Affected	Longest Customer Interruption (minutes)	Number of People Used to Restore Service
1	December 17 - 22	Heavy Rain and Snow Storm throughout Service Territory, Part II	3.51	0.010	No	13,113	6,783	Not Available
2	January 5 - 8	Rain & Lightning Storm throughout Service Territory	1.33	0.011	No	15,438	1,731	Not Available
3	December 15	Heavy Rain and Snow Storm throughout Service Territory, Part I	1.02	0.006	No	8,421	421	Not Available
4	May 31	C138 & HC3 Tree Contact (also affecting C139 & 4kVs)	0.92	0.003	No	3,735	746	Not Available
5	October 19	C213 - Damaged Underground Cable	0.91	0.001	No	2,035	942	Not Available
6	June 22 - 23	C990 - Faulted Terminator	0.67	0.002	No	2,198	870	Not Available
7	April 8 - 9	C486 - Motor Vehicle Contact, Terminator and Cable Replaced	0.61	0.003	No	4,708	910	Not Available
8	December 25 - 26	C286 & EN2 - Multiple Circuits affected during Restoration	0.58	0.004	No	5,364	601	Not Available
9	May 23	C159 - Pothead Failure	0.56	0.002	No	3,178	298	Not Available
10	September 24	Bank 20 Bad Relay affecting circuits WA3, WA4, WA5 and WA6	0.56	0.004	No	6,128	178	Not Available

<sup>\*</sup>Based on SAIDI impact.

### **TEN LARGEST OUTAGE EVENTS IN 2007\***

Rank	Date	Description	SAIDI Impact	SAIFI Impact	CPUC Major Event?	Total Number of Customers Affected	Longest Customer Interruption (minutes)	Number of People Used to Restore Service
1	October 21 - November 24	Firestorm 2007 - Declaration of State of Emergency	128.42	0.055	Yes	74,088	40,453	Not Available
2	September 1 - 4	HEATWAVE 2007 (Labor Day Weekend)	1.59	0.010	No	13,662	833	Not Available
3	October 22	ISO Request - Load Curtailment during Firestorm 2007	1.18	0.051	Yes	68,826	34	Not Available
4	June 04	Laguna Niguel Outages - Faulted CB impacted Bus	1.15	0.016	No	21,425	254	Not Available
5	August 30	TL 629 & TL 6946 Lightning Contact on Swi 629-8	1.09	0.003	No	4,117	359	Not Available
6	July 28	Circuit 582 Underground Cable Failure	1.01	0.002	No	2,761	606	Not Available
7	October 11	Paradise Substation Bank 42 Lightning Arrestor Failure	0.80	0.017	No	23,121	85	Not Available
8	September 15 - 17	Circuit 221 Pine Valley Fire	0.77	0.000	No	585	2,942	Not Available
9	January 12 - 13	Circuits WA3, WA4, and UP1 - Downed Overhead Conductor	0.66	0.003	No	4,052	347	Not Available
10	December 25 - 26	Circuit EOS2 - Connector Failure	0.57	0.001	No	1,349	614	Not Available

<sup>\*</sup>Based on SAIDI impact.

<sup>\*\*</sup>The information for the largest event was inadvertently under reported in the 2007 annual report and has since been corrected above. This had no impact on the filed SAIDI, SAIFI, and MAIFI impacts when excluding CPUC events.

### **TEN LARGEST OUTAGE EVENTS IN 2006\***

Rank	Date	Description	SAIDI Impact	SAIFI Impact	CPUC Major Event?	Total Number of Customers Affected	Longest Customer Interruption (minutes)	Number of People Used to Restore Service
1	July 22 - 23**	Heat Storm	2.89	0.020	No	26,477	1,280	Not Available
2	March 10 - 14	Storm / Winds	1.98	0.003	No	4,501	4,160	Not Available
3	July 21	TL 685 - Misoperation of a Relay (7 Substations)	1.84	0.033	No	45,007	55	Not Available
4	July 15 - 17	Lighting/ Heat Storm	1.03	0.009	No	12,048	869	Not Available
5	January 2 - 3	Storm / Winds	0.68	0.011	No	15,329	811	Not Available
6	June 15	Circuits 416 and 76 Private Motor Vehicle Contact	0.60	0.002	No	3,124	644	Not Available
7	September 6 - 7	Circuits 509 and 506 Private Motor Vehicle Contact	0.53	0.002	No	2,908	946	Not Available
8	May 23	Circuit 592 Damaged Connector Failure	0.49	0.002	No	3,246	397	Not Available
9	May 26	Circuit 1077 Private Motor Vehicle Contact	0.42	0.002	No	2,158	636	Not Available
10	July 31 - August 1	Circuit WY1 - Vegetation Contact	0.42	0.001	No	1,070	1,058	Not Available

<sup>\*</sup> Based on SAIDI impact.

\*\* Includes outages initiated on July 23<sup>rd</sup> and restored on July 24<sup>th</sup>.

### **TEN LARGEST OUTAGE EVENTS IN 2005\***

Rank	Date	Description	SAIDI Impact	SAIFI Impact	CPUC Major Event?	Total Number of Customers Affected	Longest Customer Interruption (minutes)	Number of People Used to Restore Service
1	September 19	September Storm	2.78	0.015	No	19,399	1,447	Not Available
2	July 28	Laguna Niguel Transmission Event	1.57	0.028	No	37,267	72	Not Available
3	August 25	Poway, Escondido, Cannon Sub - Load Curtailment	1.36	0.039	Yes	51,411	51	Not Available
4	February 18	February Storms	1.35	0.024	Yes	31,885	2,495	Not Available
5	July 23	Lightning Storm July	1.20	0.013	No	17,309	1,450	Not Available
6	October 6	Damaged OH Switch	0.89	0.004	No	5,226	468	Not Available
7	April 22	Poway Sub	0.89	0.008	No	10,896	108	Not Available
8	February 22	Vehicle Contact	0.82	0.003	No	4,143	310	Not Available
9	February 2	Feb 2nd storm	0.77	0.005	No	6,361	904	Not Available
10	January 3	January Storms	0.75	0.005	Yes	7,156	2,146	Not Available

<sup>\*</sup>Based on SAIDI impact.

### **TEN LARGEST OUTAGE EVENTS IN 2004\***

Rank	Date	Description	SAIDI Impact	SAIFI Impact	CPUC Major Event?	Total Number of Customers Affected	Longest Customer Interruption (minutes)	Number of People Used to Restore Service
1	Dec. 28 - 31	December 2004 Storm	14.41	0.056	Yes	74,000	2,074	Not Available
2	Dec. 1	Substation - Equipment Failure	2.88	0.017	No	22,716	393	Not Available
3	Jun. 12	Substation - Animal Contact	2.16	0.011	No	14,708	204	Not Available
4	Jan. 23 - 24	Conductor Failure	1.88	0.003	No	3,951	625	Not Available
5	Sep. 30 - Oct. 1	Private Vehicle Contact	1.51	0.003	No	4,322	459	Not Available
6	Oct. 17 - 21	Storm / Winds	1.24	0.013	No	16,833	1,026	Not Available
7	Dec. 5	Private Vehicle Contact	1.14	0.005	No	6,292	276	Not Available
8	Dec. 5	Connector Failure	1.10	0.004	No	5,824	502	Not Available
9	Nov. 10	Transmission Equipment Failure	0.82	0.004	No	5,095	414	Not Available
10	Dec. 5 - 6	Storm / Winds	0.78	0.001	No	1,265	808	Not Available

<sup>\*</sup>Based on SAIDI impact.

### **TEN LARGEST OUTAGE EVENTS IN 2003\***

Rank	Date	Description	SAIDI Impact	SAIFI Impact	CPUC Major Event?	Total Number of Customers Affected	Longest Customer Interruption (minutes)	Number of People Used to Restore Service
1	Oct. 26 - Nov. 25	Firestorm 2003	193.33	0.071	Yes	91,443	43,032	Not Available
2	Jan. 6 - 8	Storm / Winds	28.98	0.072	Yes	92,715	2,548	Not Available
3	Oct. 27 - 28	Substation - Animal Contact	3.10	0.017	No	22,285	227	Not Available
4	Dec. 25 - 26	Storm / Winds	3.00	0.017	No	21,611	1,303	Not Available
5	May 14 - 15	Transmission Line - Heavy Equipment Contact (Crane)	1.47	0.002	No	2,900	1,832	Not Available
6	Mar. 28 - 30	Storm / Winds	1.25	0.003	No	3,767	1,440	Not Available
7	Sep. 2 - 3	Storm / Winds	1.06	0.014	No	18,025	678	Not Available
8	Oct. 5 - 6	Underground Cable Failure	0.97	0.004	No	5,255	841	Not Available
9	Jan. 12	Substation - Animal Contact	0.97	0.014	No	17,990	73	Not Available
10	Sep. 19 - 20	Underground Cable Failure	0.88	0.004	No	5,334	1,010	Not Available

<sup>\*</sup>Based on SAIDI impact.

# EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2012 EXTRACTED FROM THE TEN LARGEST OUTAGE EVENTS

There were no CPUC Major Events from 2012 to be extracted.

		Total Number			Customers	s Interrupt	ed - Hours	Into the I	Event Day	*	
Date of Outage	Description of Outage	of Customers Out of Service	0	2	4	6	8	10	12	14	16
September 8 - 9	Pacific Southwest Electrical Outage	1,387,249	0	0	0	0	0	0	0	0	1,387,249
				Custo	mers Inter	rrupted - H	ours Into	the Event	Day (cont	inued)	
			18	20	22	24	26	28	30	32	34
			1,387,249	1,373,940	1,204,968	842,831	201,230	2,310	761	765	0

<sup>\*</sup>Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.

EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2010 EXTRACTED FROM THE TEN LARGEST OUTAGE EVENTS

		Total Number		Cu	stomers I	nterrupte	ed - Hour	s Into the	Event C	ay*	
Date of Outage	Description of Outage	of Customers Out of Service	0	2	4	6	8	10	12	14	16
January 18 - 22	Heavy Rain Storm	117,558	0	0	0	0	0	0	4,482	12,271	4,618
				Custome	rs Interru	ipted - He	ours Into	the Ever	nt Day (co	ontinued)	
			18	20	22	24	26	28	30	32	34
			4,974	884	568	491	492	489	483	565	110
				Custome	rs Interru	ıpted - H	ours Into	the Ever	nt Day (co	ontinued)	
			36	38	40	42	44	46	48	50	52
			50,447	26,607	10,492	7,046	5,131	4,272	993	797	517
				Custome	rs Interru	ipted - H	ours Into	the Ever	nt Day (co	ontinued)	
			54	56	58	60	62	64	66	68	70
			269	279	115	91	8,380	4,603	2,138	754	753
					rs Interru	ipted - H	ours Into	the Ever	nt Day (co	ontinued)	
			72	74	76	78	80	82	84	86	88
			385	385	18,984	15,114	6,600	30,186	10,106	13,140	3,475
				_	rs Interru	•					
			90	92	94	96	98	100	102	104	106
			2,352	2,806	4,638	448	102	17,158	18,330	5,084	420
					rs Interru						
			108	110	112	114	116	118	120	122	124
***************************************	dia da disente de como esta in de de elloco		490	465	3,093	271	155	0	0	0	0

<sup>\*</sup>Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.

# EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2010 EXTRACTED FROM THE TEN LARGEST OUTAGE EVENTS

		Total Number		Cus	stomers I	nterrupte	ed - Hour	s Into the	Event D	ay*	
Date of Outage	Description of Outage	of Customers Out of Service	0	2	4	6	8	10	12	14	16
April 1	ISO ordered mandatory load curtailment	290,945	290,945	0	0	0	0	0	0	0	0

## EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2010 EXTRACTED FROM THE TEN LARGEST OUTAGE EVENTS

		Total Number		Cu	stomers I	nterrupte	ed - Hour	s Into the	e Event D	ay*	
Date of Outage	Description of Outage	of Customers Out of Service	0	5	10	15	20	25	30	35	40
December 20 - 23	Heavy Rain Storm	31,376	0	110	5,326	12,271	7,252	4,618	2,769	4,974	2,983
				Custome	rs Interru	ipted - H	ours Into	the Ever	nt Day (co	ontinued	
			45	50	55	60	65	70	75	80	85
			884	884	568	593	491	517	492	492	489
				Custome	rs Interru	ıpted - H	ours Into	the Ever	nt Day (co	ontinued	
			90	95	100	105	110	115	120	125	130
			489	483	474	565	583	110	24,456	50,447	38,085
					rs Interru	•			<u>, , , , , , , , , , , , , , , , , , , </u>		
			135	140	145	150	155	160	165	170	175
			26,607	15,698	10,492	9,863	7,046	6,168	5,131	4,325	4,272
					rs Interru	•	_	_			•
			180	185	190	195	200	205	210	215	220
			3,146	993	967	797	793	517	780	269	269
			225	Custome 230	rs Interru 235	upted - He 240	ours Into 245	the Ever	nt Day (co		•
										260	265
			279	276	115	116	91	5,061	8,380	7,127	4,603
			270	275	rs Interru 280	іртеа - н 285	290	295	300	305	310
			2.380	2.138	772	754	754	753	731	385	385
			,	,	ers Interru						
			315	320	325	330	335	340	345	350	355
			385	7,378	18,984	16,315	15,114	7,157	0	0	0

<sup>\*</sup>Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.

## **EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2009 EXTRACTED FROM THE TEN LARGEST OUTAGE EVENTS**

				Cus	stomers I	nterrupte	ed - Hour	s Into the	e Event D	ay*	
Date of Outage	Description of Outage	Total Number of Customers Out of Service	2	4	6	8	10	12	14	16	18
August 20 - 21	Vehicle Contact	5,031	0	0	0	0	0	0	0	0	0
				Custome	rs Interru	ıpted - H	ours Into	the Ever	nt Day (co	ontinued)	
			20	22	24	26	28	30	32	34	36
			0	5,031	2,958	1,102	1,102	1,102	1,102	1,102	1,102
				Custome	rs Interru	ıpted - H	ours Into	the Ever	nt Day (co	ontinued)	
			38	40	42	44	46	48	50	52	54
	lie the time in communication had all an		1,102	0	0	0	0	0	0	0	0

<sup>\*</sup>Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.

# EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2008 EXTRACTED FROM THE TEN LARGEST OUTAGE EVENTS

There were no CPUC Major Events from 2008 to be extracted.

		Total Number		Cus	stomers I	nterrupte	ed - Hour	s Into the	e Event D	ay*	
Date of Outage	Description of Outage	of Customers Out of Service	0	5	10	15	20	25	30	35	40
October 21 - November 24	Firestorm 2007 - Declaration of State	74,088	0	0	994	5,847	1,439	4,016	26,645	25,770	23,560
November 24	of Emergency			Custome	rs Interru	ıpted - H	ours Into	the Ever	nt Day (co	ontinued)	
			45	50	55	60	65	70	75	80	85
			21,810	21,651	16,940	21,349	17,522	18,435	17,213	17,263	20,582
					rs Interru						·
			90	95	100	105	110	115	120	125	130
			18,341	17,699	17,699	17,927	17,503	14,693	14,012	13,117	13,064
					rs Interru						
			135	140	145	150	155	160	165	170	175
			11,787	10,935	9,682	8,676	8,640	7,881	6,755	6,503	7,801
					rs Interru	•					
			180	185	190	195	200	205	210	215	220
			6,582	5,670	4,791	4,786	5,154	4,700	4,702	4,104	4,104
			225	230	rs Interru 235	1pted - H	ours into	the Ever	1t Day (co	260	265
			4,111	4,105	3,010 rs Interru	2,862	2,862	2,862	3,455	3,568	2,911
			270	275	280	285	290	295	300	305	310
			2,725	2,986	3.008	2.303	2,303	2,358	2,277	3,211	1,946
					rs Interru	,	<u> </u>	<u> </u>			
			315	320	325	330	335	340	345	350	355
			1,882	1,882	2,141	2,107	1,825	1,825	1,825	2,296	1,734
			·	Custome	rs Interru	ıpted - H		the Ever	nt Day (co	ontinued)	
			360	365	370	375	380	385	390	395	400
	d in the time increments include all quat		1,540	1,540	2,657	1,472	1,506	1,211	2,292	1,255	1,985

<sup>\*</sup>Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.

<sup>\*\*</sup>The total customer impact as well as customers out of service for hours 35, 45, and 50 were inadvertently incorrectly reported and have since been corrected. This had no impact on the filed SAIDI, SAIFI, and MAIFI impacts for Non-CPUC events.

# EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2007 EXTRACTED FROM THE TEN LARGEST OUTAGE EVENTS\*\*

				Custome	rs Interru	ıpted - H	ours Into	the Ever	nt Day (co	ontinued)	
Date of Outage	Description of Outage	Total Number of Customers Out of Service	405	410	415	420	425	430	435	440	445
October 21 - November 24	Firestorm 2007 - Declaration of State of Emergency	74,088	1,036	987	987	994	861	721	721	811	692
November 24	(Continued)			Custome	rs Interru	ıpted - H	ours Into	the Ever	nt Day (co	ontinued)	)
	,		450	455	460	465	470	475	480	485	490
			883	410	410	456	504	225	225	225	216
				Custome	rs Interru	ıpted - H	ours Into	the Ever	nt Day (c	ontinued)	
			495	500	505	510	515	520	525	530	535
			49	9	6	6	6	6	6	6	6
						•			- ,	ontinued)	•
			540	545	550	555	560	565	570	575	580
			31	31	6	6	6	6	6	6	6
						-				ontinued)	
			585	590	595	600	605	610	615	620	625
			6	6	6	6	6	6	6	6	6
						•				ontinued)	
			630	635	640	645	650	655	660	665	670
			6	6	6	6	6	6	6	6	6
										ontinued)	
			675	680	685	690	695	700	705	710	715
			6	6	6	6	6	6	6	6	6
			720	Custome 730	rs Interru 740	750	ours Into 760	the Ever	nt Day (co	ontinued) 790	800
			0	0	0	0	0	0 <b>45 a F</b> ver	0	0	0
			Customers Interrupted - Hours Into the Event Day (continued)								
			810	815	820	825	830	835	840	845	850
	d in the time increments include all cust		0	30	30	60	0	0	0	0	0

<sup>\*</sup>Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.

<sup>\*\*</sup>The total customer impact as well as customers out of service for hours 35, 45, and 50 were inadvertently incorrectly reported and have since been corrected. This had no impact on the filed SAIDI, SAIFI, and MAIFI impacts for Non-CPUC events.

		Total Number		Cu	stomers	Interrupt	ed - Hour	s Into the	e Event D	Day*	
Date of Outage	Description of Outage	of Customers Out of Service	2	4	6	8	10	12	14	16	18
October 22	ISO Request - Load Curtailment	68,826	0	0	0	0	0	0	0	68,826	0
	during Firestorm 2007			Custome	rs Interru	upted - H	ours Into	the Eve	nt Day (c	ontinued)	
			20	22	24	26	28	30	32	34	36
			0	0	0	0	0	0	0	0	0

<sup>\*</sup>Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.

# EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2006 EXTRACTED FROM THE TEN LARGEST OUTAGE EVENTS

There were no CPUC Major Events from 2006 to be extracted.

		Total Number		Cu	stomers I	nterrupt	ed - Hour	s Into th	e Event D	Day*	
Date of Outage	Description of Outage	of Customers Out of Service	2	4	6	8	10	12	14	16	18
January 3 -	January Storms - Declaration of State	7,156	0	0	0	0	0	25	68	43	123
January 13	of Emergency			Custome	rs Interru	ıpted - H	ours Into	the Eve	nt Day (c	ontinued)	
			20	38	40	42	44	110	112	114	116
			25	194	183	176	25	1,075	1,762	110	55
				Custome	rs Interru	ıpted - H	ours Into	the Eve	nt Day (c	ontinued)	
			118	120	130	132	134	136	166	168	170
			0	55	55	55	55	12	55	70	70
						-				ontinued)	
			172	174	176	178	180	182	184	186	194
			0	110	820	0	0	0	0	55	25
						•				ontinued)	
			196	198	200	202	204	206	208	210	212
			1179	577	258	215	98	135	135	135	110
						•				ontinued)	
			214	216	218	220	222	224	226	228	230
			122	110	110	110	110	110	110	110	110
						•				ontinued)	
			232	234	236	238	240	242	244	246	250
			110	110	110	110	110	0	0	0	0

<sup>\*</sup>Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.

\*\*The customers interrupted were inadvertently reported in the incorrect time slot in 2005. This table has been corrected in 2007; the adjustment had no affect on the reported SAIDI and SAIFI impacts for these events.

		Total Number		Cu	stomers I	nterrupt	ed - Hour	s Into th	e Event [	Day*	
Date of Outage	Description of Outage	of Customers Out of Service	2	4	6	8	10	22	32	34	36
February 18 -	February Storms - Declaration of State	31,885	0	0	155	52	226	25	36	1,506	608
February 25	of Emergency			Custome	ers Interru	ıpted - H	ours Into	the Eve	nt Day (c	ontinued)	
			38	40	42	44	46	48	50	52	54
			204	188	1,008	31	31	31	19	19	129
				Custome	ers Interru	ıpted - H	ours Into	the Eve	nt Day (c	ontinued)	
			56	58	60	62	64	66	68	70	72
			129	129	19	226	19	19	19	19	19
						ıpted - H	ours Into	the Eve	nt Day (c	ontinued)	
			74	76	78	80	82	84	86	88	90
			19	19	19	19	19	110	199	72	41
						ıpted - H	ours Into	the Eve	nt Day (c	ontinued)	
			92	94	96	104	108	110	112	114	124
			8	63	1	25	8	8	62	62	5067
						-			- ,	ontinued)	
			126	128	130	132	134	160	162	164	166
			191	690	577	19	1 1	84	358	860	540
						-			- ,	ontinued)	
			168	170	172	174	176	178	180	182	184
			460	234	87	31	31	7	7	7	0

<sup>\*</sup>Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.

\*\*The customers interrupted were inadvertently reported in the incorrect time slot in 2005. This table has been corrected in 2007; the adjustment had no affect on the reported SAIDI and SAIFI impacts for these events.

		Total Number		Cu	stomers l	nterrupte	ed - Hour	s Into the	Event D	ay*	
Date of Outage	Description of Outage	of Customers Out of Service	2	4	6	8	10	12	14	16	18
August 25	ISO ordered mandatory load curtailment	51,411	0	0	0	0	0	0	0	51,411	0

<sup>\*</sup>Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.

<sup>\*\*</sup>The customers interrupted were inadvertently reported in the incorrect time slot in 2005. This table has been corrected in 2007; the adjustment had no affect on the reported SAIDI and SAIFI impacts for these events.

		Total Number		Cus	stomers I	nterrupte	ed - Hour	s Into the	e Event D	ay*	
Date of Outage	Description of Outage	of Customers Out of Service	2	4	6	8	10	12	14	16	18
December 28 - 31	December Storm - Declaration of	74,000	0	0	0	31	3,725	5	30	1,381	48,480
	State of Emergency		Customers Interrupted - Hours Into the Event Day (continued)								
			20	22	24	26	28	30	32	34	36
			36,187	26,037	18,190	11,941	7,393	5,017	3,093	1,372	709
			Customers Interrupted - Hours Into the Event Day (continued)								
			38	40	42	44	46	48	50	52	54
				411	159	91	36	36	50	34	7
				Custome	rs Interru	ıpted - H	ours Into	the Ever	nt Day (co	ontinued)	
			56	58	60	62	64	66	68	70	72
			6	110	0	0	0	0	0	0	0

<sup>\*</sup>Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.

		Total Number		Cu	stomers I	nterrupt	ed - Hour	s Into the	e Event C	ay*	
Date of Outage	Description of Outage	of Customers Out of Service	2	4	6	8	10	12	14	16	18
January 6 - 8	January Storm - >15% of System	92,715	0	165	2,374	3,500	5,231	4,985	2,916	4,272	33
	Facilities Affected			Custome	rs Interru	ıpted - H	ours Into	the Eve	nt Day (co	ontinued	
			20	22	24	26	28	30	32	34	36
			2,908	2,875	299	8,799	42,386	62,337	44,408	34,801	29,472
				Custome	rs Interru	upted - H	ours Into	the Eve	nt Day (c	ontinued	
			38	40	42	44	46	48	50	52	54
			23,942	18,661	7,533	4,709	3,687	3,391	2,489	1,563	1,077
				Custome	rs Interru	ıpted - H	ours Into	the Eve	nt Day (c	ontinued	
			56	58	60	62	64	66	68	70	72
			1,021	648	581	92	94	69	69	37	37
				Custome	rs Interru	upted - H	ours Into	the Ever	nt Day (c	ontinued	
			74	76	78	80	82	84	86	88	90
			25	25	0	0	0	0	0	0	0

<sup>\*</sup>Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.

# EXCLUDABLE CPUC MAJOR EVENT DETAILS FOR 2003 EXTRACTED FROM THE TEN LARGEST OUTAGE EVENTS

		Total Number		Cu	stomers I	nterrupte	ed - Hour	s Into the	e Event D	ay*	
Date of Outage	Description of Outage	of Customers Out of Service	0	5	10	15	20	25	30	35	40
October 26 - November 25	Firestorm 2003 - Declaration of State	91,443	0	697	12,087	25,599	33,856	33,575	35,317	43,272	44,623
November 25	of Emergency			Custome	rs Interru	ıpted - H	ours Into	the Eve	nt Day (c	ontinued	)
			45	50	55	60	65	70	75	80	85
			43,523	38,774	28,412	26,932	24,552	24,157	21,108	20,628	17,709
					rs Interru						
			90	95	100	105	110	115	120	125	130
			16,330	17,074	17,074	16,013	14,356	12,195	11,878	11,878	11,878
					rs Interru	•			<u>, , , , , , , , , , , , , , , , , , , </u>		
			135	140	145	150	155	160	165	170	175
			11,214	6,643	1,050	833	813	379	635	820	820
					rs Interru	•	_				
			180	185	190	195	200	205	210	215	220
			820	820	777	777	777	635	2,357	2,563	2,563
					rs Interru	•					
			225	230	235	240	245	250	255	260	265
			2,563	2,835	2,149	2,149	2,149	1,166	1,089	890	873
			270	275	rs Interru 280	іртеа - н 285	ours into	tne Evel	300	305	310
			849	827	867 ers Interru	948	948	948	795	738	566
			315	320	325	330	335	340	345	350	355
			535	535	432	432	432	432	432	324	312
					rs Interru						
			360	365	370	375	380	385	390	395	400
			312	312	312	82	68	68	68	51	52

<sup>\*</sup>Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.

				Custome	ers Interru	ıpted - H	ours Into	the Eve	nt Day (c	ontinued	
Date of Outage	Description of Outage	Total Number of Customers Out of Service	405	410	415	420	425	430	435	440	445
October 26 -	Firestorm 2003 - Declaration of State	91,443		49	49	49	49	49	49	49	49
November 25	of Emergency		49		ers Interru						
	(continued)		450	455	460	465	470	475	480	485	490
			49	49	49	49	48	48	48	48	48
					ers Interru						
			495	500	505	510	515	520	525	530	535
			48	48	48	48	48	48	48	48	48
					rs Interru						-
			540	545	550	555	560	565	570	575	580
			47	47	47	47	47	47	47	47	47
					rs Interru	upted - H	ours Into	the Eve	nt Day (c	ontinued	
			585	590	595	600	605	610	615	620	625
			48	40	40	40	40	40	40	40	40
				Custome	rs Interru	upted - H	ours Into	the Eve	nt Day (c	ontinued	
			630	635	640	645	650	655	660	665	670
			40	40	40	40	40	40	40	9	9
				Custome	ers Interru	ıpted - H	ours Into	the Eve	nt Day (c	ontinued	
			675	680	685	690	695	700	705	710	715
			9	9	9	9	9	9	9	9	9
					ers Interru	-			nt Day (c		
			720	725	730	735	740	745	750	755	760
			9	9	9	9	0	0	0	0	0

<sup>\*</sup>Customers reflected in the time increments include all customers experiencing outages at that point in time. The event day begins at midnight.

Month	District	Circuit	Number of Customers Experiencing >12 Sustained Outages
January	N/A	N/A	None
February	N/A	N/A	None
March	N/A	N/A	None
April	N/A	N/A	None
May	Eastern	444/445	4/358
June	Eastern	444/445	4/363
July	Eastern	444/445	4/362
August	Eastern	444/445/1215	62/898/86
September	Eastern	444/445/1215	62/985/86
October	Eastern	444/445/1215	24/985/86
November	Eastern	444/445/1215	163/980/86
December	Eastern	79/444/445/1215	120/163/980/86

Month	District	Circuit	Number of Customers Experiencing >12 Sustained Outages
January	Eastern	444	15
February	N/A	N/A	None
March	N/A	N/A	None
April	N/A	N/A	None
May	N/A	N/A	None
June	N/A	N/A	None
July	N/A	N/A	None
August	N/A	N/A	None
September	N/A	N/A	None
October	N/A	N/A	None
November	N/A	N/A	None
December	N/A	N/A	None

Month	District	Circuit	Number of Customers Experiencing >12 Sustained Outages
January	N/A	N/A	None
February	N/A	N/A	None
March	N/A	N/A	None
April	N/A	N/A	None
May	N/A	N/A	None
June	N/A	N/A	None
July	N/A	N/A	None
August	N/A	N/A	None
September	N/A	N/A	None
October	Northeast	221	290
November	Northeast/Eastern	221/444	289/15
December	Eastern	444	15

Month	District	Circuit	Number of Customers Experiencing >12 Sustained Outages
January	N/A	N/A	None
February	N/A	N/A	None
March	N/A	N/A	None
April	N/A	N/A	None
May	N/A	N/A	None
June	N/A	N/A	None
July	N/A	N/A	None
August	N/A	N/A	None
September	N/A	N/A	None
October	N/A	N/A	None
November	N/A	N/A	None
December	N/A	N/A	None

Month	District	Circuit	Number of Customers Experiencing >12 Sustained Outages
January	N/A	N/A	None
February	N/A	N/A	None
March	N/A	N/A	None
April	N/A	N/A	None
May	N/A	N/A	None
June	N/A	N/A	None
July	N/A	N/A	None
August	N/A	N/A	None
September	N/A	N/A	None
October	N/A	N/A	None
November	N/A	N/A	None
December	N/A	N/A	None

Month	District	Circuit	Number of Customers Experiencing >12 Sustained Outages
January	N/A	N/A	None
February	N/A	N/A	None
March	N/A	N/A	None
April	N/A	N/A	None
May	N/A	N/A	None
June	N/A	N/A	None
July	N/A	N/A	None
August	N/A	N/A	None
September	N/A	N/A	None
October	N/A	N/A	None
November	N/A	N/A	None
December	N/A	N/A	None

Month	District	Circuit	Number of Customers Experiencing >12 Sustained Outages
January	N/A	N/A	None
February	N/A	N/A	None
March	N/A	N/A	None
April	N/A	N/A	None
May	N/A	N/A	None
June	N/A	N/A	None
July	N/A	N/A	None
August	N/A	N/A	None
September	N/A	N/A	None
October	N/A	N/A	None
November	N/A	N/A	None
December	N/A	N/A	None

Month	District	Circuit	Number of Customers Experiencing >12 Sustained Outages
January	N/A	N/A	None
February	N/A	N/A	None
March	N/A	N/A	None
April	N/A	N/A	None
May	N/A	N/A	None
June	N/A	N/A	None
July	N/A	N/A	None
August	N/A	N/A	None
September	N/A	N/A	None
October	N/A	N/A	None
November	N/A	N/A	None
December	N/A	N/A	None

Month	District	Circuit	Number of Customers Experiencing >12 Sustained Outages
January	N/A	N/A	None
February	N/A	N/A	None
March	N/A	N/A	None
April	N/A	N/A	None
May	N/A	N/A	None
June	N/A	N/A	None
July	N/A	N/A	None
August	N/A	N/A	None
September	N/A	N/A	None
October	N/A	N/A	None
November	N/A	N/A	None
December	N/A	N/A	None

Month	District	Circuit	Number of Customers Experiencing >12 Sustained Outages
January	Northeast	212	62
February	Northeast	212	60
March	Northeast	212	60
April	Northeast	212	60
May	Northeast	212	60
June	Northeast	212	60
July	Northeast	212	60
August	Northeast	212	62
September	Northeast	212	62
October	Northeast	212	60
November	Northeast	212	60
December	N/A	N/A	None