



Kaua`i Island Utility Cooperative

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March 6, 2017

PUBLIC UTILITIES
COMMISSION

The Honorable Chairman and Members of the
Hawaii Public Utilities Commission
Kekuanaoa Building, First Floor
465 South King Street
Honolulu, HI 96813

Subject: KIUC 2016 Annual Service Reliability Report

Dear Mr. Iwase:

Attached for the Commission's information is a copy of KIUC's 2016 Annual Service Reliability Report. If you have any questions regarding the attached report please contact Tim Blume at (808) 246-8274.

Very truly yours,

Michael V. Yamane, P.E.
Chief of Operations

Enclosures

cc: Consumer Advocate
Tom Lovas

*The power of human connections**

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ANNUAL SERVICE RELIABILITY REPORT

2016

Prepared
March 3, 2017

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INTRODUCTION

This is the 2016 Annual Service Reliability Report (“Report”) of the Kaua`i Island Utility Cooperative (“KIUC”). The Report contains a five-year history of standard industry reliability indices in order to depict the quality of electrical service provided to the cooperative consumer/member. These reliability indices are calculated using the data from all sustained (i.e. one minute or longer) system interruptions.

If data normalization is required, it is done using the guidelines specified in the report entitled, “Methodology for Determining Reliability Indices for HECO Utilities,” dated December 1990. That report indicates that normalization is allowed for “abnormal” situations such as hurricane, tsunami, earthquake, flood, catastrophic equipment failure, and single outages that cascade into a loss of load greater than 10% of the system peak. Such normalizations are made because good engineering design – while accounting for safety, reliability, utility industry standards, and economics – cannot and should not always account for catastrophic events.

The Report also contains a detailed breakdown of interruption causes, which is used to determine steps to be taken to prevent recurrence of such interruptions.

DEFINITION OF TERMS

CUSTOMER INTERRUPTION

One interruption of one customer. Interruptions to customers at their request (e.g. customer maintenance) are not considered.

INTERRUPTION

The loss of service to one or more consumers and is a result of one or more component outages.

INTERRUPTION DURATION

The period from the initiation of an interruption to a consumer until service has been restored to that consumer.

MOMENTARY INTERRUPTION

An interruption that has duration limited to the period required to restore service by automatic or supervisory-controlled switching operations or by manual switching at locations where an operator is immediately available. Such switching operations must be completed in a specific time not to exceed one minute.

SUSTAINED INTERRUPTION

Any interruption not classified as a momentary interruption (i.e. greater than one minute in duration). Only this type of interruption is included in the reliability indices within this report.

RELIABILITY INDICES

Measurements used to indicate electrical service reliability. The indices used in this report conform to Institute of Electrical and Electronics Engineers (IEEE) standards. Four indices that convey a meaningful representation of the level of reliability were selected and are presented in this report. These reliability indices are as follows:

1. AVERAGE SERVICE AVAILABILITY (ASA)

Total customer hours actually served as a percentage of total customer hours possible during the year. This indicates the extent to which electrical service was available to all customers. This index has been commonly referred to as the "Index of Reliability."

2. CUSTOMER AVERAGE INTERRUPTION DURATION INDEX (CAIDI)

The interruption duration per customer interrupted during the year. This index indicates the average duration of an interruption for those customers affected by a sustained interruption.

3. SYSTEM AVERAGE INTERRUPTION DURATION INDEX (SAIDI)

The interruption duration per customer served during the year. This index indicates the average interruption time experienced by all customers serviced on the system.

4. SYSTEM AVERAGE INTERRUPTION FREQUENCY INDEX (SAIFI)

The number of customer interruptions per customer served during the year. This index indicates the average number of sustained interruptions experienced by all customers serviced on the system.

The reliability indices are related to each other in a few ways. For example, the product of CAIDI and SAIFI is SAIDI. SAIDI can then be used to find ASA, since SAIDI represents the time during a period without service, while ASA represents the percent of time during that same period with service. The reliability indices can be thought of more simply as:

1. The percent of time electrical service is available (ASA)
2. The amount of time electrical service is NOT available (SAIDI)
3. How long an interruption lasts (CAIDI)
4. How often an interruption occurs (SAIFI)

Table 1: 2012 – 2016 KIUC RELIABILITY INDICES

	2012	2013	2014	2015	2016
System Peak, MW	73.06	72.96	72.90	74.92	76.54
Customers, #	36,473	36,704	36,831	36,832	37,130
ASA, %	99.963	99.977	99.980	99.932	99.988
SAIFI, #	4.36	3.23	2.70	6.28	3.63
CAIDI, minutes	44.20	36.62	38.56	56.57	17.21
SAIDI, minutes	192.72	118.32	104.04	355.02	62.50

Note:

- None of the above data has been normalized.

2016 Outages of Significant Magnitude:

1. Interruption Reports 2016-009 and 2016-012, 1/10/16, 15:27:24 and 1/14/16, 16:47:07. Both of these incidents had the same root cause and resulted in unit CT-1 at the Kapaia Power Station tripping. Both trips occurred due to clogged fuel nozzles. After the second trip the unit was left out of service until the cause of the fuel contamination was discovered. The trips resulted in 11.8 and 9.6 MW load losses respectively and both were recovered from in less than 15 minutes.
2. Interruption Report 2016-134, 5/6/16, 11:35:49 AM – Breakers 5714 and 5735, transmission breakers feeding Lihue, opened due to outside contractors performing forestry work. A transient caused by the fault led the Koloa solar farm (12 MW), the Kapaa solar farm (1 MW), and half the Port Allen solar farm (6 MW) to trip. A four block load shed occurred due to the loss of the solar farms. Loads affected by the PV farms trip were restored in about 7 minutes or less. The loads directly affected by the transmission outage were fully restored in 37 minutes.
3. Interruption Report 2016-135, 5/10/16, 3:16:09 AM – Unit CT-1 at the Kapaia Power Station tripped. Unit lost a feedback signal from its CDP steam control valve which resulted in the unit tripping its associated boiler. The loss of the boiler then caused a unit high combustion temperature trip. Unit was carrying 24 MW at the time of the trip. Loads were restored in a little more than 18 minutes.

Fig. 1: ASA (higher is better)

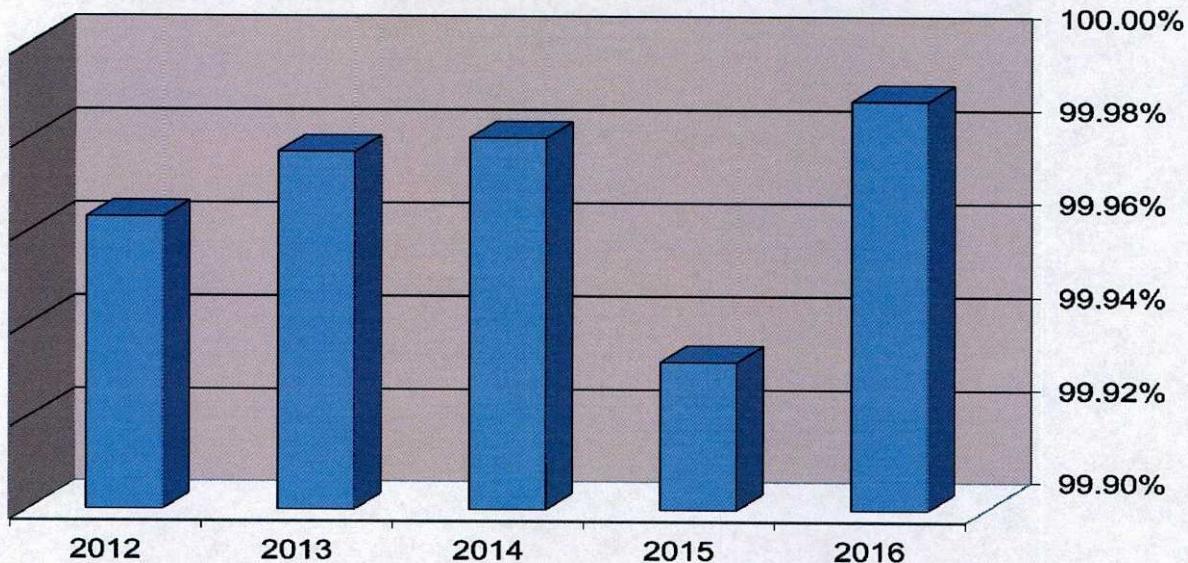


Figure 1 shows the Average System Availability (ASA) for the past five years. The 2016 ASA of 99.983% is higher than the previous four years of the five-year period and better than the five-year average of 99.968%.

Fig. 2: SAIFI (lower is better)

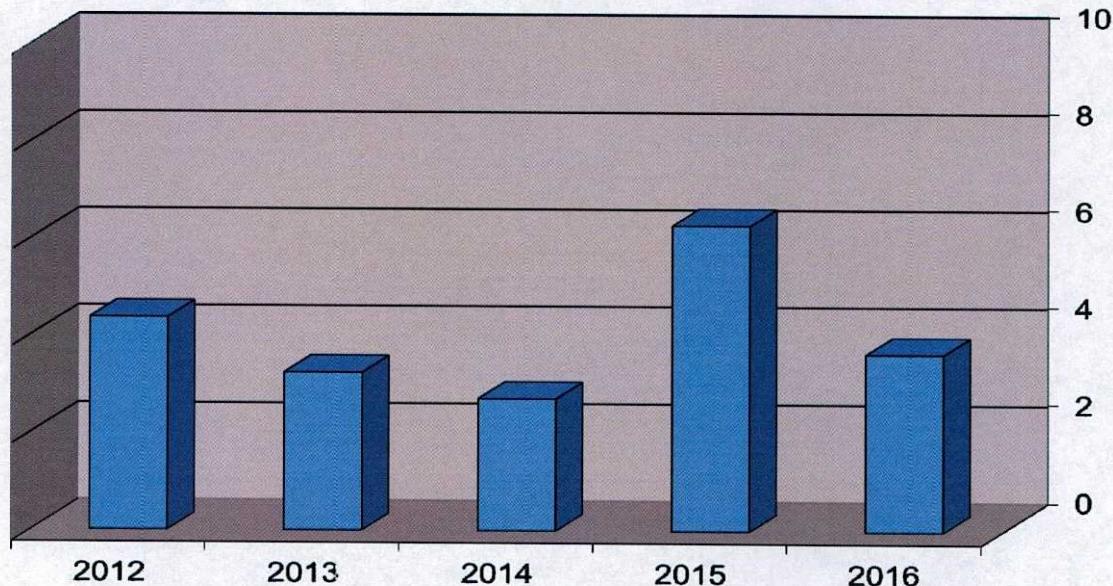


Figure 2 shows the System Average Interruption Frequency Index (SAIFI) for the past five years. The 2016 SAIFI of 3.63 was the third lowest of the five-year period and better than the five-year average of 4.04.

Fig. 3: CAIDI (lower is better)

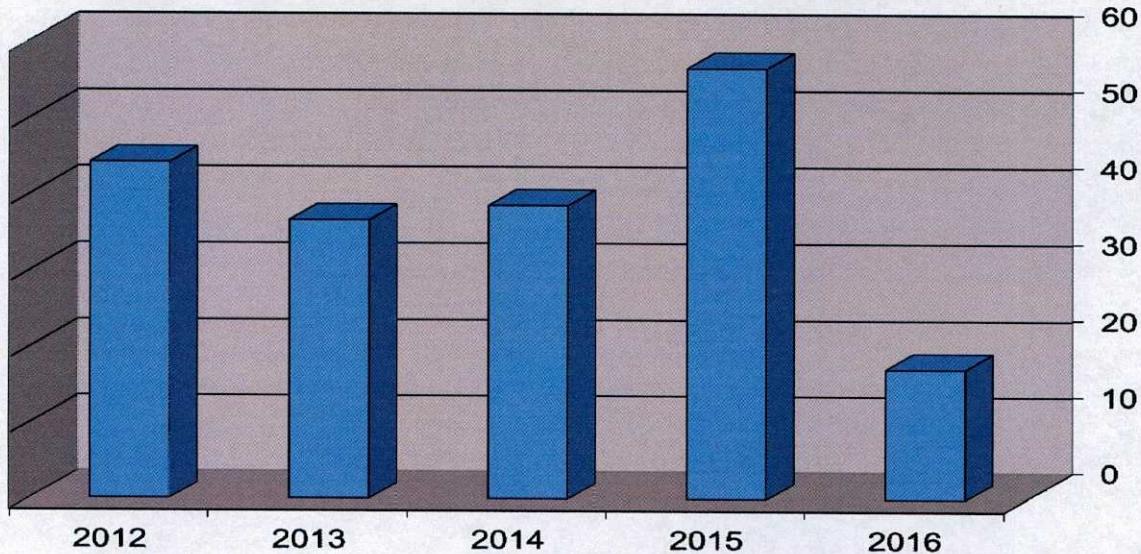


Figure 3 shows the Customer Average Interruption Duration Index (CAIDI) for the past five years. The 2016 CAIDI of 17.21 was the lowest of the five-year period and lower than the five-year average of 38.63.

Fig. 4: SAIDI (lower is better)

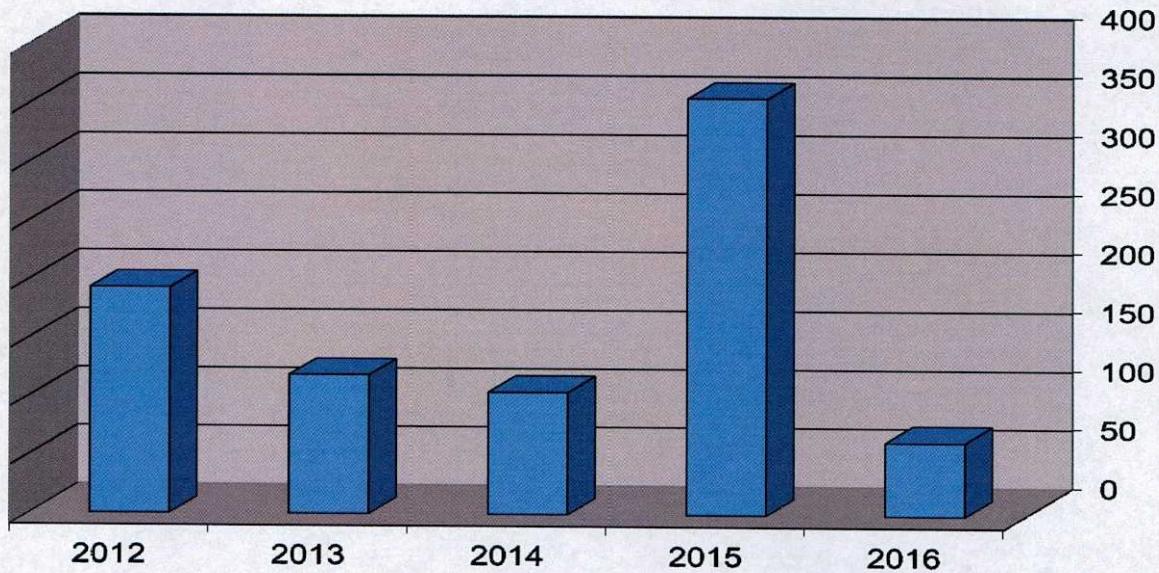


Figure 4 shows the System Average Interruption Duration Index (SAIDI) for the past five years. The 2016 SAIDI of 62.50 is lower than the previous four years of the five-year period and is also lower than the five-year average of 166.52.

2016 KIUC SUSTAINED INTERRUPTION CAUSES

In the following figures and tables, the most recent year's sustained interruption causes are examined. Interruptions can be broken down many ways, but we will focus on two areas: causes by frequency (what caused the most interruptions), and causes by magnitude (what caused the most severe interruptions).

Fig. 5: Sustained Interruptions by Frequency

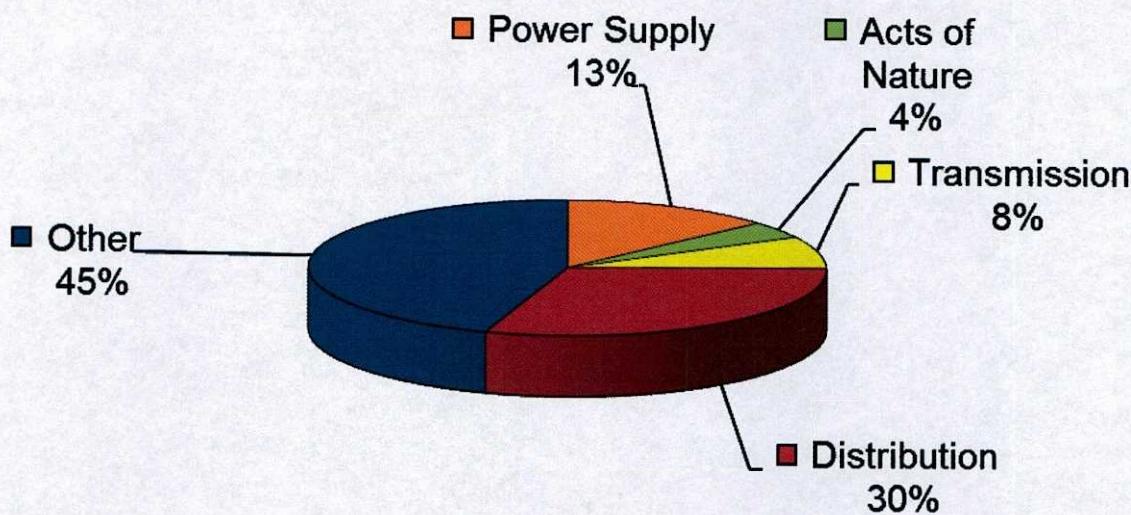


Figure 5 shows the breakdown by frequency. The leading cause of outages was "Other" – persons or equipment not related to or owned by KIUC. Examples include auto accidents that contact utility poles or wires, non-KIUC contractors such as construction crews that dig into underground cables or tree trimmers that contact overhead wires, and trees that contact wires due to overgrowth. The second most common cause was "Distribution" -- failure or malfunction of distribution equipment including cables, fuses, insulators, poles, and transformers. The third leading cause of interruptions was "Power Supply" – interruptions caused by generating unit problems that result in a reduction of output, causing an under frequency load shed. The fourth leading cause of interruptions was "Transmission" – failure or malfunction of transmission equipment including insulators, large transformers, lightning arrestors, and switches; and the fifth (or least) and final cause of interruptions was "Acts of Nature" – interruptions caused by high winds, floods, storms, etc.

Fig. 6: Sustained Interruptions by Magnitude

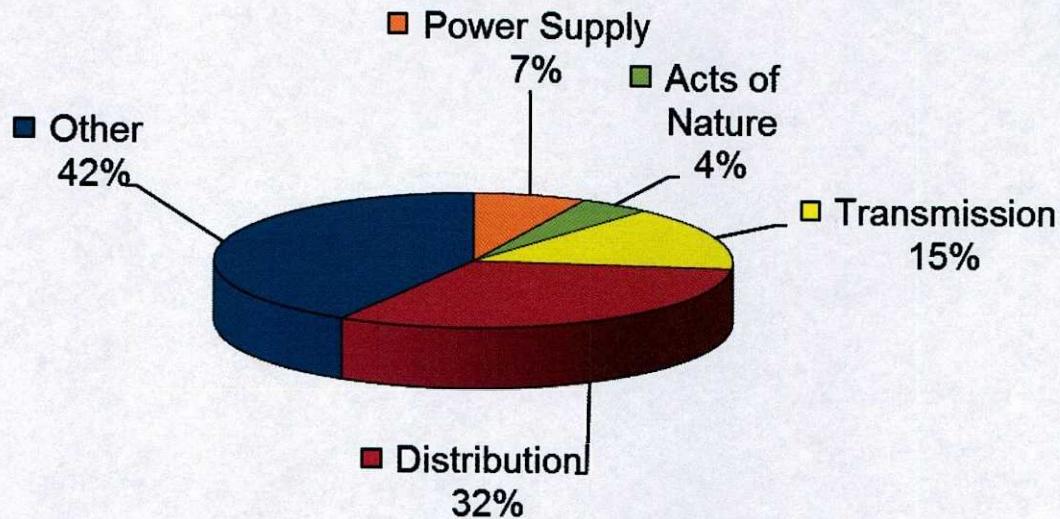


Figure 6 shows the breakdown by magnitude. The same descriptions and examples that were described following Figure 5 apply also for Figure 6. The causes of severe interruptions, in order from most to least, were “Other”, “Distribution”, “Transmission”, “Power Supply”, and lastly “Acts of Nature”.

Outage Number	Circuit	Outage Start Time	Outage End Time	Duration	Class	Type	kW	Consumers
2016-001	3121	1/1/2016 2:24 PM	1/1/2016 4:41 PM	2:16:07	C	5	174	650
2016-002	3313	1/1/2016 3:13 PM	1/1/2016 7:00 PM	3:46:21	C	6	9	3
2016-003	4122	1/3/2016 5:45 PM	1/3/2016 9:45 PM	4:00:00	C	5	60	20
2016-004	2134	1/5/2016 5:28 AM	1/5/2016 8:51 AM	3:23:00	C	5	48	16
2016-006	1323	1/6/2016 9:30 AM	1/6/2016 11:02 AM	1:32:00	C	3	51	17
2016-007	3215	1/6/2016 10:51 PM	1/7/2016 2:02 AM	3:11:00	C	5	222	74
2016-009	3122	1/10/2016 3:28 PM	1/10/2016 4:27 PM	0:58:46	B	1	1750	300
2016-009	3126	1/10/2016 3:28 PM	1/10/2016 3:34 PM	0:06:11	B	1	40	19
2016-009	3121	1/10/2016 3:28 PM	1/10/2016 3:36 PM	0:08:50	B	1	3380	650
2016-009	3412	1/10/2016 3:27 PM	1/10/2016 3:33 PM	0:05:36	B	1	190	1004
2016-009	1325	1/10/2016 3:27 PM	1/10/2016 3:35 PM	0:07:15	B	1	520	20
2016-009	1322	1/10/2016 3:27 PM	1/10/2016 3:35 PM	0:08:01	B	1	290	700
2016-009	3313	1/10/2016 3:27 PM	1/10/2016 3:37 PM	0:10:12	B	1	870	1396
2016-009	3212	1/10/2016 3:27 PM	1/10/2016 3:39 PM	0:12:04	B	1	200	30
2016-009	1432	1/10/2016 3:27 PM	1/10/2016 3:39 PM	0:12:16	B	1	200	300
2016-009	2134	1/10/2016 3:27 PM	1/10/2016 3:39 PM	0:11:49	B	1	900	1528
2016-010	2313	1/14/2016 9:04 AM	1/14/2016 11:36 AM	2:32:00	C	5	51	17
2016-011	3126	1/14/2016 11:36 AM	1/14/2016 1:15 PM	1:38:26	C	5	200	19
2016-012	3126	1/14/2016 4:49 PM	1/14/2016 4:58 PM	0:09:08	B	1	120	19
2016-012	1322	1/14/2016 4:49 PM	1/14/2016 4:59 PM	0:10:15	B	1	940	700
2016-012	3121	1/14/2016 4:49 PM	1/14/2016 4:58 PM	0:09:37	B	1	4880	650
2016-012	3412	1/14/2016 4:49 PM	1/14/2016 4:57 PM	0:08:36	B	1	280	1004
2016-012	1325	1/14/2016 4:49 PM	1/14/2016 4:59 PM	0:10:05	B	1	550	20
2016-012	3212	1/14/2016 4:47 PM	1/14/2016 5:00 PM	0:13:24	B	1	200	30
2016-012	3313	1/14/2016 4:47 PM	1/14/2016 4:59 PM	0:12:01	B	1	990	1396
2016-012	1432	1/14/2016 4:47 PM	1/14/2016 5:01 PM	0:14:07	B	1	300	300
2016-012	2134	1/14/2016 4:47 PM	1/14/2016 5:00 PM	0:13:45	B	1	1380	1528
2016-013	3413	1/16/2016 6:18 PM	1/16/2016 7:05 PM	0:47:00	C	5	51	17
2016-014	5002	1/19/2016 9:50 AM	1/19/2016 9:57 AM	0:07:18	C	6	1930	1980
2016-018	3413	1/24/2016 11:43 AM	1/24/2016 2:39 PM	2:56:00	C	6	12	4
2016-019	1326	1/27/2016 9:05 AM	1/27/2016 3:28 PM	6:22:07	C	6	700	200
2016-019	1325	1/27/2016 7:45 AM	1/27/2016 9:05 AM	1:20:14	C	6	63	20
2016-020	3511	1/27/2016 8:23 PM	1/27/2016 11:37 PM	3:14:00	C	5	108	36
2016-021	3126	1/29/2016 3:59 AM	1/29/2016 9:05 AM	5:06:00	C	6	80	19
2016-021	3126	1/29/2016 1:52 AM	1/29/2016 3:59 AM	2:06:48	C	6	80	19
2016-022	4121	1/30/2016 9:06 AM	1/30/2016 10:30 PM	13:24:00	C	6	24	8
2016-022	5747	1/30/2016 6:48 AM	1/30/2016 7:44 AM	0:56:33	A	5	0	0
2016-022	4124	1/30/2016 6:48 AM	1/30/2016 7:54 AM	1:06:06	A	5	2480	1926
2016-022	4123	1/30/2016 6:48 AM	1/30/2016 7:44 AM	0:56:33	A	5	740	225
2016-022	4122	1/30/2016 6:48 AM	1/30/2016 7:44 AM	0:56:33	A	5	520	1972
2016-022	4121	1/30/2016 6:48 AM	1/30/2016 9:06 AM	2:17:45	A	5	560	430
2016-022	4002	1/30/2016 6:48 AM	1/30/2016 7:46 AM	0:58:20	A	5	310	471
2016-022	5002	1/30/2016 6:48 AM	1/30/2016 6:49 AM	0:01:17	A	5	1280	1980
2016-022	2314	1/30/2016 6:48 AM	1/30/2016 6:49 AM	0:01:08	A	5	1450	768
2016-023	4124	1/30/2016 12:29 PM	1/30/2016 4:20 PM	3:50:13	C	5	24	8
2016-024	3413	2/1/2016 2:43 AM	2/1/2016 3:40 AM	0:57:33	C	5	1440	2735
2016-025	3126	2/1/2016 2:39 AM	2/1/2016 9:26 AM	6:46:37	C	6	39	13
2016-026	2132	2/1/2016 3:21 AM	2/1/2016 8:17 AM	4:56:00	C	6	30	10
2016-028	3215	2/3/2016 5:53 PM	2/3/2016 6:43 PM	0:49:21	C	5	30	10
2016-029	2134	2/4/2016 1:39 PM	2/4/2016 2:05 PM	0:26:00	C	3	99	33
2016-030	5001	2/6/2016 2:51 PM	2/6/2016 4:00 PM	1:09:00	C	6	120	40
2016-031	3512	2/6/2016 2:56 PM	2/6/2016 7:00 PM	4:03:09	C	6	30	1818
2016-032	4122	2/6/2016 4:31 PM	2/6/2016 5:02 PM	0:30:50	C	5	1003	1972
2016-033	3413	2/6/2016 8:02 PM	2/6/2016 10:30 PM	2:28:00	C	6	18	6
2016-034	4121	2/6/2016 7:34 PM	2/7/2016 2:26 AM	6:52:00	C	5	48	16
2016-037	4122	2/12/2016 10:09 AM	2/12/2016 10:44 AM	0:34:25	C	6	740	1972
2016-039	4002	2/15/2016 10:06 AM	2/15/2016 12:52 PM	2:46:00	C	6	39	13
2016-040	5001	2/15/2016 12:34 PM	2/15/2016 2:05 PM	1:31:00	C	2	24	8
2016-041	3512	2/15/2016 4:18 PM	2/15/2016 7:27 PM	3:09:00	C	5	18	0
2016-041	3512	2/15/2016 6:29 PM	2/15/2016 7:27 PM	0:58:00	C	5	90	0
2016-042	3215	2/15/2016 6:06 PM	2/15/2016 7:23 PM	1:16:19	C	2	90	30
2016-043	3215	2/15/2016 9:45 PM	2/15/2016 11:15 PM	1:30:00	C	2	261	87
2016-044	5001	2/15/2016 10:00 PM	2/16/2016 2:45 AM	4:45:00	C	5	42	14
2016-045	2134	2/16/2016 5:22 AM	2/16/2016 7:25 AM	2:03:00	C	6	78	26
2016-046	2134	2/16/2016 11:30 AM	2/16/2016 12:42 PM	1:12:00	C	6	183	61
2016-047	3415	2/16/2016 12:34 PM	2/16/2016 3:00 PM	2:26:00	C	6	111	37
2016-049	1325	2/16/2016 3:30 PM	2/16/2016 6:30 PM	3:00:00	C	5	9	3
2016-050	2134	2/17/2016 12:54 PM	2/17/2016 2:00 PM	1:06:00	C	6	192	64
2016-051	4121	2/17/2016 2:09 PM	2/17/2016 6:03 PM	3:54:00	C	5	87	29

Outage Number	Circuit	Outage Start Time	Outage End Time	Duration	Class	Type	kW	Consumers
2016-054	4002	2/21/2016 6:18 AM	2/21/2016 8:43 AM	2:25:00	C	6	240	80
2016-055	2134	2/21/2016 11:44 AM	2/21/2016 1:29 PM	1:45:00	C	2	189	63
2016-056	5001	2/21/2016 12:29 PM	2/21/2016 2:00 PM	1:31:00	C	2	75	25
2016-058	5002	2/24/2016 1:25 PM	2/24/2016 3:30 PM	2:05:00	C	5	75	25
2016-059	1322	2/25/2016 10:12 PM	2/25/2016 11:41 PM	1:29:00	C	3	6	2
2016-059	1322	2/25/2016 7:19 PM	2/25/2016 9:11 PM	1:52:00	C	3	12	4
2016-060	4002	2/26/2016 9:18 AM	2/26/2016 2:21 PM	5:03:48	C	3	380	471
2016-061	3214	2/28/2016 12:07 AM	2/28/2016 3:00 AM	2:52:17	C	6	5	1
2016-062	3413	2/28/2016 5:39 AM	2/28/2016 9:18 AM	3:39:00	C	5	15	5
2016-065	5002	3/1/2016 11:48 AM	3/1/2016 2:00 PM	2:11:54	C	6	3	1
2016-066	3415	3/1/2016 2:33 PM	3/1/2016 4:00 PM	1:27:00	C	2	456	152
2016-069	3125	3/4/2016 3:00 PM	3/4/2016 4:16 PM	1:15:02	C	5	54	18
2016-071	3127	3/7/2016 1:25 PM	3/7/2016 6:30 PM	5:04:18	C	6	24	8
2016-076	3413	3/8/2016 12:44 PM	3/8/2016 1:38 PM	0:54:16	C	2	1430	2735
2016-077	5712	3/8/2016 4:03 PM	3/8/2016 4:53 PM	0:49:59	D	2	0	0
2016-077	5765	3/8/2016 4:03 PM	3/8/2016 4:52 PM	0:49:09	D	2	0	0
2016-081	2134	3/10/2016 11:54 AM	3/10/2016 12:55 PM	1:01:00	C	6	198	876
2016-082	5001	3/10/2016 9:05 PM	3/10/2016 10:25 PM	1:20:00	C	5	27	19
2016-083	4002	3/11/2016 9:02 AM	3/11/2016 1:03 PM	4:00:31	C	3	400	471
2016-084	3123	3/11/2016 12:30 PM	3/11/2016 4:30 PM	4:00:00	C	5	6	2
2016-085	4002	3/13/2016 5:38 PM	3/13/2016 7:48 PM	2:10:44	C	4	390	471
2016-085	5801	3/13/2016 2:33 PM	3/13/2016 5:38 PM	3:04:25	C	4	120	0
2016-086	5766	3/14/2016 1:50 PM	3/14/2016 2:36 PM	0:45:38	A	4	0	0
2016-086	5765	3/14/2016 1:50 PM	3/14/2016 2:34 PM	0:43:38	A	4	0	0
2016-086	5712	3/14/2016 1:50 PM	3/14/2016 2:34 PM	0:43:38	A	4	0	0
2016-086	5702	3/14/2016 1:50 PM	3/14/2016 2:36 PM	0:45:38	A	4	0	0
2016-086	1432	3/14/2016 1:50 PM	3/14/2016 2:40 PM	0:49:38	A	4	180	300
2016-086	1325	3/14/2016 1:50 PM	3/14/2016 2:39 PM	0:48:32	A	4	360	20
2016-086	1323	3/14/2016 1:50 PM	3/14/2016 2:38 PM	0:47:42	A	4	1510	1385
2016-086	1322	3/14/2016 1:50 PM	3/14/2016 2:40 PM	0:49:23	A	4	160	700
2016-086	1233	3/14/2016 1:50 PM	3/14/2016 2:38 PM	0:48:02	A	4	1070	30
2016-086	1232	3/14/2016 1:50 PM	3/14/2016 2:39 PM	0:48:14	A	4	350	10
2016-086	1231	3/14/2016 1:50 PM	3/14/2016 2:39 PM	0:48:21	A	4	200	2
2016-087	2134	3/16/2016 10:04 AM	3/16/2016 10:44 AM	0:39:47	C	6	312	104
2016-088	3415	3/16/2016 12:15 PM	3/16/2016 1:10 PM	0:54:47	C	5	600	1612
2016-089	2314	3/16/2016 12:30 PM	3/16/2016 2:30 PM	2:00:00	C	5	15	5
2016-090	4122	3/22/2016 12:57 PM	3/22/2016 6:15 PM	5:18:00	C	5	30	10
2016-091	5716	3/24/2016 10:14 PM	3/24/2016 10:15 PM	0:01:36	D	2	0	0
2016-093	2134	3/24/2016 10:14 PM	3/25/2016 6:12 AM	7:58:00	C	2	78	27
2016-094	5001	3/24/2016 11:06 PM	3/25/2016 2:26 AM	3:20:00	C	2	390	130
2016-096	3412	3/25/2016 5:56 AM	3/25/2016 7:02 AM	1:06:00	C	2	39	13
2016-097	2134	3/25/2016 7:37 AM	3/25/2016 10:36 AM	2:59:00	C	2	9	3
2016-098	3512	3/25/2016 8:02 AM	3/25/2016 1:56 PM	5:54:00	C	5	30	10
2016-099	3214	3/26/2016 11:00 AM	3/26/2016 1:03 PM	2:03:00	C	5	411	137
2016-101	3126	3/28/2016 1:15 PM	3/28/2016 3:58 PM	2:43:00	C	6	12	19
2016-102	3127	3/28/2016 1:08 PM	3/28/2016 2:02 PM	0:54:00	C	6	9	3
2016-103	3215	3/28/2016 1:45 PM	3/28/2016 1:48 PM	0:02:46	C	6	540	1818
2016-105	5747	3/29/2016 11:14 AM	3/29/2016 12:12 PM	0:57:44	A	4	0	0
2016-105	4124	3/29/2016 11:14 AM	3/29/2016 12:13 PM	0:59:36	A	4	3120	1926
2016-105	4123	3/29/2016 11:14 AM	3/29/2016 12:14 PM	1:00:05	A	4	640	225
2016-105	4122	3/29/2016 11:14 AM	3/29/2016 12:14 PM	1:00:29	A	4	520	1972
2016-105	4121	3/29/2016 11:14 AM	3/29/2016 12:15 PM	1:00:53	A	4	770	430
2016-105	4002	3/29/2016 11:14 AM	3/29/2016 12:12 PM	0:57:45	A	4	350	471
2016-106	1323	3/30/2016 4:29 PM	3/30/2016 5:23 PM	0:54:00	C	5	69	23
2016-107	2134	4/2/2016 12:35 PM	4/2/2016 1:58 PM	1:23:00	C	5	3	1
2016-109	3313	4/8/2016 4:10 AM	4/8/2016 10:00 AM	5:49:18	C	6	6	2
2016-110	3413	4/8/2016 9:52 AM	4/8/2016 11:03 AM	1:11:00	C	6	27	9
2016-111	1325	4/10/2016 5:27 AM	4/10/2016 8:55 AM	3:27:45	C	6	450	107
2016-112	5001	4/10/2016 3:31 PM	4/11/2016 10:00 AM	18:29:00	C	5	24	8
2016-114	2134	4/12/2016 5:11 PM	4/12/2016 8:00 PM	2:48:52	C	6	130	1528
2016-115	3413	4/13/2016 2:55 PM	4/13/2016 4:15 PM	1:20:00	C	6	24	8
2016-117	4002	4/17/2016 4:21 PM	4/17/2016 7:02 PM	2:41:00	C	6	99	33
2016-120	3415	4/22/2016 6:00 AM	4/22/2016 8:03 AM	2:03:00	C	5	12	4
2016-121	3413	4/22/2016 8:22 PM	4/22/2016 9:17 PM	0:55:00	C	6	33	11
2016-122	1325	4/23/2016 9:30 PM	4/24/2016 12:00 PM	14:30:00	C	6	6	2
2016-123	5737	4/25/2016 3:10 PM	4/25/2016 5:06 PM	1:55:31	D	4	0	0
2016-124	3314	4/25/2016 5:46 PM	4/25/2016 8:48 PM	3:01:03	C	5	15	552
2016-125	4123	4/25/2016 11:40 PM	4/26/2016 5:30 AM	5:49:16	C	5	48	225
2016-126	2134	4/26/2016 12:26 AM	4/26/2016 9:34 AM	9:07:25	C	5	273	1528

Outage Number	Circuit	Outage Start Time	Outage End Time	Duration	Class	Type	kW	Consumers
2016-127	1322	4/27/2016 12:42 PM	4/27/2016 1:57 PM	1:15:05	C	6	450	700
2016-128	5776	4/27/2016 12:04 PM	4/27/2016 4:02 PM	3:57:23	D	4	0	0
2016-128	5774	4/27/2016 12:04 PM	4/27/2016 4:01 PM	3:56:52	D	4	0	0
2016-128	5737	4/27/2016 12:04 PM	4/27/2016 3:55 PM	3:51:10	D	4	0	0
2016-129	3415	4/28/2016 1:04 PM	4/28/2016 1:35 PM	0:31:00	C	6	165	55
2016-131	1325	5/4/2016 1:09 AM	5/4/2016 9:12 AM	8:03:00	C	6	6	2
2016-132	3122	5/4/2016 10:50 AM	5/4/2016 3:30 PM	4:40:00	C	5	18	6
2016-133	5001	5/5/2016 4:07 AM	5/5/2016 7:53 AM	3:46:00	C	5	27	9
2016-134	2134	5/6/2016 11:46 AM	5/6/2016 12:11 PM	0:25:10	B	6	540	1528
2016-134	2133	5/6/2016 11:46 AM	5/6/2016 12:12 PM	0:25:31	B	6	90	406
2016-134	2132	5/6/2016 11:46 AM	5/6/2016 12:12 PM	0:25:39	B	6	40	718
2016-134	1432	5/6/2016 11:30 AM	5/6/2016 11:36 AM	0:06:01	B	6	190	300
2016-134	3126	5/6/2016 11:30 AM	5/6/2016 11:34 AM	0:03:48	B	6	90	19
2016-134	1322	5/6/2016 11:30 AM	5/6/2016 11:35 AM	0:04:40	B	6	490	700
2016-134	2314	5/6/2016 11:30 AM	5/6/2016 11:38 AM	0:07:39	B	6	1340	768
2016-134	2311	5/6/2016 11:30 AM	5/6/2016 11:37 AM	0:07:08	B	6	660	748
2016-134	3412	5/6/2016 11:30 AM	5/6/2016 11:33 AM	0:02:38	B	6	190	1004
2016-134	3215	5/6/2016 11:30 AM	5/6/2016 11:37 AM	0:06:23	B	6	680	1818
2016-134	3214	5/6/2016 11:30 AM	5/6/2016 11:33 AM	0:02:55	B	6	1570	120
2016-134	3212	5/6/2016 11:30 AM	5/6/2016 11:36 AM	0:05:43	B	6	300	30
2016-134	3211	5/6/2016 11:30 AM	5/6/2016 11:34 AM	0:03:31	B	6	430	5
2016-134	5735	5/6/2016 11:30 AM	5/6/2016 2:31 PM	3:00:59	B	6	0	0
2016-134	3313	5/6/2016 11:30 AM	5/6/2016 11:36 AM	0:05:27	B	6	700	1396
2016-134	3123	5/6/2016 11:30 AM	5/6/2016 11:37 AM	0:06:49	B	6	1380	1187
2016-134	1325	5/6/2016 11:30 AM	5/6/2016 11:34 AM	0:04:19	B	6	700	20
2016-134	5714	5/6/2016 11:30 AM	5/6/2016 2:30 PM	2:59:53	B	6	0	0
2016-134	5002	5/6/2016 11:30 AM	5/6/2016 11:38 AM	0:07:31	B	6	1480	1980
2016-134	4121	5/6/2016 11:30 AM	5/6/2016 11:35 AM	0:05:13	B	6	770	430
2016-135	3126	5/10/2016 3:16 AM	5/10/2016 3:31 AM	0:15:17	A	1	40	19
2016-135	1432	5/10/2016 3:16 AM	5/10/2016 3:33 AM	0:17:00	A	1	110	300
2016-135	3512	5/10/2016 3:16 AM	5/10/2016 3:25 AM	0:09:16	A	1	1420	0
2016-135	4121	5/10/2016 3:16 AM	5/10/2016 3:32 AM	0:16:06	A	1	400	430
2016-135	3414	5/10/2016 3:16 AM	5/10/2016 3:26 AM	0:10:03	A	1	1080	859
2016-135	3412	5/10/2016 3:16 AM	5/10/2016 3:30 AM	0:14:28	A	1	170	1004
2016-135	3215	5/10/2016 3:16 AM	5/10/2016 3:33 AM	0:17:24	A	1	890	1818
2016-135	3214	5/10/2016 3:16 AM	5/10/2016 3:30 AM	0:14:47	A	1	960	120
2016-135	3212	5/10/2016 3:16 AM	5/10/2016 3:32 AM	0:16:36	A	1	220	30
2016-135	3211	5/10/2016 3:16 AM	5/10/2016 3:31 AM	0:15:00	A	1	590	5
2016-135	3313	5/10/2016 3:16 AM	5/10/2016 3:32 AM	0:16:20	A	1	750	1396
2016-135	1325	5/10/2016 3:16 AM	5/10/2016 3:31 AM	0:15:30	A	1	410	20
2016-135	1322	5/10/2016 3:16 AM	5/10/2016 3:32 AM	0:15:52	A	1	490	700
2016-135	5002	5/10/2016 3:16 AM	5/10/2016 3:34 AM	0:18:09	A	1	960	1980
2016-135	4002	5/10/2016 3:16 AM	5/10/2016 3:23 AM	0:07:29	A	1	220	471
2016-135	3123	5/10/2016 3:16 AM	5/10/2016 3:33 AM	0:17:41	A	1	520	1187
2016-135	2314	5/10/2016 3:16 AM	5/10/2016 3:34 AM	0:18:33	A	1	1660	768
2016-135	2312	5/10/2016 3:16 AM	5/10/2016 3:23 AM	0:07:45	A	1	1210	754
2016-135	2311	5/10/2016 3:16 AM	5/10/2016 3:34 AM	0:17:53	A	1	650	748
2016-135	2134	5/10/2016 3:16 AM	5/10/2016 3:32 AM	0:16:49	A	1	770	1528
2016-135	2132	5/10/2016 3:16 AM	5/10/2016 3:24 AM	0:08:05	A	1	250	718
2016-136	5002	5/11/2016 11:21 AM	5/11/2016 1:00 PM	1:39:00	C	5	207	69
2016-142	3415	5/24/2016 9:32 PM	5/24/2016 10:12 PM	0:39:05	C	6	159	53
2016-143	3413	5/28/2016 4:41 PM	5/28/2016 4:50 PM	0:08:57	B	6	2800	2735
2016-143	3413	5/28/2016 4:02 PM	5/28/2016 4:41 PM	0:39:15	B	6	2800	2735
2016-144	3215	5/28/2016 4:40 PM	5/28/2016 6:25 PM	1:45:00	C	6	39	13
2016-145	4122	5/31/2016 5:52 PM	5/31/2016 7:09 PM	1:17:11	B	6	900	1972
2016-146	3512	5/31/2016 7:49 PM	5/31/2016 9:46 PM	1:57:00	C	2	261	87
2016-147	2134	6/3/2016 10:53 AM	6/3/2016 11:21 AM	0:28:00	C	5	57	19
2016-148	1325	6/3/2016 7:49 PM	6/3/2016 11:35 PM	3:45:10	C	6	280	20
2016-150	3413	6/13/2016 11:37 AM	6/13/2016 12:30 PM	0:52:14	C	6	162	54
2016-151	2134	6/14/2016 5:15 PM	6/14/2016 9:30 PM	4:15:00	C	5	24	8
2016-152	1323	6/15/2016 1:14 PM	6/15/2016 2:46 PM	1:32:00	C	5	42	14
2016-153	5001	6/15/2016 4:11 AM	6/15/2016 2:12 PM	10:01:00	C	6	27	9
2016-154	3126	6/15/2016 2:01 AM	6/15/2016 7:18 AM	5:17:00	C	6	9	3
2016-155	3512	6/15/2016 3:03 PM	6/15/2016 5:39 PM	2:36:00	C	6	27	9
2016-156	2134	6/17/2016 4:23 PM	6/17/2016 7:00 PM	2:36:49	C	6	138	46
2016-157	3511	6/19/2016 10:47 AM	6/19/2016 2:09 PM	3:22:00	C	5	30	10
2016-158	3415	6/22/2016 3:01 PM	6/22/2016 3:25 PM	0:24:00	C	6	12	4
2016-159	3415	6/23/2016 2:20 PM	6/23/2016 3:44 PM	1:24:00	C	5	153	51
2016-160	3413	6/23/2016 11:10 AM	6/23/2016 4:35 PM	5:25:00	C	5	24	8

Outage Number	Circuit	Outage Start Time	Outage End Time	Duration	Class	Type	kW	Consumers
2016-161	2314	6/24/2016 8:00 AM	6/24/2016 11:04 AM	3:04:00	C	5	6	2
2016-162	3415	6/24/2016 10:57 PM	6/25/2016 12:58 AM	2:01:00	C	6	42	14
2016-163	3512	6/24/2016 11:18 PM	6/24/2016 11:53 PM	0:35:00	C	5	33	11
2016-164	5001	6/24/2016 11:15 PM	6/25/2016 12:00 PM	12:45:00	C	6	27	9
2016-165	3122	6/25/2016 8:06 PM	6/26/2016 8:00 AM	11:54:00	C	5	3	1
2016-168	3122	6/30/2016 6:20 PM	6/30/2016 8:30 PM	2:10:00	C	5	24	8
2016-170	4002	7/3/2016 9:22 AM	7/3/2016 11:07 AM	1:45:00	C	6	27	9
2016-171	3413	7/3/2016 11:26 PM	7/4/2016 12:56 AM	1:29:10	C	6	174	58
2016-172	1323	7/4/2016 5:29 AM	7/4/2016 7:28 AM	1:59:00	C	6	474	158
2016-173	3413	7/8/2016 12:24 AM	7/8/2016 2:42 AM	2:17:10	C	5	90	30
2016-174	4122	7/8/2016 10:53 PM	7/9/2016 10:53 AM	11:59:22	C	6	69	23
2016-175	3413	7/11/2016 6:55 PM	7/11/2016 8:47 PM	1:52:00	C	5	69	23
2016-178	2314	7/13/2016 12:10 PM	7/13/2016 2:30 PM	2:20:00	C	5	30	10
2016-181	5001	7/17/2016 12:50 PM	7/17/2016 12:57 PM	0:07:00	C	5	24	8
2016-182	3415	7/17/2016 4:24 PM	7/17/2016 4:59 PM	0:34:55	C	6	60	20
2016-184	3512	7/18/2016 5:48 PM	7/18/2016 7:30 PM	1:42:00	C	6	20	6
2016-185	1323	7/19/2016 4:32 AM	7/19/2016 7:51 AM	3:18:54	C	6	60	19
2016-186	2132	7/19/2016 4:36 AM	7/19/2016 6:30 AM	1:53:54	C	6	30	9
2016-187	3512	7/19/2016 10:34 AM	7/19/2016 11:21 AM	0:47:00	C	5	66	22
2016-188	2314	7/19/2016 10:11 AM	7/19/2016 11:47 AM	1:36:00	C	6	18	6
2016-190	4121	7/19/2016 8:02 PM	7/19/2016 9:05 PM	1:02:24	C	5	219	430
2016-192	2134	7/22/2016 12:37 AM	7/22/2016 7:00 AM	6:22:10	C	6	45	15
2016-192	2134	7/22/2016 12:37 AM	7/22/2016 12:38 AM	0:00:19	C	6	1600	1528
2016-194	2311	7/22/2016 5:54 AM	7/22/2016 12:00 PM	6:06:00	C	5	33	748
2016-195	3415	7/22/2016 3:13 AM	7/22/2016 3:37 AM	0:24:12	C	6	880	1612
2016-196	2311	7/23/2016 7:18 PM	7/23/2016 9:09 PM	1:50:23	C	6	48	16
2016-197	1323	7/24/2016 12:07 PM	7/24/2016 2:18 PM	2:11:00	C	5	195	65
2016-198	3415	7/24/2016 2:48 PM	7/24/2016 4:52 PM	2:04:00	C	6	54	18
2016-200	5001	7/29/2016 11:44 AM	7/29/2016 12:55 PM	1:11:00	C	6	30	10
2016-202	1325	8/6/2016 8:58 AM	8/6/2016 11:10 AM	2:12:00	C	6	30	20
2016-203	2132	8/7/2016 12:45 PM	8/7/2016 2:39 PM	1:53:31	C	6	90	30
2016-205	2134	8/8/2016 9:39 PM	8/9/2016 11:40 AM	14:00:02	C	6	147	49
2016-205	2134	8/8/2016 9:39 PM	8/8/2016 10:49 PM	1:09:02	C	6	33	11
2016-206	3412	8/8/2016 9:45 PM	8/9/2016 12:03 AM	2:17:57	C	5	42	14
2016-207	3413	8/9/2016 9:08 AM	8/9/2016 10:40 AM	1:32:00	C	5	110	36
2016-208	2312	8/9/2016 4:36 PM	8/9/2016 7:44 PM	3:07:30	C	5	280	93
2016-209	2311	8/11/2016 9:45 AM	8/11/2016 11:02 AM	1:17:00	C	3	57	19
2016-211	3121	8/18/2016 6:45 PM	8/18/2016 8:45 PM	2:00:00	C	5	12	4
2016-212	3212	8/19/2016 3:04 PM	8/19/2016 3:06 PM	0:02:11	B	1	350	30
2016-212	3313	8/19/2016 3:04 PM	8/19/2016 3:07 PM	0:03:17	B	1	980	1396
2016-212	4121	8/19/2016 3:04 PM	8/19/2016 3:07 PM	0:02:36	B	1	920	430
2016-212	3215	8/19/2016 3:04 PM	8/19/2016 3:08 PM	0:04:29	B	1	1160	1818
2016-212	3215	8/19/2016 3:01 PM	8/19/2016 3:03 PM	0:01:33	B	1	1320	1818
2016-212	2311	8/19/2016 3:01 PM	8/19/2016 3:09 PM	0:07:50	B	1	870	748
2016-212	3123	8/19/2016 3:01 PM	8/19/2016 3:09 PM	0:07:23	B	1	1430	1187
2016-212	2314	8/19/2016 3:01 PM	8/19/2016 3:10 PM	0:08:28	B	1	1450	768
2016-212	5002	8/19/2016 3:01 PM	8/19/2016 3:09 PM	0:08:10	B	1	1660	1980
2016-213	3415	8/19/2016 7:15 PM	8/19/2016 8:15 PM	1:00:00	C	5	18	6
2016-214	4121	8/19/2016 10:05 PM	8/20/2016 1:00 AM	2:55:00	C	5	354	118
2016-215	3126	8/22/2016 3:52 PM	8/22/2016 7:12 PM	3:20:00	C	6	42	19
2016-216	4122	8/23/2016 1:48 PM	8/23/2016 4:00 PM	2:12:00	C	6	33	11
2016-217	1325	8/23/2016 8:38 PM	8/24/2016 12:27 AM	3:48:20	C	6	237	79
2016-217	1325	8/23/2016 7:49 PM	8/24/2016 12:27 AM	4:38:00	C	6	51	27
2016-219	5001	8/29/2016 1:27 PM	8/29/2016 5:00 PM	3:33:00	C	6	27	9
2016-220	4002	9/1/2016 7:58 AM	9/1/2016 9:35 AM	1:37:00	C	6	216	72
2016-221	2134	9/1/2016 4:12 PM	9/1/2016 5:53 PM	1:41:00	C	6	372	124
2016-222	2134	9/2/2016 1:52 AM	9/2/2016 4:39 AM	2:47:00	C	6	66	22
2016-224	2132	9/2/2016 11:01 AM	9/2/2016 1:45 PM	2:43:53	C	6	294	98
2016-226	3126	9/3/2016 1:05 AM	9/3/2016 10:42 AM	9:37:00	C	6	6	19
2016-227	4121	9/3/2016 3:47 AM	9/3/2016 9:42 AM	5:55:00	C	6	54	18
2016-228	3415	9/3/2016 12:15 PM	9/3/2016 1:52 PM	1:37:00	C	5	144	1612
2016-229	3512	9/5/2016 3:04 PM	9/5/2016 4:28 PM	1:23:53	C	6	18	6
2016-233	4124	9/12/2016 12:41 AM	9/12/2016 6:19 AM	5:37:14	C	5	87	29
2016-235	4122	9/12/2016 8:16 AM	9/12/2016 12:07 PM	3:51:00	C	6	9	3
2016-236	1325	9/14/2016 9:31 AM	9/14/2016 4:22 PM	6:51:00	C	6	30	10
2016-237	4122	9/15/2016 11:34 AM	9/15/2016 1:04 PM	1:30:00	C	6	90	30
2016-238	2311	9/16/2016 11:10 AM	9/16/2016 12:55 PM	1:45:00	C	5	24	8
2016-239	3413	9/16/2016 7:43 PM	9/17/2016 4:29 AM	8:46:00	C	6	15	5
2016-239	3413	9/16/2016 7:43 PM	9/17/2016 12:54 AM	5:11:00	C	6	69	23

Outage Number	Circuit	Outage Start Time	Outage End Time	Duration	Class	Type	kW	Consumers
2016-239	3413	9/16/2016 7:43 PM	9/16/2016 9:25 PM	1:42:00	C	6	249	83
2016-242	3215	9/21/2016 6:15 PM	9/21/2016 7:07 PM	0:51:05	B	5	1910	1818
2016-246	4121	9/28/2016 8:13 PM	9/28/2016 10:39 PM	2:26:00	C	6	48	16
2016-247	3413	9/29/2016 1:54 AM	9/29/2016 3:09 AM	1:15:00	C	6	192	64
2016-252	3214	10/3/2016 12:50 AM	10/3/2016 1:50 AM	1:00:00	B	5	1200	120
2016-253	3512	10/4/2016 9:00 AM	10/4/2016 10:07 AM	1:07:00	C	3	63	21
2016-257	2311	10/9/2016 9:40 AM	10/9/2016 1:09 PM	3:28:32	C	5	33	11
2016-257	2311	10/9/2016 9:40 AM	10/9/2016 11:08 AM	1:27:32	C	5	510	170
2016-259	2134	10/11/2016 5:48 PM	10/11/2016 7:14 PM	1:26:00	C	6	75	25
2016-259	2134	10/11/2016 4:49 PM	10/11/2016 6:03 PM	1:14:00	C	6	252	84
2016-260	4122	10/14/2016 1:02 AM	10/14/2016 5:20 AM	4:17:55	C	6	102	34
2016-261	1323	10/15/2016 11:55 AM	10/15/2016 3:30 PM	3:35:00	C	5	6	2
2016-262	2314	10/16/2016 7:32 AM	10/16/2016 11:51 AM	4:18:52	C	5	117	768
2016-263	3413	10/18/2016 8:42 AM	10/18/2016 9:37 AM	0:55:00	C	5	27	9
2016-264	4122	10/18/2016 3:40 PM	10/18/2016 6:00 PM	2:20:00	C	6	21	7
2016-266	3313	10/20/2016 10:49 AM	10/20/2016 1:58 PM	3:09:00	C	5	6	2
2016-267	2311	10/20/2016 12:48 PM	10/20/2016 2:05 PM	1:17:00	C	3	48	16
2016-268	3415	10/21/2016 9:31 AM	10/21/2016 10:43 AM	1:11:32	C	6	168	56
2016-270	3415	10/23/2016 7:01 AM	10/23/2016 7:21 AM	0:19:59	B	6	1210	1612
2016-271	1325	10/26/2016 9:22 AM	10/26/2016 12:31 PM	3:08:26	C	6	339	113
2016-272	4122	10/26/2016 4:45 PM	10/26/2016 6:43 PM	1:58:00	C	6	159	53
2016-273	3413	10/26/2016 5:25 PM	10/26/2016 10:06 PM	4:40:51	B	6	258	86
2016-273	3413	10/26/2016 5:25 PM	10/26/2016 5:39 PM	0:14:17	B	6	3060	2735
2016-274	3313	10/27/2016 2:46 PM	10/27/2016 3:15 PM	0:29:00	C	5	69	23
2016-275	2132	10/28/2016 5:15 AM	10/28/2016 8:30 AM	3:15:00	C	6	15	5
2016-276	2134	10/28/2016 11:32 AM	10/28/2016 2:00 PM	2:28:00	C	6	72	24
2016-277	3512	10/30/2016 11:26 AM	10/30/2016 1:00 PM	1:34:00	C	5	63	21
2016-278	4122	10/30/2016 1:10 PM	10/30/2016 1:41 PM	0:31:35	C	6	670	1972
2016-280	5002	10/31/2016 2:40 AM	10/31/2016 5:39 AM	2:58:41	C	5	45	15
2016-281	1325	10/31/2016 9:04 AM	10/31/2016 9:50 AM	0:46:00	C	6	30	20
2016-281	1325	10/31/2016 1:12 AM	10/31/2016 4:33 PM	15:21:00	C	6	30	20
2016-282	2134	10/31/2016 5:27 PM	10/31/2016 7:52 PM	2:25:00	C	6	30	10
2016-283	2311	11/1/2016 12:30 AM	11/1/2016 2:35 AM	2:05:00	C	5	78	26
2016-284	2134	11/2/2016 1:57 AM	11/2/2016 3:52 AM	1:55:00	C	5	21	7
2016-285	3125	11/3/2016 10:30 AM	11/3/2016 1:00 PM	2:30:00	C	5	21	7
2016-286	1325	11/4/2016 7:33 AM	11/4/2016 10:18 AM	2:45:00	C	6	530	20
2016-287	1325	11/6/2016 7:03 AM	11/6/2016 11:30 AM	4:27:00	C	6	333	111
2016-288	1325	11/10/2016 7:53 AM	11/10/2016 1:00 PM	5:06:13	C	5	342	114
2016-289	1325	11/11/2016 7:03 AM	11/11/2016 8:56 AM	1:52:44	C	5	342	114
2016-290	1325	11/13/2016 8:46 AM	11/13/2016 11:14 AM	2:27:15	C	5	342	114
2016-291	3122	11/13/2016 11:56 AM	11/13/2016 2:00 PM	2:03:16	C	5	6	2
2016-292	3512	11/13/2016 6:58 PM	11/13/2016 8:34 PM	1:36:00	C	6	96	32
2016-293	3512	11/14/2016 12:18 AM	11/14/2016 1:28 AM	1:09:55	C	6	39	2347
2016-294	1325	11/14/2016 7:39 AM	11/14/2016 7:42 AM	0:02:40	C	5	490	20
2016-294	1325	11/14/2016 7:38 AM	11/14/2016 12:56 PM	5:17:10	C	5	264	88
2016-295	3215	11/18/2016 11:54 AM	11/18/2016 12:38 PM	0:44:00	C	6	501	167
2016-296	4002	11/19/2016 9:54 AM	11/19/2016 11:53 AM	1:59:00	C	6	420	140
2016-297	3415	11/19/2016 2:10 PM	11/19/2016 2:43 PM	0:33:00	C	6	129	43
2016-298	5001	11/19/2016 8:18 PM	11/19/2016 11:53 PM	3:35:00	C	6	339	876
2016-299	3313	11/21/2016 4:50 PM	11/21/2016 7:00 PM	2:09:25	C	5	192	64
2016-300	2134	11/22/2016 5:30 AM	11/22/2016 7:43 AM	2:13:00	C	6	249	83
2016-301	3415	11/22/2016 3:36 PM	11/22/2016 5:08 PM	1:32:00	C	5	18	6
2016-302	2311	11/22/2016 8:41 PM	11/23/2016 12:30 AM	3:48:52	C	6	12	4
2016-303	2313	11/23/2016 5:42 AM	11/23/2016 7:00 AM	1:17:20	B	5	1660	717
2016-303	2313	11/23/2016 5:42 AM	11/23/2016 9:15 AM	3:33:00	C	5	145	717
2016-303	2313	11/23/2016 5:42 AM	11/23/2016 7:09 AM	1:27:00	C	5	600	717
2016-304	3415	11/23/2016 4:58 PM	11/23/2016 6:30 PM	1:31:25	C	6	42	14
2016-305	4002	11/23/2016 11:58 PM	11/24/2016 4:00 AM	4:02:00	C	6	552	184
2016-306	3411	11/24/2016 1:15 PM	11/24/2016 1:44 PM	0:29:00	C	5	33	11
2016-309	2132	11/26/2016 1:15 AM	11/26/2016 5:15 AM	3:59:29	C	6	300	718
2016-310	3415	11/26/2016 4:29 AM	11/26/2016 8:00 AM	3:30:49	C	6	354	118
2016-311	5002	11/26/2016 7:16 AM	11/26/2016 12:20 PM	5:03:34	C	6	3	1
2016-312	3313	11/26/2016 8:13 AM	11/26/2016 8:15 AM	0:01:19	B	6	1070	16
2016-312	5778	11/26/2016 7:01 AM	11/26/2016 5:42 PM	10:40:49	D	6	0	0
2016-312	5777	11/26/2016 7:01 AM	11/26/2016 5:42 PM	10:40:49	D	6	0	0
2016-312	3313	11/26/2016 7:01 AM	11/26/2016 5:00 PM	9:58:49	B	6	48	16
2016-312	5784	11/26/2016 7:01 AM	11/26/2016 5:41 PM	10:39:50	D	6	0	0
2016-312	5783	11/26/2016 7:01 AM	11/26/2016 5:40 PM	10:38:50	D	6	0	0
2016-313	3415	11/26/2016 11:27 AM	11/26/2016 12:41 PM	1:14:00	C	6	390	1612

Outage Number	Circuit	Outage Start Time	Outage End Time	Duration	Class	Type	kW	Consumers
2016-314	5001	11/26/2016 6:10 PM	11/27/2016 2:59 PM	20:49:00	C	6	27	9
2016-315	4121	11/27/2016 6:07 AM	11/27/2016 9:00 AM	2:52:14	C	6	30	10
2016-316	2312	11/27/2016 4:40 PM	11/27/2016 11:40 PM	6:59:26	C	5	100	1
2016-317	4122	11/28/2016 9:21 PM	11/29/2016 12:01 AM	2:40:00	C	5	456	152
2016-320	3415	12/2/2016 3:45 PM	12/2/2016 4:56 PM	1:11:00	C	6	246	82
2016-321	3123	12/3/2016 12:37 AM	12/3/2016 3:40 AM	3:02:52	C	5	81	27
2016-322	3215	12/3/2016 4:31 PM	12/3/2016 5:20 PM	0:49:00	C	5	81	27
2016-323	4122	12/5/2016 5:14 PM	12/5/2016 6:58 PM	1:44:00	C	6	9	3
2016-324	3122	12/6/2016 7:12 PM	12/6/2016 8:47 PM	1:34:23	C	5	6	2
2016-325	5002	12/7/2016 8:01 PM	12/8/2016 4:23 PM	20:22:00	C	6	21	7
2016-326	5002	12/8/2016 12:44 PM	12/8/2016 12:49 PM	0:05:23	C	6	2010	1980
2016-328	5001	12/12/2016 6:07 PM	12/12/2016 8:13 PM	2:06:00	C	5	27	9
2016-329	1325	12/15/2016 2:58 AM	12/15/2016 9:45 AM	6:47:00	C	6	36	12
2016-330	5002	12/15/2016 10:36 AM	12/15/2016 1:00 PM	2:23:43	C	6	6	3
2016-331	3413	12/15/2016 10:48 AM	12/15/2016 12:10 PM	1:21:51	C	6	30	10
2016-332	3415	12/15/2016 11:10 AM	12/15/2016 6:00 PM	6:49:58	C	6	33	11
2016-334	5002	12/15/2016 3:00 PM	12/15/2016 4:07 PM	1:06:53	C	6	42	14
2016-335	3415	12/15/2016 11:43 AM	12/15/2016 12:45 PM	1:01:15	C	6	33	11
2016-336	4121	12/15/2016 11:49 PM	12/16/2016 12:33 PM	12:43:18	C	6	18	6
2016-337	4122	12/16/2016 3:50 AM	12/16/2016 5:30 AM	1:40:00	C	5	159	1972
2016-339	3127	12/16/2016 7:24 PM	12/16/2016 8:12 PM	0:48:00	C	5	18	6
2016-342	3127	12/18/2016 1:24 PM	12/18/2016 6:00 PM	4:35:55	C	5	6	1
2016-343	3512	12/22/2016 2:02 AM	12/22/2016 3:00 AM	0:58:00	C	5	57	19
2016-344	5002	12/23/2016 12:02 AM	12/23/2016 6:35 AM	6:33:00	C	6	50	6
2016-346	3123	12/24/2016 2:11 PM	12/24/2016 3:49 PM	1:38:00	C	5	57	19
2016-347	2134	12/24/2016 8:17 PM	12/24/2016 9:49 PM	1:32:00	C	5	708	236
2016-348	2134	12/26/2016 10:51 AM	12/26/2016 11:08 AM	0:17:00	C	6	48	18
2016-349	3415	12/26/2016 12:45 PM	12/26/2016 1:20 PM	0:35:00	C	6	141	47
2016-350	4123	12/29/2016 9:05 PM	12/30/2016 12:07 AM	3:01:52	C	5	60	20
2016-351	3415	12/29/2016 10:42 PM	12/30/2016 12:50 AM	2:08:00	C	5	48	16
2016-352	3126	12/30/2016 2:22 AM	12/30/2016 8:17 AM	5:54:54	C	6	45	19
2016-353	1324	12/30/2016 10:05 PM	12/31/2016 2:27 AM	4:21:20	A	4	580	0
2016-353	5767	12/30/2016 10:05 PM	12/31/2016 1:59 AM	3:53:24	A	4	0	0
2016-353	1233	12/30/2016 10:05 PM	12/31/2016 2:01 AM	3:55:27	A	4	760	30
2016-353	1232	12/30/2016 10:05 PM	12/31/2016 2:00 AM	3:54:58	A	4	370	10
2016-353	1231	12/30/2016 10:05 PM	12/31/2016 2:00 AM	3:54:31	A	4	550	2