

STATUS REPORTS

ELECTRIC RELIABILITY

Los Alamos County Utilities



Electric Distribution Reliability

October 19, 2016

Stephen Marez
Senior Engineer

Twelve Month History	September 2016	
Total # Accounts	9045	
Total # Interruptions	39	
Sum Customer Interruption Durations	2984:11:00	hours:min:sec
# Customers Interrupted	2060	
SAIFI(APPA AVG. = 1.0)	.23	int./cust.
SAIDI (APPA AVG. = 1:00)	:19	hours:min
CAIDI	1:26	hours:min/INT
ASAI	99.9998%	% available

- **SAIFI - System Average Interruption Frequency Index**

A measure of interruptions per customer (Per Year)

$$\text{SAIFI} = \frac{(\text{Total number of customer interruptions})}{(\text{Total number of customers served})}$$

- **SAIDI – System Average Interruption Duration Index**

A measure of outage time per customer if all customers were out at the same time (hours per year)

$$\text{SAIDI} = \frac{(\text{Sum of all customer outage durations})}{(\text{Total number of customers served})}$$

- **CAIDI – Customer Average Interruption Duration Index**

A measure of the average outage duration per customer (hours per interruption)

$$\text{CAIDI} = \frac{(\text{Sum of all customer outage durations})}{(\text{Total number of customers interruptions})} = \frac{\text{SAIDI}}{\text{SAIFI}}$$

- **ASAI – Average System Availability Index**

A measure of the average service availability (Per unit)

$$\text{ASAI} = \frac{(\text{Service hours available})}{(\text{Customer demand hours})} = \frac{8760 - \text{SAIDI}}{8760}$$

Prepared by Stephen Marez
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							Customers	Combined Customer		
Date	Call Rcd.	Circuit	Cause	Start Time	End Time	Duration	Affected (Meters)	Outage Durations	Total Outage H:M:S	Running SAIDI
10/23/2015	Utilities	15	URD Failure	7:00	12:30	5:30	12	66:00:00	66:00:00	0:00:26
10/26/2015	Utilities	15	Animal	0:30	2:10	1:40	90	150:00:00	216:00:00	0:01:26
10/26/2015	Utilities	15	Animal	5:30	8:10	2:40	70	186:40:00	402:40:00	0:02:41
11/11/2015	Utilities	15	TREE	9:00	12:30	3:30	10	35:00:00	437:40:00	0:02:55
11/20/2015	Utilities	13	URD Failure	19:50	22:05	2:15	20	45:00:00	482:40:00	0:03:13
12/8/2015	Utilities	WR2	Planned	9:00	10:30	1:30	30	45:00:00	527:40:00	0:03:31
12/30/2015	Utilities	WR1	Planned	10:00	11:45	1:45	14	24:30:00	552:10:00	0:03:41
1/12/2016	Utilities	15	Planned	9:00	11:30	2:30	83	207:30:00	759:40:00	0:05:04
1/12/2016	Utilities	WR1	Planned	10:30	12:00	1:30	8	12:00:00	771:40:00	0:05:08
2/11/2016	Utilities	WR1	Planned	9:00	9:30	0:30	8	4:00:00	775:40:00	0:05:10
3/2/2016	Utilities	EA4	OH Failure	14:40	15:09	0:29	18	8:42:00	784:22:00	0:05:13
3/2/2016	Utilities	WR2	Planned	9:00	10:40	1:40	10	16:40:00	801:02:00	0:05:20
3/10/2016	Utilities	WR2	Planned	9:30	10:30	1:00	7	7:00:00	808:02:00	0:05:23
3/28/2016	Utilities	16	URD Failure	19:36	22:30	2:54	30	87:00:00	895:02:00	0:05:58
4/3/2016	Utilities	WR2	URD Failure	11:18	13:00	1:42	12	20:24:00	915:26:00	0:06:06
4/3/2016	Utilities	16	URD Failure	21:15	22:20	1:05	50	54:10:00	969:36:00	0:06:27
4/13/2016	Utilities	13	Unknown	10:00	10:20	0:20	24	8:00:00	977:36:00	0:06:31
4/28/2016	Dispatch	WR1	OH Failure	22:15	23:30	1:15	30	37:30:00	1015:06:00	0:06:46
5/10/2016	Utilities	16	Planned	9:00	9:10	0:10	18	3:00:00	1018:06:00	0:06:47
5/17/2016	Utilities	15	Planned	9:00	10:00	1:00	7	7:00:00	1025:06:00	0:06:50
5/21/2016	Utilities	WR2	Planned	10:00	10:15	0:15	7	1:45:00	1026:51:00	0:06:50
6/9/2016	Utilities	13	Planned	9:00	10:00	1:00	27	27:00:00	1053:51:00	0:07:01
6/9/2015	Utilities	14	URD Failure	1:45	4:00	2:15	24	54:00:00	1107:51:00	0:07:23
6/10/2016	Utilities	WR2	Planned	9:00	11:00	2:00	17	34:00:00	1141:51:00	0:07:36
6/23/2016	Utilities	WR2	Weather	19:00	0:00	5:00	4	20:00:00	1161:51:00	0:07:44
7/12/2016	Utilities	16	URD Failure	1:44	3:00	1:16	306	387:36:00	1549:27:00	0:10:19
7/15/2016	Utilities	13	URD Failure	10:30	13:30	3:00	88	264:00:00	1813:27:00	0:12:05
7/15/2016	Dispatch	WR1	URD Failure	21:40	0:00	2:20	21	49:00:00	1862:27:00	0:12:24
7/16/2016	Utilities	14	Animal	12:00	13:22	1:22	537	733:54:00	2596:21:00	0:17:17
7/19/2016	Utilities	18	HUMAN	0:00	5:00	5:00	4	20:00:00	2616:21:00	0:17:25
7/19/2016	Utilities	EA4	HUMAN	16:30	22:30	6:00	3	18:00:00	2634:21:00	0:17:33
7/20/2016	Utilities	13	Unknown	20:00	20:45	0:45	20	15:00:00	2649:21:00	0:17:39
7/27/2016	Utilities	14	URD Failure	8:17	9:30	1:13	120	146:00:00	2795:21:00	0:18:37
7/28/2016	Dispatch	WR1	URD Failure	2:30	5:30	3:00	12	36:00:00	2831:21:00	0:18:51
8/3/2016	Utilities	13	Planned	9:00	10:15	1:15	13	16:15:00	2847:36:00	0:18:53
8/10/2016	Utilities	17	URD Failure	3:10	3:30	0:20	209	69:40:00	2917:16:00	0:19:21
8/10/2016	Utilities	WR1	Planned	9:00	10:20	1:20	8	10:40:00	2927:56:00	0:19:25
8/11/2016	Utilities	WR1	Planned	9:00	11:00	2:00	6	12:00:00	2939:56:00	0:19:30
8/16/2016	Utilities	WR1	URD Failure	12:30	13:00	0:30	80	40:00:00	2979:56:00	0:19:46
9/23/2016	Utilities	18	Planned	9:00	10:25	1:25	3	4:15:00	2984:11:00	0:19:48

CIRCUIT SAIDI IS CALCULATED ACCORDING TO THE NUMBER OF CUSTOMERS IN EACH CIRCUIT RESPECTIVELY												
<u>Running SAIDI Circuit 13</u>	<u>Running SAIDI Circuit 14</u>	<u>Running SAIDI Circuit 15</u>	<u>Running SAIDI Circuit 16</u>	<u>Running SAIDI Circuit 17</u>	<u>Running SAIDI Circuit 18</u>	<u>SAIDI Circuit EA4 & Royal Crest</u>	<u>Running SAIDI Circuit WR1</u>	<u>Running SAIDI Circuit WR2</u>	<u>Monthly SAIDI</u>		<u>Monthly Customer Minutes out of service</u>	<u>WEATHER SAIDI</u>
		0:02:07										
		0:06:56										
		0:12:55							OCTOBER	0:02:40	402:40:00	
0:01:37		0:14:02							NOVEMBER	0:00:32	80:00:00	
								0:32:53				
							0:00:55		DECEMBER	0:00:28	69:30:00	
		0:20:41										
							0:01:23		JANUARY	0:01:27	219:30:00	
							0:01:32		FEBRUARY	0:00:02	4:00:00	
						0:04:01						
								1:22:47				
			0:02:50					0:50:21	MARCH	0:00:48	119:22:00	
			0:04:36					0:57:02				
0:01:54												
			0:04:42				0:02:57		APRIL	0:00:48	230:44:00	
		0:20:55										
								2:01:01	JUNE	0:00:05	11:45:00	
0:02:52	0:06:02											
								3:12:09				
			0:17:21					1:12:23	JULY	0:00:54	135:00:00	0:00:08
0:12:19												
	1:28:02						0:04:48					
					0:05:38							
0:12:52						0:12:19						
	1:44:21											
							0:06:09		AUGUST	0:11:04	1017:54:00	
0:13:27				0:20:00								
							0:06:33					
							0:07:01					
					0:06:50		0:08:31		SEPTEMBER	0:00:59	148:35:00	
									OCTOBER	0:00:02	4:15:00	
Circ 13	Circ 14	Circ 15	Circ 16	Circ 17	Circ 18	Circ EA4	Circ WR1	Circ WR2	Total	SAIDI TOTAL		WEATHER
1655	539	1875	1842	209	213	165	1586	961	9045	0:19:48		0:00:08

EACH POINT IS A 12 MONTH SAIDI HISTORY
1:00:00 = APPA BENCHMARK SAIDI

